

# THE DEFENCE WHITE PAPER AND THE RAN

JANUARY – MARCH 2001  
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VOLUME 63 NO. 1

\$5.45 (including GST)

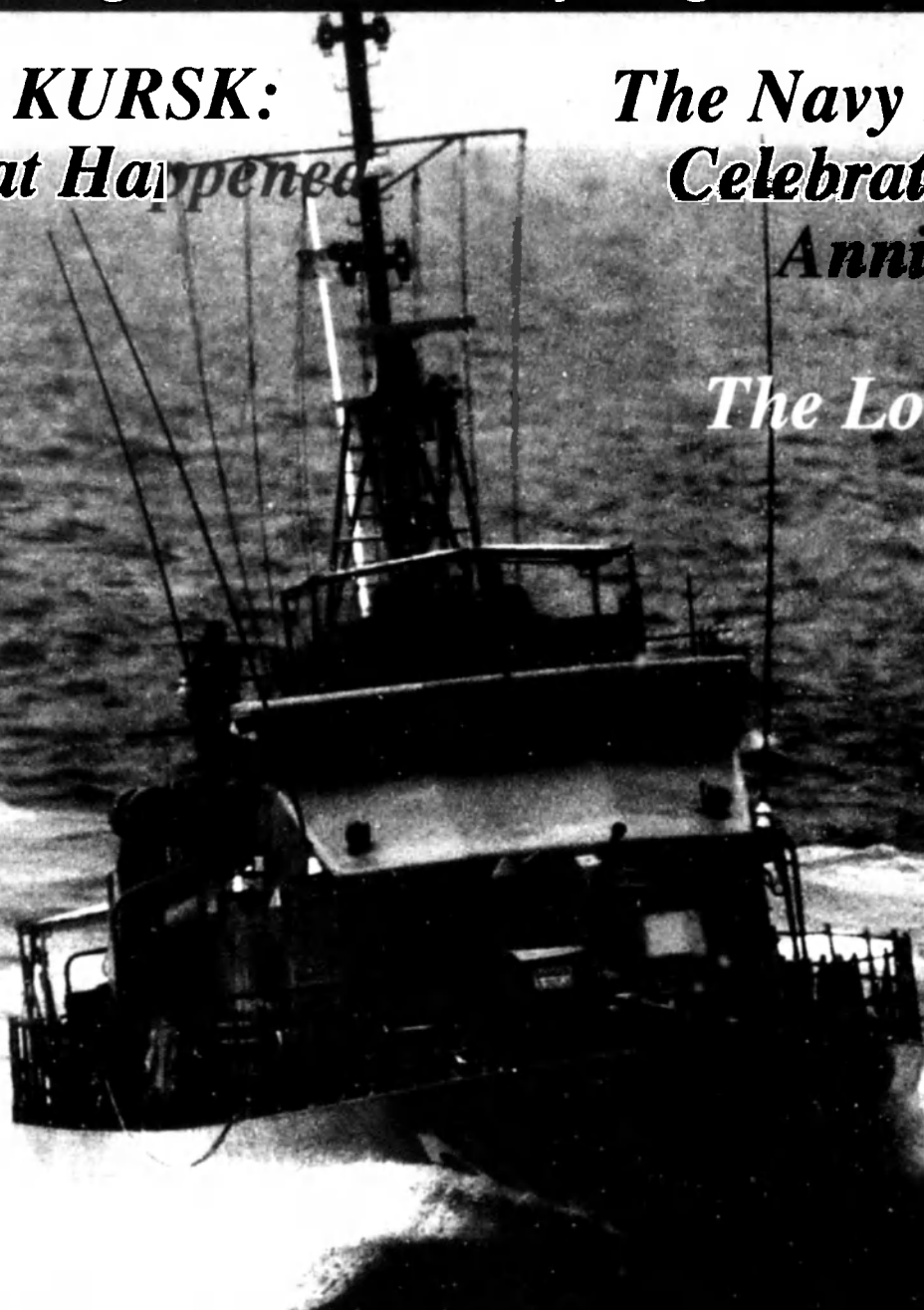
# THE NAVY

**The Magazine of the Navy League of Australia**

*The KURSK:  
What Happened*

*The Navy League  
Celebrates 100<sup>th</sup>  
Anniversary*

*The Lost Navy  
of WA*



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ISSN 1322 6231



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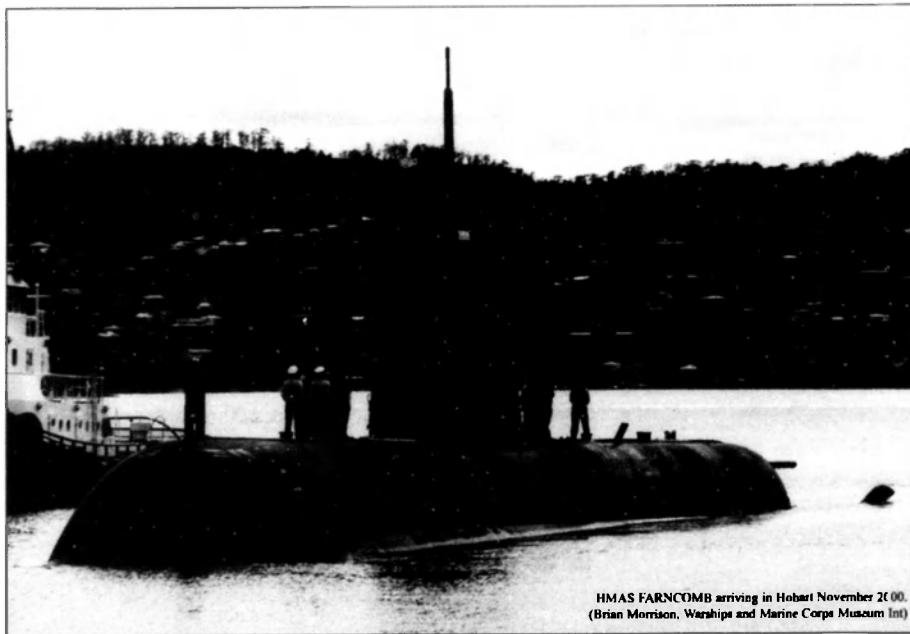
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HMAS FARNCOMB arriving in Hobart November 2000.  
(Brian Morrison, Warships and Marine Corps Museum Int)

# THE NAVY

Volume 63 No. 1

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Front cover: HMAS DUBBO makes her way through the sea while on patrol in Australia's EEZ. (RAN)

## The Navy

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Advertising enquiries to:  
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Deadline for next edition 5 February, 2001

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## FROM THE CROW'S NEST

When I took over the job of Editor *THE NAVY* I changed a number of things. One of the first was the title of this column from 'Viewpoint' to 'From the Crow's Nest'. The title was designed to highlight the fact that as Editor it was my job to see above the fog and further out than those getting on with the job of plain sailing. Part of my responsibility, as the lookout, is to warn of dangers either perceived or real, to suggest a better direction, explore new horizons and foresee the consequences of the wrong course. Or to explain it more crudely, being Editor requires me to get on my 'soapbox'. However, the launch of the recent Defence White Paper has taken away my 'soapbox'. I am unable to 'warn of dangers' in this paper. It is a better paper and situation for the RAN/ADF than many predicted, including myself. At least three new air warfare destroyers, full upgrades to the Collins', a replacement for WESTRALIA, new patrol boats, AEW&C aircraft for the RAAF, new marinised army helicopters for amphibious operations, the list goes on.

It would seem we are on the verge of a change in the course of Australian Defence history. The ADF have suffered for decades due to various government's neglect and penny pinching of the portfolio, which in turn has irresponsibly put the lives of service personnel at risk. This White Paper is fitting compensation for the ADF for years of abuse.

The White Paper is also free of the broad, vague and unsupported assertions contained in the Green paper that preceded it. Claims about surface ship vulnerability and the primacy of air power have thankfully disappeared from this final more mature document. Also missing is the destructive single service cinematic view of warfare used to describe how we would operate in times of conflict. The ubiquitous and highly inaccurate and ridiculous prediction of the region's strategic future and why we need to structure our forces for this 'educated' guess is also thankfully missing.

The Navy League and *THE NAVY* have fought long and hard for the air warfare destroyer and more funding for defence and thus welcome the White Paper. The magazine

led the push for the Kidd class destroyers in 1998 and has been lobbying for the capability to be included in the ADF's order of battle ever since. In the last four months *THE NAVY* and I have been quoted in a number of national newspapers on two occasions pushing for more capability and funding. It would appear that not only has the League won a victory, either in spite or despite our efforts, but also Australia's security.

However, and this is where I can get back on my 'soapbox', or into my lookout's position, the one thing that may snatch defeat from the jaws of victory would be a change in government. Despite the Opposition's public endorsement of the White Paper they have made no secret about their preference for a return to 'their' model of defence, which given their record would not bode well. Although they wish to disavow themselves of the 'Fortress Australia' tag from their 1987 White Paper the fact remains that this is model they wish to return too, even if incorrectly named. This model is strategically and historically flawed in so many ways that it must have an underlying and powerful political agenda in order for intelligent people to promote it. Political agendas have never deterred war, only started them. 'Fortress Australia' would mean a return to the concept of a brown water navy with ships fitted for but not with, of avoiding certain capabilities for fear of upsetting the neighbours, of dwindling Defence budgets and retreating behind the ramparts. This is something that Australia should avoid at all costs! Of course the advantage of a 'Fortress Australia' model is that doesn't divert funds from self-interest groups and trivial social movements as much as a real defence force that can deter violence, prevent war and protect lives when and where ever required.

Fortunately, the Howard government seems to have taken a far more pragmatic and mature approach to defence than many of the governments before it. Well done! Let us hope they can continue to rewrite Australian Defence tradition and deliver what the White Paper promises.

Mark Schweikert

## FROM OUR READERS

### Spade or Shovel

Dear Sir,

I was amused to read the concept for the Littoral Support Ship (LSS) referred to as not being an aircraft carrier. Computer generated imagery of the LSS accompanying Dr. Norman Friedman's excellent piece, (Maritime Airpower for Australia pt. 3 - Australian Strategy and the Littoral Support Ship, *THE NAVY*, Vol. 62, No. 4 Oct.-Dec 2000), along with the author's description of its capabilities were qualified by statements in the text and on the image captions that it was not an aircraft carrier in the traditional sense. Yet this vessel will be 30,000 tons in displacement, have a traditional catapult or ski jump to launch aircraft, and arrestor gear to recover them. It is designed to take F/A-18 type multirole combat aircraft and be equipped with a hangar deck to store aircraft when appropriate. In effect it looks like an aircraft carrier, and can act like an aircraft carrier, but also do more than an aircraft carrier (ie amphibious support, logistics roles, and

command and control). Because it would be built to commercial specifications rather than 'milspec' it would be cheaper than acquiring a purpose-built ship.

I have no argument against the concept of the LSS - in fact I think it is a highly innovative idea that needs to be pursued further.

But the need to qualify the nature of the LSS as 'not an aircraft carrier' highlights the intellectual immaturity of defence debate in Australia that I have followed over the years, being an Australian living overseas. The whole 'carrier issue' dates back to the early 1980s with the Hawke Government cancellation of the replacement for HMAS MELBOURNE after the purchase of HMS INVINCIBLE fell through as a result of the 1982 Falklands War. We as a nation are still stuck in the mindset created by that debate that suggests that somehow Australia cannot consider acquisition of a true aircraft carrier. This mindset argues that we cannot afford such a vessel, that we have little need for one, and that acquisition of an aircraft carrier (or even

two) would totally distort our defence planning and force structure. Furthermore, the whole image of an 'aircraft carrier' implies a desire for power projection, the use of offensive force, and a much bolder defence role throughout the Asia Pacific region. Years of defence policy management by governments of both political persuasion have shied away from embracing a more active regional defence role beyond limited security cooperation and 'defence diplomacy'.

This 'strategic cringe' that constrains our defence development is matched by an unwillingness of governments to move beyond thinking in terms of 'defence on the cheap'.

If Australians are serious about remedying this highly undesirable situation, the Government and the defence bureaucracy on Russell Hill, along with defence commentators that work within the 'orthodox paradigm', must be challenged to truly account for the continuation of a 'steady as she goes' approach. Perhaps the whole issue of block obsolescence and a worsening security environment should not be seen as a 'train wreck' to be avoided, but instead perceived as a golden opportunity to redraw Australia's defence identity within the region through significant force structure and strategy changes. The mindsets of the past need to be cast aside, and a fresh look taken at just what it is that Australia needs to do with its armed forces. Continuing to avoid any challenge to orthodox thinking - for example refusing to explicitly discuss acquisition of an aircraft carrier by somehow engaging in semantic games where a vessel that looks like a carrier and acts like a carrier is not really a carrier - merely avoids confronting the more important questions of whether the strategic cringe of the past twenty years is a viable belief upon which to base future defence planning, and whether Australia now has an opportunity to embrace a more substantial regional role commensurate with the need to continue to defend the Australian mainland and its maritime and air approaches.

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### Correction

In the last edition of *THE NAVY* a message of congratulations from the Navy League of the United States was published. By some quirk of modern computing the US National President's name was printed as RADM John R. Fish. This should have read RADM John R. Fisher. Apologies to RADM Fisher.

Editor

### Fixed Wing Remains in RAN

Dear Editor,

The last edition of *THE NAVY* (and *NAVY NEWS*) contained an article reporting that the era of fixed wing aircraft in the RAN had come to an end. The RAN still has a fixed wing capability despite the withdrawal from service of the last of the HS 748s. It comes in the form of a Fokker F27-500 'Friendship' aircraft operated by the RAN Laser Airborne Depth Sounder (LADS) unit in Cairns.

The LADS Unit has been operational with the RAN since 1993 and comprises a mixture of Navy and contract personnel who operate a Fokker F27-500 'Friendship' aircraft using laser technology to collect hydrographic bathymetry data. The aircraft is owned by the RAN however, is lodged on the civil aircraft register and carries a civilian registration of VH-EWP.

Data collection is by means of an airborne scanning laser mounted in the aircraft. The LADS aircraft can measure depths between 0 and 50 metres with depths being captured in a 10 x 10 m grid pattern. The aircraft surveys at a height of 500 metres and operates at a speed of 145 knots using a fixed infrared laser beam for aircraft height, and a scanning visible green beam to collect data. The aircraft's endurance of 7.5 hours gives a maximum effective range (with 2 hours on task) of 600 nm from base.

The Unit generally undertakes four Mission periods per year totalling 38 programmed flying weeks. Nine sorties are flown each fortnight for an annual programmed flying time of 1280 hours.



LADS is particularly suited to surveying coastal and dangerous coral reef areas and produces around half the annual data collection of the Hydrographic Service. Current survey areas include the Great Barrier Reef, Torres Strait and the Coral Sea. LADS is a rapidly deployable unit and has recently deployed to Adelaide and Darwin where surveying was undertaken in support of INTERFET operations in East Timor. The Unit is a relatively small but extremely effective arm of the RAN Hydrographic Service. The airborne capability allows an average survey rate of coverage of 50 sq kms per hour with something in the order of 2.3 million depths being measured during an average sortie on task of 4 hours.

The aircraft's primary function is as an airborne platform for surveying however, some months ago it was involved in assisting with a search and rescue operation off the far North Queensland coast. On 29 May the LADS aircraft detected an EPIRB signal in the vicinity of its survey area and subsequently sighted a disabled yacht and liferaft approximately 50 miles to the east of Cape Grenville. The LADS aircraft was able to pass a precise GPS position to Brisbane Flight Services and a Coastwatch aircraft. The LADS aircraft remained on the scene circling the yacht and liferaft until the Coastwatch aircraft arrived. The yacht's crew were eventually rescued by helicopter and flown to Lockhart River.

LCDR G.R. Cann  
OIC LADS Unit  
Cairns

# THE DEFENCE WHITE PAPER AND THE RAN



HMAS WALLER entering the mouth of Pearl Harbor during last year's RIMPAC exercise. The White Paper announced that all six Collins class submarines would be upgraded to their full potential. (Brian Morrison, Warships & Marine Corps Museum Int)

By Sebastian Matthews

'Defence 2000' was no doubt awaited with some trepidation by the Navy. Over recent years things have not been easy for the Senior Service. For example it has had to grapple with introducing into service the LPAs and Collins with the attendant sensationalist media coverage. At the same time it had to shepherd through the maze of committees important programs such as the air warfare destroyer and the ANZAC Anti-Ship Missile Defence project. There were other projects, not so expensive, but also important such as the replacement for WESTRALIA and the ageing Standard SM-1 missile. This was in a climate of increasing personnel shortfalls that demanded attention.

In contrast during the White Paper public consultation phase it was clear that the Army benefited from a wave of East Timor goodwill and the Air Force had its strong airpower proponents. The extent to which public and defence consultation actually influenced 'Defence 2000' remains unclear. What can be said is that the need for a balanced force (including a capable Navy) came out loud and clear in the responses and this is reflected in 'Defence 2000'. Those readers who sent in responses should take some heart in this.

So what is the outcome for the Navy? The answer is positive, but how much is difficult to say. This is for five reasons.

First, the detailed and fully costed Defence Capability Plan talked about in Chapter 8 of 'Defence 2000' is unavailable. Without the details about any further enhancements to FFGs and Anzacs as well as lower profile force element groups (hydrographic, mine warfare etc) the RAN's future capability is unclear. Hopefully an unclassified version will soon be available in the public domain.

Second, some of the passages in 'Defence 2000' are not reassuring. While it espouses a maritime strategy its description of the role of the Navy, namely to – "deny an opponent the use of our maritime approaches and allow us the freedom to operate at sea ourselves" – is very narrow and pedestrian. What about shaping our strategic environment for

example? The ability for navies to contribute more fully to the land and air battles is also not addressed. Clearly the Government and the Defence bureaucracy need to further develop their thoughts on maritime strategy.

The third issue is people. 'Defence 2000' is a very uneven document. It is particularly thin on details in the area of personnel. It is clear from the document there is a growing realisation that unless retention and recruitment can be substantially improved then the plans outlined in 'Defence 2000' cannot be realised. The emphasis though is 'we know we have a problem and these are areas we will look at'. Whether the measures discussed in 'Defence 2000', such as improving pay, superannuation, job satisfaction etc are effective will in large measure depend on how much money and how much real commitment is allocated to the issue.

Fourth, is the issue of the construction program. While the decisions on air defence, replenishment and amphibious ships are very welcome, the stated dates for entering service



Spain's first F-100 air warfare frigate about to be launched. The White Paper calls for at least three air warfare destroyers. BAZAN's F-100 would have to be considered a favourite with a Mk-41 VLS for standard SM-2 and an Aegis combat system. (BAZAN)



The RAAF's Hornets will receive their upgrades as well as be replaced by a new fighter from 2012. (RAAF)

raise some questions about how much detailed planning and consultation went into 'Defence 2000'. Clearly the Australian shipbuilding industry could handle this programme, but it needs it to be more spread out. For example, can the skills required to construct sophisticated surface combatants be retained until construction starts on the air defence ships? It is also difficult to imagine that the Navy or industry would really want or be able to commission the replacements to SUCCESS, KANIMBLA and MANOORA all in 2015. The manning and training demands alone would be enormous. It is therefore safe to say we can expect some refinement in the plan.

Finally, there is the money. All White Papers seem to announce a new dawn in Government commitment to Defence but few produce the goods even in the short to medium term. While we can give 'Defence 2000' the benefit of the doubt, only time will tell.

Putting all these cautionary notes aside however, the ADF capability enhancements should provide a Navy that can operate in our region with combat capable task groups, supported by fully updated Collins submarines. The eventual size of the surface combatant force is unclear. The FFGs will be replaced by "at least three air defence ships". Therefore the force could be anything from 11 to 14. Much will depend on how much will be allocated to the air defence ship project. It should be borne in mind also that MELBOURNE and NEWCASTLE are much younger than their sister ships and will be in the Fleet in the 2020s.

This enhanced fleet could support and protect an Army that will be much more powerful, deployable and sustainable. The RAAF for its part will acquire the much needed Airborne Early Warning & Command (AEW&C) and air-to-air refuelling (AAR) aircraft that will not only enhance the capabilities of the modernised and new fighter/strike force but also the naval task group at sea. Indeed the combination of an AEW&C and an air defence ship will be potent indeed.



The army will also receive an extra squadron of new manirised Blackhawk helicopters for amphibious operations from the LPAs KANIMBLA and MANOORA. Here a USN Special Forces HH-60H operates in the Kuwaiti desert. (USN)

It would seem therefore that the Chief of Navy, Vice Admiral David Shackleton's assessment that "overall the White Paper represents a good outcome for the Navy and enables us to confidently plan our future" is a fair one and we can look forward to a reinvigorated defence.

## 'Defence 2000' Major Capability Decisions

### NAVY

- All six Collins submarines updated. The first boat to be completed by 2005-06. A new heavyweight torpedo will be acquired by 2006.
- All FFGs to be upgraded by the FFGUP and other enhancements.
- ANZAC frigates will receive upgraded anti-ship missile defences, Harpoon and other enhancements.
- FFGs to be replaced by at least three air defence ships from 2013. They will be significantly larger and more capable than the FFGs. The project is scheduled to commence in 2005-06.
- Seahawks will get a major mid-life upgrade commencing 2003.
- Two of a new class of purpose built support ships will replace WESTRALIA in 2009 and SUCCESS in 2015.



The Boeing AH-64D Longbow Apache attack helicopter. The army has been given the go ahead (again) for two squadrons of armed reconnaissance helicopters

- TOBRUK will be replaced in 2010 and MANOORA and KANIMBLA in 2015.
- Options to retain access to the unique capabilities of catamarans such as JERVIS BAY will be studied.
- The six LCHs and 15 Army LCMs will be replaced.
- Fremantle Class patrol boats will be replaced with the lead boat entering service in 2004-05.

### ARMY

- Increase to six Battalions at High Readiness.
- Acquire 20-24 armed reconnaissance helicopters from 2004-05.
- Acquire 12 additional Blackhawks from 2007 to enhance operations off LPAs.
- New air defence system to supplement RBS-70 from 2005.
- Numerous initiatives to improve logistics, transport & support.

### AIR FORCE

- F/A-18 upgrade to continue and completed by 2007.
- Acquire four AEW&C aircraft from 2006. Possibly acquire another three later.
- Acquire five AAR aircraft from 2006.
- P-3Cs updated from 2004-05 and receive new lightweight torpedoes from 2002 (presumably surface ship compatible).
- Acquire 100 new fighter and strike aircraft from 2012 to replace both F/A-18 and F-111.

# The Navy League Celebrates 100th Anniversary – A Slide Show

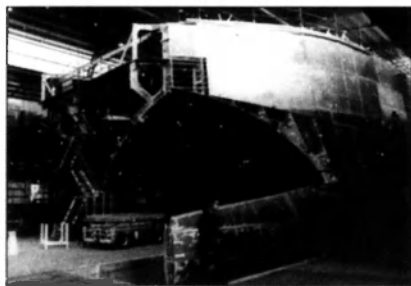
By Mark Schweikert

In the second last week of November 2000 the Navy League of Australia Celebrated its 100th anniversary in Launceston, the first Australian home of the League. Many, but not all, of the League's numerous celebratory events were captured on film and are reproduced in *THE NAVY* to provide future generations of League members and historians an historical record. As a picture tells a thousand words (with captions providing the context, names and places) we hope you enjoy the following.



As part of its celebrations The Navy League visited Hobart Based INCAT (INternational CATamarans) and received a tour of the facility and a briefing on future designs particularly naval designs. Here one of INCAT's 98 metre catamarans is being prepared for delivery to a foreign buyer.

A 98 metre Catamaran being built at INCAT's facility just north of Hobart. INCAT are so confident in their products ability to sell that all their ships are built speculatively (ie. without customers or orders). Their confidence is well founded with INCAT catamarans being used around the world. INCAT also buy back their ships when the customer no longer has use for them. They are then re-sold rather quickly.



INCAT is being forced, by its own popularity, into building new ship construction facilities to accommodate its new 120 metre designs.

Members, guests and visitors mingle at the League's first official celebratory function at the Naval Cadet establishment TS TAMAR on the banks of the Tamar River in Launceston. More than 100 people enjoyed the hospitality of the crew of TS TAMAR.



A Scottish pipe band assisted in the League's birthday celebrations while TS TAMAR conducted a 'Ceremonial Sunset' watched by many.

TS TAMAR's ceremonial guard present arms as the White Ensign is lowered at sunset. A volley of blanks also marked the close of the day.







From left to right; Mr Graham Harris, Federal President of the Navy League of Australia; Senator Eric Abetz, (then) Parliamentary Secretary for Defence, and Senator for Tasmania; LCDR Michelle Miller RAN, CO HMAS BUNBURY (LCDR Miller is not only the RAN's first female warship commander but also its youngest); and Federal Vice-President of the Navy League of Australia RADM Andrew Robertson AO, DSC, RAN (Rtd) at the State Premier's/Launceston Mayor's Civic Reception at the Launceston City Hall.

Mrs Joan Cooper (left), Tasmanian State President of the Navy League of Australia is awarded The Australian Merchant Navy Commendation by Launceston's Deputy Mayor Annette Waddle for services to the maritime community at the Premier's/Launceston Mayor's Civic Reception at the Launceston City Hall.



The Federal President of the Navy League of Australia presents Able Seaman Bosuns Mate Damian Donnellan with his Australian Active Service Medal on the deck of HMAS BUNBURY for service aboard HMAS ANZAC during the East Timor crisis. HMAS BUNBURY had made the difficult passage up the Tamar River to Launceston to help mark and celebrate the Navy League's 100th anniversary.

Federal President of the League Mr Graham Harris presents Mr David Cunningham the warrant of the Navy League for the new Ulverstone branch of the league during the League's Federal AGM



The week in Tasmania for the 100th anniversary also saw the League's AGM and conference. From left; Federal Secretary Mr Ray Corboy; Federal President Mr Graham Harris; representing the Chief of Navy CDRE Rowan Moffit (RAN); and Federal Vice-President Andrew Robertson AO DSC RAN (Rtd).

The anniversary dinner was held at Drysdale House School of TAFE in Launceston and attended by many including His Excellency The State Governor of Tasmania, Sir Guy Green, as well as representatives of the New Zealand Navy League. Local brewer J. Boag and Son provided ample quantities of its world famous premium beer while Lactos Cheese supplied a variety of local Tasmanian cheese's for the League's guests.



At the anniversary dinner (from left) former President and Chairman of the Federal Advisory Board Mr Geoff Evans OBE, VRD; XO of the visiting HMAS BUNBURY LEUT Ian Campbell RAN; and Federal Vice President CAPT Harry Josephs AM RAN (Rtd).

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A Russian Oscar II class SSBN (Nuclear powered cruise missile submarine) on the surface. Lately the Russian's have been surfacing behind US CBGs and naval bases in an effort to show the US that the Russian Navy is still a force to be reckoned with.

By Dr Lee Willett

Dr Lee Willett of the Military Science Programme, Royal United Services Institute for Defence Studies, London, examines the KURSK tragedy with the view to uncovering the many possible reasons for the submarine's loss.

On 12 August 2000, the Russian Oscar II-class submarine KURSK (K-141) sank after suffering a catastrophic series of explosions. It is now apparent that many of the crew were killed almost instantly, and that the entire crew was dead within a matter of hours. By the time the news of the tragedy was released two days later, it is believed that the Russian Navy was well aware of the fate of the crew. What remains uncertain is the precise chain of events which triggered the catastrophe. The most important aspect to note is that, still, there is insufficient hard evidence to prove or disprove any particular theory.

## The KURSK

The Oscar IIs are known as 'carrier-busters'. They are designed to sink American aircraft carriers, the most potent symbol of US military power. Throughout the 1990s, Oscar-class submarines made several high profile deployments to US waters - occasionally popping up behind US carriers or just outside major US Naval bases - in a political bid to show to the US that, despite the collapse of the Soviet Union, Russia was still a military force with which to be reckoned.

KURSK entered service into the Russian Navy's Northern Fleet on 20 January 1995. The KURSK was a leading boat in the Russian submarine force. Only last year, for example, KURSK headed a rare Russian naval deployment into the Mediterranean. On 10 August this year in the Barents Sea, she joined what was the largest naval exercise for the Red Fleet since the demise of the Soviet Union. Over 30 surface ships and submarines were involved, including the Ushakov (ex-Kirov) heavy cruiser PETER THE GREAT (AKA PIOTR VELIKI) and Russia's sole aircraft carrier ADMIRAL KUZNETSOV.

As part of the exercise, KURSK was tasked with

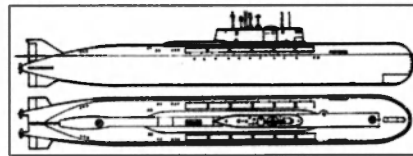
torpedo test-firings. At this time, one key factor that cannot be confirmed is what type of torpedo was being fired. Initially, it was reported widely that a DST-90 was the weapon in question. The DST-90 is fuelled with High Test Peroxide (HTP). HTP is a mix of hydrogen peroxide and kerosene, and was a propellant developed originally for rockets. It is a propellant mix so corrosive and unstable that the US Navy refused to use it. HTP requires much careful maintenance, both in storage and at sea, by specially trained crewmembers - a significant challenge for a critically under-funded Russian Navy.

Yet it appears more likely that that torpedo being tested was a VA-111 Shkval. As front-line units of the Russian Navy, the Oscars will usually be tasked with testing and deploying the newer and most important submarine-launched weapons systems. The highly-capable Shkval is not a new weapon in the Russian inventory. Having entered service in 1977, it experienced a series of technical and funding setbacks which delayed its initial sea trials until early 1998. The Shkval is a weapon whose development has been extremely closely guarded. The test firing of a major weapons system during a major exercise would explain the presence of several senior Russian naval officers on board - something that was not admitted by the Russian Navy until much later.

## What Did Not Sink the KURSK

Finding an explanation for the sinking is based on patchy and often conflicting evidence. Often, the evidence does not support the theory.

One theory put forward was that the KURSK struck a mine. However, acoustic analysis provided by both the US Navy and Norwegian and Swedish marine research stations points to a series of small explosions initiated by



A line drawing of an Oscar II class SSBN. The Oscars have two nuclear reactors and carry 24 supersonic SS-N-19 'Shipwreck' anti-ship cruise missiles. The Oscar's main job during a war would be to attack US carrier battlegroups.

one large explosion and concluded two minutes later by another, much larger, detonation. This does not appear to be a chain of events consistent with that likely to be caused by a collision with a single mine.

It has been suggested also that an anti-submarine rocket fired from PETER THE GREAT may have sunk the KURSK. PETER THE GREAT was the nearest vessel to the KURSK at the time of the sinking and was the first vessel to arrive on station for the rescue operation. However, although there were at least four Western naval assets - the US submarines USS MEMPHIS and USS TOLEDO, the US data-gathering platform USNS Loyal and the Norwegian intelligence vessel Marjata - in the vicinity of the exercise, none of these vessels picked up any acoustic evidence of a launch and impact of an ASW weapon.

The presence among the crew of a large number of sailors from the central Asian caucuses prompted suggestions that the submarine had been sabotaged in pursuit of nationalist causes. Also, some sources have argued quite credibly that crew error or poor maintenance may have triggered an explosion in the forward ballast tanks. It was reported in some Russian sources that there had been a failure in the ballast tanks, and an internet article by the Norwegian Bellona Foundation noted that the submarine was about to surface for planned communications with headquarters. In these two cases, the lack of evidence can neither support nor fully discount either possibility.

Another possible explanation is a collision with another vessel. The double-hulled Oscars were designed to be able to withstand collisions. This most contentious of theories has focused on a collision with another Russian submarine, a Russian surface vessel (notably PETER THE GREAT) or a Russian merchant ship, such as the large ice-breakers which are a common sight in the waters of the Barents at that time of year.

The theory put forward most strongly by the Russian Navy was a collision with a Western submarine. The Norwegian Navy denied very quickly that it had a submarine in the area. The US Navy stated very quickly that it did have at least one submarine in the area and that these boats were monitoring the exercise, but added that the two submarines were stationed at distance from the scene of the disaster. It is believed that the US Navy later made available the submarines for inspection when they were alongside at HM Naval Base Clyde, Faslane in Scotland.

Yet the boat which the Russian Navy eventually named as its prime suspect was the British SSN HMS SPLENDID. Colonel General Valery Manilov, the Deputy Chief of the General Staff, told a press conference in

Moscow that the KURSK had sunk following a collision with "another large underwater object". Here, the Russians presented two pieces of evidence. First, they claimed that a large and unidentified object had been sitting on the seabed some five hundred meters from the sunken KURSK, and that the object subsequently had disappeared. Second, they claimed to have discovered on the sea-bed an object similar to a railing found on the fins of British and American SSNs. Although the Russians stated that naval warships were standing guard over the object, no railing has ever been presented publicly. Given that the Russians were very quick to show television footage of damage to the rear escape hatch of the KURSK - footage which has itself been the subject of doubt over its authenticity - they were unable to produce the rail either in public or via the same underwater cameras showing the submarine. Moreover, if a British SSN - a submarine considerably smaller than the 19,000 ton KURSK at around 5,000 tons - had collided with the KURSK and contributed to such catastrophic damage it is highly unlikely that it would itself not have suffered significant damage. Moreover, it is apparent that the acoustic evidence shows no indication of metallic grinding which would be consistent with the effects of a collision.

It is well known that British and American submarines have for many years been operating in Northern waters, undertaking intelligence-gathering missions. Moreover, a succession of later well-publicised collisions between US Navy and Red Banner Fleet submarines led the US Navy to impose stricter rules of engagement in its submarine operations to keep its boats at safer distances. British command guidance allow for a little more leeway. Yet there is no reported case of a submarine sinking following any such collision.

In the immediate wake of the disaster, senior American and British leaders - including American President Bill Clinton, British Prime Minister Tony Blair and the British Secretary of State for Defence Geoffrey Hoon - reported publicly (as well as in private to Russian President Vladimir Putin) that none of their submarines were in the immediate vicinity. If a British submarine had been damaged, for the boat to limp home or into a Norwegian port and for the government to refuse to acknowledge the event would be something very difficult to keep quiet. The Russian Navy, however, continued to press this case. Russian sources have questioned Britain's refusal to allow SPLENDID to be inspected. Yet it is unlikely that Britain would permit inspection of its submarines by foreign nationals, whatever the reason for the request. Russian sources also have seen Britain's recall of its entire SSN fleet for nuclear safety checks, following the much-publicised breakdown of HMS TIRELESS, as a cover to allow SPLENDID to be repaired.

## What Sank the KURSK

In sum, there is a lack of hard evidence to support these theories. Although the disaster is still subject to investigation and although it will be impossible to gather conclusive evidence until the wreck has been raised (which is planned for some time in March), at this time the primary source of evidence - the acoustic picture put together by the US, Swedish and Norwegian intelligence and research

assets - suggests that an internal explosion took place in the submarine. Technical failure in the boat's ballast tanks thus remains a possibility. Perhaps, though, the most crucial piece of additional evidence - although somewhat circumstantial - is that KURSK was on a torpedo-firing exercise, that she was scheduled to fire at a passing surface group at that time and (in transmissions monitored by Western intelligence assets) that her Commanding Officer, Captain Gennady Lyachin, had requested and been granted permission by Northern Fleet Commander Admiral Viacheslav Popov, embarked on PETER THE GREAT, to fire a torpedo. Indeed KURSK had already fired successfully two other torpedos, their launch being picked up by the two attendant American boats. At 07.28.27 GMT, the torpedo was fired. Moments later came the first explosion. Confirmation of a successful firing never was received.

Equivalent to 100 kilogram's of TNT, the first blast probably was due to torpedo fuel exploding in the tube. The blast may have been caused by a spark from the battery igniting the fuel, or by fuel leaking into the motor compartment and igniting as the motor began to turn. The sonic picture suggests not two single explosions - as has been widely reported - but an initial explosion followed by a series of explosions which culminated in one last, devastating detonation (equivalent to two tonnes of TNT and registering 3.5 on the Richter scale) two minutes and 15 seconds after the initial blast. For exercise purposes, it is likely that the torpedo would have been fitted with a dummy warhead. The next question is the source of the subsequent explosions. It is possible that the inner door on the torpedo tube was not properly closed, or else that it was blown open by the explosion. As a result of this, burning fuel and high-pressure sea water had flooded into the torpedo room, sparking a raging inferno. Some reports have suggested that, in violation of safety procedures, bulkhead doors in the forward section of the submarine had been left open to reduce temperatures in the 'bomb shop'. As a result of this, the fire and flooding spread uncontrollably. With the temperature rising rapidly over the next two minutes, several other explosions occurred before the final blast. Although the torpedo which missed is believed to have been unarmed, an operational submarine could have any number of live warheads stored nearby and it is likely that one of these warheads exploded along with, perhaps, several high pressure air systems in that part of the submarine - such as the ballast tanks. This final explosion blew away the front end of the submarine and tore the hull apart along the port side from the bow to the conning tower.

Following the first explosion, the submarine had tried to surface. The final explosion, however, destroyed the ship and sent it slamming into the sea-bed. Some reports have argued that the final explosion may have occurred when the boat hit the sea-bed, with the weapons mass-detonating because they were not shock-proofed. Collision with the bottom would have the effect of magnifying the sound. Yet the submarine had been attempting to surface from periscope depth. Moreover, the sonic signature of the final explosion did not take the form of a protracted sound consistent with what would have happened if the submarine had hit the bottom at speed before scraping across the ocean floor.

It became apparent very quickly to the listening US boats that something had gone terribly wrong. The noise signatures did not resemble a standard torpedo launch, and the massive final detonation - quickly followed by easily-recognisable flooding noises - indicated immediately that the submarine was sinking. The US submarines noted Russian ships congregating at the scene of the sinking - 69°40'N, 37°35'E - but no-one as yet had realised the full scale of the disaster. But as Vice Admiral Einar Skorgen, who was part of the multinational rescue team which eventually was deployed to the scene, noted in *Jane's Defence Weekly* that early on 13 August "manoeuvres indicated a change in the exercise towards a search-and-rescue mission...however there were no indications of any live rescue operations".

## Casualties

In the face of such vast explosions, casualties would have been very heavy almost immediately. With such a volume of fire and water pouring into the submarine very quickly, there would have been very little time for any of the crew in the forward sections to close the bulkhead doors. The propulsion sections aft of the boat, where the twin VM-5 pressurized water reactors were sited, were sealed off. However, even the men in that section would have been subject to appalling initial injuries due to the concussive effects of the blasts - which would have loosened bulkhead doors and blown high pressure valves from their mountings - and from the submarine slamming into the seabed. Moreover, with the submarine's reserve batteries allegedly non-operational (because of lack of funding for maintenance and stored in the forward part of the submarine until use was required for longer missions) and with the nuclear reactor shutting down automatically (either as a result of the shock-waves from the blasts or from the sea-water valves becoming clogged as the submarine ran into the mud) there would have been no way for surviving men in the aft section to generate any propulsion or air supply. With bulkhead doors and seals loosened, survivors would have been subject to gradual suffocation as the remaining air became intoxicated with fumes from the spreading fire. When the Norwegian divers finally opened the aft escape hatch, the air in the few pockets they found in the aft of the submarine was opaque with smoke.

## The Role of the Russian Psyche

Two of the most unfortunate aspects of the tragedy were the considerable degree of doubt surrounding the accuracy of much of what the Russian Navy claimed had happened to the KURSK and the apparent intransigence of the Russian authorities in permitting outside assistance in any rescue attempt.

On this first point, very few of the claims put forward by the Russian Navy with respect to the cause of the disaster, the condition of the submarine and the crew and the nature of the rescue requirement have been supported by independent and verified evidence. According to the US Navy, no tapping on the hull was recorded at any point. There was no evidence to suggest that radio contact had been made and that power and oxygen cables had been

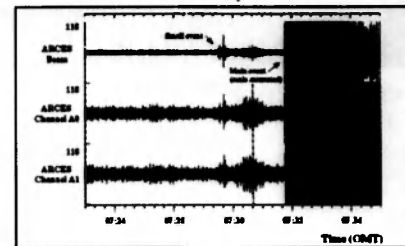
attached to the hull. The Russians claimed also that poor visibility and strong currents were stopping their own diving bells from attaching themselves to the hull. Yet the Norwegian divers later noted that visibility was good, that the currents were only minimal and that the hatch was undamaged. It appears also that what damage had been done to the submarine was inflicted when a Russian diving bell attempted to mate with the submarine. Other reports have suggested that the footage shown of the damage around the aft hatch was not of the KURSK at all.

A Russian special forces diving team was sent to the scene within 24 hours of the sinking, not to aid in a rescue but to establish the condition of the submarine. Moreover, when the Norwegian diving team was at first unable to open the hatch because of insufficient guidance provided by the Russians - according to Vice Admiral Skorgen, Admiral Popov took the time to bring in two diving specialists and to conduct a demonstration onboard another Oscar-class submarine. This all indicates that the Russian naval hierarchy knew that the whole crew of the KURSK had perished within hours, if not minutes, of the explosions. The simple speed with which the submarine went from firing a torpedo to slamming into the seabed highlighted both the enormity of the disaster that had befallen her crew and the likelihood that those not killed outright would not have survived for very long.

On the second point, at no time did the Russian Navy allow any Western military assets to participate in any rescue or salvage operation. American, Norwegian, Swedish and British military assets - most notably the British LR5 rescue sub - were on hand and were publicly made available to the Russians, but these offers of help were declined. The Russian Navy stated that its own assets were sufficient. However, as it appears that the Russian authorities were reasonably certain that the entire crew had perished very quickly, there was no need to have Western military forces snooping around. Even the Norwegian divers reportedly were ordered to stay away from the forward end of the boat.

Certainly, there may have been a fear in the Russian Navy that such western military forces would have used the opportunity to gather some intelligence. In 1986, a Soviet Yankee I fleet ballistic missile submarine (SSBN) sank 400 miles off the US east coast. When the Soviets finally were able to deploy submersible assets to the wreck, it is believed that one of the submarine's ballistic missiles was missing. Indeed, the level of American interest in the KURSK may have been due to a desire to improve what are relatively thin intelligence files on the Shkval and on new state-of-the-art Russian sonar capabilities. Also Russell Miller, writing in the British newspaper *The Mail* on Sunday on 24th September, reported that the Central Intelligence Agency and the US Navy "are almost certainly drawing up plans to snoop around the wreck" of the KURSK for intelligence purposes.

Russian attitudes can be explained by a cursory examination of both Russian historical experience and its national military psyche. Russia is a proud nation with a profound and deep-seated mistrust of the West. This goes



A sound recording of the two 'sound' events in the Barents Sea showing a small explosion followed by a bigger explosion which saturated the scale.

back to the West's condemnation of the October Revolution in 1917, to the West's carving up of Russian territory in the Treaty of Brest-Litovsk at the end of the First World War, to Germany's invasion of the Soviet Union despite having signed the Molotov-Ribbentrop non-aggression pact, and to the mutual hostility of the Cold War. Historical experience has even taught Russia to fear its own navy and people - the October Revolution began aboard the cruiser AURORA. Russian SSBNs rarely stray from home waters and for any length of time not just because of the threat from Western submarines but because of fears of losing a submarine through mutiny or defection.

The submarine service is a highly prized jewel in the Russian military crown. Cold War experience with the US Navy would have only increased the Russian aversion to allowing the Americans to investigate an accident involving a primary Russian military asset. The Russian Navy may not have wanted the US to know that the Shkval didn't work. This is supported by the fact that the Russian Navy did not release immediately accurate figures of the crew numbers: it was not initially acknowledged that there were any extra men aboard - such as programme technicians and senior Russian Naval officers. Moreover, the controversy surrounding the sinking may encourage Russia to seek greater restrictions on submarine operations in any future law of the sea conventions, restrictions which Britain and the US would vehemently oppose.

Mr Putin had widely stated that he saw his navy as a means to putting Russia back on the world political map, building a navy to rival that of Britain and France, if not the US. His submarine service was a key part of this plan. But if Mr Putin intended for his navy to become again a pre-eminent force, he would have found it hard to admit - to his own people more importantly than to the West - that his navy is in a state of disrepair and was unable to rescue its own submarine.

## Conclusion

The most likely cause of the sinking of the KURSK appears to be weapons failure. The biggest failing of all, however, was the need of the Russian leadership to put pride before a fall. This face-saving exercise only worsened what was a terrible human tragedy for the men of the KURSK and their families.



# Flash Traffic

## Ingalls to repair COLE

Ingalls Shipbuilding in Pascagoula, Miss., will repair USS COLE (DDG 67), which was damaged in an Oct. 12 2000 terrorist attack while in the port of Aden, Yemen.

The USN's decision followed a thorough review of the capabilities, costs and schedules associated with public and private shipyards, and included an assessment of how the selection would impact COLE sailors and their families. Ingalls Shipbuilding was determined to be the shipyard best suited to make repairs to COLE. The repair work is scheduled to begin this month and is expected to take about a year to complete.

The selection of Ingalls will allow most of the work to be done by civilian workers experienced in building this type of ship as Ingalls was the builder of COLE. Most of the ship's crew will be able to remain in Norfolk, Va., living and working as a team based in existing pre-commissioning facilities.

Under this arrangement, the majority of the crew will be able to use shore-based trainers and schools to sustain seagoing skills and qualifications while a small group of COLE sailors will serve aboard the ship on a rotational basis.

COLE is an Arleigh Burke-class, or Aegis, guided missile destroyer, and is based in Norfolk. The ship was part of the USS GEORGE WASHINGTON Battle Group, and was in transit from the Red Sea to a port visit in Bahrain when the ship stopped in Aden for routine refuelling. The destroyer departed Norfolk for its deployment August 8 2000 and was scheduled to return home on December 21 2000.

COLE was brought back to the United States aboard the Norwegian heavy transport ship *M/V BLUE MARLIN*, owned by Offshore Heavy Transport of Oslo, Norway. *BLUE MARLIN* was escorted by the Norfolk, Va.-based USS DONALD COOK (DDG 75).

A small contingent of Navy volunteers from various commands assumed charge of the damaged

destroyer and rode with her aboard *BLUE MARLIN* back to the U.S.

COLE was towed out of Aden harbour to deeper water by the Military Sealift Command's fleet ocean tug USNS CATABA (T-ATF 168). The process of loading COLE onto the transport ship required a water depth of at least 75 feet since it involved partially submerging *BLUE MARLIN* and manoeuvring COLE into position over *BLUE MARLIN*'s deck. The transport ship was then raised, and COLE was lifted aboard. The destroyer was canted on *BLUE MARLIN*'s deck to protect her propellers and her sonar dome.



USS COLE onboard the *M/V BLUE MARLIN* about to start her trip back to the U.S. Note the hole in the ship's side caused by the terrorist suicide bomb. The force also bent the Bilge keel.

In a press conference at the Pentagon Nov. 2 2000, General William W. Crouch, former Vice Chief of Staff of the U.S. Army, one of the two leads of the COLE Commission appointed by Secretary of Defense William S. Cohen, had high praise for the ship's Commanding officer CMDR. Lippold and the COLE crew. General Crouch said "the actions of the commanding officer and the crew, following the attack, saved the ship and several of their shipmates". He described the efforts of the COLE crew as an "inspired performance".

He said that the crew of the stricken destroyer also saved the ship during the period when two days after the attacks some seals broke loose and there was additional progressive flooding.

Admiral Harold W. Gehman, Jr., former Commander-in-Chief of U.S. Joint Forces Command, said that he was very impressed with the strength of this class of ship and how well it took the force of the blast.

General Crouch and Admiral Gehman were appointed by Secretary Cohen to provide a comprehensive review of all actions of all agencies, departments, and commands of the Department of Defense for lessons learned. Admiral Gehman said that his commission will be "aggressive" in following any lead, even it goes into other areas. A separate Navy review is looking at the preparations that USS COLE made for refuelling in Aden.

## DCN France launches new designs at EURONAVAL

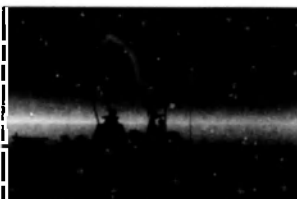
Two new warship designs have been released by the French shipbuilder DCN at the Europe's premier naval exhibition, EURONAVAL.

The two ships are classified as corvettes, the C1200 and C1800, specialising in ASW.

The C1200 corvette is a multipurpose warship designed for EEZ patrol duties, intelligence gathering and other related missions. The design represents a decisive advance in the application of full-scale warship technology to multipurpose corvettes.

The combat system features: a multi-layer anti-air defence system, long-range ASuW detection and fire control using shipboard helicopter and a full electronic warfare suite (ECM, radio & radar ESM, decoys).

The topside arrangement is the fruit of advanced integration studies. All sensors and weapons, including ECM functions, achieve nominal performance despite the vessel's modest displacement.



DCN's C1200 corvette. (DCN)

The sea-keeping system uses the ship's stabilization fins and rudders, plus real-time computer control, to reduce roll, pitch and yaw. This sea-proven system is based on that developed by DCN for the La Fayette family. Despite the vessel's low tonnage, the combat system remains fully functional and the helicopter can be safely deployed in rough seas.

The DCN-designed Shipmaster Integrated Platform Management System (IPMS) and Senit Combat Management System (CMS) allow a crew of 50 to ensure full operational effectiveness. The IPMS and CMS give the operators full control over all routine functions, platform systems, and combat systems as well as damage control.

### C1200 Characteristics:

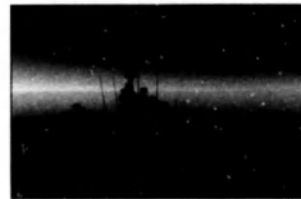
- Length 77 m, beam 11.8 m, displacement 1,200 tons
- Speed 30kts, range 2,000 nm, crew 50 + 10
- Eight-cell vertical missile launcher, 1 x 76 mm, 2 x 30 mm

The C1800 corvette features a full suite of ASW sensors and weapons, including hull-mounted sonar, active towed-array sonar, and torpedoes. Despite her modest displacement, the C1800 is designed to deploy and support a 10-ton ASW helicopter.

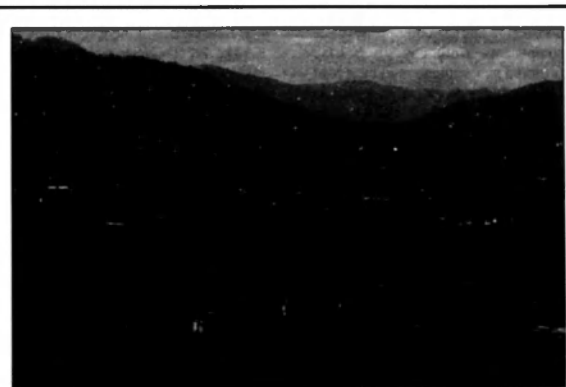
The combat system features: A full ASuW suite, two-layer anti-air system for self-defence and an electronic warfare suite. The anti-air system combines a short-range air defence (SHORAD) system and a close-in weapon system (CIWS).

As a descendant of the La Fayette family of stealth frigates, the C1800 (and C1200) offers low observables, including very low IR signature and RCS. DCN used its know-how in submarine construction to design a corvette offering exceptional acoustic discretion.

The C1800 corvette is fully ocean



DCN's C1800 corvette. (DCN)



The USN destroyer USS O'BRIEN in Dili Harbour, East Timor. On route to Dili O'BRIEN was intercepted and challenged by an Indonesian patrol boat which accused the US Destroyer of smuggling weapons to anti-government forces on Ambon and demanded she heave too in order to be boarded. Needless to say the US Destroyer made it clear they were not smuggling weapons and earned on. Also in this picture (top right) is the former RAN Hydrographic ship MORESBY which has been bought by the UN and used as a supply ship and for humanitarian assistance. (USN)

capable and can hunt submarines, in all seas and at all latitudes, for up to 21 days at a time.

### C1800 Characteristics:

- Length 90 m, beam, 12.5 m, displacement, 1,800 tons
- Speed, 30kts, range, 3,500 nm, crew, 60 + 10
- 8 MM 40 Exocet missiles, 16-cell vertical launcher, 1 x 76 mm.

## Indonesia negotiating for Mi-17s

The Indonesian Chief of Naval Staff, ADM Sutjipto, is reported to be negotiating with Russia over the purchase of four Mil Mi-17 'Hip' medium lift helicopters for the Indonesian Marine Corps.

No prices have been revealed but it is known that Russia is keen to have Indonesia as a customer and may offer the helicopters at 'friendship prices'.

In 1996 the Indonesian military ordered 12 Mi-17s for its Special Forces but had to cancel the order due to the economic crisis that hit in 1997.

Purchase of the helicopters will confirm President Wahid's intention to improve the countries maritime assets. The President has already approved the expansion of the Marine Corps from 15,000 to 25,000. The

Mi-17s would add to the Corps mission capabilities in the archipelago.

## 27 Exocets for Greece as MM 38s approach shelf life

The Greek MoD has signed a US\$56 million contract for 27 MM 40 Exocet Block 2 anti-ship missiles for its 56m super Vita class fast attack craft as more than a dozen navies face the dilemma of either finding the funds to upgrade their MM 38 Exocets immediately or seek new missiles.

The MM 38, which entered service in 1972 with a total of 1,260 missiles sold to 19 navies, is powered by an SNPE Epevier solid-propellant rocket motor with a double-base sustainer providing a maximum burn time of 93 seconds.

These solid-propellant motors have a guaranteed minimum shelf-life of only 10 years, and while this has been exceeded by every buyer, it has only been during the past 10 years that customers have sought motor overhauls. This work has brought Aerospace (now part of the EADS group) business worth several million dollars a year.

The overhaul/upgrade programme

involves replacing the sustainer and booster and other obsolete components. Until now, users have favoured new equipment in their MM 38s but this is no longer an option as customer demand for MM 38 motors has been declining forcing SNPE to close the plant unless there is an upsurge in business.

Aware of this fact and that many customers still retain the MM 38 in service, Aerospatiale (EADS) has been informing them of the situation.

The company hopes that users will be able to raise the funding which will allow for upgrade/overhaul contracts to be signed immediately.

While France and Germany are believed to have upgraded sufficient missiles to meet their requirements, as have most South American users (Argentina, Ecuador, Peru and Uruguay), a number have still to respond. Those countries operating MM 38 (and likely to require upgraded missiles) are believed to include Bahrain, Belgium, Brunei, Indonesia, Malaysia, Morocco, Nigeria and Thailand. Some of these countries are likely to have difficulty in finding sufficient funds.

The cost of a complete upgrade is thought to be no more than US\$90,000 per missile, compared with about US\$600,000 for a new MM 40.

## Chinese spy ships active

Japan's Coast Guard has revealed in its recent White Paper that Chinese spy ship operations in Japan's EEZ have increased "sharply".

In 1999 there were 33 sightings of Chinese intelligence gathering ships in Japan's EEZ compared to 16 in 1998 and four in 1997.

Current Japanese legislation prevents any regulation of foreign spy ship activity and limits the Coast Guard to reporting and monitoring. However, Japanese officials are considering changing the legislation to give its military and law enforcement agencies more powers.

## French Navy to order twin-seat Rafale

The French MoD is funding the

predevelopment phase for a twin-seat maritime variant of the Rafale fighter.

The French Navy was to receive 60 single-seat Rafale M but has decided that 40 of those should be twin-seat models designated Rafale BM.

The change in the order comes from a study of the Super Etendard's performance during the recent NATO operation 'Allied Force'. They found that two crew would have been better able to complete a mission when faced with the stress of combat and the inevitable information explosion of the modern battlefield.

The French Air Force led the twin-seat push when it changed its order from 234 single seat Rafale to include 139 twin seat models.



The French Navy (Marine Nationale) is changing its Rafale order for more twin seat than single.

The BM will consist of a M airframe with the cockpit section of the air force's twin-seat Rafale B. Space is considered a major problem as most of the equipment, currently behind the pilot, cannot be moved to the undercarriage bay, as with the air force variant, given the larger undercarriage requirements of a carrier borne aircraft. One solution is the removal of the aircraft's cannon to make space. The BM variant is also expected to be 200 kg heavier leaving less room for fuel.

## AGM-114M ready for USN

The USN has received the first of 100 AGM-114M Hellfire II anti-ship missiles.

The AGM-114M will equip the USN's SH-60 Seahawk and the USMC's AH-1W Super Cobra attack helicopter.

The AGM-114M has a Blast Fragmentation warhead that detonates after the missile has



A USN SH-60 Seahawk firing an AGM-114M Hellfire ASM. The missile can also be used against land targets given its original anti-tank design. (USN)

penetrated the targets outer skin. The warhead is also said to carry a number of incendiary pellets to start secondary fires. The missile is compatible with existing Hellfire missiles used by the US Army against tanks and hardened targets.

The AGM-114M is said to be capable of disabling and or sinking a 500 tonne small craft such as a mine layer, landing craft etc.

Foreign customers for the AGM-114M include Turkey, Japan and South Korea with each round costing around US\$77,000.

## 2.8 billion euro contract for Horizon

The Horizon J.V. company has welcomed the official signing of the 2.8 billion euro contract for four AAW frigates (two for the French Navy and two for the Italian Navy). The contract is a major step in European industrial cooperation.

The Horizon J.V. company was created on 16 October 2000 by DCN and Thomson-CSF for the French Navy, and Fincantieri and Fimmechanica for the Italian Navy.

The first ship is due to be delivered in 2006. The two frigates for the Italian Navy will be built in Genova and La Spezia, and the two frigates for the French Navy will be



A computer generated image of the French/Italian Horizon AAW frigate. (DCN)

built in DCN's Lorient shipyard. The combat system will be developed in Toulon and Rome. Featuring excellent range and endurance, the Horizon frigate is predominantly an AAW vessel for area defence and point defence against saturation missile attacks. It will be equipped with systems also developed through European cooperation, including the PAAMS anti-air missile system.

## Taiwan to produce new ASCM

The Republic of China (Taiwan) has announced plans to mass produce the new Hsiung Feng 3 ASCM by the end of this year.

An indigenous design from the military run Chung Shan Institute of Science and Technology. Details still remain scarce about the missile's performance however, *Jane's Defence Weekly* has reported that the vertically launched missile has a range of 200kms at Mach 2.0.

## RMN tests missiles

The Royal Malaysian Navy (RMN) had successfully fired four different types of missiles on two separate occasions in the South China Sea to prove the operational capability of their missiles and the associated systems.

The tests were part of the contract

requirements related to the purchase of two Lekiu frigates from the UK and four Assad corvettes from Italy.

The first firing was conducted in June 2000 by the corvette KD LAKSAMANA TAN PUSMAH which fired an OTOMAT surface-to-surface missile against a barge in the South China Sea.

The second firing was conducted during August 2000 involving three types of missiles, namely the SEA WOLF and ASPIDE surface-to-air missiles and the EXOCET MM 40 surface-to-surface missile.

The SEA WOLF and EXOCET MM 40 missiles were fired by the frigate KD JEBAT, while the ASPIDE missile was fired at a CHUKAR III drone, while the EXOCET MM 40 was fired at an old ocean trawler hulk, all in the South China Sea.

No details are available about how successful the test firings were but whatever the result the RMN is in a far better position to use them effectively than navies that don't regularly test fire weapons and systems.

## Club family arrives

The Indian Navy has started to take delivery of the Russian Alfa/3M-54E

ASCM (Anti-Ship Cruise Missile) for its newest Kilo class submarine to be commissioned this month.

The Alfa, made by the Russian firm Novator, is a long range ASCM which can be launched from ships or submarines. It has a range of approximately 200kms and a 500lb warhead.

The Alfa flies a rather unique attack profile. It flies for approximately 200kms at subsonic speed using self-deployed wings and



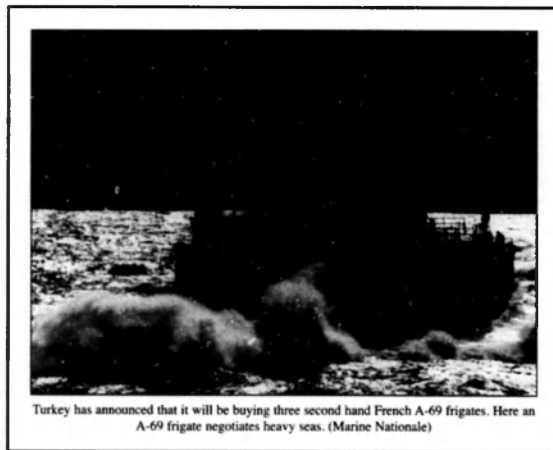
An SS-N-27 Alfa ASCM. The hump at the front denotes the start of the cruise missile section with the supersonic dart carried underneath

an air breathing jet engine for its cruise phase. At 20kms+ from the target the missile pops up above the horizon and initiates a few scans with its radar to fix or search for the target. Once the target's location is established a 'dart' deploys from the lower front half of the missile with the cruise section flying off away from the dart. The dart drops to sea skimming height and using a solid rocket motor accelerates to nearly Mach 3 for the final run in to the target. 5-10kms from the target the missile initiates a weaving/corkscrew manoeuvre in an attempt to defeat the ship's missile defences.

The Alfa completed two successful test firings in June 2000 in the Baltic which was watched by Indian Navy Officials.

The Alfa belongs to a new family of missiles know as the Club family. The family consists of ASCM and ASW standoff missiles, and soon a land attack variant. The Club family all use the same fire control system saving on space, training and equipment. Each of the missiles can be submarine launched or vertically launched, as is the case in India's new Krivak class FFGs due to commission sometime next year.

India is expected to refit all its Kilo class submarines to fire the Club family.



Turkey has announced that it will be buying three second hand French A-69 frigates. Here an A-69 frigate negotiates heavy seas. (Marine Nationale)

At this stage India is the first and only customer for the Club family of missiles.

## RN SSNs recalled

The UK MoD has taken all 12 of its SSNs (nuclear powered submarines) off active duty due to fears that a fault in the reactor cooling system, first identified in HMS TIRELESS a Trafalgar class submarine, may be present in all of them.

The 12 submarines, five Swiftsure and seven Trafalgar class, will now undergo lengthy tests to determine if the defect identified on TIRELESS is present in others.

The discovery is a blow to the RN's patrol and training schedules as it has no SSKs (diesel submarines) to patrol its areas of responsibility. Some embarrassment was felt by senior RN officers when it was revealed that the only submarine patrolling British waters and conducting training exercises for RN ships was a German U-Boat. The German SSK has been hired for US\$18,000 an hour.

At the end of the Cold War, the MoD decided to scrap its SSKs in favour of an all nuclear submarine fleet.

Checks of all 12 boats are expected to take sometime.

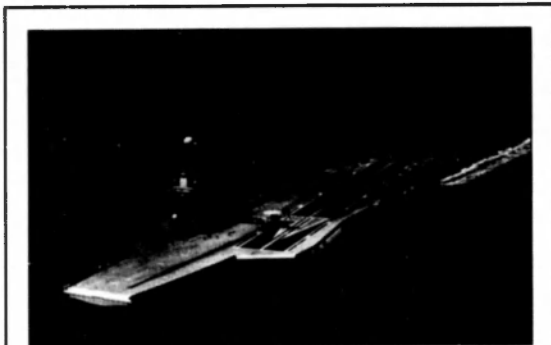
## Egypt to buy Moray SSKs, from US

The Egyptian government has signed a letter of intent (LoI) to purchase two new Dutch-designed Moray-class SSKs (diesel-electric submarines) from an industry team led by Litton Ingalls Shipbuilding.

The deal, under US Foreign Military Funding (FMF) arrangements, will be the first sale of RDM Submarines' Moray design and will also mark the resumption of non-nuclear submarine building in the USA.

Ingalls Shipbuilding is prime contractor for the order, with RDM Submarines (Rotterdam, The Netherlands) and Lockheed Martin Naval Electronics & Surveillance Systems (NE&SS) Undersea Systems (Manassas, Virginia) as major subcontractors.

The LoI was issued during



The French aircraft carrier CHARLES DE GAULLE at sea. The carrier recently lost a propeller blade during a long distance trial along the North American coast whilst at 25kts. The ship was forced to limp back to port at 14kts on one shaft. The incident is expected to delay the carrier's operational acceptance by some months. The ship's propellers are specifically designed to reduce underwater noise. (Marine Nationale)

October, negotiations are continuing on the detailed terms of the sale, with the aim to have a contract effective in the first half of this year. The intended purchase of the Moray-class submarines will augment the Egyptian Navy's existing fleet of four ex-Soviet Improved Romeo-class SSKs.

Both submarines will be built at the Ingalls facility in Pascagoula, Mississippi, with delivery expected between five and seven years after contract signature.

As major subcontractors RDM Submarines will act as the Moray design authority and production supervisor, while Lockheed Martin NE&SS Undersea Systems will deliver the SUBICS 900 combat system and perform overall combat system integration.

The industry arrangements are designed to address FMF programme stipulations. Egypt is entitled to use FMF funds to buy submarines, but the programme mandates reinvestment of at least half of the funds in the US economy. As the USA has no existing conventional submarine manufacturing base, an overseas partner was required.

## RCN takes delivery of first Upholder

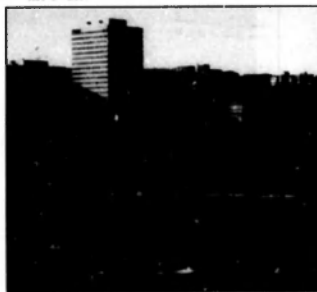
The Royal Canadian Navy (RCN) has taken delivery of, and commissioned,

the first of four ex-RN Upholder class SSKs.

HMCs VICTORIA (former UNSEEN) arrived in Canada on 23 October after an 18-month reactivation period in the UK. The four Upholders were commissioned into the RN between 1990-93 and were withdrawn from service in 1994-95 following the UK's decision to go with an all nuclear submarine fleet.

Canada acquired the four submarines in a lease-buy arrangement in 1998 to replace three ageing Oberon class SSKs.

The remaining three submarines: WINDSOR (former UNICORN), CORNERBROOK (former URSULA) and CHICOUTIMI (former UPHOLDER) will complete their reactivation at six-monthly intervals.



HMCs VICTORIA arriving in Canada for the first time. (RCN)

## WR-21 engine to power Type 45 destroyers

Rolls-Royce and Northrop Grumman have been selected as the preferred suppliers of the gas turbines for the first three ships of a new fleet of air defence destroyers for the RN.

The Rolls-Royce/Northrop Grumman team, supported by French marine engineering company DCN, will supply the intercooled and recuperated WR-21 marine gas turbine for the first three of 12 new Type 45 class destroyers.

The Type 45s will replace the Royal Navy's long-serving Type 42 destroyers and are due to enter service in 2007.

The WR-21 engine completed the development phase of the United States Navy, Royal Navy, and French Navy funded full scale development programme in February last year. As a part of the completed development, the engine accumulated approximately 2,100 test hours including a 500 hour endurance test at Pyestock in England in 1998 and a 500-hour endurance test at the United States Navy's test facility in Philadelphia, in late 1999.

The final phase of the WR-21 Programme has now started, with DCN's facility in Indret carrying out the 3,000-hour endurance qualification in accordance with Memoranda of Understandings between the US, UK and France. On final completion of this phase in early 2002 and the subsequent shock test, the engine will be fully qualified for service under standards set by the United States Navy and will meet or exceed standards set by other Navies in the world.

Unlike conventional marine gas turbine engines, the WR-21's advanced cycle recovers energy from the engine's exhaust gas to increase fuel efficiency across the operating range.

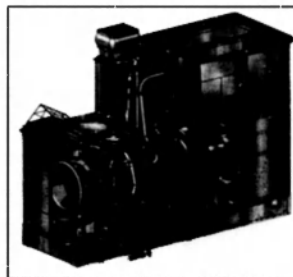
"The intercooled and recuperated WR-21 has already demonstrated over 25% annual fuel savings in mechanical drive configurations compared with existing simple cycle gas turbines and is on track to reach more than 27% in its final production configuration," said Jim Hupton, vice

president of Northrop Grumman Marine Systems, a business unit of the company's Electronic Sensors and Systems Sector (ES3).

Northrop Grumman's Marine Systems business unit is prime contractor for the WR-21 engine programme with overall responsibility for engineering and systems integration. Rolls-Royce Marine in the United Kingdom is designing and developing the gas generator and power turbine.

The WR-21 can offer up to 30 percent reduction in fuel burn compared to existing simple cycle gas turbines for typical ship operating profiles.

All routine scheduled maintenance can be performed by the ship's personnel and is minimised in line with future requirements for unmanned engine rooms. The gas generator and power turbine consist of 12 interchangeable pre-balanced modules for easier maintenance and reduced spares holding.



A computer generated image of the WR-21 gas turbine that will be used to power the RN's new Type 45 AAW DDGs.

The Type 214 will have a diving depth of over 400 metres, because of improvements in the pressure hull materials. Performance of the AIP (Air Independent Propulsion) system has been increased with two Siemens PEM fuel cells which produce 120kW per module and will give the submarine an underwater endurance of two weeks. The hull shape has been optimised for hydrodynamic and stealth characteristics and a low noise propeller developed that combine to decrease the submarine's acoustic signature.

The Integrated Sensor Underwater System (ISUS), from STN ATLAS Elektronik, integrates all sensors, command and control functions on board the submarine. The sensor suite of the Type 214 submarine consists of the sonar systems, an attack periscope and an optronic mast. The submarine's electronic support measures system and Global Positioning System sensors are also installed on the optronic mast.

## Malaysia leasing Dutch submarines

Malaysia has negotiated a five-year lease contract with RDM Submarines of the Netherlands for two ex-Royal Netherlands Navy Zwaardvis-class submarines. ZWAARDVIS and TIJGERHAAL.

The two boats were transported from Rotterdam last October to be reactivated at Malaysia's PSC Naval Dockyard Sdn Bhd in Lumut under RDM Submarines' supervision.

After a two-year overhaul, the two boats will give the Royal Malaysian Navy (RMN) its first submarines. The deal leaves the door open to RDM Submarines to promote their new Moray design (see this edition Flash Traffic 'Egypt to buy Moray SSKs, from US') as a potential follow-on submarine at the conclusion of the lease.

The RMN's offshore patrol vessel procurement programme has dominated Malaysia's naval plans since the beginning of the 1990s, when a project to acquire two used and two new Swedish submarines was shelved in favour of a requirement to get as many hulls in

## South Korea chooses Type 214

South Korea has opted for Howaldtswerke-Deutsche Werft GmbH's (HDW) Type 214 diesel/electric submarine.

HDW has already been involved in South Korea's submarine building programme. Daewoo Heavy Industries is constructing nine of the German firm's Type 209 design under license.

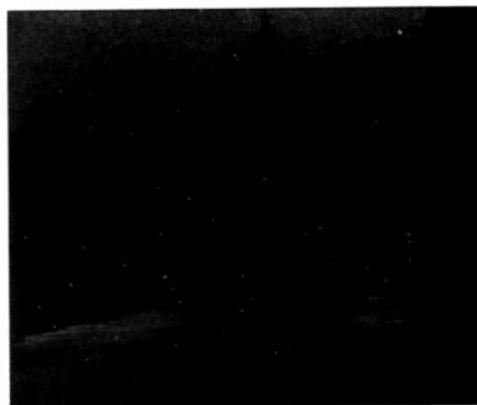
the water as possible. Malaysia's sudden turn around was initiated in 1997 when Singapore introduced its own submarine programme.

The two 2,640-ton Zwaardvis-class submarines were delivered to the RNN in 1972, modernised in the late-1980s and decommissioned in 1994-95. The Dutch Ministry of Defence sold the submarines to RDM in 1995. RDM were hoping that they could then sell the submarines on.

A decision on weapons, torpedoes and anti-ship missiles is yet to be announced.



The ZWAARDVIS on the surface during the 1980s. It is expected to take two years to bring both submarines back into service giving the Royal Malaysian Navy its first submarines.



Spain's First F-100 air warfare frigate enters the water at Ferrol. The ship is fitted with a Mk-41 VLS for Standard SM-2 anti-aircraft missiles as well as an Aegis combat system, phased array radar and LM-2500 Gas Turbines making them very common to the RAN and USN.



The former HMAS ADRIOT slips below the waves on August 8, 1994 after absorbing a great deal of punishment after its final role as a target for RNZAF Skyhawks. (RAN)

By Vic Jeffery

There is a plethora of warships, which lie off the Western Australian coast, victims of war, scuttling and accidents.

There are at least 20 vessels resting in the silent depths off WA, some in known positions, others unknown, the famous World War II cruiser HMAS SYDNEY (II) being the most notable. SYDNEY's unexplained loss in mysterious circumstances with her entire crew of 645 is the most intriguing and one that continues to draw a great deal of public interest after almost 60 years.

How a ship of SYDNEY's size could vanish, virtually without trace after sealing the fate of the German armed merchant raider HSK KORMORAN on November 19, 1941 remains a mystery of the sea. The mists of time have not diminished interest in what is arguably Australia's greatest maritime mystery.

This mystery is compounded by the fact that the wreck of the KORMORAN has never been located either. Strangely enough, there is no record of an oil slick or the enormous debris field which must have existed from the 9500 tonne ship blowing-up, acknowledging the amount of timber and linseed oil carried on the upper deck to enable her to alter her appearance.

The final resting-place of these two ships I feel is further south of the official recorded position. Hopefully the SYDNEY or KORMORAN will eventually be located, almost certainly reducing the search area for the other.

Few people are aware that two former World War II Royal Netherlands Navy coastal submarines, the 583-tonne K.VIII and the 660-tonne K.XI ended their days in Western Australian waters.

Laid-up in reserve at the Sourabaya naval dockyard in Java, K.VIII was hastily re-commissioned on January 6, 1942 for coastal defence and ASDIC (WW II name for sonar) training. The submarine made several war patrols between Bawean and the north coast of Java before being ordered to Australia on March 3, arriving at Fremantle on March 17.

After inspection by naval authorities K.VIII was declared unfit for operational use and de-commissioned on May 8, 1942 in Fremantle. The conning tower was removed and erected on the Fremantle pilot boat LADY

FORREST. Its 220 volt, 2200 amp main electro motor was removed for installation on the new main Public Works slipway where it served faithfully into the 1980s supplying DC power to ships in refit.

After further stripping in 1943 the hull was towed out of Fremantle and south into Cockburn Sound where it was to be beached in Jervoise Bay and broken-up. However, the hulk foundered 100 metres offshore and was abandoned. It remained there until 1957 when it was declared a navigational hazard with the increased shipping visiting the new Kwinana oil refinery.

Two divers, Jack and Terry Sullivan were tasked with removing the hull. They used 24 cases of plastogel to blow the wreck into removable sections between July-August, 1957.

Even today the rusty keel and pieces of corroding metal mark the K.VIII's final resting-place.

The second Netherlands submarine, K.XI, arrived in Fremantle on March 22, 1945 after spending most of the war as an ASDIC training submarine for the British and Indian navies.

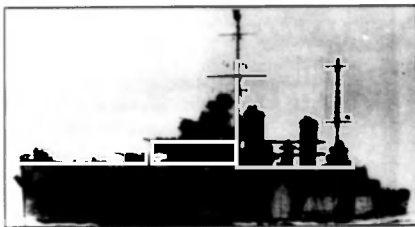
Paying-off in Fremantle on April 10, 1945 it was handed over to the RAN for transfer to the Commonwealth Disposal Committee on June 21. K.XI was partially stripped in the Swan River at HMAS LEEUWIN II, which was the home of the wartime Naval Auxiliary patrol and the peacetime Royal Freshwater Bay Yacht Club. Its 3.5-inch deck gun was donated to LEEUWIN II and today still stands in the ground of the yacht club.

Towed down river back into bustling Fremantle Harbour, the submarine had been slipped for further stripping after its purchase by a Mr McMinn of New York. Moored outboard of another vessel at North Quay it sank overnight after a valve was left open.

The Harbour Master was keen to rid the harbour of the submarine and six weeks of toil saw it raised and further stripped before being towed out to the "Ships Graveyard" site west of Rottnest Island and scuttled in September, 1946.



Two views of the former HMNZS WAIKATO as she is sunk as a dive attraction. The ship now rests off Tutukaka, (north of Auckland) which proclaims itself as the dive capital of NZ. Already nearby are the wrecks of the TUI (sunk in early 99) and the RAINBOW WARRIOR. Another (real) wreck, that of the SS NIAGARA, sunk in 1940 by German mines, is also in this area, but too far out to sea and too deep for sports divers. (RNZN)



HMAS SYDNEY (II) lost off the WA coast after an engagement with the German Raider KORMORAN with all hands. Her final resting place is still yet to be found

Other naval vessels that have ended their days along the West Coast are:

- **ADROIT** (patrol boat): Originally Darwin-based this Attack-class patrol boat arrived at HMAS STIRLING on January 21, 1983 and officially handed over to the Fremantle Port Division of the Naval Reserve on August 27 that year. ADROIT played a valuable role in fisheries patrols and in the seamanship, navigation and technical training of many RANR personnel before being decommissioned on March 28, 1992. Hulked, it was sunk as a target off the WA coast on August 8, 1994 by Skyhawks of the RNZAF.
- **ALACRITY** (naval tug and patrol vessel): One of the early links in naval history in WA, it was purchased from a Melbourne company in 1911 and sent West to be used in the construction of the ill-fated Henderson naval base in Cockburn Sound. During World War I it was used as an unarmed patrol/inspection vessel with a secondary role as a minesweeper operating off Fremantle. Post-war the Henderson project was abandoned and ALACRITY was sold on December 16, 1925. Resold in 1931 it was stripped and moored in Jervis Bay awaiting scrapping. A fierce gale in Cockburn Sound saw it break its mooring and be swept ashore where it remained until it finally broke-up in the late 1970s.
- **DERWENT** (destroyer escort): After a 30-year career, HMAS DERWENT paid-off at HMAS STIRLING on August 8, 1994 to be used as the platform for the joint DSTO-RAN Ship Survivability Enhancement programme which basically saw the ship used for a number of fire, smoke, blast and fragmentation, limpet mine and electronic experiments in Cockburn Sound. The 10-week programme saw the battered and burnt DERWENT, still afloat, towed out to a position west of Rottnest Island and scuttled with charges set by



HMAS TORRENS in happier times. She was sunk off the WA coast by HMAS FARNCOMB using a Mk-48 torpedo exploding under the keel, lifting the ship out of the water and breaking its back.



The National Service training ship HMAS JUNE seen departing Fremantle in 1955. JUNE was finally scuttled in the 'Ship Graveyard' area west of Rottnest Island on September 7, 1968 after being stripped in Careening Bay at nearby Garden Island.

- Australian Clearance Diving Team Four on December 21, 1995. It has proved to be a highly successful fish attractant.
- **GLADMOR** (auxiliary patrol boat): Requisitioned on July 10, 1942 for service with the Volunteer Patrol until the formation of the Naval Auxiliary Patrol, becoming HM Motor Boat GLADMOR, hull number 713. The 14 metre jarrah-hulled vessel was armed with a machine gun and two depth charges located on her stern. On the fateful day of October 17, 1943 GLADMOR had developed fuel problems soon after leaving Fremantle. GLADMOR proceeded to the sheltered waters on the northern section of Garden Island to clear the fuel line however, a petrol explosion saw the engine room quickly engulfed in flames and the crew abandoned ship and swam to the shore 400 metres away. The sturdy GLADMOR burnt for hours before finally slipping beneath the waves.
- **JUNEE** (corvette): Commissioned on April 11, 1944 JUNEE saw war service in New Guinea waters before paying-off into reserve at Melbourne on January 21, 1946. After seven years in reserve JUNEE was refitted as a National Service training ship, arriving Fremantle in August 1953 to commence her new role. With the closing down of National Service training, JUNEE was paid-off on July 18, 1957 and sold for conversion to a fishing mother ship in 1962. Her conversion was halted when the owner died suddenly and the ship was sold for stripping and scuttling. Stripped at Garden Island, JUNEE was scuttled off Rottnest Island on September 7, 1968.
- **OFL.1207** (oil fuel lighter): Formerly based at HMAS STIRLING this 1946-vintage OFL was sunk as a target in the WA Exercise Area after the arrival of its replacement, the new water and oil fuel lighter WYULDA earlier that year.



The former Dutch submarine K.XI being raised by the SS AGNES after it sank in Fremantle Harbour. The submarine served out the war as a training vessel for surface ship ASW.



The former HMAS DERWENT being blasted to the bottom off the WA coast after she provided valuable scientific data on how ships take punishment from modern weapons and the effects of fire.

- **SC-751** (submarine chaser): Not a lot is known about the loss of this US Navy submarine chaser on June 22, 1943. It apparently ran aground, was considered a constructive total loss, and was blown-up by army engineers.
- **SDB.1325** (seaward defence boat): Entering service on November 3, 1943 as Harbour Defence Motor Launch 1325, she served the Navy faithfully for nearly 50 years, paying-off at HMAS STIRLING after 35 years in WA waters. For sale, a number of prospective buyers visited her, the last one being on the afternoon of April 14, 1992. Later that day without warning she suddenly settled in 10 metres of water in the small craft compound. Wedging herself in between the pier and the pylons as though she did not want to go, the former SDB.1325 was cut-up in situ by Navy divers.
- **SIESTA** (auxiliary patrol boat): A wartime loss with little detail being available, this Naval Auxiliary Patrol vessel, requisitioned on July 14, 1942 was destroyed by a petrol fire in Fremantle in October, 1943.
- **SWAN** (destroyer escort): Paid-off at HMAS STIRLING on September 13, 1996 after a 26-year career in the RAN, WA-based since December 13, 1985 SWAN was gifted to the WA State Government as a dive wreck. Fierce competition from around the State saw Busselton finally selected and SWAN was scuttled in Geographe Bay on December 14, 1999 where it has proven to be a great touring attraction.
- **TORRENS** (destroyer escort): The last steam-powered naval vessel based in WA, TORRENS was decommissioned after a 27 year career at HMAS STIRLING on September 11, 1998. Nine months later in June 1999, TORRENS was sunk as a target with a Mk. 48 torpedo fired by the submarine HMAS FARNCOMB off the WA coast.
- **URIBES** (Army stores vessel): Originally a three-masted barque built in 1868, URIBES was re-built in



The former HMAS SWAN being scuttled by Clearance Diving Team Four in Geographe Bay off the WA coast to form a dive attraction and artificial reef

1934 and by 1940 was in service with the Australian Army as a stores carrier running between Fremantle and Rottnest Island where the Army had numerous gun batteries and installations. URIBES on her last trip could not safely go alongside in the strong winds and the decision was made to return to the mainland with her cargo of two army vehicles and 150 6-inch shells. Leaving the island, near Phillip Rock, her engine cut out and the anchors could not hold the ship. Drifting she struck an outcrop of rock and was holed, quickly sinking. The vehicles and some stores were salvaged and the vessel was declared a total loss on May 19, 1942.

- **WALLAROO** (corvette): Always known as a 'happy ship' HMAS WALLAROO was lost only 60 nautical miles west of Fremantle in a fateful midnight collision with the American merchant ship HENRY GILBERT COSTIN in 1943. WALLAROO had escorted the US ship and another, the JOHN G. WHITTIER to their dispersal point. With WALLAROO leading on an overcast night, it signalled to the following ship to disperse. However, the freighter continued on at 11 knots and rammed the corvette before heading back to Fremantle. Three men were lost. Sister ship, HMAS DUBBO, was despatched to WALLAROO's aid.



The Bathurst class corvette HMAS WALLAROO, lost only 60 miles off the WA coast due to a collision with the merchant ship HENRY GILBERT COSTIN in 1943

Still afloat at around 0700 the deteriorating weather saw two large waves crashed through the gaping hole in the ship's side and it was clear the ship could not survive. Ten minutes after the "abandon ship" pipe had been made the gutsy little ship slowly capsized to starboard and sank. Less than 24 hours since they sailed, the WALLAROO survivors were back in Fremantle.

- **Z-FORCE CRAFT** (Wellman one-man submarines and 'Sleeping Beauty' submersible canoes): A number of these craft, still 'Top Secret', including six Wellmans and reputedly five "Sleeping Beauties" were loaded aboard LST-3014 at the Palm Beach naval jetty on the mainland opposite Garden Island and dumped in deep water west of Rottnest Island.

The next addition to this list will of course be the hulked former guided-missile destroyer PERTH, at present swinging around a buoy in Princess Royal Harbour, Albany where it is awaiting to be scuttled as a dive wreck in late 2001.

Two Oberon-class submarines laid-up at HMAS STIRLING, the decommissioned ORION, which has been tentatively gifted to the WA Government, and the recently decommissioned HMAS OTAMA, may yet join these other ships in a watery grave off the Western Australian coast.



# Observations

## ACTION FOR COASTWATCH EXAMINERS

By Geoffrey Evans

The second half of 2000 provided travel and a taste of adventure for members of the Joint Parliamentary Committee of Account and Audit (JCPAA) examining Australia's coastal surveillance organisation, Coastwatch.

Apart from hearings in Canberra, Melbourne and Brisbane to question organisations and individuals who had made submissions to the JCPAA earlier in the year – including the Navy League\* – the members travelled northwards to the main area of activity and happened to be in a surveillance aircraft when a suspect vessel was sighted some 110 nautical miles east of the Ashmore Islands. About 50 people were on the deck of what appeared to be a motorised Indonesian fishing vessel.

The Coastwatch National Surveillance Centre was notified and arrangements made for Custom's WAURI and Navy's DUBBO to intercept the possible intruder. Immigration and relevant Commonwealth authorities were notified.

Guided by Coastwatch aircraft as the stranger continued eastward – with JCPAA members still observing – the surface vessels made radar contact and commenced to shadow the suspect.

Early on day 2 crew from DUBBO boarded the fishing vessel, which they could do legally as it was inside the Australian EEZ but could not be 'arrested' as territorial waters had not been entered.

Over 100 people were found to be aboard the fishing vessel, identified as the DARIMUN BADI and which the Master claimed was on a voyage that would bypass Australia. A warning to the effect crew and passengers would be detained if they entered territorial waters was issued and the vessel allowed to continue its journey. Later in the day however, it was boarded again and after receiving fresh water from DUBBO – and another warning – turned and headed north for a short time before resuming an easterly course.

The suspect seaworthiness of DARIMUN BADI together with the likelihood its heading would take the craft into territorial waters and the large number of people involved, resulted in the dispatch of HMAS GEELENG to the scene at short notice (the patrol boat had just arrived in Broome after delivering an illegal fishing vessel).

In the event, during the afternoon of day 3 DARIMUN BADI entered Australian territorial waters and was intercepted by DUBBO. A notice of detention was issued and the vessel towed to Darwin Naval Base where 101 passengers and 3 crew were taken into custody by Immigration officials. The vessel was also examined by fisheries and quarantine authorities.

DARIMUN BADI was one of 33 vessels detected and apprehended by Coastwatch in the first nine months of 2000, in the course of which over 1700 suspected illegal immigrants were handed over to immigration authorities. Given the enormous area Coastwatch is required to watch – over 14 million square kilometres (5.4 million sq. miles) of ocean territory – and the fact that Australia can be approached from every and any direction, it is a remarkable

achievement by an organisation much criticised over the years. Especially so when the country's limited financial and human resources are taken into account.

In this day and age no country in the world can be made completely proof against would-be entry. So far as entrance from the sea is concerned, the recent high success rate of Australia's Coastwatch organisation is almost certainly due to the Government's decision in mid 1999 to install a long overdue authority to co-ordinate the activities of the several government agencies involved in Australia's maritime affairs – ranging from the Defence, Customs and Immigration Departments through Quarantine Inspection to the Great Barrier Reef Marine Park Authority, some 11 in all.

Also important was the decision to appoint a serving Defence Force Officer, co-ordinator with the title of Director-General. In the event the choice of Rear Admiral Russell Shalders could hardly have been bettered. Seconded to the Customs Department (the administering department), Admiral Shalders brought with him not only considerable operational experience but enthusiasm and a determination to make the new organisation an effective maritime watchdog.

The government also provided additional funds which among other things enabled aerial surveillance to be increased, both in terms of area covered and with new electronic equipment, in effectiveness. Despite improvements however, it can be assumed efforts to penetrate Australia from the sea will be constant and may well increase given the restlessness in a number of neighbouring States. There will probably be breaches from time to time – as mentioned above Coastwatch has a formidable area to oversee – but these should not cause hysterical calls for an inquiry whenever a strange craft is sighted offshore or footprints sighted on an otherwise deserted beach.

Coastwatch has every appearance of developing into a worthwhile organisation (in many countries it would be called a Coast Guard but the present title is appropriate) although the writer has one or two niggling doubts. The first concerns the power of the Director-General: Does he have sufficient authority to "direct" the way in which assets "owned" by various client authorities are used, eg. Defence and Customs Department aircraft and vessels? Or does it depend too much on Memoranda of Understanding and/or the personality of the Director-General to get on with other executives?

Also worrying is an apparent lack of urgency in the process of acquiring a replacement for the hard worked but aging FREMANTLE-class patrol boats, vessels vital to the effectiveness of Coastwatch.

It is encouraging to know that members of the Parliamentary committee examining Coastwatch have seen at first hand Australia's greatly undervalued coastal surveillance team at work; it might be assumed the experience will be reflected in the committee's report to government

## Vale Tony Grazebrook

The Navy lost an informed and literate advocate and the Navy League an active supporter with the death of Commander Anthony Worrall Grazebrook RD RANR on November 2000.

Tony Grazebrook was born in Chelsea, England in 1935 and before migrating to Australia in 1970 with his wife, Phyllis, and young family had experienced life in the United States (as a youngster) and later in Switzerland where he and Phyllis lived for five years.

From an early age Tony took a studious interest in Navies and naval affairs, an interest that eventually had a major influence on his career and indeed, his life. He also served in the RNVF, transferring to the RANR after arriving in Australia and specialising in the Naval Control of Shipping (NCS) branch, located in the Melbourne Port Division.



The late Mr Tony Grazebrook (left) with Publisher Ross Butler. The RAN and League have lost a valuable Mate.

During 1972 a "letter to the editor" of a major newspaper was brought to the attention of the then Chief of Naval Staff, Vice Admiral Sir Richard Peek; who was sufficiently impressed to phone the writer and suggest Grazebrook could be helpful to the Navy League – and the Navy. The writer, who had just become Federal President of the League, duly made contact with letter-writer Grazebrook and thus began an association that lasted 28 years.

In the course of his writings Tony Grazebrook developed a wide range of contacts in the defence, community (including the industrial wing) both in Australia and overseas. He wrote for a number of publications including *THE NAVY* and the *PACIFIC DEFENCE REPORTER*, eventually leaving his civilian employment and moving to a property in Victoria's Mansfield district; here it must be said, his wife assumed the management task during her husband's frequent absences gathering information for his articles.

In 1995 Tony Grazebrook became the third editor of the re-named *ASIA-PACIFIC DEFENCE REPORTER*, following in the footsteps of Peter Young, founder and first

editor of the Magazine, and Denis Warner, distinguished war correspondent and author. The October – November 2000 issue of *APDR* was the last produced under the Grazebrook editorship: He also wrote for *THE NAVY* under the pseudonym *Navy Leaguer*.

In the week before his death it was decided to award Commander Grazebrook a Chief of Navy's Commendation. Arrangements were made for the award to be presented at the Mansfield Hospital where the recipient was battling cancer on Monday, 6 November. Sadly, Tony died on Saturday 4 November and the award was presented to Phyllis Grazebrook by Admiral Hudson at the Funeral Service.

Tony Grazebrook is survived by his wife, a son and daughter and 4 grandchildren.

## CHIEF OF NAVY COMMENDATION

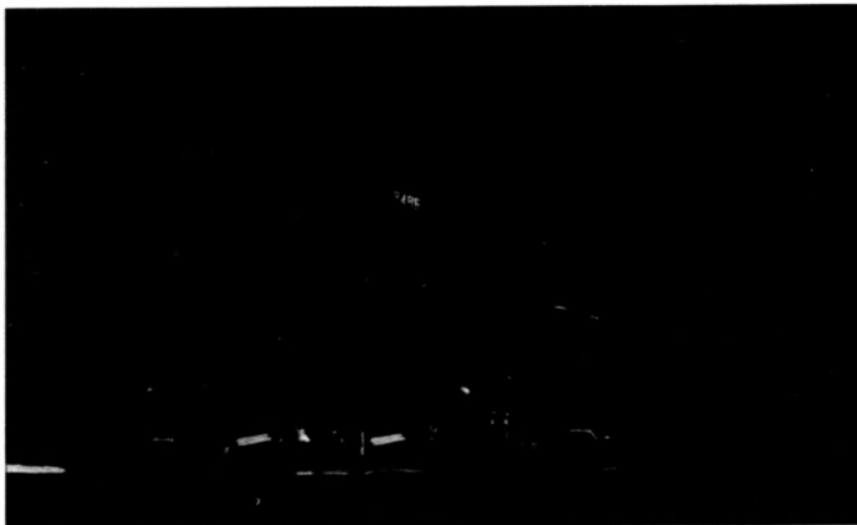
Commander Anthony Worrall GRAZEBROOK RD, RANR

I commend you for the devoted support you have given to the Royal Australian Navy over many years. Your modesty and discretion have meant that much of your contribution has hitherto gone largely unremarked and unrecorded, but you have made an extraordinary mark on the RAN. Your outstanding service as a Naval Control of Shipping specialist in the Royal Australian Naval Reserve contributed significantly to the development of the NCS Branch and to the maintenance of the Navy's protection of shipping capabilities. Active in the Navy League of Australia and other organisations, and as a defence correspondent, culminating in your editorship of the *Asia Pacific Defence Reporter*, you have been one of the leading proponents of the need for a well-equipped and properly resourced Navy in keeping with Australia's national security requirements. Your expertise and judgement have ensured that all your contributions to the national debate have been listened to with the utmost respect and you have done much to ensure that there has been balance and objectivity within what has been available to the public in Australia. You have not hesitated to make your time and energy available to assist the Navy in and out of season, whether in support of its future development, to educate its people or to record and analyse its past. You have provided wise and helpful advice to generations of naval officers, advice all the more appreciated because of the trust and regard in which you are held by all in the RAN.

Your achievements have been exceptional and I take this opportunity of publicly recording my deep appreciation on behalf of myself, and my predecessors as Chief of Naval Staff and Chief of Navy, and of all the Navy family.

**D. J. SHACKLETON, AO  
VICE ADMIRAL  
CHIEF OF NAVY**

\*Federal President Graham Harris and Advisory Council Chairman Geoff Evans appeared before the Melbourne hearing of the JCPAA.



A SA-321G Zhi-8 Super Frelon helicopter with a Luda class destroyer in the background. The PLAN owns six of these ASW helicopters.

By Neil Davis

The PLAN (Peoples Liberation Army Navy) is acquiring new ships, weapons systems and technology in its pursuit to develop a blue water fleet. Its ultimate goal is to dominate the seas out to the first island chain, from Japan to the Philippines, and the South China Sea to the Straits of Malacca, and to promote the reunification of Taiwan. Neil Davis examines the PLAN today and what tomorrow has in store.

The PLAN consists of 268,000 personnel. Of that figure there are 7,000 marines, 28,000 Coastal Defence Guards and 25,000 in the PLAN Air Force (Fleet Air Arm). These numbers also include 41,000 conscripts who serve for three years.

While it has a large fleet of about 64 destroyers and frigates, 67 submarines, 87 missile boats and over 230 other attack and patrol craft, most are technologically inferior to ships of western designs that make up the fleets of regional navies such as Taiwan, Korea and Japan. Only six of its surface combatants could be classed as world standard. While it lags behind in most technological areas its main weaknesses are air defence, surveillance and in C4I (Command, Control, Communications, Computers, Intelligence), which has confined the PLAN to operations close to shore under PLAFAF (Peoples Liberation Army Air Force) aircover.

The PLAN fleet is broken up between three operational commands, the North Sea Fleet with its Headquarters at Qingdao, the East Sea Fleet with its Headquarters at Ningbo and the South Sea Fleet based at Zhanjiang. Each fleet also has a number of other bases spread along the coast.

The PLAN's modernisation program is mostly of local design and construction with major technology purchases from Russia and licence production. This includes surface combatants, submarines, anti-ship missiles, anti-air systems and command and control systems.

## Ballistic Missile Submarines

The strategic missile submarine force currently consists of two submarines. The first is a 6,500 ton nuclear powered Xia class (Type 092) SSBN which was launched in 1981 and commissioned in 1987. It is armed with 12 JL-1 SLBM's (Submarine Launched Ballistic Missiles) each fitted with a single 250 kt nuclear warhead with a 1,800 km range. The XIA is thought to have commenced a major update in 1995 which included fitting the improved JL-1A SLBM with increased range, but this is yet to be confirmed. The submarine also has six 533 mm torpedo tubes and carries Yu-3 (SET-65E) homing torpedoes.

The second ballistic submarine is an old 2,950 ton conventionally powered Golf class SSB (Diesel Electric Ballistic missile submarine), which was launched in 1966 and refitted in 1995 to be used as the trials vessel for the new JL-2 SLBM. It was also the trials submarine for the JL-1 when it was successfully test fired in 1982. The Golf class submarine only carries one SLBM. Both submarines are based with the North Sea Fleet.

The first of four new 8,000 ton SSBNs, the Type 094, is expected to commence construction this year. There are also unconfirmed reports that up to 12 boats could eventually be built. There have also been reports of problems with the nuclear reactor power plant which could delay the eventual deployment date. This submarine will be armed with 16 of the new JL-2 missiles which have a



A Han class SSN on the surface. After each patrol crew members spend some time in hospital recovering from mild radiation poisoning as shielding from the reactor inside the submarine is quite poor.

range of 8,000kms. When deployed this missile will allow Chinese SSBNs to target portions of the United States from operating areas near the Chinese coast. The planned in-service date is not known.

## Attack and Patrol Submarines

The PLAN patrol submarine force consists of five Han class SSNs (nuclear powered submarines) and about 60 SSKs (conventionally powered submarines). The SSKs include two Song, four Russian/Kilo, 17 Ming and 37 Romeo. Actual vessels available for operations are difficult to quantify as the fleet suffers from mechanical problems (especially the Romeos), lack of trained crews and scheduled refits.

The first of the five 5,550 ton Han class (Type 091) SSNs was launched in 1974 but did not become operational until the early 1980s. The last was commissioned into service in 1990 and all are serving with the North Sea Fleet. They have six 533 mm torpedo tubes and carry a combination of 20 Yu-3 (SET-65E) active/passive homing torpedoes, Yu-1 (Type 53-51) torpedoes and YJ8-2 (C-801) ASM (Anti-Ship Missiles). The Han are noted for their problems which include high levels of internal radiation. Apparently crews usually spend some time in hospital between cruises recovering from mild radiation poisoning. Also, their inability to fire missiles while submerged limits their wartime effectiveness. The first pair were extensively refitted in the late 1980s and included the installation of French designed sensors. The next pair completed a midlife refit earlier this year. At least four of the class are currently operational.

The first of two hulls of a follow-on class of 6,500 ton SSN (Type 093) commenced construction in 1994 with a launch date expected in 2002 and in-service by 2004. However, delays are expected by the priority to finish the Han refits first. The type 093 has been developed with considerable Russian assistance and has been based on the Soviet Victor III class SSN. They will have six 533 mm torpedo tubes capable of firing a range of torpedoes and ASMs, possibly including a follow-on to the C-801 as well as the projected Land Attack Cruise Missile.

To complement its other indigenous submarine building programmes, the PLAN has purchased four Kilo class SSKs from Russia. These 3,000 ton submarines represent a huge advance in technology over other Chinese submarines as they are considerably more quiet, have



A Russian Kilo class submarine. The PLAN currently has four of these very advanced SSKs.

powerful sensors and are well suited for operations in confined and shallow waters. China purchased two of the earlier Type 877 Kilos in 1995 and two of the more advanced Type 636 in 1998 and 1999 with all based with the East Sea Fleet. The first pair have been suffering from propulsion/battery problems due to cost cutting on the original specifications. Featuring a double hull and an outer covering of sound dampening tiles, they have six 533 mm torpedo tubes and carry a combination of 18 TEST 71/96 wire guided torpedoes and passive wake homing torpedoes. Some may also be armed with an SA-N-8 anti-aircraft missile launcher in the fin. Reports suggest that China has agreed to buy a further six of this class and are negotiating to transfer the technology for Chinese construction. It is also possible that follow-on orders may involve the newer Russian Amur class SSKs.

The Song (Type 039) class is the first indigenous Chinese design using a teardrop hull and sound dampening tiles. It also incorporates a German propulsion system and a French designed sonar and said to be as quiet as an American Los Angeles SSN. Overall, their technology is equivalent to the international level of the early 1980s. Continued production of the Ming class suggests that there have been problems with the Song class and various upgrades are reported to be under development, possibly learning from experience gained from the Kilo's. The first Song was launched in 1994 and commissioned in 1999. Two more are expected this year ahead of what is expected to be series production. They have six 533 mm torpedo tubes for a combination of Yu-4 (SAET-60) homing torpedoes, Yu-1 (Type 53-51) torpedoes and YJ 8-2 (C-801) SSM (Surface to Surface Missiles).

The 2,100 ton Ming class (Type 035) is basically a remodelled Soviet Romeo. While these submarines are obsolete by modern standards, they are useful for ASW training and coastal patrol duties. Construction continues to provide an inexpensive replacement for the ageing Romeo class. The first three Mings were built in the 1970s and have since been retired. After a redesign, series production commenced in 1987. The first 15 are operational with the North Sea Fleet and two are with the South Sea Fleet. An additional two were launched in 1999 and are not yet operational but expected to deploy with the South Sea Fleet as well. The Ming's have eight 533 mm torpedo tubes, six forward and two aft, for 16 torpedoes of the Yu-4 (SAET 60) passive homing type and the Yu-1 (53-51).

Only 37 out of the original 84 Romeo class (Type 033) submarines built are thought to be still in service. Construction commenced in 1962 and finished in 1987. Battery refits are being conducted and some of the newer boats have had French designed passive ranging sonar installed. ASW capability is virtually non-existent. Operational numbers are difficult to determine as each submarine only spends a few days at sea a year due to the lack of trained crews and poor maintenance. Another 31 Romeo's are held in operational reserve. The 1,800 ton submarines have eight 533 mm torpedo tubes, six forward and two aft, for 14 torpedoes of the Yu-4 (SAET 60) passive homing type and the Yu-1 (53-51). All are spread between the three fleets.

## Aircraft Carriers

Construction of a 48,000 ton aircraft carrier has commenced this year with a completion date of 2005. It will be powered by a TB12 steam turbine engine obtained from Russia to drive the ship to a top speed of 30 knots. The earliest commissioning date would be 2010. In June 1999, Russia approved the sale of Su-30MK fighters to China. Some reports suggest that these are for the carrier as over 100 Chinese pilots have already been trained to take off and land on a carrier deck – presumably a land based mock-up.

As reported in *THE NAVY* Vol. 62 No. 3 (July-Sept. 2000) China has acquired the ex-Russian carrier KIEV. It is not known what the Chinese intend to do with her as the Russians have stripped the ship of all military equipment. This is a sister ship to the ADMIRAL GORSHKOV, which the Indian Navy has acquired to be modified in Russia. Other ships of the class, MINSK and NOVOROSSIYSK were sold for scrap to South Korea in 1995. Chinese interests then purchased the ships with MINSK turned into a floating military museum and fun park in port of Shenzhen.

## Destroyers

The PLAN destroyer fleet consists of 24 ships made up of two Sovremenny, two Luhai, two Luhu and 16 of the Luda class. This includes vessels due for delivery this year. Only the Sovremenny and the Luhai could be considered modern.

The two new 8,000 ton Russian built Sovremenny class destroyers (Type 956E) are by far the most modern and most powerful ships in the Chinese fleet. The first arrived in early 1999 with the second due this year. Their main



A Russian Sovremenny class destroyer. Originally designed to counter USN Carrier Battle groups, the PLAN has two new and acquiring two second hand Sovremennys bringing their total to four of these powerful ships.

armament consists of eight supersonic Raduga SS-N-22 Sunburn (Moskit 3M-80) SSMs with a 120 km range. They also have two launchers for SA-N-7 Gadfly SAM with 44 missiles and a range of 25 km at 14,000 m with multiple channels of fire. NGS (Naval Gunfire Support) is provided by two twin 130 mm mounts. The class is also armed with four 30 mm CIWS; mine rails for 40 sea mines; two A/S RBU 1000 six barreled mortars; two twin 533 mm torpedo tubes and one Harbin Zhi-9A Haitun helicopter (French made Dauphin). The lack of an area defence system is the only weakness of this class. It was reported in *THE NAVY* Vol. 62 No. 3 (July-Sept. 2000) that Russia has agreed to sell two of its existing Sovremenny destroyers to China, which will bring the total to four. Other reports indicate that China would like to acquire further second hand units or construct locally.

The 6,000 ton Luhai class (Type 054) destroyer is a significant improvement over the Luhu class and features some radar reducing measures and room for a more significant anti-aircraft system. The first of two was commissioned in 1999 with the second due shortly. It is believed that an additional two could be constructed before series production commences. They are armed with 16 C-802 (CSS-N-8 Saccade) SSM with a range of 120 km, and one octuple SAM launcher for HQ-7 (Crotale) with a range of 13 kms. Provision has been made for installation of the improved VLS HQ-9 as soon as it is available. They also have one twin 100 mm gun mount, four twin 37 mm anti-aircraft guns, two triple 324 mm torpedo tubes and two Zhi-9A Haitun helicopters.

Until the Luhai, the most sophisticated ships in the PLAN were the 4,200 ton Luhu class (Type 052) which incorporated considerable western technology obtained before the Tiananmen Square massacre. These were the first truly multi-role Chinese built ships and though still obsolete by western standards, the improvement in anti-aircraft warfare by the introduction of the HQ-7 meant that for the first time Chinese built warships could venture into more distant waters. Only two ships of this class were built, being commissioned in 1994 and 1996. They are armed with eight C-801 or C-802 and one octuple SAM launcher for HQ-7. They also have one twin 100 mm gun mount, four twin 37 mm anti-aircraft guns, two triple 324 mm torpedo tubes, two QFQ 2500 12 tubed fixed A/S mortar launchers and two Zhi-9A helicopters.

The 3,250 ton Luda class destroyers, a development of the Russian Kotlin class, was first completed in 1971. A



A Jiangwei class frigate. Note the large missile launcher behind the main gun for the HQ-61 anti-aircraft missile system. The HQ-61 is being replaced on newer ships of the class with the more capable French made Crotale (HQ-7).

total of 16 ships are in service split between the various fleets. The principle mission of this class is anti-ship strike for which it is armed with two triple launchers for six HY-2 (C-201) (CSS-C-3A Seersucker) SSM with a range of 95 kms, or eight C-802 (CSS-N-8 Saccade). All but two have no SAM system, instead, having four twin 57 mm or 37 mm anti-aircraft gun mounts. Two ships have been fitted with the HQ-7 launcher in place of the aft gun mount which is expected to be fitted to the rest of the class. They also have two twin 130 mm gun turrets, two triple 324 mm torpedo launchers, two QFQ 2500 12 tubed fixed A/S mortars, two to four depth charge projectors and sea mines. Two ships have been modified to a Type II standard with a helicopter deck and hanger for two Zhi-9A helicopters in place of the aft 130 mm gun turret and anti-aircraft guns. Electronics also vary in some of the later ships. The last ship built was extensively modernised, primarily for ASW missions, and referred to as a Type III. It has eight YJ-1 (C-801) (CSS-N-4 Sardine) SSM's and provision for the CY-1 anti-submarine missile.

## Frigates

The first of four 2,250 ton Jiangwei class (Type 055) frigates entered service in 1991 with the last commissioning into service in 1994. They are armed with six YJ-1 (C-801) or C-802 SSM and one sextuple launcher for HQ-61 SAMs with a 10 km range. This SAM system has proved unsatisfactory and may be replaced with the HQ-7. It also has a twin 100 mm gun turret, four twin 37 mm anti-aircraft gun turrets, two RBU 1200 five tubed fixed A/S mortars and one Zhi-9A helicopter. All four are deployed with the East Sea Fleet.

The Jiangwei II class (Type 057) is a follow-on to the Jiangwei class. They incorporate the improved HQ-7 SAM, re-arrangement of the aft anti-aircraft guns and an upgraded fire control system and radar. All five ships of the class were commissioned in 1998 and 1999. Another follow-on class the Jiangwei III (Type 059) is expected to commence construction before 2005.

The most numerous class of surface combatant is the 1,425 ton Jianghu class (Type 053) frigate. All 31 ships were built from the mid 1970s until 1996. The early variants of this small frigate are only useful for coastal patrol as they lack gunfire control radars and modern missiles. Several different versions were built with slight variations in design. They are armed with four (two twin

launchers) HY-2 (C-201) (CSSC-3 Seersucker) SSM. Some have two single 100 mm guns fore and aft, while others have two twin 100 mm gun mounts. They also have six twin 37 mm anti-aircraft guns, a number have only four twin mounts. They are also armed with two RBU 1200 five tube fixed A/S mortars, two BMB-2 depth charge projectors and can carry up to 60 mines. Some of the ships are being modernised with new fire control and electronics equipment while one has had a towed array sonar fitted. Three of the class were built to a Type III standard with an enclosed upper deck midship. They also have eight YJ-1 (Eagle Strike) (C-801) (CSS-N-4 Sardine) SSM and improved electronics. Another, known as a Jianghu II, has a helicopter deck and hanger in place of half of the armament.

## Other Vessels

The PLAN also has a large number of support vessels that include: three fleet replenishment ships, with another three under construction; three salvage and repair ships, with one building; six submarine support ships; 35 minesweepers; one helicopter training ship; four missile tracking ships to support ICBM test firings and many other ancillary vessels including intelligence gathering ships.

## Amphibious Warfare

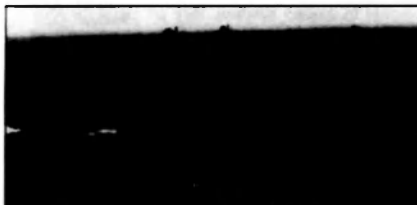
The Marine Corp of the PLAN comprises about 7,000 troops organised into two brigade groups. Sea lift is provided by six troop transports, 18 LST's (plus one building), 37 LSM's (plus three building) and a large range of landing craft. Total sea lift ability is assessed at 11,000 troops and 250 tanks.

## PLAN Air Force

The PLANAF is a large organisation with over 1,000 aircraft and helicopters of various types. For maritime patrol and ASW the PLANAF operates four elderly Be-6 amphibians, six of the newer PS-5 amphibians and 20 Y-8 (IL-20) maritime patrol aircraft. All have four turbo prop engines and operating ranges well in excess of 1,000 miles. The PS-5 and the Y-8 have modern sensors and carry heavy war loads including C-801/802 anti-ship missiles.



A French designed Crotale anti-aircraft missile streaks from its launcher on a Luhu class destroyer. The missile has a range of 13 kms and fast becoming the PLAN's prime anti-aircraft system.



Three Ming class SSKs on the surface. The Ming is basically a remodelled Russian Romeo class submarine and provides the PLAN with a cheap training boat and replacement for the Romeo.

This force is backed up by 14 H-6 (Tu-16 'Badger') medium bombers, which have a combat radius of 750 miles and can also carry anti-ship missiles. Around 40 of the new Chinese developed JH-7 twin engine attack bombers are thought to be operated by the PLANAF. This aircraft is considered to be roughly in the same class as the Tornado and Su-24 'Fencer' strike aircraft. It has a combat radius of 490 miles and can carry a heavy load of guided and unguided munitions. There are also 45 elderly H-5 (IL-28) torpedo bombers of dubious value.

Air defence is provided by 96 J-5 (MiG-17), 320 F-6 (MiG-19), 320 F-7 (MiG-21) and 33 J-8 (Chinese development based on the MiG-21 airframe) fighters. Most of these aircraft are so obsolete it is considered doubtful if they could play any function at all in a conflict situation. From 2001 the new J-10 twin engine fighter will start entering service to replace many of the older fighters. The J-10 was built with Israeli assistance and is loosely based on the cancelled Israeli Lavi. A naval version is expected to deploy on the future aircraft carrier. Also, as mentioned earlier, the Chinese decision to purchase the Su-30MK could be for deployment on the future carrier.

## Conclusion

When measured by number of units and personnel the PLAN is impressive. It is the world's sixth largest Navy (after the US, Russia, UK, France and Japan), but it is more backward than any other major Navy with very low technological, maintenance and operational standards. Its efforts to modernise are slow with small amounts of equipment imported from France and Russia. China has been frustrated by Russia's preference for sales of complete systems rather than technology transfers.

As China does not have any seaborne aviation assets and lacks an area air defence capability, the surface Navy is quite vulnerable to air attack beyond the limited air defence cover of the PLANAF. Only the two Sovremenny, two Luhai and two Luhu classes of destroyers could be considered 'world standard' while the rest of the fleet is technologically obsolete and seldom puts to sea due to poor maintenance. The inferior quality of Chinese technology is



The PLAN's main ASW helicopter is the Harbin Zhi 9A Haitun (essentially a French Dauphin 2). The PLAN is slowly realising the value of ship borne helicopters with nearly all its new designs incorporating helicopter facilities.

highlighted by the experience of Thailand which purchased six Jianghu class frigates in the 1980s. The workmanship was so poor that the first four ships delivered had to be overhauled as soon as they arrived in Thailand. The diesel engines were so unreliable that the ships were confined to coast guard duties. The last pair were delivered as empty hulls so the Thai's could fit western propulsion, sensors and weapons.

The most important element of the PLAN is its submarine force which, except for the few Kilo's and possibly the Song's, is mostly non-operational and technologically backward, despite the presence of SSN in the fleet.

Despite all the hype about the modernisation of China's armed forces, including the PLAN, China's offensive capabilities remain quite limited and will continue to be for some time, at least till after 2010. Many Chinese vessels rarely put to sea and military manoeuvres are smaller and less frequent than those of most major powers, which raises doubts about China's ability to coordinate and successfully execute complex offensive operations. By contrast, Taiwan, has the world's seventh largest surface fleet, ranking just behind China, but arguably more powerful. In the last decade or so Taiwan has added 24 new frigates to its fleet and plans to replace another 13 old frigates and destroyers in the next few years. Plans also include four US Aegis destroyers. Taiwan's lack of submarines (only two in service) compensates for China's weak anti-submarine warfare capabilities, but the PLAN would be almost helpless to defend itself from a strong submarine force. Even in the South China Sea the PLAN would find it difficult if needed to confront the more modern and expanding Navies and air forces of Thailand, Malaysia and Singapore.

However, in line with its ambitions, China is building an Indian Ocean presence in the Coco Islands in the Bay of Bengal by upgrading the naval base on Hianggyi Island as well as building a Signals Intelligence facility on Great Coco Island. This facility will allow the Chinese to monitor the activities of the Indian Navy. This has prompted an Indian response to expand its naval activities and interests into the South China Sea with multilateral and unilateral exercises.

Nonetheless, China has successfully made use of grandiose diplomatic posturing and bullying to promote the perception of a powerful threat when in reality its capabilities are very limited beyond its coastal regions.



A C-801 anti-ship missile being fired from a Luhu Class destroyer. The missile has a range of 40kms and is closely modelled on the French Exocet.

# PRODUCT REVIEW

## "SEA OUR SAVIOUR"

By REAR ADMIRAL K. Sridharan AVSM (Retd)  
Available from: Rear Admiral K Sridharan AVSM (Rtd)  
G-001 'Farah Residency'  
234 Defence Colony  
4th Main, 6th Cross  
Indiranagar  
Bangalore - 560 038  
India

Copies are A\$36 including postage and packaging (cheques should be crossed over to Indian currency)  
Reviewed by John Mortimer

The primary purpose of the author is to educate Indians to realise the importance of the sea, and the economic well being that flows from it for India. This is not surprising given that the Indian Navy has been very much the poor cousin in recent years of the Indian Armed Forces.

This book takes a very broad approach to its subject and canvasses the spectrum of India's maritime heritage. About half the book provides background to the maritime development of India. The continental approach of the medieval period is contrasted to the colonial period and the struggle between European and Arab traders for supremacy is explained, as is the transition between Portuguese, Dutch, French and finally the British influence. The author then analyses India's overseas trade, Law of the Sea issues and the wealth that resides in the oceans.

There is quite a lengthy discussion of Indian shipbuilding, ship repair, shipping and port and harbour development. This is followed by a most interesting discussion of India's maritime defence. Within this latter section some of the little known actions of the Indian Navy are covered. In particular new light is shed on the liberation of Portuguese possessions in India, including the action between Indian Navy frigates and a Portuguese frigate, resulting in the loss of ALPHANSO DE ALBUQUERQUE, details of the Indian/Pakistan war of 1965 and the role of the Navy in maintaining peace in Sri Lanka and the Maldives.

The author is to be commended for his talent in getting his message across about the fundamental importance of sea power. His plea for peaceful cooperation of countries surrounding the Indian Ocean Rim is particularly timely given the Indian Navy's forthcoming international naval review, whose theme is "Bridges of Friendship".

Overall, this book is highly recommended for those with an interest in maritime matters, sea power or the Indian Navy.

## "THE OFFICIAL CHRONOLOGY of the US NAVY in WORLD WAR II"

by Robert J. Cressman  
Published by: Chatham Publishing, London United Kingdom  
Distributed in Australia by:  
Peribo Pty Ltd, 58 Beaumont Rd, Mount Kuring-Gai, NSW 2080. Phone (02) 9457 001

Price: \$95.00

Reviewed by: Vic Jeffery

The United States Navy originally published a chronology of its operations in World War II in 1955. Titled "US Naval Chronology, WW II", it is now long out of print.

It focused on what were then defined as critical and decisive events, strangely omitting the US submarine campaign completely. Auxiliaries and amphibious ships and their loss or damage fared no better and was also ignored.

Author Robert J. Cressman, a historian in the Contemporary History Branch of the Naval Historical Center in Washington, DC, jumped at the chance to revise and expand the original work.

Included in this just released book are accounts of naval battles in which enemy vessels were damaged but not sunk. Wherever it can be ascertained, what enemy ships were damaged in encounters with American ships or planes, the enemy vessel is named. The USN's operations against German blockade-runners, largely omitted from the original, are also included.

Few people would realise that the first USN torpedo motor boat was the British-built SCOTT-PAINE PT-9. It was off-loaded from the merchant ship SS PRESIDENT ROOSEVELT in New York Harbour on 5 September, 1939. It was the prototype for the MTB's constructed by the Electric Boat Company.

I was surprised to read where the USN destroyer EDSALL was damaged by the explosion of its own depth charges during an attack on a submarine in Howard Channel Clarence Strait, one of the approaches to Darwin on 23 January 1942. This is of course was three days after EDSALL in company with the Australian corvettes DELORAIN, KATOOMBA and LITHGOW had sunk the large Japanese submarine I-124 off Darwin.

Lieutenant Commander Lyndon Johnson, USNR, in the South Pacific on a congressional inspection tour, went along as a passenger in a USAF Marauder bomber during a bombing raid at Lae, New Guinea on June 9, 1942. Engine trouble forced the pilot to abort the mission and the plane did not see combat. Inexplicably, however, Johnson receives a Silver Star for 'gallantry'. He went on to become the 36th President of the United States.

This is a first class reference book and although relating to the US Navy, contains many references of Australian actions at sea and in the air during World War II.

Ninety carefully selected US Naval Archive black and white photographs support it. There is a very graphic shot of a sailor training a fire hose through the roof of a turret onboard the cruiser USS SAVANNAH on 11 September 1943. It had taken a direct hit from a German rocket bomb off Salerno, while his shipmates treat casualties laid out on the deck.

Another graphic photo shows the destroyer USS HALSEY POWELL working-up to full speed to clear the stricken aircraft carrier USS HANCOCK, when it is also hit by a Japanese Kamikaze on 20 March, 1945.

Without question, this 367-page book must rate as one of the best chronologies I have come across. Crammed with information, it is worth every cent of its price tag.

## STATEMENT of POLICY

Navy League of Australia

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.

# THE NAVY

## The Magazine of the Navy League of Australia



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*the Hospitality Students of Drysdale House*



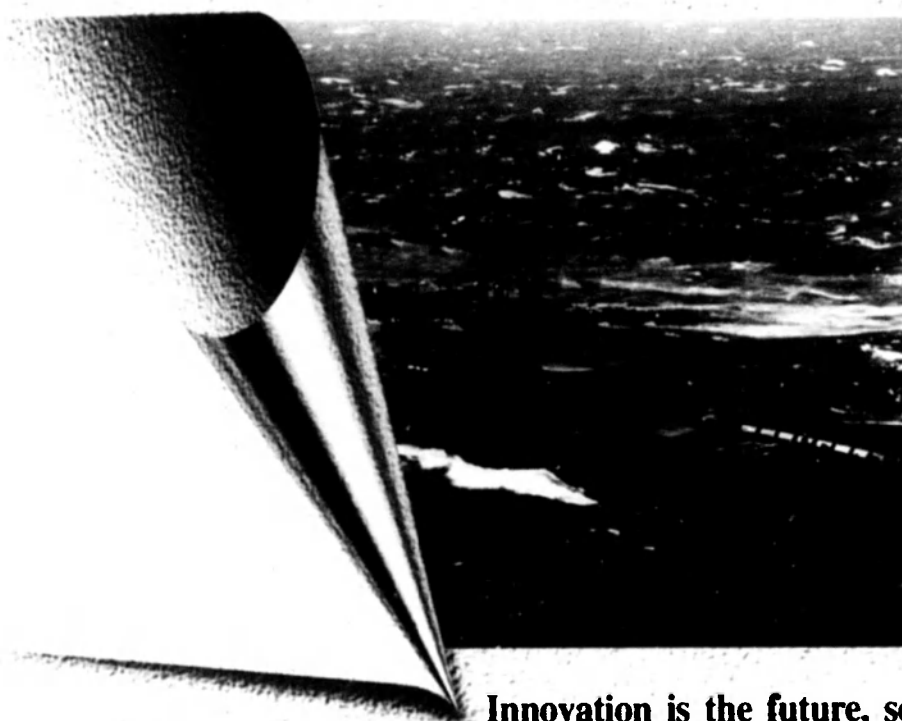
*or the head table at the Navy League 100th Anniversary dinner*

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# The Navy League of Australia

## APPLICATION FOR MEMBERSHIP

### **HISTORICAL**

*The Navy League was established in Australia in 1901, initially in the form of small branches of the United Kingdom Navy League (established in 1897) and since 1950 as an autonomous national body headed by a Federal Council consisting of a Federal President and representatives of the six States, the Australian Capital Territory and the Northern Territory.*

*The Navy League of Australia is now one of a number of independent Navy Leagues formed in countries of the free world to influence public thinking on maritime matters and create interest in the sea.*

*The Navy League of Australia cordially invites you to join us in what we believe to be an important national task.*

## MEMBERSHIP

Any person with an interest in maritime affairs, or who wishes to acquire an interest in, or knowledge of, maritime affairs and who wishes to support the objectives of the League, is invited to join.

## OBJECTIVES

The principal objective of the Navy League of Australia is "The maintenance of the maritime well-being of the Nation" by

- Keeping before the Australian people the fact that we are a maritime nation and that a strong Navy and a sound maritime industry are indispensable elements of our national well-being and vital to the freedom of Australia.
- Promoting defence self reliance by actively supporting manufacturing, shipping and transport industries.
- Promoting, sponsoring and encouraging the interest of Australian youth in the sea and sea-services, and supporting practical sea-training measures.
- Co-operating with other Navy Leagues and sponsoring the exchange of cadets for training purposes.

## ACTIVITIES

The Navy League of Australia works towards its objectives in a number of ways:

- By including in its membership leading representatives of the many elements which form the maritime community.
- Through soundly-based contributions by members to journals and newspapers, and other media comment.
- By supporting the Naval Reserve Cadets, and assisting in the provision of training facilities.
- By encouraging and supporting visits by recognised world figures such as former United States Chiefs of Naval Operations and Britain's First Sea Lords.
- By publishing *The Navy*, a quarterly journal reporting on local and overseas maritime happenings, past, present and projected.
- By maintaining contact with serving naval personnel through activities arranged during visits to Australian ports of ships of the Royal Australian and Allied Navies.
- By organising symposia, ship visits and various other functions of maritime interest throughout the year.

Member participation is encouraged in all these activities.

## JOINING THE LEAGUE

To become a Member of The League, simply complete the Application Form below, and post it, together with your first annual subscription of \$24.20 (which includes the four quarterly editions of *The Navy*), to the Hon Secretary of the Division of the Navy League in the State in which you reside, the address of which are as follows:

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Subscriptions are due on 1 July in each year, and your membership will be current to 30 June immediately following the date on which you join the League, except that if your first subscription is received during the period 1 April to 30 June in any year, your initial membership will be extended to 30 June in the following year.

## THE NAVY LEAGUE OF AUSTRALIA

### Application for Membership

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The Navy League of Australia

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Instructional camps are arranged for Cadets and they are also given opportunities, whenever possible, to undertake training at sea in ships of the Royal Australian Navy.

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*For further information, please contact the Senior Officer in your State, using the addresses provided below:*

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**SEA 4000, WHERE TO FROM HERE?**

APRIL – JUNE 2001  
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VOLUME 63 NO. 2

\$5.45 (including GST)

# THE NAVY

The Magazine of the Navy League of Australia

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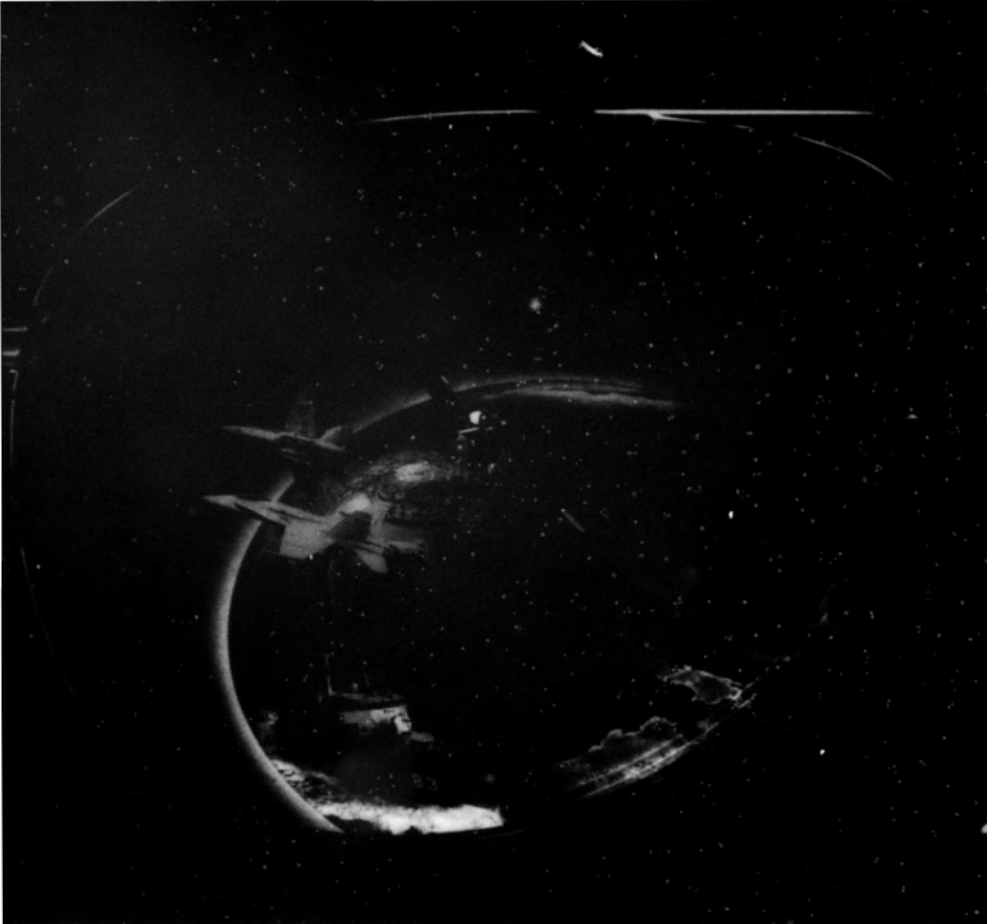
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# THE NAVY

Volume 63 No. 2

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Front cover: The USN Spruance class destroyer USS HEWITT leaving Sydney Harbour after a recent visit. (Brian Morrison, Warships and Marine Corps Museum Int)

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Deadline for next edition 5 May, 2001

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Recent press releases from the new Defence Minister, The Hon. Peter Reith, and reports in the WEST AUSTRALIAN newspaper, have indicated that the Federal opposition, if successful at the next election, plans on acquiring two more Collins class submarines with funding obtained by cancelling other Navy projects. If true, the addition of two extra submarines would certainly be welcomed but the notion of robbing Peter to pay Paul is not! This column has warned in the past that the Federal opposition may spoil the ADF's gains from the recent White Paper, unfortunately that warning may come true if current opinion polls are correct indicating a change of government. The 2000 White Paper is somewhat ground breaking as it heralds the dawn of a new age for Australian Defence in strategy, capability and funding. In this edition of *THE NAVY*, Asia-Pacific Defence Reporter's new naval writer, Dr Roger Thornhill, examines the current air warfare combatant market with the view to answering the question 'what is available?' In the article he also reminds readers about the last time the Navy had an air warfare plan decimated by a change in government, coincidentally from coalition to Labor. In 1983 the new Labor Government cancelled plans for the replacement of the aircraft carrier MELBOURNE thus significantly shifting the strategic balance in the region to this day.

In the last edition of *THE NAVY* I warned of the Opposition's preference for its own defence model, known as Fortress Australia, and its effects on Navy. In doing so I was hoping to elicit a response from the Shadow Minister's office, who incidentally received several copies of the magazine. However, whilst confirming the claims of new submarines, at the expense of what could only be the air warfare destroyer, I learned that the opposition do not support the current White Paper at all and will announce a totally new Defence policy before the next election, hence their failure to rebuke my warning. For Australia this could mean, a 'Coast Guard' constabulary capability funded from Navy's combat arm: a return to small ships fitted for but not with, a possible cancellation or serious downgrading of the air warfare destroyer and the inevitable massive cuts in funding. Who said history never repeats, despite the fact that our neighbourhood is a different place today than when these same opposition politicians held ministries. Lets hope my warnings are wrong!

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## LSS News

In Vol 62, No. 4 of *THE NAVY* we ran a story on the LSS (Littoral Support Ship) and how a nation girt by sea and in a troubled region could usefully employ such vessels, particularly in light of the recent Timor operation and the White Paper's littoral focus. For this article *THE NAVY* approached one of the world's leading military experts, Dr. Norman Friedman of the US Naval Institute and world renowned author, to write about not only the necessity of such a design but also the ship itself. His findings were extremely favourable and provided a wealth of information even the most ardent sceptics could accept. One would hope with such a pre-eminent international military thinker that his article might be treated as impartial and useful advice. The issue was taken up by a number of responsible mainstream media outlets as a worthwhile idea, *The Sydney Morning Herald* being one. However, the spectre of Australian ignorance raised its head. Some media outlets selfishly tried to sensationalise the LSS and score points off Navy to sell copy. But what was more disappointing was the rumoured reaction of the then Minister for Defence who expressed anger at Navy for having 1), the temerity for thinking laterally about the future and 2), allowing it to spread into the public domain (despite that fact it was unclassified). This issue's news section carries a number of articles with organic maritime-based airpower as a recurring theme. Italy and France have signed separate contracts to purchase new aircraft carriers with similar capabilities to the RAN LSS. Brazil is taking delivery of a much larger and capable aircraft carrier from France. India has completed refit of VIRAAT and publicly stated that even in a period of peace it could not survive without one and that acquisition of two more is vital. Given that current users of aircraft carriers are further enhancing their capabilities does this not mean Australia is out of step with the rest of the world's more professional Navies? Perhaps it's time pragmatism took over from knee jerk reactions to ignorant journalist's taunts with concepts like the LSS getting a fairer hearing. After all Australia is surrounded by water and a long way from anywhere.

# SEA 4000, Where to from here?



Blohm and Voss' F-124 air warfare frigate. The design is currently in the water and being fitted out. It is unique as it uses the APAR radar system making it possible to engage 16 air targets simultaneously. (Blohm & Voss)

By Dr Roger Thornhill

When asked about SEA 4000, the air warfare destroyer project, at the White Paper media conference last December the CDF, ADM Chris Barry, said "I don't think anything I see available off-the-shelf today would meet our needs". With this in mind Dr Roger Thornhill examines what the RAN's needs are and what is currently available on the world air warfare destroyer market.

Given the comments of the CDF where does this leave SEA 4000? Despite having a number of ships already proposed to it, the German F-124, Dutch LCF, Spanish F-100 and Gibbs & Cox's 'International Frigate', all of which represent the current and best COTS (Commercial Off The Shelf) solutions, the RAN has rejected them in favour of even greater capability. The CDF's comments would seem to indicate that industry needs to rethink their product's suitability to the RAN's requirements, including those currently available and yet to be offered.

Senior members of the RAN have in the past publicly articulated what SEA 4000 should embody:

- 6,000 – 10,000 tonnes;
- Long range layered anti-air/missile weapon system;
- Phased array radar capability;
- Extensive C3 facilities;
- Aviation capable – preferably two medium sized helicopters with the ability to embark and support UAVs;
- Capability to apply long range precision fires to land targets – the class should come with a 127mm extended range gun as a minimum with an upgrade path to the new naval 155mm gun (the first steel of the new 155mm naval gun was recently cut in the US). Options should also exist for standoff weapons such as Tomahawk;
- Stealthy – the ability to mask and/or disperse all signatures;
- Growth path to TBMD (Theatre Ballistic Missile Defence);
- Excellent sea keeping – RAN experience in the Southern Ocean has revealed that its area of operation is potentially large and diverse, particularly given the 'inner arc' guidance of the White Paper;

- Commonality in weapons and systems to RAN and to a lesser extent USN;
- Link 16 with capability for higher Links;
- Growth path to CEC – Co-operative Engagement Capability will broaden the AWD's (Air Warfare Destroyer's) horizons (literally) by enabling over the horizon and non-line of sight anti-air engagements. CEC is also able to facilitate faster and more accurate TBMD engagements as well as the capability to see stealth aircraft through integrated AAW pictures;
- Minimum manning through automation – the RAN has had a minimum manning policy, thrust upon it through circumstance, for many years. The AWD should have manning levels significantly lower than the current FFG's 190;
- Long range;
- At least three ships fully fitted – the budget for the AWD is yet to be announced but pre-White Paper estimates put three AWDs, built in Australia, with parts, training and missiles for three years at \$3 billion.

If nothing currently available is appropriate does the RAN aim for a modified-COTS solution or go down the time consuming and potentially risky path of specifically designed ships? Experience with the Collins class project might make a new Defence Minister nervous about a non COTS solution to the next big naval acquisition.

So if the RAN is forced to choose a COTS solution what is currently available on the AAW market? In Europe there appears to be an AAW combatant revolution taking place with six countries designing and building over 30 different types of AAW ships. France, Germany, UK,



A computer-generated image of BAZAN's F-100 air warfare frigate. The first F-100 is currently being fitted out for the Spanish Navy. (BAZAN)

Spain, the Netherlands and Italy are all in the process of adding, or replacing, the AAW capability to their fleets with indigenous designs. But can these ships be modified to fit Australia's needs?

## The Current Market

### The F-124 & LCF (Germany & The Netherlands)

While both of these ships come from different countries, the F-124 – Germany and the LCF – the Netherlands, their AAW suites are so similar that grouping them for the purposes of air warfare is appropriate. Both ships are products of the TFC (Trilateral Frigate Cooperation) MoU (Memorandum of Understanding), which at one stage included Spain, in seeking a commonized solution to each nation's AAW combatant requirements. Whilst Spain left the TFC, Germany and The Netherlands continued to seek commonized solutions designed to lower logistics costs and tendering prices for equipment. This last point saw General Electric offer substantially reduced prices for its LM-2500 gas turbines in order to beat a rival bid from Rolls-Royce Marine.

Each ship's AAW armament consists of SM-2/ESSM from a Mk-41 VLS, a SMART-L rotating 3-D radar for volume search and an APAR multifunction radar for tracking and illumination. It is predicted that each ship will be capable of providing fire control to 16 missiles simultaneously through the APAR system.

The F-124 displaces 5600 tons, has a crew of 255 and carries two helicopters while the LCF displaces 6144 tons, has a crew of 205 and only one helicopter.

Both classes of ship are currently in the water and being fitted out with live fire testing of the SMART-L and APAR system scheduled to commence in 2003.

### Horizon (France & Italy)

The Horizon naval combatant was originally to be a joint venture between many of Europe's navies but fell through as none could agree on weapon and sensor packages. In the end France and Italy remained the only two partners in this joint combatant project. Both partners recently signed a \$2.8 billion contract for four AAW frigates (two for the French Navy and two for the Italian Navy) from the Horizon J.V. company which was created on 16 October 2000 by DCN and Thomson-CSF for the French part, and Fincantieri and Finmeccanica for the Italian part.

Air warfare weapons of the Horizon consist of three 76mm Super Rapid guns and the PAAMS (Principle Anti-

Air Missile System) with the SLYVER VLS for Aster 15/30 missiles only. Each ship will displace 6,500 tons with a crew of 200.

The first Horizon AAW ship is due to be delivered in 2006 with first steel yet to be cut. The two frigates for the Italian Navy will be built in Genova and La Spezia, while the two frigates for the French Navy will be built in DCN's Lorient shipyard. The combat system is being developed in Toulon and Rome with the class being equipped with other systems also developed through European cooperation. Given the European fit out of these ships acquisition by the RAN could present significant logistics problems. In any event, the class's current configuration means that the Horizon does not meet the RAN's requirements unless substantially redesigned with US weapons and systems.

### Type 45 (UK)

The UK Type 42 DDG replacement has been designated the Type 45 Daring class destroyer. Like other European navies, the UK was to have been part of the Horizon project but withdrew to follow its own course.

BAE Systems and Vosper Thornycroft were recently awarded the contract to build the first three Type 45s costing £1 billion with the first steel yet to be cut. It is expected that all 12 ships will cost £6 billion. They displace approximately 6,500 tonnes, are 148m long with a crew of approximately 235. They will be armed with the European PAAMS consisting of a SLYVER VLS for Aster 15/30 missiles, a hang over from the Horizon project. The ships will be powered by the new WR-21 gas turbine engine which will have to be examined by the RAN for its future warships, possibly even for the successful SEA 4000 contender. The question for BAE Systems is can they redesign the Type 45 with SM-2/ESSM and other US systems to provide commonality with the RAN and USN?

### F-100 (Spain & US)

The F-100 air warfare frigate is build by a consortium consisting of the Spanish state owned shipbuilder BAZAN and the US companies Lockheed Martin and Bath Iron Works. Together these companies form AFCON (Advanced Frigate Consortium). The prime builder of the F-100 is BAZAN which is constructing four of the class for the Spanish Navy. BAZAN is the world's 10th largest shipbuilder employing over 11,200 people across 12 production centres. AFCON recently won an order to build five frigates for the Norwegian Navy using many of the systems found on the F-100.

The F-100 has a maximum displacement of approximately 6,200 tonnes, a crew of 218 and is made up of 27 pre-outfitted blocks each weighing approximately



The F-100 frigate will have an Aegis combat system, SM-2 and ESSM making it rather formidable. (BAZAN)

200 tonnes. It is fitted with the SPY-1D radar linked to an Aegis combat system, identical to the 9,000 tonne US Arleigh Burke class destroyer minus the Tomahawk targeting software. The Spanish decided to withdraw from the TFC MoU, which was to build three types of communalised frigates using the SMART-L and APAR radars, as the SPY/Aegis solution presented far less risk than with untested systems. The Spanish Aegis system is also linked to the US models and will undergo all upgrades undertaken by the USN.

The F-100 has two LM-2500 gas turbines (as used in the FFGs and Anzac's), a Mk-41 VLS for SM-2 and ESSM, a Mk-45 127mm Mod 2 gun (upgradable to Mod 4 extended range), Mk-32 torpedo tubes, Harpoon, is designed with Seahawk operations in mind (given the Spanish Navy's use of Seahawk) and is stealthed in the acoustic, IR and radar spheres.

### 'International frigate'

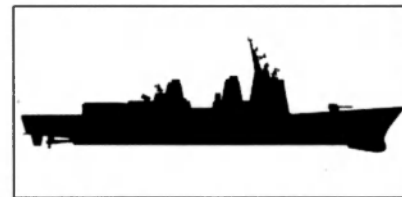
A much less publicised design to be offered to the RAN is the Gibbs & Cox 'International Frigate'. The ship (full blueprints and plans and exclusive use of) was formally offered to the RAN in November of last year. Essentially, the International Frigate is a cut down Arleigh Burke Flight IIA class destroyer. It is equipped with a SPY-1D/Aegis system, a 48 cell Mk-41 VLS for SM-2 and ESSM, an extended range 127mm gun, Harpoon, a Mk-31 RAM launcher and a hangar for one medium sized helicopter. It is powered by two LM-2500 gas turbines and two diesels in a CODOG arrangement. It displaces 5,800 tons, is 144 metres long and has a top speed of 30kts.

Although the 'International Frigate' has not been built nor any orders placed it has an impeccable pedigree as the USN has used the Arleigh Burke extensively in combat around the world's oceans with great success. The recent attack on the USS COLE also highlights the class's inherent survivability.

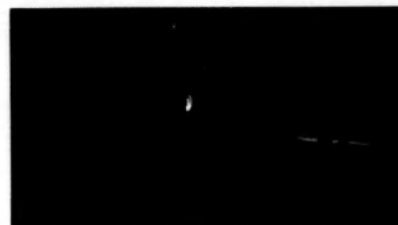
The 'International Frigate' and the Spanish F-100 would have to be classed as the favourites for SEA 4000. While the F-124 with its modular construction and flexible and sturdy design will also prove a worthy contender. The trick now is for their designers to modify their ships, easily done, to meet as many of the criteria listed earlier as possible.

## Conclusion

As the CDF mentioned, none of the preceding ships meet the RAN's requirements, completely. However, to further complicate matters, the year of decision for SEA 4000 currently stands at 2003. Construction should start



An interesting addition to the SEA 4000 contract is the Gibbs & Cox 'International Frigate'. The design already has the nickname 'baby burke' given its close relationship to the USN Arleigh Burke class destroyer both in looks, systems, weapons and capabilities. (Gibbs & Cox)



This computer-generated image shows how remarkably similar the 'International Frigate' is to the USN Arleigh Burke. Gibbs & Cox recently offered the rights to the design to the RAN for sole production and modification. (Gibbs & Cox)

in 2005-6 and the first ship commissioned by 2013 meaning that what is available today will be at least 13 years old when entering service and potentially obsolete. SPY-1 will more than likely have been replaced by SPY-3.

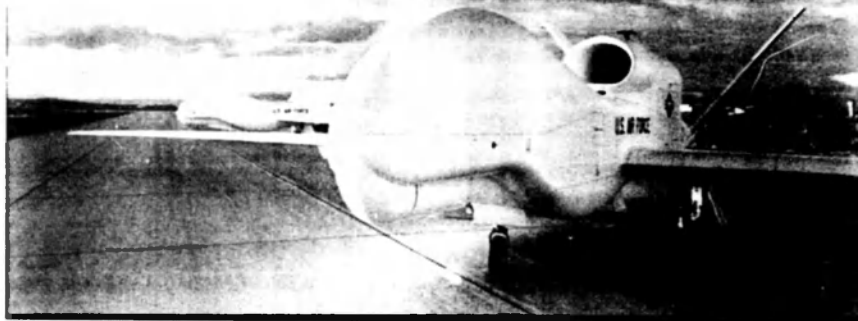
Another factor worth considering in the RAN's current AAW capability is the Standard SM-1MR, used on the FFGs, which is rapidly approaching its life of type. If a solution is not forthcoming in the near future, i.e. well before SEA 4000, then a very serious gap will emerge particularly since MELBOURNE and NEWCASTLE will remain in the fleet until 2020. Options in this situation are refuelling of the current SM-1, replacing the solid rocket propellant, or purchasing SM-2 for use in the FFG's Mk-13 rail launchers, a simple modification. SM-2 capable FFGs would provide Navy with a useful means to progress to the AWD with left over war stocks capable of being modified for use on the AWD as SAMs or as LASMs (Land Attack Standard Missiles – a Standard missile with its semi-active homing head replaced with a GPS guidance system for attacking land targets).

With the FFGs MELBOURNE and NEWCASTLE remaining in the fleet until 2020, and forming an active part of the Navy's ORBAT (Order of Battle), SM-2 would be vital to these ship's and the fleet's AAW capability. However, upon the last two FFG's retirement the fleet could comprise eight Anzacs and three AWDs for a total of 11 surface combatants if no more AWDs are built. This may not provide even the bare minimum of ships for one on station task force for an extended period and one smaller task force for a short period. This in turn affects Army and RAAF operations. Consequently a lot more than three AWDs need to be built and not just to keep Australia's shipyards in business.

An ominous cloud that could yet rain on Navy's air warfare plan is, potentially, the author of the recent White Paper 'Defence 2000'. Given his public disapproval of SEA 4000 and relationship with the current leader of the opposition a change in government at the next election may see the project 'scaled back'. Consequently, it is absolutely vital for industry and Navy to make an immediate start on the AWD and have funds allocated specifically to it in the next budget. Navy should remember what happened in 1983 when a new Labor Government cancelled its then current air warfare plan by not replacing the carrier HMAS MELBOURNE.

*\*This article first appeared in Asia-Pacific Defence Reporter and is reproduced with the permission of the Editor.*

# UAVs and the RAN



Two Northrop Grumman 'Global Hawk' UAV's. The Global Hawk is set to revolutionise many battlespace functions and provide an array of capabilities and connectivity to units around the battlespace. It flies at 65,000ft and has an endurance of approximately 24 hours. (Northrop Grumman)

By George Kaplan

With aircraft carriers being so politically and financially unattractive to many navies, George Kaplan examines the UAV (Uninhabited Aerial Vehicles) market and its ability to provide virtual air power.

*The future - 2011: The Captain of HMAS NEWCASTLE sat amongst the low hum of the CIC (Combat Information Centre), monitoring the actions of his team.*

*They were a good bunch he thought. They had worked hard to get to the level of expertise that had won the 2010 Gloucester Cup from a tough field.*

*Their reward was dispatch to the new front line of an undeclared war, the war against piracy.*

*With the South East Asian nations still mired in their economic malaise, following the complete collapse of their banking sectors in 2004, the region had become a byword for instability. With so many hungry people and not enough work, made worse by the harsh military crackdowns in many of the countries, many of the criminal elements had returned to a traditional form of activity: piracy.*

*The flag carriers of the western nations were seen as easy pickings, minimum manned and easily captured. The number of merchant ships robbed and crews murdered had risen dramatically each year with the ship disposed of via less than scrupulous nations, while the pirates pocketed the profits.*

*NEWCASTLE's sister ship, MELBOURNE, had earlier in the year discovered and boarded the Australian flag carrier AUSTRALASIAN PACIFIC after she had missed several radio calls while traversing the Singapore Strait. The boarding party had been forced to fight their way aboard after coming under fire from pirates who had captured it. Once in control, they found that the entire crew had been murdered and tossed over the side for the sharks. The public demanded action, and that was what the current mission was about.*

*NEWCASTLE was now loitering near the end of the Strait, providing cover for four Australian and New Zealand registered merchant ships. Each had an Eagle Eye tilt rotor UAV following it as they traversed the crowded waterway.*

*"Sir, activity around truck Alpha 3". The surveillance operator said.*

*"Put it on the main screen" the Captain ordered.*

*The 3m x 2m main screen flashed up the scene of a large container ship, the UNION ROTORUA, flying the New Zealand flag. Three motorised sampans were approaching her and as the camera from the Eagle Eye zoomed in it was obvious that each was filled with armed men.*

*The Captain turned to his flight controller and ordered the launch of four of the frigate's Eagle Eye UAV's, each armed with a Maverick missile.*

*The frigate's CIC crew watched enthralled as the three sampans manoeuvred towards the hull of the merchant ship, each filled with more than a score of men.*

*The Captain had no doubts as to what would happen when the pirates got aboard. That was the responsibility of the SAS unit embarked on the merchant before she sailed. He had complete confidence in their ability to handle the pirates.*

*NEWCASTLE had the job of taking care of the sampans, and that was what the Eagle Eyes were for. Each had lifted off from the flight deck, transitioned to wing-borne mode and were now making top speed to the target area. The other surveillance UAV's were also heading to the scene for Canberra wanted video proof of the government's response to the problem.*

*The actual attack lasted less than five minutes before the pirates who had managed to get on board either died, surrendered or dived overboard to escape. Watched by the surveillance UAV, the sampans milled around for several minutes picking up the swimmers before heading towards the nearest shore.*

*"The Eagle's are ready to commence their attack runs Sir" reported the UAV coordinator.*

*"One UAV on each target, and keep the fourth ready to make a follow up attack" directed the Captain.*

*As the image from the surveillance drone pulled back, they could see the three boats suddenly scattering, each taking a separate course towards the shore. Seconds later, one, then another. Smoke trails lifted from the fleeing boats. "Looks like Intel was right about the pirates having shoulder launched SAM's" noted the XO. "The helm wouldn't have lasted long out there".*

*"If all goes well, they won't last long either" commented the Captain.*

*Each sampan was now centred in the lens of one of the surveillance Eagle Eye's, its fate being transmitted back to the ship.*

*Seconds later the UAV controller called from his station. "Missiles locked. Request permission to fire"?*

*'Fire'!*

*Small black shapes appeared in the field of view of each image, streaking towards their targets. Each sampan disappeared in an explosion and cloud of smoke.*

*"Well done everyone. Order the surveillance Eagle Eyes to take up their assigned stations above the merchant ships and lets bring the attack birds home" the Captain ordered.*

*"Make sure that footage gets sent up the satellite link to Canberra. They will want to see this".*

*Well, that should make interesting prime time television the Captain thought. Maybe some pirates might get the message and go back to fishing he hoped.*

*If not, well, he had a hangar full of Eagle Eyes and plenty of Mavericks left.*

Today - 2001: For more than 90 years, naval and aviation visionaries have been seeking new methods of combining sea and air power. From the pioneering work of Glenn Curtiss and Eugene Ely, who flew an aircraft from a ship in 1910, to the multi-million dollar helicopters of today, a common thread emerges. The desire to extend the radius of vision and operations beyond the limits of the horizon, and to allow the naval officer to find and fight the enemy wherever they may be.

Once again naval aviation stands on the threshold of a new era, similar in scope and opportunity to that which began with Ely's pioneering flight from the bow of the cruiser USS BIRMINGHAM on 14 November 1910. The operation of Uninhabited Aerial Vehicles (UAVs) from naval vessels offers gains as startling as those offered by the aircraft in 1910.

UAV's can add dramatic new capabilities in the fields of strike, intelligence, communications and logistics to the naval battle, acting as force multipliers for current operations and opening new avenues for future maritime activities in peace and war.

## Forerunners to today's UAVs

The maritime UAV concept, in a form we would recognise today, began in the 1950s with the development of the Drone Anti-Submarine Helicopter (DASH) by the USN. DASH was a small, short-ranged pilot-less helicopter designed to deliver anti-submarine homing torpedos to the vicinity of a target submarine. DASH lacked detection sensors, acting as a delivery mechanism only. The technology of the day proved unequal to the task and the system was phased out in favour of small manned helicopters, in particular the SH-2 Seasprite.

The Japanese Maritime Self Defence Force also adopted DASH, with rather more perseverance and success than the US, but were happy to move to manned systems with their greater reliability and flexibility.

The return of UAV's to the maritime context took place in the early 1990s, with the deployment of the Israeli-built

Pioneer remotely piloted reconnaissance vehicle aboard the battleships USS MISSOURI and WISCONSIN during the Gulf War. The Pioneers were used to provide real time target location and gunfire observation for the battleship's 16-inch guns. A task they performed extremely successfully.

The Pioneer was launched and recovered from the battleship's quarterdecks - a lineal descendant of the catapult-launched Kingfisher floatplanes which each ship carried during the Second World War. The Pioneer has the added advantage of not subjecting aircrew to the hazardous environment over a modern battlefield, which today's SAMs (Surface to Air Missiles) have rendered almost too dangerous.

## UAV Development

Following the Gulf War, a number of nations, in particular the US, have invested heavily in the development of UAV's for a variety of roles. This is the result of a convergence of a number of factors during the 1990's.

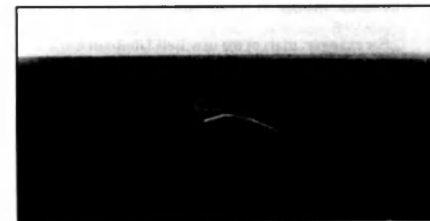
The first is the increasing reluctance of Western democracies to hazard their military personnel to death or capture. The capture and torture of Western aircrew by Iraq during the Gulf War is one well-known example. The loss of US personnel in Somalia, and the resultant television footage of their bodies being dragged through the streets of Mogadishu is generally acknowledged as the reason for the US pullout from that country. Hence the interest in 'Uninhabited' Aerial Vehicles.

The second is the explosion in capability of computing and electronics throughout the last decade. This has made possible the development of ever smaller and more capable computers which allow more capability to be packed into ever-smaller areas.

Taken together with the development of new lightweight composite construction materials, new UAV's are under development which will radically change the way in which military forces undertake their operations. The incorporation of stealth, extraordinary range, new sensor technologies, miniaturisation, limited artificial intelligence, or any combination of these advances, will result in warfare in the 21st century bearing little resemblance to that of the 20th.

## Maritime UAV Operations

One of the first requirements of military operations is to locate your foe, which the new generation of long range UAV's will provide to the task force commander unmatched in history. The Global Hawk UAV is a large



The Predator UAV as used by the USN from its larger decked ships. It can provide round the clock surveillance for units at sea over land or water thus greatly extending the ship's horizons and thus reach. Recently a Predator UAV was fitted with Hellfire missiles and used to independently destroy a target tank. (USN)

UAV developed by the US to provide long-range reconnaissance of areas of interest. The Global Hawk boasts an on station loiter capability of 24 hours at 3,000nm and at an altitude of up to 65,000ft. It can carry a wide range of systems including radar, electro-optical and electronic intelligence gathering sensors while delivering this information directly to a ground station or ship in real time via data links.

A Global Hawk is scheduled to fly from California to Australia later this year to undertake a series of tests in the Australian region. This will be the longest flight by a UAV in history and dramatically underscores the potential of this new capability.

In the maritime context a single Global Hawk tasked to naval support could search a vast area (40,000 sq nm), locating vessels of interest, and providing continuous extended tracking of these vessels for up to 24 hours. A similar capability using RAAF AP-3C Orion aircraft would require a significant effort involving perhaps half a dozen aircraft operating from forward bases.

Such continuous coverage by the Global Hawk would allow a task force commander to plan a strike with full knowledge of the location, make up and disposition of opposing forces. This information could be viewed simultaneously on board ship, at Maritime HQ or ADF HQ in Canberra. It would also allow real time post strike assessment to be undertaken.

A single Global Hawk sortie would also provide a comprehensive monitoring capability over Australia's vast northern coastline, locating and tracking vessels of concern and steering Navy or Customs patrol boats to an intercept well before the offending vessels reach the coast. In an era where drug and people smuggling is on the increase and competition for diminished maritime resources leads to poaching within Australia's 200km Exclusive Economic Zone, high endurance UAV's such as Global Hawk provide an answer. A continuous maritime surveillance capability, which manned aircraft cannot match even at prohibitive cost, can be provided day and night, over vast distances and for long duration's, by a single detachment of Global Hawk UAV's.

## Tactical Operations

Whilst Global Hawk and similar systems can provide surveillance on a vast scale, the operation of UAV's in the maritime arena goes far beyond reconnaissance. The new generation of UAV's can supplement the tactical surveillance and strike capabilities of warships, providing a quantum increase in warfighting potential at relatively modest cost.

For example, trials of the new Bell Tilt Rotor Eagle Eye UAV from USN warships point to the possibility of operating these assets from RAN vessels such as the Adelaide and Anzac Class frigates. An Adelaide class frigate could carry up to half a dozen UAV's in the second helicopter hangar, supplementing the capabilities of the embarked helicopter. The tilt rotor design would allow the UAV's to operate from the comparatively vast flight deck of the frigate with ease.

These small UAV's could be used to provide organic surveillance, strike, defence, covert communications and logistics support to the frigate. Using several UAV's a single frigate could maintain surveillance over a number of areas of interest simultaneously.

Once a target of interest had been located the UAV's could be used in relays to maintain round the clock surveillance of the target, without the frigate exposing itself to surveillance or retaliation.

If a decision was made to undertake a strike against the target several UAV's could be armed with a single Maverick or Hellfire missile and despatched to attack the target. Their attack could be timed to proceed prior to, simultaneously with or as a follow up to the frigates own longer-ranged missiles.

For added options, one of the UAV's might swap its Maverick or Hellfire for one or two anti-radar homing missiles. These could be launched against the target's defending SAM radar to blind air defences. If warranted, one UAV could carry a laser designator to 'mark' the target for laser guided weapons. This would be particularly useful in littoral waters where the target might be lost in coastal radar clutter, or might try and lose itself amongst neutral shipping in crowded waterways.

The same UAV's could also measurably add to the ship's ability to defend itself. Armed with infrared homing missiles such as Stinger or Sidewinder, they could be



The USN/USMC Bell tilt rotor Eagle Eye UAV during flight trials. The Eagle Eye can take off and land vertically with its engine nacelle rotated forward to provide high speed wing borne flight. (Bell)

despatched to shoot down a snooping maritime patrol aircraft, which might otherwise orbit out of range of the ship's own missiles to cue in an air strike. In the event of a missile strike being suspected, the UAV's could also carry decoy transponders to decoy away incoming missiles.

For ASW (Anti-Submarine Warfare) the UAV's could be used to supplement the embarked helicopter providing a fast and responsive ability to lay sonobuoys on suspected targets, without taking the helicopter away from its own area. The ability to load the UAV's with sonobuoys or torpedoes on board while the helicopter conducts the search allows the helicopter to maximize its own fuel load, enhancing its time on station for maximum value. If a submarine is located, a UAV could be despatched to drop a torpedo on the submarine, minimising the exposure of the helicopter to possible countermeasures from the submarine

- the Russians are believed to have developed a submarine launched anti-aircraft missile specifically for use against helicopters. The use of a UAV would allow the attack to be prosecuted without putting at risk the helicopter and its valuable crew.

Logistically, the use of UAV's could also assist in logistic support of the frigate. The transport between ships or between ship and shore, of small items that would otherwise require the use of the ship's helicopter can be carried out by the UAV's. These items could be loaded into cargo containers, which are then loaded onto the weapon hard points of the UAV. Whilst the cargo load lifted might be less than 200kg, this would still provide a useful capability and one which otherwise would require the use of the embarked helicopter.

## The RAN UAV Option

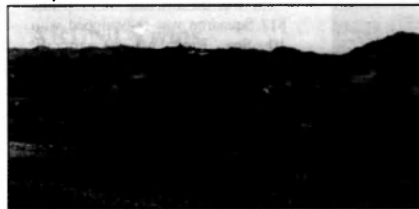
The RAN stands as a mid-level regional power, capable of operations throughout our area of interest. As a mid level power, the RAN lacks the organic air support capabilities enjoyed by larger navies in our region such as the US, Russia, India and even Thailand. Unlike many regional navies, the RAN is called upon to operate far from friendly air support many thousands of miles distant from Australian shores.

Once it was thought that such organic air support required the use of an aircraft carrier however, the introduction of UAV's into both combat and non-combat roles has opened up new and exciting opportunities for RAN operations.

Whereas the aircraft carrier HMAS MELBOURNE operated a range of fixed and rotary-wing aircraft to undertake strike, defence and reconnaissance tasks, a similar (but much smaller) capability can now be operated from a frigate, and at a vastly reduced cost.

The new generation of maritime UAV's, such as the Global Hawk in the strategic sense, and the adoption of smaller UAV's for the tactical role, could act to restore much needed depth and capability to the RAN.

The adoption of UAV's such as the Eagle Eye would allow the commander of a RAN ship or task force to conduct surveillance over a vast area, providing a capability currently unavailable. Each frigate could operate up to a dozen small UAV's, while the larger ships such as MANOORA and KANIMBLA could operate several dozen UAV's without adversely impacting on their primary role. In fact, such a force could greatly enhance the surveillance and firepower options available to an amphibious force commander.



The Northrop Grumman VTUAV (Vertical Takeoff Unmanned Aerial Vehicle) Firecut is intended to provide situational awareness for ships at sea and to support USMC operations. It operates like a helicopter but without the extra weight of pilots and associated equipment for pilot machine interface. (Northrop Grumman)



UAV's are small enough for many to be operated from the standard helicopter flight deck and hangar of most current warships.

In areas of peacekeeping, the UAV's could be used to provide real time surveillance of landing zones and other areas of interest, allowing planning to proceed based on 'current' information. In situations where a potentially hostile response may eventuate, the support of a number of armed UAV's in close support may be enough to deter hostilities. If not, then they provide immediate fire support.

The increase in operations other than war, such as those in support of UN or regionally sponsored peace operations (The Persian Gulf, East Timor, Somalia, Cambodia, The Solomon's, Fiji and Bougainville) have all required a naval capability. This is usually in the form of transport and logistics, but occasionally has required a more combat oriented capability. The adoption of UAV's for combat and surveillance tasks would add measurably to Navy's ability to undertake these tasks.

A single frigate operating a dozen UAV's could undertake the operation of a maritime investigation or exclusion zone throughout a substantial area, tracking vessels of interest and utilising the ship's embarked helicopter to board suspect vessels.

The use of UAV's allow for a graduated response to threats, from distant surveillance of vessels or locations of interest, to close reconnaissance, to armed patrol and intimidation, through to the use of force if deemed necessary. The advantage of UAV's in these circumstances is that if the other side overreacts, no lives are lost, and the incident can be resolved, whereas the loss of life generally inflames such situations.

The operation of UAV's by the RAN would greatly enhance the RAN's capability to perform its roles and functions throughout the entire spectrum of operations, providing some of the capabilities of aircraft carriers, without the vast financial, political and resource costs associated with such assets.

The question for the RAN is not if it should adopt UAV's, but when? Not whether it can afford to, but whether it can afford not to?



# Flash Traffic

## Sea of white at Fleet Base East

"I am proud of you all...and you should be proud of yourselves"

With these remarks, the Maritime Commander, RADM Geoff Smith, brought to an end the largest formation of RAN personnel seen in years.



Sea of white at Fleet Base East: More than 1400 officers and sailors form a "sea of white" Divisions on the wharf of Fleet Base East. The personnel, drawn from ships in the Sydney region, were back-dropped by HMA Ships BRISBANE and MELBOURNE (showing).

More than 1400 officers and sailors formed a "sea of white" Divisions on the wharf of Fleet Base East.

The personnel, drawn from ships in the Sydney region, were back-dropped by HMA Ships BRISBANE and MELBOURNE.

More than 100 guests took up positions between MELBOURNE and the sailors. Among them was the guest of honour for the day, 100-year-old Albert Flint of Bexley North, the oldest RAN veteran alive. Bedecked with medals and badges, proudly wearing a HMS INDOMITABLE cap (his first ship), Albert later described the parade as "beautiful".

"It brought back a lot of memories...but I'll tell you what, I miss the baggy trousers (bellbottoms)."

The Sydney Divisions, which have been and will be replicated for ships based at Fleet Base West, Darwin and Cairns, began at 7.30am as a

hedge against heatwave conditions experienced at the time in Sydney.

With a good media response and with members of the public watching and taking pictures from outside the fence, the honour guard, RAN Band and the assembled sailors, sprinkled here and there with soldiers and airmen who are attached to naval units, came to attention as first



The Ticonderoga class cruiser USS SHILOH about to dock in Melbourne. (Frank McCarthy Navy League Vic.)

Timor, Bougainville and the Solomons.

He warned that 2001 would be a busy year for the RAN, pointing out the Centenary of Federation naval review.

"I am proud of you all...and you should be proud of yourselves".

As the units marched from the wharf, saluting the Maritime Commander as they left, two RAN Seahawk helicopters made a low pass of the area.

By Graham Davis, NAVY NEWS

## Navy League Victoria hosts USN visit

The Victorian Division of the Navy League in Melbourne played host recently to two visiting USN ships on their way back from Persian Gulf duty as part of the ABRAHAM LINCOLN CBG.

The two ships were the Ticonderoga class cruiser USS SHILOH (CG-67) and the Sacramento class replenishment ship USS CAMDEN.

Both ship's Captains and Executive Officers were treated to lunch at Melbourne's Naval and Military Club along with a number of VIPs from Government, Defence and Diplomatic services.

League members received VIP tours of both ships in appreciation of the hospitality shown to the visiting USN ships.

## Sea King turns 25

February 2, 2001, marked the 25th anniversary of Sea King operations in the RAN's Fleet Air Arm (FAA).

It was on this date in 1976 that 817 Squadron was re-equipped with 10 Sea King MK-50 aircraft, replacing the Wessex 31B, greatly increasing its capabilities in the anti-submarine, surface surveillance and utility roles.

All 10 aircraft were delivered by merchant ship from England and re-assembled on arrival in HMAS ALBATROSS. Two further Sea Kings were acquired in 1983 to cover for the four aircraft that were lost in the 1970s due mainly to problems with the aircraft's main gearbox.

During time in the FAA the aircraft have carried out a number of tasks to support military operations. The Squadron regularly embarks up to two Sea King aircraft on board HMAS TOBRUK to aid and assist during exercises and operations.

Of note were the deployments in support of Op Solace in Somalia during 1993, participating in the Op Be Isi in Bougainville 1997/98, Op Stabilise/Warden in East Timor 1999 and most recently Op Trek in the Solomon Islands.

817 Squadron also provided two aircraft and crews for three months in support of Op Gold where not one sortie was missed. In fact the aircraft has only missed one fleet support task in the past 18 months due to unserviceability. The squadron and the Sea Kings play a prominent role in high profile domestic disaster relief operations as well.

In 1995 the sonar was removed from the aircraft and its role was changed to that of maritime utility. The aircraft went through a Life-Of-Type Extension program, which upgraded the avionics as well as modifying the aircraft for the maritime utility role.

This new role sees the aircraft active in the areas of Army support, ASuW, fleet replenishment and SAR, with the Sea King's involvement in amphibious operations growing rapidly.

The squadron will continue to embark flights on board HMAS SUCCESS, TOBRUK and, the two LPAs HMAS MANOORA and KANIMBLA.

In the upcoming Tandem Thrust exercise the Sea King will again play a major role.

## ARUNTA wins Gloucester Cup

The 3,600 tonne frigate HMAS ARUNTA is the RAN's newest Gloucester Cup winner and for the next 12 months, will proudly carry a gold star on her bridge wing. The cup is presented for overall efficiency, for operational efficiency, for ship's husbandry, for seamanship, for training levels, for supply and for resourcefulness.



The Kidd class destroyer USS CALLAGHAN entering Sydney Harbour early 1990s. Taiwan is said to be close to buying or leasing these powerful destroyers from the US to counter China's purchase of four Sovremenny class destroyers. The Kidds were at one stage on offer to the RAN but were rejected in favour of new build air warfare destroyers. (Brian Morrison, Warships & Marine Corp Museum Int)

Based in HMAS STIRLING, ARUNTA was in Sydney for the Governor General, Sir William Deane, to formally present the trophy on the deck of the ship at Fleet Base East.

The RAN Band, a 12-person Royal Guard drawn from the ship's company, the Maritime Commander, RADM Geoff Smith, COMFLOT, CDRE JIM Stapleton, the previous commanding officer of the ship, CAPT Greg Yorke and current commanding officer CMDR Gilmore, welcomed Sir William.



His Excellency The Governor General Sir William Deane presents the Gloucester Cup to the CO of HMAS ARUNTA CMDR Steve Gilmore CSC, RAN.

Also present was Mrs Dulcie Morrow who launched the warship.

Just days before the presentation ARUNTA and the fleet oiler HMAS SUCCESS were involved in a minor collision while doing a refuelling exercise off the NSW/Victoria coast.

ARUNTA suffered a power failure resulting in a loss of steering.

During the ships' breakaway manoeuvre there was an impact between ARUNTA's bow and the stern of SUCCESS.

RADM Smith spoke of the incident during his address praising the ship's company saying, "Your professionalism came to the fore in seconds. I congratulate you all. The whole fleet learns from these experiences".

ARUNTA also won the Otranto Cup for gunnery, the Silver Platter for catering, the AIO Shield and the Combat Shield.

The speakers spoke highly of the ship's actions during RIMPAC 2000, which saw her as the first ANZAC class ship to take part in what is the largest maritime exercise in the world.

The Duke of Gloucester, then the Governor General of Australia, first presented the cup in 1947.

It has been a much sought after award since.

By Graham Davis, NAVY NEWS

## Midshipman for a day

Naval Reserve Cadet Chief Petty Officer, Naomi Ambrose became a 'Midshipman for a day' at HMAS CRESWELL on Friday, 09 February 2001.



Cadet Chief Petty Officer Naomi Ambrose is promoted to the rank of Midshipman by the commanding officer CAPT Andrew Cawley and spent the day at HMAS CRESWELL undergoing Midshipman training. (RAN)

After a full promotion ceremony involving the Commanding Officer, CAPT Andrew Cawley, the Director of Naval Reserve Cadets, Lieutenant Commander Allan Vidler, and the Coxswain, Chief Petty Officer 'Yogi' Lewis, Naomi spent the day with the New Entry Officer's Course.

Her activities included lectures, tutorials, practical teamwork activities and naval drill. With her Cadet background, she fitted in very well and may have even taught the new entries a thing or two!

Naomi recently came back from two weeks on the Navy's youth training yacht YOUNG ENDEAVOUR, which she won for being selected as NSW/ACT Cadet of the Year, as well as being awarded a medallion from The Navy League of Australia. Naomi lives nearby the base and has been involved in the Cadets for many years. She plans to join the Navy as an officer after completing her HSC this year. Naomi was selected as the best cadet for ACT/NSW and becoming Midshipman for a day was a fitting reward for such an outstanding achievement.



Brazil's new aircraft carrier SAO PAULO leaves France's DCN shipbuilding facility for Brazil after modifications to serve in the Brazilian Navy. SAO PAULO will make a powerful addition to the Brazilian Navy who currently do not have enough naval aircraft to fill its deck or hangar. (DCN)

## Denmark, Norway and Sweden agree on joint Submarine

An agreement on a joint Project Definition Phase (PDP) for Submarine Project VIKING was signed in Copenhagen 20th December by admirals from Naval Materiel Command Denmark, Naval Materiel Command Norway and Swedish Defence Materiel Administration.

The objective of the PDP is to produce necessary documentation for the national authorities to decide on a joint submarine procurement programme in 2005. The PDP will be carried out in two steps with a decision for continuance in 2002.

A Joint venture between Odense Stålskibsverft of Denmark, Kongsberg Defence & Aerospace of Norway and Kockums of Sweden; 'Viking Submarine Corporation' (VSC) has been formed as Main Contractor of the definition of the project and in the design of new Scandinavian submarines. A request for Tender will be sent to VSC shortly.

The framework for Project Viking is an agreement from 1994 between the Ministers of Defence in Denmark, Finland, Norway and Sweden on co-operation in matters concerning Defence materiel. The objective of this agreement is to contribute to the reduction of both procurement- and life-support cost for the participating nations and to support and optimise the Nordic Defence industry. After two years of pre-feasibility studies on a possible common submarine project, a project group (PG Viking) was established in Malmö in 1997 by Denmark, Norway and Sweden, tasked to carry out a two years feasibility phase. Finland is represented by an observer in the Viking Steering Committee.

The feasibility studies have shown that:

- it is fully possible and very advantageous to jointly procure the next generation of submarines,
- harmonised requirements and a common submarine concept produced in a larger series, presents a potential for considerable reduction in national development and procurement cost,

- similar submarines provide the foundation for co-operation in areas like maintenance and training, which can lead to reduction in national life support cost,
- a joint programme of this magnitude will contribute to the sustainment of important national industrial competence and to long term co-operation between Scandinavian industries.

None of the three nations have decided to acquire new submarines in the immediate future. Nevertheless, they appreciate the benefits of a common procurement of submarines, and are for the time being willing to co-operate in the definition of such a project.

In the coming years important political decisions will be made on future national procurement plans based on new military structures. A joint effort to define a future submarine will give the nations a freedom of action in this period when future submarine projects are considered. The Viking project is also a cost-effective way to develop and sustain important national submarine competence and to maintain a contingency for changes to the national security.

## LHDs for France

The French Ministry of Defence has awarded naval prime contractor DCN a \$530 million contract to develop and build two NTCD new-generation landing helicopter docks (LHDs). The two LHDs, named MISTRAL and TONNERRE, will come into service in 2004 and 2005, and will replace the LPDs OURAGAN and ORAGE.

DCN has overall prime contractor responsibilities and will build the two warships in partnership with Chantiers de l'Atlantique under a subcontracting agreement to be signed shortly. As a 'design to cost' programme, the NTCDs will be largely built to commercial (Bureau Veritas) standards. Chantiers de l'Atlantique will construct the forward section of the two vessels and accommodation modules at its St Nazaire yard. The middle (operations) and aft (payload) blocks of the ships will be constructed at DCN Brest, where final assembly and outfitting will also take place.



France has ordered two LHDs for its Navy from the Government owned shipbuilder DCN. Each ship will embark up to 20 helicopters and 450 troops with their equipment. (DCN)

The design draws on civil sector standards and technologies to achieve significant cost reductions. The NTCD design will feature electric propulsion, a first for a French Navy warship. Four 5.2MW diesel generator sets will power the ship's propulsion and services.

Two 7.5MW podded propulsors will be fitted based on a second-generation DCN design intended to yield improvements in efficiency, manoeuvrability and radiated noise.

The maximum speed will be 19-20kt. Its range (at 15kt) will be 11,000nm, with a maximum endurance of 45 days. The NTCD will also be fitted with a bow thruster to aid position keeping or manoeuvring in close confines.

DCN International is now offering the same class of ships to client navies.

NTCD-class LHDs are primarily designed for joint and/or allied force projection operations. The MoD says MISTRAL and TONNERRE will enable far greater interoperability between French amphibious forces and those of the UK, the Netherlands, Italy and Spain. A high-performance communications suite, fully-automated platform management and exceptional carrying capacity ensure excellent versatility for a wide range of missions. The assault ship's payload capabilities include:

- 16 to 20 heavy helicopters;

- Major command and control centres meeting the latest communication standards;
- Armoured vehicles;
- 450 troops, marine and commandoes;
- 2 hovercraft (LCAC class) or 4 LCM landing craft.

The 5,000 sq.m flight deck can accommodate up to six helicopter movements at a time.

The through-deck NTCD design is 199m in length and 28m in beam. The flight deck is connected to the hangar by two separate elevators (one astern, the other abaft the island superstructure). The stern dock will be compatible with the US Landing Craft Air Cushion and a new class of Landing Craft Mechanised (LCM), for which feasibility studies are in progress.

Each NTCD vessel will have a 63-bed hospital fitted as standard. Additional medical elements can be brought aboard using elements from containerised field hospital units.

As the NTCD is likely to be under the cover of escorts the ships' self-defence suite will be limited to two short-range missile systems, two 30mm guns and four machine guns. A small action information organisation will be installed for real-time tactical picture compilation and situation assessment. One 3-D surveillance radar will be fitted.

## General Dynamics/ Lockheed Martin DD 21 Leads Way To Navy After Next

The team of General Dynamics (NYSE: GD) and Lockheed Martin (NYSE: LMT) have announced some specifics about its design of the Navy's DD-21 land attack destroyer. Referred to as the Blue Team, General Dynamics Bath Iron Works and Lockheed Martin said that their version of DD-21 will contain many key innovations and will lead to the "Navy after next."

Integrated electric drive will enhance the ship's survivability and increase design flexibility for all future combatants, dramatically changing how sailors live, work and fight at sea.

The Blue Team's proposal, which was submitted to the Navy last December, will be for a ship with a complement of about 95 – a reduction of more than 70 percent compared to current surface combatants. Operations and support costs for the ship will be reduced by 42 percent. This results in a reduction of more than 40 percent in total ownership costs to the Navy and the taxpayer.

General Dynamics and Lockheed Martin said that their multi-mission ship will attain littoral maritime dominance and bring unprecedented land attack capability to the surface



A computer generated image of General Dynamics' and Lockheed Martin's DD-21 contender

Navy by combining great survivability with unparalleled joint force connectivity. Total ship systems integration supported by a new command and control architecture will achieve performance goals that are both affordable and reliable.

The Blue Team DD-21 also has a dramatically reduced signature with its tumblehome hull and integrated topside design. The ship will defeat any air threat. With its reduced acoustic signature and exceptional manoeuvrability, the Blue Team's proposed DD-21 can defeat the mine threat – a key to being able to survive, fight and win in the littorals.

A ship's company crew of about 95 (without the aviation detachment) can successfully execute all required missions, perform maintenance and cleaning and conduct damage control over a six-month deployment. This assertion is based on extensive analysis, modelling and simulation, and has been validated through interviews by Blue Team members with over 700 experienced fleet sailors.

The Blue Team DD-21 will be operated by a 15-person watch team working in a highly automated bridge and an advanced Mission Control Centre (MCC) using multi-modal work stations and task-managed prompting. The MCC will control the entire ship and replace today's CIC, Sonar Control, Engineering Control Centre, and Damage Control Central. The watch team can concentrate on strategy and tactics, making decisions on accurate and relevant information.

DD-21 will employ a four-section watch to provide eight hours of uninterrupted sleep underway. DD-21 is the first ship designed for the sailor from the keel up. Sailors will live in staterooms with a maximum of three people per stateroom with privacy built into the design. Modern recreational and exercise facilities are complemented by an innovative food service. Food service is achieved with a dramatic reduction in personnel. Using advanced technologies and a food service complex designed for efficiency, a seven-person team (instead of the 80 or so on

conventional ships) requires no augmentation by temporary personnel. A ship-to-shore electronic interface provides on-line maintenance, administrative and medical support. It also supports a video teleconferencing capability with family, as well as Internet and on-line education. Significant improvement in work quality through the elimination of work such as paint chipping and mess cooking has been achieved in the Blue Team's DD-21.

The key to DD 21 survivability is a damage-tolerant design. Examples include zonal distribution and redundancy, which will ensure that power will be maintained, and that the loss of no single space will cripple the ship. In the event of damage, the first response is through the Ship Systems Automation (SSA). SSA provides for extensive internal situational awareness to detect and react to a damage event and begin the recovery process. SSA detects, isolates and contains damage much more effectively than conventional approaches. Automation is augmented by Rapid Response Teams who will have the equipment and skills to handle any event. They will use sensors, wireless communication, wearable computers/mini-cams and personal location devices to gain and maintain total situational awareness, guided by a Readiness Control Officer in the Mission Control Centre. DD-21 damage control and recovery concepts presage the future for Navy Damage Control doctrine and tactics.

## Russian SSN for India, again?

India is reported to be examining the viability of leasing a Russian SSN (Nuclear Powered Attack Submarine) to help with its indigenous SSN programme.

In 1988 the IN (Indian Navy) leased a Soviet Charlie I class SSGN (an SSN but with cruise missiles) for three years. The purpose of the lease was to give the IN practical experience with SSN operations, characteristics and logistics requirements. It also helped India to develop its own nuclear submarine program. Chief of Naval Staff ADM



A Victor III class SSN on the surface. India is keen to lease an SSN from Russia to help it with its own SSN construction programme. (RAF)

Sushil Kumar told reporters in New Delhi before Navy Day celebrations on 5 December that "All navies have aspirations (to operate SSNs) and so do we."

Indian Defence officials are cautious about their success in leasing a SSN believing the lease will be strongly opposed by the US anxious to avoid a regional arms race.

## VIRAAT upgraded

After numerous delays the Indian Navy (IN) carrier VIRAAT has left the Naval Dockyard at Bombay after a Rs3 billion two-year refit intended to extend its life by at least 10 years. The VIRAAT was commissioned into RN service as HMS HERMES in 1959 and sold to India in 1986.

However, India's Parliamentary Defence Committee has criticised the government for the delays in modernising VIRAAT.

The committee, which tabled its report in Parliament on 18 December 2000, said that by delaying VIRAAT's modernisation the government failed to appreciate the magnitude of the threat in the north Arabian Sea which had the potential of disrupting oil flow, communications and other essential supplies. These, it said, can only be countered by an aircraft carrier. The committee urged the government to begin construction of the proposed Air Defence Ship (ADS) and acquire at least one more aircraft carrier. Ministry of Defence officials told the committee that the ADS would be built by Cochin Shipyard for around Rs17 billion (US\$362 million) within nine years. India is also to purchase the Russian carrier ADMIRAL GORSHKOV.

The updated VIRAAT recently participated in the Indian Navy's international fleet review, along with HMAS DARWIN. Following the review, VIRAAT will undergo "fine tuning" and be fitted in Bombay with an Israel Aircraft Industries/Rafael Barak point air defence missile system.

Other improvements to VIRAAT include refurbishing its propulsion systems, equipping it with a long-range surveillance radar and an upgraded communication package. Naval officials said VIRAAT's hull had undergone major repairs, around 500 tonnes of steel on its flight deck have been changed and its ventilation, pumping systems and living quarters upgraded.

## For Sale, used Type 22 Batch 2

The RN Type 22 Batch 2 frigate, HMS COVENTRY, will be put up for sale towards the end of this year.

COVENTRY, one of only two Type 22 Batch 2 frigates still in service, was commissioned in 1988. She and the other remaining Batch 2 ship, HMS SHEFFIELD, were named in memory of the RN's two Type 42 destroyers lost in the Falklands War.

The Type 22s have gradually been decommissioned as new Type 23 Duke class frigates have entered service. Besides SHEFFIELD, only four Type 22s, all Batch 3s, remain – HM ships CORNWALL, CUMBERLAND, CAMPBELTOWN and CHATHAM.

The Type 22 Batch 2 are stretched versions of the Type 22 frigate but with better sea keeping, range and combat systems. None of the four decommissioned and more capable batch 2's have sold despite Brazil buying all four original Batch 1 Type 22's.

## USN Test SM-3

The USN has moved another step closer to developing a Navy Theater Wide (NTW) capability with a successful flight test of the newly developed Standard Missile-3 (SM-3). The USN Aegis cruiser, USS LAKE ERIE (CG-70), conducted the



The former US Belknap class cruiser USS REEVES was towed from Hawaii into Newcastle Harbour for work to remove any hazardous materials left in the ship. After which the ship will be towed to the Shoalwater Bay exercise area in Queensland to be used as a target hull for this year's Tandem Thrust exercise. (Brian Cavanagh)

Aegis LEAP (Lightweight Exo-Atmospheric Projectile) Intercept Flight Test Round (FTR-1A) mission in the mid-Pacific using the Pacific Missile Range Facility (PMRF), Kauai, Hawaii.

Equipped with Aegis LEAP Intercept (ALI) computer programs and hardware, LAKE ERIE launched an SM-3 missile demonstrating third stage airframe stability and control through nominal kinetic warhead (KW) fourth stage separation. The SM-3 is the U.S. Navy's new exo-



An SM-3 missile about to leave its launch canister from the cruiser, USS LAKE ERIE (CG-70) during a recent successful test flight

atmospheric missile developed to counter Theater Ballistic Missile (TBM) threats outside the atmosphere. The primary mission of the Navy Theater Wide Ballistic Missile Defense system is to provide defense in depth from the threat of TBM attack for US and allied forces overseas, including vital areas, critical military assets, population centres and large geographic regions.

RADM Rodney P. Rempt, assistant Chief of Naval Operations for Missile Defense, deemed the FTR-1A test "a major positive event" in the Aegis LEAP Intercept program.

"It's time to deliver what we've promised on the test range", Rempt stated, "the engineering data we'll derive from this test will definitely move us along the SM-3 path to intercept".

The FTR-1A mission flew a guided trajectory within the range safety boundaries. The test was

strictly an evaluation of SM-3 airframe stability and control through nominal KW separation. A target was launched to verify launch procedures for future firings; to verify Aegis Weapon System fire control data and tracking performance; and to collect engineering data from the missile, including the KW infrared seeker, all in preparation for follow-on flight missions. Program engineers will analyse the data and incorporate changes based on their findings, as required.

The test was the third in a planned series of nine test flights. The ALI Project's ground test program has already conducted significant testing of elements of the SM-3 missile. The ALI Project, a part of the NTW Ballistic Missile Defense (BMD) Program, builds upon the well-proven SM-2 missile family and the Aegis Weapon System, including its vertical launch capability. Both Aegis and other variants of the SM-2 missile are currently at sea in more than fifty Aegis cruisers and destroyers, with more than 25 ships in the production/planning pipeline.

## Newport News to build new Nimitz-class carrier

Newport News Shipbuilding (NYSE: NNS), has announced that it has been awarded a contract by the USN for

the design and construction of the tenth Nimitz-class aircraft carrier, CVN-77.

The as-yet unnamed CVN-77 will serve as the first transition ship to a new class of carriers. The contract is valued at approximately US\$3.8 billion and the carrier is scheduled for delivery in 2008. Unlike other Nimitz-class carrier construction contracts, Newport News Shipbuilding is also responsible for delivering the ship's warfare system, a task previously performed by the Navy. This includes development and procurement of the warfare system through a subcontract to Lockheed Martin and overall integration of the warfare system into the ship.

"CVN-77 is an important transitional step toward the evolution of future carriers and an important milestone in the company's growing role as an overall platform integrator," said NNS Chairman and CEO Bill Fricks. "CVN-77 will incorporate new technologies that pave the way for development of the Navy's next class of large deck, nuclear-powered carriers".

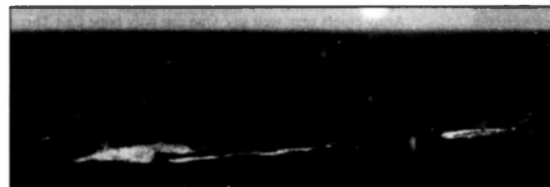
The integrated warfare system on CVN-77 will incorporate a new multifunction radar system and an open architecture information network that will enable new technology insertion in an efficient and cost-effective manner.

"Our program objectives for the next class of carriers include reducing the total ownership cost of the ship, reducing crew requirements and improving certain operational capabilities," said NNS Vice President of Technology Development and Carrier Fleet Support Irwin F. Edenzon. "CVN-77 is both the last ship of the Nimitz class and the first step in the evolutionary process of developing CVNX".

Newport News Shipbuilding designs and constructs nuclear-powered aircraft carriers and submarines for the U.S. Navy and provides life-cycle services for ships in the Navy fleet. The company employs nearly 17,000 people and has annual revenues of approximately \$2 billion.

## Keel laid for first RN Astute class SSN

The UK's troubled SSN (nuclear submarine) fleet (see *THE NAVY* Vol 63 No.1) got a shot in the arm recently when the traditional "laying of the keel" ceremony for HMS ASTUTE, the first of a new and advanced class of SSN currently being built for the RN.



A computer generated image of the new RN Astute class SSN (BAE Systems)

took place at the BAE SYSTEMS shipyard at Barrow-in-Furness. Defence Procurement Minister Baroness Symons carried out the ceremony, which included unveiling a commemorative plaque to mark the RN Submarine Centenary Year. Britain's first ever submarine, HOLLAND I, was built at the Barrow yard in 1901.

BAE SYSTEMS is the prime contractor for the Astute class of submarine under a contract worth around £2 billion. As prime contractor, BAE SYSTEMS is responsible for the design, build and in-service support of three Astutes with options for a second buy.

HMS ASTUTE is the first in the new breed of SSN. It is designed for littoral, deep sea and worldwide operations. Its primary roles will be anti-surface and anti-submarine warfare but it is also capable of land attack and mine laying operations.

## Second Sovremenny arrives in China

The PLAN's second Russian built Sovremenny class DDG, FU ZHOU, has arrived in China.

FU ZHOU stopped at Portsmouth UK en route to China for supplies and is thought to have met up with a support ship for the rest of the journey.

FU ZHOU was handed over to the PLAN on 25 November 2000 and embarked almost 40 Russian advisers and technicians for the trip.

The principle armament of the Sovremenny class DDG are eight of the formidable SS-N-22 Sunburn supersonic ASMs. However, it is unknown if China has test fired these missiles yet and if not, cannot be considered a proficient user.

Brazilian Navy sources say that the submarine sank to a depth of nine metres of water and rested on the bottom inclined to one side.

The nine man skeleton watch escaped the submarine as it sank.

It is expected that the submarine will be raised and repaired.

## Italian Navy orders aircraft carrier

The Italian Navy has placed a US\$780million order with shipbuilder Fincantieri for a 26,500-ton aircraft carrier. The vessel will be multi-rolled embarking JSF aircraft for strike, attack and defence and transport helicopters for amphibious assault tasks. The keel laying ceremony is scheduled for June of this year

Measuring 234m in length it will be powered by GE/Fiat LM-2500 gas turbines for a maximum speed of 29kts and a range of 7,000nm at 16kts. It will be crewed by 1,292, which includes 140 command task group staff and 450 troops with four LCVPs and a battalion's worth of wheeled vehicles. The ship will be fitted with advanced CWSs and SAMs and has three operating rooms and X-ray facilities in its hospital.

The vessel will embark approximately 20-30 JSF and NH-90 aircraft.



President George W. Bush, and Chairman and Chief Executive Officer of Newport News Shipbuilding William P. Frick watch as former First Lady Nancy Reagan christens the USN's newest nuclear-powered aircraft carrier RONALD REAGAN (CVN-76) in ceremonies at Newport News Shipbuilding. The ship is named in honour of the 40th President of the United States, Ronald Wilson Reagan, and was christened on the Reagans' 49th wedding anniversary. Commissioning of the carrier is expected in early 2003. (USN)

# Observations

## DEFENCE WHITE PAPERS – PAST AND PRESENT

By Geoffrey Evans

A sense of de'ja'vu after reading the Howard Government's Defence White Paper – 'Defence 2000: Our Future Defence Force' – tabled in December last year prompted the writer to look back to his comments on other defence policy papers to find the cause of this feeling of familiarity. The July 1987 issue of *THE NAVY* provided the answer as may be seen from the following excerpts.

*"On March 19, 1987, the Defence Minister, Mr. Kim Beazley, tabled a Defence White Paper – the formal declaration of government defence policy and plans – in the parliament: a brief flare of publicity followed, generally favourable, and then the subject of defence disappeared from the headlines. It re-appeared briefly – although not in the headlines – a few weeks later when the government announced a reduction in defence spending to a figure below that upon which planning was based. It was all too reminiscent of the ill-fated 1976 Defence White Paper", and "The White Paper was preceded by a review of Australia's defence capabilities conducted by a small team headed by Mr. Paul Dibb of the Australian National University. The review was carried out over a period of some twelve months and the Dibb conclusions and proposals were available for public scrutiny in June 1986. A period of quite intensive public debate followed, mostly within the defence orientated community, and it might be assumed this contributed to the thinking of those responsible for preparing the White Paper. It is doubtful if any defence paper has allowed such public involvement and it is to Mr. Beazley's credit that it so happened". (The writer recalls visiting Paul Dibb in 1985 with Admiral Thomas B. Hayward, retired professional head of the US Navy who was visiting Australia by invitation, and the long and constructive discussion on an American perception of Australia's defence needs.)*

Unlike the Hawke Government in 1987 the Howard Government did not reduce defence spending "a few weeks later" and is unlikely to do so in the remainder of its second term of office. The 1987 White Paper clearly accepted regional responsibilities and delineated the area of "direct military interest (DMI)"; this roughly corresponded to the old Australian Naval Station, first defined in 1859, and specifically included Indonesia, PNG, New Zealand and the nearer SW Pacific Island nations. These countries continue to be of particular interest but 'Defence 2000' discusses a much wider range of countries and the need to take into account developments in areas distant from Australia. Both the 1987 and 2000 White Papers refer to the importance of Australia's relations with the United States.

Leaving aside similarities for a moment, defence thinking has not of course been static since 1987 and together with changes in the international scene have resulted in scrapping of the 'core force', or 'expansion base' as it became known, and instead a decision to have in being a ready-for-action force, a decision due largely to the

Gulf War and despatch at short notice of a RAN warship to the Middle East.

Peacemaking/keeping in foreign countries has also become an important factor in defence planning and drawn attention to army requirements – and not before time. Army chiefs may well say. One can only hope East Timor does not become a continuing drain on defence resources. As well as bedevilling Australia Indonesia relations.

Both White Papers devote attention to personnel, "the most valuable asset" of the Defence Force; recruiting and retention difficulties however, have become of more concern over the years. In his submission to the Peacock Review team (the year 2000 version of the Dibb review), the writer pointed out that other Western countries with volunteer defence forces (as opposed to conscripts) have the same problem: he went on to say: *"Unfortunately the quest for material gain has become much more important than it was in the past, authority tends to be distrusted or resented, 'globalisation' and nationalism compete and create confusion, affluence does not appear to have been matched by a corresponding desire to help the less fortunate – or to serve the nation...unless society undergoes a fundamental change and becomes less materialistic, manning the Armed Forces will continue to be a problem and create unwanted risks for the nation in the future".*

Financial control over defence spending, both within the Defence Department and as a result of promised close government supervision over specified targets it has set for the next decade and more, is a feature of 'Defence 2000'. However, the old problem of changes in financial priorities by a government, either following an election or more likely while in office remains. One assumes contractors bear this in mind when contracts are drawn-up.

A disappointing omission from both 1987 and 2000 White Papers is recognition of the vital part played by merchant shipping in Australia's wellbeing. Here is what the writer said in 1987 and must repeat in 2001:

*"A healthy export/import trade is essential to Australia's wellbeing in peacetime and in a protracted emergency or war the country would still need the ability to despatch and receive cargoes sent across the sea in ships. The enforced loss of this ability for a sustained period would almost certainly bring Australia to its knees – it would be much easier than trying to invade the country".*

Australia's diminished merchant marine and dwindling number of seafarers makes a mockery of claims to be a maritime-orientated country.

Finally, when reviewing the 1987 White Paper the writer remarked that "it would be hard to quarrel with the principle of most White Paper proposals", but the same can be said of 'Defence 2000', indeed very wisely it contains a great many "ifs" and "buts". Given a restless world and the pace of scientific and technological developments who is

to say what the state of play will be in five or six years time, let alone 15-20 years?

The advent of the nuclear age made life difficult for the National Security Advisors and Defence Planners everywhere, relief from their problems is not yet in sight.

## CADETS

The report by a three member panel on the Australian Services Cadet scheme was tabled in the Parliament in December last year in the same week as the government's Defence White Paper; unsurprisingly the report was overshadowed by the defence paper and received scant attention in the mainstream media.

The report contained no less than 48 recommendations, 10 described as 'Core' and the remainder as 'Implementation and Enabling' recommendations. The core group, which have been accepted by the government, include continuation (indeed, eventual expansion) of a Service orientated youth scheme resourced in the main by Defence, funds so expended to be shown as a separate item in Defence accounts; at present expenditure on cadets is absorbed in overall defence spending and no-one really knows what the scheme costs.

Also included in the core group is the establishment of a Directorate within Defence to administer a re-structured cadet organization to be called Australian Defence Cadets (ADC), the Director-General to be a civilian or uniformed person responsible to the Chief of the Defence Force (a Reserve Major General has since been appointed).

The Naval Reserve Cadets (formerly known as Australian Sea Cadets) will be called Australian Naval Cadets, the Army cadets will be Australian Army Cadets and Air Training Corps cadets will become Australian Air Force Cadets; each will stay aligned with the parent Service. Although functioning under the Defence umbrella the ADC will not be a part of the Australian military forces, that is to say, its status will remain as at present.



Naval Cadets from TS SYDNEY learning to sail (Steve Reakes, XO TS SYDNEY)

The report by the review panel which consisted of three members, namely:

- Mr. John Topley, Management consultant, educationalist and RAN Reservist.
- Air Vice Marshall Bob Richardson, former Deputy Chief of the Air Staff
- Major General Darryl Low Choy, senior ADF Reservist;

is very comprehensive and one must say, ambitious.

The object is to have within five years, a more co-ordinated cadet organization, very largely administered by ADC personnel (enabling the ADF commitment to be reduced); with closer links to Defence and the ADF but retaining community support.

The 38 implementation and enabling recommendations are the subject of discussion with Defence: The writer feels agreement on some proposals will require a change of attitude both within Defence and by cadet interests before they are accepted.

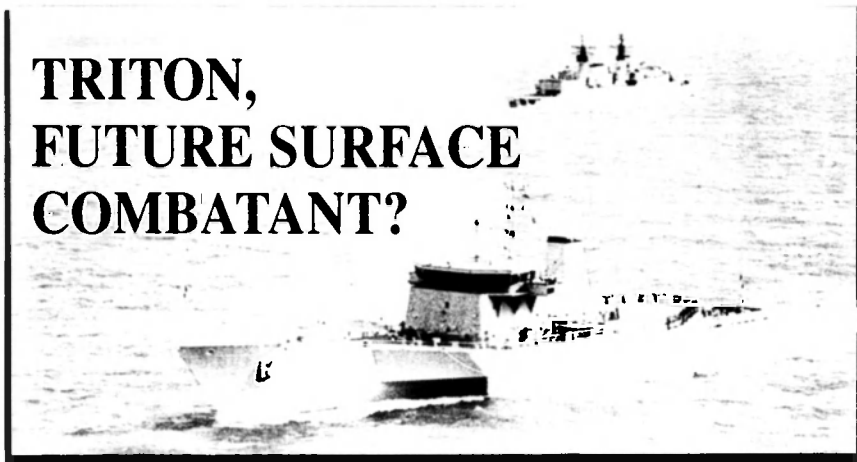
The writer's submission to the review panel included recommendations that by happy coincidence coincided with those of the panel.



Naval cadets forming a flag party for Federation Day at the NSW Government House. (Steve Reakes, XO TS SYDNEY)



# TRITON, FUTURE SURFACE COMBATANT?



Out with the old and in with the new: TRITON in the foreground with a Type 22 Batch 3 frigate in the background. (DERA)

By Iain Ballantyne

**THE NAVY'S** UK based editor, Iain Ballantyne, recently went to sea on the UK's new trimaran warship demonstrator, the Research Vessel TRITON and filed this report.

If the concept proves sound, the RV TRITON will give birth to a new generation of full-size trimaran warships for the Royal Navy. They are likely to start entering service by the middle of the second decade of this century and could be called Type 25 frigates, although at present they are known as Future Surface Combatants (FSCs).

Capable of speeds in excess of 30 knots, carrying a devastating array of weapons and more agile than anything else afloat they may quite simply make every single hull warship obsolete.

The RV TRITON's operator - the Defence Evaluation and Research Agency (DERA), which is part of the UK's Ministry of Defence - has hailed her as being "possibly the most significant design shape change in warship hulls since the advent of the ironclads." Great interest in the TRITON has been shown already by foreign Navies. The American fleet has invested in her by providing a Trials Instrumentation System which monitors how she handles stresses and strains on her hull during intensive sea trials. America is also providing the personnel to staff this equipment and the TRITON will be carrying out an Atlantic crossing this summer for a series of specific tests and trials for the US Navy.

Representatives of the Australian and New Zealand fleets have already visited the TRITON for an inspection tour, so those two Navies may also follow the RN down the trimaran route.

The TRITON's homeport is Portsmouth Naval Base in Hampshire and she was built by Vosper Thornycroft just down the coast at Southampton. She is 90 metres long, has a beam of 22.5 metres and displaces 1,100 tonnes, making her two-thirds the size of any resulting trimaran warship.

During my trip into the Solent, Vosper Thornycroft Executive Project Manager Mike Carter acted as guide for a tour around the remarkable vessel.

As the man who oversaw her construction, his pride was evident. Accommodation for the 12 Merchant Navy sailors and 12 scientific staff who crew the Triton for DERA is palatial compared with that aboard a warship of even today's Royal Navy. Each person has his, or her, own cabin with a comfortable bunk, desk and an en-suite shower room. Even in the resulting full size warship something approaching this level of comfort may persist. Leading Navies, including the RN and USN, are moving towards individual living spaces for smaller crews.

Mike Carter explained that each cabin was completed before being incorporated into the superstructure, thanks to modular construction techniques. In fact the vessel was constructed in two parts, the aft and fore parts being brought together virtually complete.

"Building this ship was a real pleasure and achievement", said Mr Carter. Showing off the amazing array of computers and other monitors in the Trials Instrumentation Compartment, Mr Carter revealed they are connected to 750 sensors in the hull of the TRITON. Mr Carter has every confidence in the design: "I have no doubt she will be up to the job".

The side hulls of the trimaran are naturally the key to its success or failure. Because of them the vessel is extremely stable, she has a huge upper-deck area and creates less drag. In warship terms that would translate into: More space for weapons (expansive silos for missiles); bigger helicopters (two Merlin Anti-Submarine Warfare aircraft may be embarked in the full size FSC); and also lower radar and infrared signatures to make the vessel stealthy (in a trimaran FSC there would be no need for a big funnel to vent engine exhaust which could exit under the vessel, between the main hull and the side hulls). In one of the TRITON's side hulls is an engineering workshop while the other is empty. In a full size warship the use of these spaces

would probably be restricted to the sort of functions a vessel can afford to lose in combat. The side hulls make an excellent missile hit buffer, therefore providing extra outer protection for vital compartments in the central hull - such as the operations room where a warship is fought from.

Mr Carter agreed the TRITON is truly significant: "It is true to say she is as important as the ironclads. The ironclads of the late 1800s were the bridge between the wooden wall men 'o' war like Nelson's VICTORY and the dreadnought battleships. TRITON is a stepping stone between today's single hull form warships and tomorrow's trimarans."

Open ocean trials will test the TRITON to the limit in a series of simulated naval evolutions, including re-fuelling at sea and being towed.

"It is unusual to build a prototype warship on this scale", says Bob Short, DERA's Trimaran Manager. "But there is a great deal at stake. Running a fleet of trimaran warships would represent a significant change from the more conventional monohull, both in terms of the design challenges and the operation of such ships".

While many questions posed by such a revolutionary concept can be answered on paper, using mathematical modelling or building models, constructing an ocean-going vessel is the only sure way of proving it. Mr Short points out that structural questions are only half the game: "There are also a number of issues which come under the broad heading of seaworthiness which need to be explored for a trimaran hullform to be accepted by the Royal Navy. Features such as seakeeping, boat handling, upper deck operations and manoeuvring must all be evaluated before a fleet of trimaran warships can be contemplated seriously".

Initial naval architectural trials are due to last until March 2002, followed by two more years of propulsion and equipment trials combined with the gathering of long-term structural data. Then the verdict on the feasibility of using a trimaran hullform for the FSC/Type 25 frigate can be delivered. While in truth it is too early to say the TRITON will definitely be the shape of things to come, there is something about her even now which indicates she will be the first of a new breed rather than just a curious one-off.

There is a saying that if a design looks right then it is right.

RV TRITON has that essential quality. It goes deeper than her battle grey paint.

## RV TRITON

Overall Length: 97m.

Waterline length: 90m.

Breadth Overall: 22.5m (including outer hulls).

Draught: 3.2m.

Displacement: 1,100 tonnes.

Maximum Speed: 20 knots.

Range: 3,000 nm (20 days at 12 knots).

Crew: 12 civilian sailors and 12 scientific personnel.

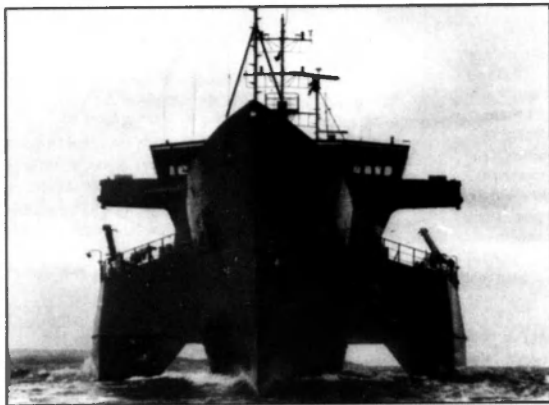
During sea trials the TRITON will carry containerised trials outfits which will allow operational feasibility studies. These are set to include use of: Towed Arrays; Small Winches; Un-manned Air Vehicle (UAV) systems; Electronic Surveillance Measures (ESM); Electronic Counter-Measures (ECM) and Electronic Intelligence gathering (ELINT).

Source: DERA.



A computer generated image of a US Coast Guard configuration for the TRITON design. Note the large helicopter pad that a tri-hulled vessel can provide. The image depicts a Bell 609 tilt-rotor, Seahawk and UAV operations from the ship. (DERA)





A bow on image showing the unique tri-hulled arrangement of TRITON (DERA)



The tri-hulled nature of the TRITON design gives the ship more stability and a larger deck area for weapons and systems. (DERA)



A computer generated image of what is hoped to be a future of modern surface combatant as a result of the TRITON study (DERA)



The IJN aircraft carrier AKAGI in the summer of 1941. AKAGI was initially a battle cruiser and converted into an aircraft carrier for 60 aircraft.

By Dallas Stow

The arrival of Commodore Perry at Yokohama in 1853 sparked turmoil in Japan. It became apparent that Japan's two hundred years of self-imposed isolation had placed her in a weak position in relation to the industrialised Western nations and that she ran the risk of being colonised or dominated in the same way as China. The drive to modernise (and remain independent) that followed this realisation resulted in the creation of a modern, first-class Navy.

At the beginning of World War II (WW II), the Imperial Japanese Navy (IJN) had a fleet of aircraft carriers with highly-trained crews who had combat experience, and was arguably the world leader in the use of aircraft carriers. Why, then, were they defeated by the Allies after such a promising start?

During WWII, the IJN had eight classes of aircraft carrier in service, not including conversions prompted by losses during the war. These latter ships were either converted from cruise ships (five), merchantmen (two), destroyers (two) or a battleship (one). The cruise ships and destroyers had been designed with conversion in mind, while one, SHINANO, was to have been the third Yamato class battleship but was converted during construction.

The biggest constraint on the development of aircraft carriers in the IJN was the Washington Naval Treaty of 1922, designed to curtail the arms build-up that grew out of a post-WW I air of confrontation between Japan and the West. Under the Treaty, Japan was allowed to construct up to 315,000 tons of battleships as against the 525,000 that the US and the UK could each construct. Japan's response was to convert two battle cruisers into carriers, and the AKAGI (with about 60 aircraft) and the KAGA (about 90 aircraft) were the result. These initial conversions were not particularly successful but they did provide the IJN with vessels upon which they could test techniques and ideas, such as arrangements for flight decks, bridges, islands, funnels, etc. For instance, the AKAGI originally had three flight decks forward, with the idea that she could launch and recover aircraft simultaneously. (The aircraft in service

at the time were light and did not need as much room to take off as later models did.) Her top flight deck had a hump in the middle across the beam to allow aircraft to take off downhill and recover uphill, and she was also produced without an island or a bridge. The AKAGI was to first to have what was a characteristic of all but three classes of IJN carrier: funnels which came out of the starboard side just under the flight deck and pointed downwards. Reflecting the inter-war doubts as to a carrier's true role, she also carried 8-inch guns in turrets, six of which were in casemates close to the water-line on either side reflecting her original hull design as a battle-cruiser. Both the AKAGI and the KAGA had bows open under the flight deck. Most IJN carrier designs retained this characteristic while the RN and the USN moved to closed-bow designs for their attack carriers. Some historians contend that both the AKAGI and the KAGA exceeded their declared tonnage under the Washington Treaty by about three to four thousand tons.

As vessels under 10,000 tons were exempted from the Treaty, the IJN then set about constructing a carrier that would be under that limit. The RYUJO was the result. Originally designed to be 8,000 tons and carrying 24 aircraft, a second hangar was added to double the number of aircraft she could carry. This made the vessel top heavy: she suffered from instability and a tendency to dig in her bows in heavy seas. The AKAGI, KAGA and RYUJO became the test beds for the development of aircraft carrier operations in the IJN (and were all later heavily modified). The Treaty continued to restrict the IJN's construction



The IJN carrier KAGA. Like her sister AKAGI, she was modified from a battle cruiser. She has no island bridge superstructure and her funnel runs down the starboard side of the flight deck of which there were three as seen by the stepping arrangement near the bow. Three flight decks were thought to provide the means to land and launch aircraft simultaneously.

program despite an attempt by Japan to change it at the London Conference of 1930-31.

There were other strategic influences that affected the IJN's adoption and design of the aircraft carrier. The IJN was more firmly wedded to the idea of the battleship Navy than the USN. For instance, despite the forward projection of power that characterised the attack on Pearl Harbor, IJN strategic doctrine for the war against the US was predicated on weakening the USN by carrier-based aircraft and submarine attacks as it sailed across the Pacific to attack Japan. Then there would be a final, decisive battle between a depleted and exhausted fleet of USN battleships and a fresher fleet of better armed, trained and motivated IJN battleships. The Pearl Harbor attack was, in part, intended to draw out the remnants of the US battleship fleet so this plan could be put into effect. In addition, as the role of the IJN's carriers was to operate in the Pacific and in South East Asia generally, there were no constraints such as the USN had in having to design carriers that could pass through the Panama Canal. As well, the lack of a threat from land-based heavy bombers influenced the IJN decision not to have armoured light decks. Another influence was the experience of the handling and seaworthiness of top-heavy ships during a typhoon that struck the fleet during manoeuvres in 1935: the IJN had built several top-heavy ships in an effort to cram as much firepower as possible onto a small hull as a way of dealing with the restraints of the Washington Treaty.

At the same time, the IJN was developing its naval air assets. The militarisation of the aeroplane had one great common feature with the tank: both only showed their true potential when Service personnel put them to work in ways different to those originally envisaged by their creators.

The experience gained from fleet manoeuvres, plus its own experience in WWI and through observing developments in naval aviation in the RN and the USN, led to a high regard for naval aviation by the IJN. However, while elements of the IJN saw carriers as the naval weapon of the future, most of the IJN were, as already noted, wedded to the idea of battleships and regarded the value of naval aviation to be reconnaissance, artillery spotting for battleships, and protection of the battleships. In part, the growth in naval aviation was spurred by the Washington Treaty: when the changes Japan asked for were rejected at the 1930 conference, the IJN began to develop areas not covered by the Treaty. One of these was naval aviation, albeit land-based naval aviation.

During the 1930s, in developing their naval aviation assets, the USN and the IJN experienced similar factors that influenced the introduction into service – and decisions about the role of – carrier-borne naval aviation. One was the role of advocates.



Notice the difference in KAGA's appearance after her 1936 modifications to the previous image. Her three flight decks were replaced with one flight deck and island although she still possessed an open bow.

In 1932 the IJN had three champions of naval aviation that were described as 'the Triumvirate'. They were Rear Admiral Kenji Maehara (Chief of the Naval Air Arsenal), Vice Admiral Ahigeru Matsuyama (Head of the Bureau of Aeronautics) and Rear Admiral Isoroku Yamamoto (Chief of the Technical Division). The Triumvirate's first major move was to insist that naval planes be designed and built in Japan, and experimental orders were placed with the four big manufacturers (Mitsubishi, Nakajima, Aichi and Kawanishi) under the Aviation Technology Independence Program to force the rapid development of the Japanese aviation industry.

Yamamoto was particularly notable as a major influence on carrier air power. He had developed a keen interest in air power during a posting in the US during WWI, and studied reports of air actions and visited aircraft factories. In 1923-25 he was executive officer of an air training base and, while Naval Attaché in Washington in 1925-28, his thinking was further influenced by Brigadier Billy Mitchell. By that time he was convinced that air power would become the mainstay of the IJN. He commanded AKAGI in 1928-29, and from 1930 to 1933 served as Chief of the Technical Division (a position he asked for after returning from the 1930 London Conference) where, at his urging, the IJN sponsored a competition in 1932 for design of a long-range, twin-engine bomber capable of carrying a large torpedo. He went on to command the First Carrier Division in 1933-35 and headed the Naval Aviation Department in 1935-36. Yamamoto ceaselessly and enthusiastically promoted naval aviation, encouraging men to join the air arm and developing in the process a huge following among Navy flyers. To do so, he had to overcome a reluctance by junior officers to become aircrew. This was partly due to the fact that – because of the nature of the naval victories over Russia at the turn of the century – anyone who had an ambition to reach flag rank had to become a gunnery officer. As a result, the air arm had no prestige and received fifth-rate officers. Also, until improvements in aircraft design in the 1930s, flying was extremely dangerous and often fatal. Yamamoto used novel methods to develop expertise amongst his flyers. For instance, he paid attractive bonuses for night flying and for taking off and/or landing on aircraft carriers.

In WWII, despite their initial successes, major IJN carrier-based attacks on land targets, ports or fleet anchorages were generally 'one-offs': the IJN only

mounted one carrier-based action against each of Pearl Harbor, Darwin, Midway and Trincomalee. This was partly because of the growing disparity between land-based and carrier-based fighters that had begun in the early 1930s: land-based fighters grew larger, heavier and faster, and so there was a greater danger of carrier-based aircraft having to fight more-capable land-based aircraft, especially carrier bombers against land-based fighters. Indeed, the IJN had experience of this in China in the late-1930s but, ironically, the success of this experience where the IJN outclassed the Chinese fighters was another factor in the eventual demise of the IJN's carrier fleet. Solving complicated technological problems requires the exploration of a diverse set of approaches. Heavy commitments to only one approach are dangerous in early stages of the development of a technology. The IJN's assessment that Japanese industry was incapable of mass-producing a powerful engine for carrier fighters that would outclass land-based fighters led them to push its concept of a light, manoeuvrable carrier fighter to the limit. The result – the famous Mitsubishi A6M2 Zero – outclassed US land and carrier-based fighters in the first year of the war. However, by the second year, the US Bureau of Aeronautics' (BUAER) earlier decision to opt for a new generation of large-engined fighters was paying dividends, and the US turned out not only more aircraft but more capable aircraft than Japan did, or could. The price paid for the Zero's combination of the manoeuvrability of a biplane with the rate of climb of a monoplane was a weak airframe, no self-sealing fuel tanks, and no armour protection for the pilot.

It was this combination of increasingly outclassed aircraft with the inability to research, develop and produce better aircraft in the quantities and in the time needed, coupled with the inability to train aircrew in time, that contributed the most to the loss of the IJN's carrier fleet. The IJN's inability to train enough crews was, in a way, the



One of the fathers of Japanese naval aviation Admiral Isoroku Yamamoto. His thinking was influenced by Brigadier Billy Mitchell while he served as Naval Attaché in Washington DC. He also at one stage commanded the carrier AKAGI.



The Japanese carrier TAIHO represented the more traditional design of aircraft carriers. It was lost during the war due to 'extreme incompetence' in its damage control.

result of its excellent training program. The training was so intense and rigorous that it took too long. The result was that the IJN produced only 100 pilots each year in the decade before WWII. While the IJN entered the war with superior crews (better trained and with combat experience in China), once these crews were lost at the battles of the Coral Sea and Midway, the IJN could not make up the numbers of trained aircrew as quickly as it could produce aircraft. As the war progressed, aircrews assigned to carriers were increasingly poorly trained, with some going on operations without ever having taken off or landed on a carrier.

Japan also suffered from an inability to compare the results of carrier innovation with other Navies. That is, before pressure from the US brought an end to the naval alliance with the UK (as part of the deal between the US and the UK in proposing the Washington Treaty), Japan had access to the ideas of the RN. The British mounted an Aviation Mission in the early 1920s, IJN officers attended naval architecture courses at Greenwich, and RN officers were on the staff of the IJN officer academy at Etajima. The IJN also noted the USN's experiences during manoeuvres where carriers were used to conduct mock attacks against the Panama Canal and Pearl Harbor. With increasingly hostile feelings between the RN and the USN on one side and the IJN on the other, communication ceased and the IJN could no longer benefit from the experience of these two navies. The RN and the USN continued to share operational experiences as well as information on technical innovations such as deck armour, landing mirrors, catapults, etc. The effect was that the IJN's carriers, for all their good design points, suffered from some serious design faults. The lack of an armoured deck was one and open hangars and poorly protected aviation gasoline storage and fuel lines were others.

Like the USN, the IJN also suffered from factionalism, but to a greater degree. At the higher level, this was exemplified by the intense rivalry between the IJN and the Army. Each developed its own air arm, and there was little or no cooperation or even discussion between them until the deteriorating war situation forced the formation of a combined Army-IJN command of air units with naval missions in 1944, some 25 years after the US had established the Joint Board on Aeronautics. As well, the submarine, aviation and surface ship communities of the IJN did not interact at lower organisation levels. Doctrine and tactics were integrated at high command levels, but the higher echelons were divided into an operational fleet staff and a general staff in Tokyo. As well, the IJN did not engage in the type of criticism and analysis needed to identify strategic errors. While this is partly the fault of its structure, it is primarily the fault of the culture of the IJN, which was itself a sub-set of the Japanese military culture.

This culture was so entrenched in the Japanese military that, in effect, it affected every aspect of the IJN's employment of carriers to a lesser or greater degree.

Criticism and honest analysis were stifled by the group ethic and loyalty to the 'team' – and especially to one's superiors – no matter how flawed or downright wrong their thinking. It was this 'team ethic' that spurred the intense rivalry and non-cooperation between the IJN and the Army and between the fiefdoms within the IJN.

Coupled with this was the hierarchy of Japanese society. In the past, the top group had been the Samurai warriors. Whereas IJN officer cadets had all aspired to become gunnery officers in the 1920s, none aspired to be logistics officers as – along with most other supporting arms – logistics officers were not warriors. Those who were gunnery officers – and hence the successors to the Samurai – held the others with disdain. This meant that important appointments were held by second-rate officers and that when a ship's captain was incapacitated in action, command went to the next deck officer, even though the senior engineering officer may have outranked him. This created serious problems in running carriers in battle. The events surrounding the loss of the TAIHO and the SHINANO, for instance, point to extreme incompetence in ship damage control.

The other great cultural handicap was the Yamato spirit. In essence, this was the idea that a pure and superior spirit – in this case, the purity and superiority of the Japanese spirit – could overcome any material superiority. This produced a 'Master-race' notion that came increasingly to the fore (and unstuck) during the war in the Pacific when the IJN was faced with almost certain defeat at tactical, operational and strategic levels. An example is pilot training, mentioned above. The original plan was for highly skilled pilots who would participate in the single, crushing fleet battle. When this did not eventuate and the experienced pilots became casualties, the poorly-trained pilots that replaced them were thought capable of success because of this spirit. Coupled with the desire for a final fleet battle, after the Battle of Midway this attitude led again and again to carrier resources being frittered away in battles that could not be won. The IJN failed to acknowledge that the war in the Pacific was not like the legendary, decisive battleship actions against Russia they

had fought around turn of the century, but one of attrition and where aircraft carriers were more important.

The structure of industry also had critical outcomes for the IJN's carrier fleet. While Japan had introduced policies in the late-19th century to rapidly modernise her industries, to change so quickly the Japanese had to adopt Western institutions and ideas on a large scale, often without comprehensive consideration of their suitability. Japanese industry looked, on the surface, to be more organised than that of the West. However, national policies and intimate relationships between the military and private industry had encouraged industry to become complacent, knowing that the government would support them. The shipyards did not develop mass-production techniques before the war and the rate of construction was much slower as a result. As well, the rate of research and development was much slower in Japan during the war than in the US.

This affected both carrier and naval aircraft development and production. Both the USN and the IJN gave the task of producing better aircraft to industry, often issuing the same task to several companies. But while the development of aircraft was for both civil and military purposes in the US, in Japan it was primarily military. This meant they had only a single customer and did not benefit from the experience of dealing with both civil and military requirements. The IJN followed a pattern that has been repeated in South East Asia since WWII: initially copying equipment, then making aircraft and parts under licence, then using overseas help to design equipment, then indigenous design. Because of the slower rate of research and development, however, the IJN ended the war with basically the same aircraft designs with which it entered the war. And throughout WWII, the Zero continued to be produced with items like wheels and instruments built from designs obtained under licence from the US in the 1930s.

So for all the advantage the IJN held at the beginning of WWII, systemic weaknesses combined to undermine its strengths. Perhaps the greatest weakness was to suppress questioning of accepted doctrine and methods. 'Team spirit' is great only so long as the team has got it right. Is there a lesson here for modern Navies?



USS WEST VIRGINIA sits on the bottom of Pearl Harbor with the USS TERN helping fight fires after the most devastating attack ever launched from aircraft carriers. Less than four years later the IJN's carriers would be defeated and one of its founders, ADM Yamamoto, dead.

# Hatch, Match & Dispatch

## HATCH

### DIAMANTINA

The (then) Minister for Defence, John Moore, has congratulated the Defence Material Organisation and Australian shipbuilder, ADI Limited, on the delivery of Navy's fifth new minehunter, the Huon class DIAMANTINA.



NUSHIP DIAMANTINA enters the water for the first time at ADI's Newcastle facility (Brian Morrison, Warships & Marine Corps Museum Int)

Mrs Maureen Bryden, daughter of the late CMDR G. M. ROSE, RANR, who was commissioning commanding officer of the first DIAMANTINA, launched the ship in Newcastle.

"The Minehunter Coastal Project is delivering world-class capability to Navy and the Australian Defence Force," Mr Moore said.

"We are an island nation and mines would pose a deadly and costly threat to Australia in times of conflict. We need a sophisticated mine countermeasure capability. DIAMANTINA and her sister ships are the most advanced vessels of their type in the world, featuring unique design and the latest combat system technology."

Mr Moore said that Australian industry involvement in the minehunter project involves more than 2,000 Australian companies and expenditure within Australia exceeds \$630 million. Total value over the project is \$1.2 billion.

"Managed by the Defence Material Organisation in partnership with ADI, this project has been very successful, drawing on the best skills and technologies Australia has to offer.

"This positive partnership between Defence and industry demonstrates that, with responsible project Management, Defence capability can be delivered on time and on budget," Mr Moore said.

"Everyone associated with the project can be justifiably proud of their achievement. Today's launch also is further evidence of the Federal Government's commitment to strengthening the relationship between Defence and Australian industry."

DIAMANTINA is named after the Diamantina River which flows through Queensland. The original DIAMANTINA was one of 12 River class frigates and served with distinction in the Pacific War. Decommissioned in 1946 only to be recommissioned in 1959. She served as a training ship and oceanographic research ship until her final decommissioning in the early '80s.

The Navy has already commissioned three Huon class minehunters, HMA Ships HUON, HAWKESBURY and NORMAN all based in HMAS WATERHEN in Sydney.

## MATCH

### WARRAMUNGA

During the Second World War Australia built three Tribal class destroyers. Built to the Tribal class design of the Royal Navy, these ships were designed to engage the fast and heavily armed Fubuki class destroyers of Japan. All of the Tribal class destroyers, with the exception of HMAS BATAAN, were named after peoples of chiefly warlike tribes. The Australian ships were named after the ARRERENTE, WARUMUNGU and KURNAL indigenous tribes. The Warumungu tribe are from the Tennant Creek region in the Northern Territory. The Kurnai was commissioned as HMAS BATAAN in honour of the conflict at The Bataan Peninsula in the northern Philippines. Due to the phonetic pronunciation of the Aboriginal names the spelling of the names was changed to Arunta and Warramunga.

The fifth Anzac class ship built by Tenix Defence Systems in Williamstown Victoria is also named WARRAMUNGA. The name honours both the indigenous people from Tennant Creek, as well as the Tribal Class destroyer HMAS WARRAMUNGA that served with distinction in the Second World War and the Korean War.



NUSHIP WARRAMUNGA during her initial sea trials. Note the protrusion above the helicopter hangar. This is the ship's Nulla launchers. Also of note is the stealth shielding around the Mk-45 main gun. (Tenix)

The new HMAS Warramunga is one of ten Anzac Class frigates currently being built. The commissioning of HMAS WARRAMUNGA took place at Station Pier in Melbourne on Saturday the 31 March 2001. The guest of honour on this auspicious occasion was Mrs Joy Willis. Mrs Willis was the wife of the late Rear Admiral Willis who was the last Commanding Officer of WARRAMUNGA I.

The Maritime Commander hosted the ceremony, which saw in excess of 1100 guests, and family members attend. 240 members of the WARRAMUNGA association attended the event, many travelling from across Australia. The Ceremony was open to the public and attendance was high. The Warumungu tribe thrilled and entertained all spectators with an impressive 10 minute ceremony of their own.

On completion of the Commissioning Ceremony all VIP's, guests and family members were invited to attend the reception held at Station Pier.

The ship was open to the public the following day.  
By POET Lee Robinson, WARRAMUNGA

#### DECHINEAUX and SHEEAN

The two 'fast track' submarines DECHINEAUX and SHEEAN have been commissioned into the RAN at HMAS STIRLING - Fleet Base West.

The two, Australia's fourth and fifth Collins-class submarines, have been substantially upgraded.

Among the dignitaries attending was the Minister for Defence, Mr Peter Reith; Guests of Honour: Mrs Mary Purbrick, widow of Captain Dechaineaux; and Mrs Ivy Hayes, sister of the late Ordinary Seaman Edward 'Teddy' Sheean. Other VIPs included the Chief of Defence Force, Admiral Chris Barrie; and Chief of Navy, Vice Admiral David Shackleton.

A number of veterans who were serving aboard the Australian flagship HMAS AUSTRALIA in Leyte Gulf when the heavy cruiser was hit by an enemy 'Kamikaze' aircraft, mortally wounding Captain Emile Dechaineaux on October 21, 1944 and survivors of the corvette HMAS ARMIDALE who served with 'Teddy' Sheean when ARMIDALE was sunk by enemy torpedo bombers in the Arafura Sea on December 1, 1942, were also present.

This extensive 'fast-track' upgrade program to these submarines, approved by the Government in June 1999,



DECHINEAUX and SHEEAN arriving at HMAS STIRLING for the first time. Both submarines are a product of the 'fast tracking' initiated by Rear Admiral Briggs of the Submarine Capability Team. (RAN)

took 12 months to complete and included enduring platform improvements and a critical augmentation of the existing combat system.

The \$266m program has resulted in significant improvements to the noise signature, diesel reliability and fixes including a quieter propeller, reduced radiated and flow noise, improved platform systems and replaced electronic support measures.

The 2000 Defence White Paper has provided for all six Collins-class submarines to be brought to a high level of capability by major improvements to the platform and combat systems together with replacement heavy weight torpedoes. When the program is completed they will be among the most capable conventional submarines in the world.

There is a certain irony in the fact that DECHINEAUX and SHEEAN commissioned jointly almost 87 years to the day since Australia's first submarines AE-1 and AE-2 were jointly commissioned on February 28, 1914 at Portsmouth in England.

*Although the next vessel depicted in 'MATCH' has already been in RAN service for sometime extensive modifications have essentially made her a new vessel and thus worthy of mention particularly given her long absence from the fleet.*

#### KANIMBLA

The 8450 tonne amphibious transport HMAS KANIMBLA has home-ported for the first time since her conversion in Newcastle.

Under the command of CMDR Steve Turner, KANIMBLA left the Forgas shipyard on the Hunter in November. She did some trials off the NSW coast in that month and in early December came to Sydney.



HMAS KANIMBLA at sea during a recent exercise on the NSW coast. (Mark Schweikert)

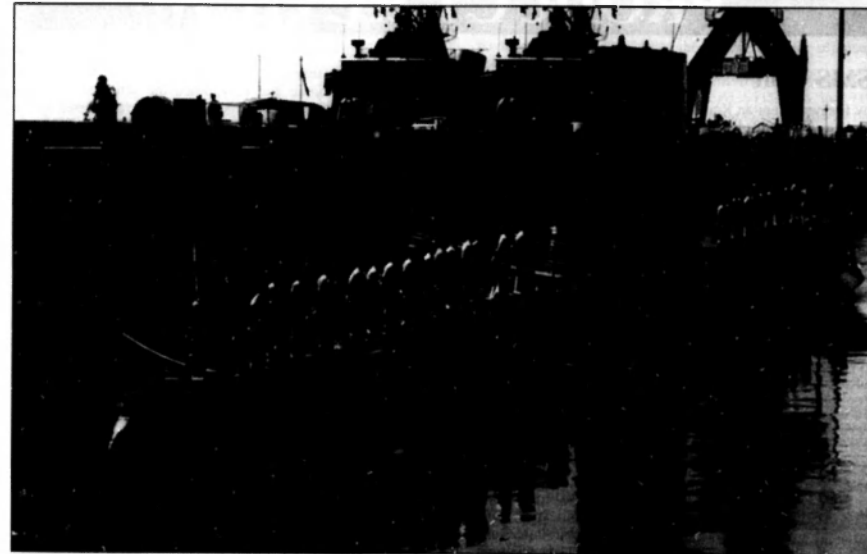
No 51 was joined at Fleet Base East by sister LPA, HMAS MANOORA, who was returning from deployment in the Solomon.

#### DISPATCH

##### OTAMA

Friday, December 15 was to be a sad day in the history of the RAN with the decommissioning of the RAN's last Oberon-class submarine, HMAS OTAMA.

The Maritime Commander Australia, Rear Admiral Geoff Smith AM RAN, hosted the Decommissioning on



HMAS OTAMA at her decommissioning ceremony with HMAS ANZAC and ARUNTA in the background. (LSPH D. Yates, RAN)

the Diamantina Pier at HMAS STIRLING. The Victoria Naval Band provided music for the ceremony.

Guest of honour was the Navy's senior submariner, Rear Admiral Peter Briggs AO CSC RAN, who is retiring from the Navy after a 39-year career.

The Oberon-class submarines had a very special place in Australian naval history as these submarines laid the foundation for the postwar Australian Submarine Squadron.

The rebirth of submarines in the RAN came after the decision was made to purchase submarines in 1963 after a 32 year gap since the first HMAS OXLEY and HMAS OTWAY were transferred to the Royal Navy in 1931.

The first of the new Oberon-class submarines, HMAS OXLEY was commissioned in Scotland on March 27, 1967 and was followed by OTWAY (1968), OVENS (1969), ONSLOW (1969), ORION (1977) and OTAMA (1978). They were originally based at the now decommissioned HMAS PLATYPUS, as Australia's submarines were gradually transferred to HMAS STIRLING in Western Australia. The first being HMAS OXLEY in 1987.

Built at Greenock, Renfrewshire, Scotland by Scott Lithgow Ltd, OTAMA was launched by Princess Anne on September 16, 1974, who also attended the submarine's Commissioning on April 27, 1978 as the Guest of Honour.

Normally carrying a complement of 64, O1 .MA has had 13 Commanding Officers during her 22-year career, the last being Lieutenant Commander Sean O'Dwyer, RAN.

For more than 30 years the Navy's Oberon-class submarines have played a vital role in Australia's maritime deterrent with their unique offensive and surveillance capabilities. They were once considered the best and quietest conventional submarines in the world.

With the decommissioning of HMAS OTAMA, the baton is now handed over to the submarines which will serve Australia for the next two decades, the larger long

range, faster and more capable Collins-class submarines, five of which have now arrived in Western Australia. No decision has been announced at this time as to what OTAMA's future will be.



HMAS OTAMA proceeding to sea for her last exercise, 'LUNGFISH 99', off the WA Coast - 30 November 1999. After, OTAMA was paid off into reserve at HMAS STIRLING, 7 December 99. (LSPH Darren Yates, RAN)

# PRODUCT REVIEW

## SMS Wolf

by Fregattenkapitän Karl Nerger

Reviewed by Dr David Stevens

Available from:

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On 6 July 1917, the SS CUMBERLAND, an Australian cargo-vessel of 9471 tons, signalled that she had hit a mine ten miles off Gabo Island and required assistance. A Japanese cruiser rushed to her position and sent a diver down to examine the damage. An attempt was later made to tow CUMBERLAND to Twofold Bay but the inrush of water became uncontrollable and

she sank on 11 July. Aware that a disguised German raider was loose, the Australian Commonwealth Naval Board showed a regrettable lack of insight when the Japanese investigation misled them into rejecting the presence of a minefield and instead attributing CUMBERLAND'S loss to sabotage. Federal and State proclamations were issued offering rewards for information leading to the conviction of the saboteur, while the Board introduced elaborate security measures to intercept bombs that might be intended to blow up other freighters.

Evidence pointing to the existence of a minefield continued to grow, but not until October 1917, and the receipt of a dissenting report from the federal Attorney-General's Office, did the Naval Board decide to resolve the question and order a mine sweep. Several trawlers were commissioned at Sydney with crews from the recently established 'minesweeping section' of the Naval Brigade. By January 1918 thirteen mines had been discovered in the Gabo field. A second field laid in Bass Strait was identified and swept after the Armistice. Notwithstanding the eventual discovery of the mines, for twelve months Australian sea-borne commerce continued to be inconvenienced by the most drastic restrictions.

The raider responsible for such a unique affect on Australian affairs was the converted cargo ship WOLF. Renowned for undertaking the longest of all raiding cruises, she also holds the distinction of being the only enemy warship to enter Australian waters during World War I. Under the command of Fregattenkapitän Karl Nerger, WOLF had left Germany in November 1916 and arrived in the Indian Ocean via the Cape of Good Hope. In addition to the local fields she laid mines in South African, Arabian, Indian, Singaporean and New Zealand waters. Having claimed fourteen victims, and steamed some 64,000 nautical miles through enemy controlled seas, she returned triumphantly to Kiel on 24 February 1918. It was a time when Germany desperately needed good news and Nerger immediately published an account of his activities. It was clearly a propaganda exercise rather than an

objective assessment of the voyage, but it served its purpose at home and maintained the sense of threat in Australia. Sections of Nerger's book were translated by the British Admiralty, and some of his disclosures, including the fact that WOLF had carried a small sea plane, made their way into the Allied press. For several months the Australian public bombarded naval authorities with reports of mythical aeroplanes over the southern states.

Other authors have made use of Nerger's book, but it has never before been published in English. The New Zealand team responsible for this new edition must therefore be congratulated on making it available to a new and wider audience. Although relatively short, the book is reasonably factual and makes for an interesting comparison with later accounts. A.W. Jose, author of the RAN volume of the official history, described Nerger's book as 'bombastic' and boastful. But the German's observations of life on board WOLF, and his perceptive comments on relations between his English, Australian and Japanese prisoners, provide a valuable window on the times, and easily make up for any deficiencies.

This new edition includes a brief preface that places WOLF'S cruise in the context of the global war at sea, and footnotes that highlight some of the more obvious errors in the original text. The only small complaint is the poor quality of photo reproduction but, noting that the images have presumably been scanned from the first edition, this is probably not surprising. In sum, it is a very creditable effort and one hopes that other similar projects may be in the works.

## KRIEGSMARINE -

### The Forgotten Service

1999. Cromwell Productions Ltd

Video, 52 Minutes

Reviewed by Mark Schweikert

Available from:

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The video documentary KRIEGSMARINE - The Forgotten Service, is a visual history of the German Navy before and during WW II. It contains some rare imagery of German naval exercises involving submarines and ships from before WW II. One of the more interesting aspects of this documentary is the use of computer generated 3D movie imagery to show submarines underwater, the sinking of TIRPITZ, and the internal layouts and designs of battlecruisers and submarines.

The German Navy's plan for a modern Navy to rival the RN is detailed and why it didn't come to fruition. Plan Z was to have provided the Kriegsmarine with aircraft carriers, battleships, battlecruisers, destroyers, and submarines but was prevented from being realised due to Hitler's inability to wait until 1942-4 as he had promised the Kriegsmarine. Had he waited then the Kriegsmarine would have never been referred to as the 'forgotten service'.

The documentary highlights the German submarine campaign in the Atlantic and why it didn't succeed in strangling the UK. At this point the documentary looks at both sides of the battle, not just the German perspective.

The documentary is highly recommended for those who are just starting out on their quest for knowledge about the Battle for the Atlantic and the Kriegsmarine but not so recommended for those who have more knowledge. I found it to be a little repetitive and basic but its use of archival film was remarkable. For example, the documentary shows the first submarine snorkel in action and how it was used.

The coverage of the German Pocket Battleship's inception is quite good but lacks a little in supporting film clips.

Analysis throughout the documentary is provided by interviews with Dr Simon Trew and Tim Bean of the Royal Military Academy, Sandhurst and Dr Robin Clifton of Warwick university.

While not being the best documentary I have seen on this subject it is the best priced and one which can make a useful contribution to one's military documentary library.

## MUTINY

### Naval Insurrections in Australia and New Zealand

By Tom Frame and Kevin Baker

Published by Allen & Unwin,

Available at most good bookshops. RRP \$29.95 (softcover).

283 pages.

Reviewed by Vic Jeffery.



This book makes the interesting claim that: "Since 1916 there have been more mutinies in the RAN than any other Navy maintained by an English-speaking nation. New Zealand's Navy, by contrast, has suffered only one mutiny, although it was one of the largest to occur in recent naval history."

Without doubt, Mutiny will help fill a void in the published material relating to naval insurrections in these two countries, examining why and

analysing how highly disciplined men were driven to challenge authority in such drastic ways.

Mutiny studies how the Navies dealt with these threats to their internal order and what the men gained and lost by their actions.

It should be pointed out that no mutiny in the RAN has resorted to violence on the part of the mutineers, although in some instances media reports have sensationalised the events.

During World War I, some 17 sailors (two Royal Navy trained) were tried for mutiny. World War II saw a further 61 face courts martial; 49 of these were tried for offences relating to resisting or defying authority.

The Fremantle Incident involving the Australian flagship, the battlecruiser HMAS AUSTRALIA in 1919 was an interesting example of the harsh discipline of the Royal Navy and the reluctance of young Australians, who had signed on for the War, to accept this.

The mutiny aboard the Netherlands East Indies (now Indonesia) obsolete battleship DE ZEVEN PROVINCIE in 1933 makes interesting reading. It resulted from a 10% pay cut in 1932, a further reduction of 14% from February 1, 1933 in place of a scheduled 17% pay rise.

Sailors commandeered the ship off Nias Island, Sumatra when the Captain was ashore and steamed towards Surabaya, shadowed by other Fleet units who were well aware of the range of the battleship's 11-inch guns.

Eventually a squadron of eight Dornier bombers flew over the ship - which didn't have anti-aircraft guns - and demanded their immediate surrender. The mutineer's refusal saw 50kg bombs dropped, one striking forward of the bridge and killing 18 including the leader Quartermaster Poradja. A further 184 (35 Europeans, 149 Indonesians) were arrested and charged with mutiny. All were found guilty and sentenced to gaol terms of between 6-18 years.

Australia's most serious and protracted mutiny in World War II was onboard the corvette HMAS PIRIE which resulted from poor leadership and habitability in this class of ship, further worsened by battle damage.

Exacerbated by damage when caused when a Japanese bomb at Oro Bay in New Guinea hit the ship in 1943, which saw the sailors living on cold food and being continually wet during the voyage back to Australia for repairs. No leave was granted whilst they were living in these conditions. This is a well-documented example of how a situation can deteriorate with inept leadership.

There are a number of mutinies documented in this book which makes for an interesting read.

On some occasions, events were described as "mutinies" but were dealt with summarily as lesser offences, described as "strikes". I am certainly aware of one, which occurred during World War II and obviously fell into this category.

The 1947 Royal New Zealand Navy mutiny which involved the cruiser BELLONA and BLACK PRINCE, corvette ARBUTUS, trawler HAUTAPU and the shore establishments PHILOMEL and TASMAN was the largest after World War II. Around 20% of lower deck personnel then serving in the RNZN were discharged or punished.

History reveals that Australians and New Zealanders do not mutiny without a cause. The main factors being poor living conditions, destructive leadership and excessive or inconsistently applied discipline.

Mutiny covers mutinies in the different eras, including the Australian Colonial Forces and even a c/apter relating to mutinies in the Australian Army and Air Force.

My one criticism of this book is the poor choice of one of the two cover photographs, showing the guided-missile frigate HMAS ADELAIDE, which infers there was a mutiny aboard the ship.

Not so, the photograph was a very poor choice, which simply related to former Leading Seaman Terence Jones and his unlawful absence from his ship when it was bound for the Gulf of Oman to enforce United Nations sanctions against Iraq.

Jones was subsequently court martialled in 1991, found guilty and sentenced to 21 days detention, reduction in rank to able seaman, the forfeiture of four days pay and dismissal from the Navy.

This book is bound to generate debate on the subject. A good read and well recommended.



## STATEMENT of POLICY

Navy League of Australia

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.

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*The Australian Navy League,  
since 1900 it has remained  
'The Civilian Arm of the RAN'.*



A black and white movie poster for the film Pearl Harbor. The top half features the faces of three men in military uniforms, looking upwards with serious expressions. The bottom half shows a large military aircraft in flight over a body of water, with several warships visible in the distance. The title 'PEARL HARBOR' is prominently displayed in the center.

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