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# THE NAVY

The Magazine of the Navy League of Australia

*Pacific 2008  
Congress*

*HMAS  
ALBATROSS  
White Elephant  
or Wolf in Sheep's  
Clothing?*

*The 1000  
Ship Navy*

*How to Fly a  
Sea Harrier  
Part 2 –  
The Fight*

*Australia's Leading Naval Magazine Since 1938*

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The Indian Navy Kilo class submarine INS SINDHURAKSHAK arriving at the Langkawi defence exhibition in Malaysia. All Indian Kilos are currently either fitted, being fitted or are to be fitted with the Club-S family of cruise missiles (see Flash Traffic item *Russia delays Indian submarine refit* this edition). (Chris Sattler)



The former HMAS ADELAIDE entering Sydney Harbour for the last time. ADELAIDE was decommissioned in the West and sailed to Sydney under an Australia 'Blue Ensign' for preparation as a dive wreck for the NSW central coast. (Chris Sattler)



# THE NAVY

Volume 70 No. 2

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**Front cover:** Japan Maritime Self-Defense Force destroyer JS YUUDACHI (DD-103) leads a formation of ships during Exercise Malabar 2007 in the Bay of Bengal. More than 20,000 naval personnel from the navies of Australia, India, Japan, the Republic of Singapore, and the United States took part in the exercise, designed to increase interoperability among the navies and to develop common procedures for maritime security operations. Exercises like this can help pave the way for the USN's 1000 ship Navy construct. (USN)

## The Navy

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### TBMD, The Possibilities

Last February a USN Ticonderoga class cruiser, USS LAKE ERIE, shot down a US spy satellite in orbit with an SM-3 missile at over 247km above the Pacific Ocean. Although seemingly a straight forward accomplishment, it was quite remarkable as the SM-3 was designed to shoot down ballistic missiles, not satellites - the latter being far more difficult to target due to higher speeds and greater height. The fact that this weapon and the associated systems, tactics, techniques and procedures could be adapted for a different application in such a short space of time speaks volumes to the maturity of the USN's Theatre Ballistic Missile Defence (TBMD) programme. Potential partners in the USN's TBMD programme, such as South Korea, Germany and Australia, should now be far more confident in joining the programme than ever before.

But some commentators have labelled TBMD as an offensive weapon system which, if deployed, would have a destabilising effect on the region. However, nothing could be further from the truth. Long range ballistic missiles are purely offensive. Their warheads range from high explosives to chemical, nuclear and biological agents. For a TBMD system to work, an initial act of aggression, the firing a long range ballistic missile, has to have taken place. Stopping that missile in flight is thus a defensive measure to prevent the enemy from achieving their aim of death and destruction. Most ballistic missiles are also somewhat inaccurate and therefore tend to target civilians, not military assets. Although, China is working on a long range anti-ship ballistic missile which is self homing and impervious to all systems except SM-3, which makes joining the TBMD programme even more important.

In layman's terms, TBMD is similar to a bullet-proof vest. In the law enforcement context, a criminal would have to shoot at a police officer for the vest to achieve what it was designed for, keeping the user alive. Issuing of bullet-proof vests to police officers has not spawned an arms race in the criminal world. Thus, in the military context TBMD is much the same as a bullet-proof vest, as it provides a shield to the user, nothing else, and negates the effectiveness of the criminal's weapon.

The systems associated with naval TBMD cannot be used offensively. Even if one were to claim the newly demonstrated capability of shooting down satellites is offensive, it must be remembered that this satellite was already in a significantly decayed orbit. Plus, satellites used for peaceful/civilian means, such as pay TV, are positioned far higher above the earth's surface and are inaccessible to the SM-3 missile and/or its associated surveillance and targeting systems.

But the shooting down action does open the door to potential denial strategies against space based military assets, which are becoming more and more vital to military operations. If the SM-3 and TBMD system could be developed further then most low earth orbiting military satellites could be vulnerable. If the technology were to go down this path then the strategic benefits of joining the TBMD programme become even more obvious.



The SM-3 missile that intercepted the US Spy Satellite in February is seen here being fired from the forward Mk-41 VLS of the USN's USS LAKE ERIE. Two other TBMD ships were on standby in the Pacific Ocean off Hawaii if LAKE ERIE's attempt failed. However, they were not needed. (USN)

### Super Seasprites cancelled

In late 2007 the Rudd Labor Government initiated another review of the Super Seasprite helicopter project, despite two reviews from the previous government.

In the wake of that review the Rudd Labor Government decided to cancel the Seasprite project, which consisted of 11 helicopters to bring the total Fleet Air Arm helicopter force to 27.

The reasons for the cancellation have not been released. Discussions have however, commenced with the contractor to arrive at a mutually acceptable arrangement.

Minister for Defence Joel Fitzgibbon said the decision was not one taken easily, but the Government was left with little option. However, project insiders believe that it could have been resurrected. They cite the Polish, Egyptian and New Zealand Navies successful experience with the Seasprite.

Mr Fitzgibbon said "The announcement demonstrates our determination to make tough decisions whenever required for the security of the nation and the safety and capability of our Defence Force".

To provide Navy with a naval aviation capability, the Government announced two measures. First, an interim approach is said focus on improving the operational availability of the current overworked and stretched Seahawk fleet (it will be interesting to see 16 helicopters do the job of 27). This however, will not see the Penguin anti-ship missile or the MU-90 ASW torpedo fitted to the aircraft which were to be used by the Seasprite. What the Government intends to do with the hundreds of millions of dollars worth of Penguins in safe keeping remains to be seen as no other ADF aircraft can use it.

Second, the Government said it will investigate the planned replacement of the Seahawk during its White Paper deliberations, although this has already been started under the previous government's AIR 9000 project.

It was regrettable to see the Minister's Press Conference on the issue more about attacks on Brendan Nelson, the previous Defence Minister now leader of the opposition, than real measures to plug the significant capability gap left by the project's cancellation. Hopefully more will be forthcoming on how this serious gap will be fixed in quick time.

*Themistocles*

Last November Australians elected the Labor Party to government. It is early times in the life of the new Government, but not too early to have a look at what has been said and done. What does it mean for Defence, and especially, Navy?

When in Opposition the now new Government questioned the acquisition of large amphibious ships but seemed happy to support the Air Warfare Destroyers, albeit with some questions regarding costs. There was certainly criticism of the purchase of the F-18F Super Hornets.

However, prior to the election the then defence spokesman, now the Defence Minister, The Hon. Joel Fitzgibbon, made it clear that a Labor Government would not cancel any existing projects, despite having strong reservations about some of the recent purchases.

Mr Fitzgibbon said "If elected, a Rudd Labor Government will commit to all current equipment acquisition projects. Despite what some may tell you, Labor will not be cancelling the air warfare destroyers, killing off the amphibious ships, but it will be revisiting the Super Hornet purchase."

Since the election Mr Fitzgibbon has made a number of interesting announcements. A new White Paper on defence is to be prepared. This is most welcome. The last White Paper was in 2000. A great deal has happened since then. Examples that readily spring to mind are 9/11, Iraq, deployments to South Pacific trouble spots and further commitments in East Timor. There is also the fact of the growing strength and importance of nations in our region.

In addition to dealing with the kind of issues mentioned above, the new White Paper will no doubt reflect the new Government's strategic analysis and world view.

The Government has announced that the Navy is to get a new generation of submarines. The Navy League welcomes and strongly supports this decision. It is pleasing that the planning process is to start now, with the aim of gaining first pass approval by 2011.

The announcement has created some debate regarding propulsion, weaponry and numbers.

The League believes that all forms of propulsion should be considered for the new submarines. In some places it has been argued that the tasking of our submarines would be such that speed would be largely irrelevant. It is true that there are roles for our submarines where speed is not a requirement. But it is easy to imagine situations where speed would be desirable. And our submarine base at HMAS STIRLING might be a long way from where we wish our boats to operate.



A brand new Collins class submarine before her launch. Any new submarine programme to replace the Collins class should take into account all forms of propulsion when examining future options. (RAN)

Australia does not presently have a nuclear infrastructure able to support nuclear submarines. But what is being considered is not Australia's capability now, but rather when construction starts in about 10 years time. These new submarines will presumably be operating until 2050.

It is not the position of the League that the new submarines must be nuclear powered. It is simply that in deciding on the type of propulsion all factors, including of course cost, should be taken into account.

The League believes that the new submarines should be capable of operating both short range tactical land strike missiles and long range cruise missiles.

The number of submarines to be acquired is important. Our view on this is clear cut and appears in our Statement of Policy on the last page this magazine. The League "Advocates the future build up of submarine strength to at least eight vessels".

An unfortunate constraint on any increase in our submarine force is manpower. As is well known Navy is having difficulty crewing the present six Collins class submarines. If in the future the RAN is to operate more and larger submarines a lot of work will have to be done to ensure that crews are available for them.

The Air Warfare Destroyer programme of three vessels remains on track. To date the new Government has given no indication as to whether Navy will get a fourth Air Warfare Destroyer. Similarly there is nothing to suggest that the two amphibious ships will not proceed. The purchase of Tenix by BAE Systems does not seem to have affected the position. It is perhaps revealing that Kim Beazley, a former Labor leader and Defence Minister, was quoted in *The Australian* as advocating the idea of more submarines, but referred to the Air Warfare Destroyers and the amphibious ships as "the best submarine targets in the region."

Recruitment and retention are problems for all three services, but particularly for the RAN. The Government intends to keep in place many of the measures introduced by the former government to deal with these problems.

It also proposes to adopt what it describes as a family friendly approach. The Defence Science and Personnel Minister, Warren Snowdon, has stated that longer postings and less family disruption would form the core of the Labor Government's approach in dealing with recruitment shortfalls. Mr Snowdon said that "Labor is also determined to develop more family-friendly policies aimed at retention, including the need to address the disruption caused by frequent relocation". It will be interesting to see if this approach leads to a re-consideration of the idea of shifting some of HMAS CERBERUS' activities west to HMAS STIRLING.

The League welcomes any steps that will help ease the serious recruitment/retention problems

The League has for some years been concerned about the state of Australia's merchant fleet. Prior to the election the Labor Party indicated that it would take steps to re-invigorate Australian shipping.

It has been announced that the Government will review coastal shipping laws. The review is intended to find ways to increase coastal shipping's share of the domestic freight market. The League hopes that this review will lead to an enhanced share of the domestic market for our ships.

It is to be hoped that the Government will in due course see what can be done to increase Australia's share of the international freight market.

*Graham Harris, Federal President Navy League of Australia*



# The Navy League of Australia

## Second Annual Maritime Essay Competition 2008

**The Navy League of Australia is holding a second maritime essay competition and invites entries on either of the following topics:**

*20th Century Naval History*  
*Modern Maritime Warfare*

A first, second and third prize will be awarded in each of two categories: *Professional*, which covers Journalists, Defence Officials, Academics, Naval Personnel and previous contributors to *THE NAVY*; and *Non-Professional* for those not falling into the *Professional* category.

The prizes are:

- *Professional* category: \$1,000, \$500 and \$250
- *Non-Professional* category: \$500, \$200 and \$150.

Essays should be 2,000-3,000 words in length and will be judged on accuracy, content and structure.

The deadline for entries is 29 August 2008 with the prize-winners announced in the January-March 2009 issue of *THE NAVY*.

Essays should be submitted either in Microsoft Word format on disk and posted to: Navy League Essay Competition, Box 1719 GPO, SYDNEY NSW 2001; or emailed to [editorthenavy@hotmail.com](mailto:editorthenavy@hotmail.com).

Submissions should include the writer's name, address, telephone and email contacts, and the nominated entry category.

*THE NAVY reserves the right to reprint all essays in the magazine,  
together with the right to edit them as considered appropriate for publication.*



# The Pacific 2008 Congress and International Maritime Exposition

RADM Andrew Robertson AO, DSC, RAN (Rtd)  
Federal Vice-President, Navy League of Australia

**The fifth in the Pacific series of biennial Congresses and Expositions was held at Darling Harbour, Sydney from 29 to 31 January 2008. There were three major events running concurrently - the RAN Sea Power Conference, the International Maritime Conference, and the Pacific 2008 Maritime Exposition held in the adjoining Exhibition halls.**

Indicative of the growing importance of this major event was that 32 countries sent delegates, including two serving Chiefs of Defence and seven Chiefs of Navies. 850 delegates attended the Sea Power Conference. A further 380 delegates registered for the International Maritime Conference, and an impressive 434 companies, 240 of which were Australian, displayed their products in the Exposition. During the opening the Chief of Navy, Vice-Admiral Russ Shalders outlined the theme of the Sea Power Conference which was "Australia's Maritime Interests: At Home and in the Region". He stated that the RAN was confronting a highly dynamic security environment, complex, uncertain, and potentially more threatening than any we have faced before. The tradition of working together with other navies will become increasingly important. The acquisition of a greatly enhanced amphibious capability coupled with the Air Warfare Destroyers will significantly add to Australia's ability to influence and shape the strategic environment, and to project both soft and hard power when necessary.

The new Minister for Defence the Hon Joel Fitzgibbon MP assured the Congress that the Government was committed to ensuring that deployed forces had the equipment, the protection, the training, and the support needed to perform their duties effectively and as safely as possible.

While looking to find savings and efficiencies the Government had committed to growing the Defence budget by 3 per cent real over the course of the next decade and the commitment "is set in concrete". He felt the government must establish effective ways of recruiting and retaining more people. A trial program to deliver free health and dental care for ADF families was being developed, and there was a need for more family-friendly initiatives to aid retention. Cultural change was necessary to increase the percentage of women in the ADF (currently 13%). It was necessary to become more creative on the recruitment front. Talking to Generation Y in their language through the mediums they rely upon for their information would be crucial to making gains. Nowhere is our people and skills shortage being more acutely felt than in Navy.

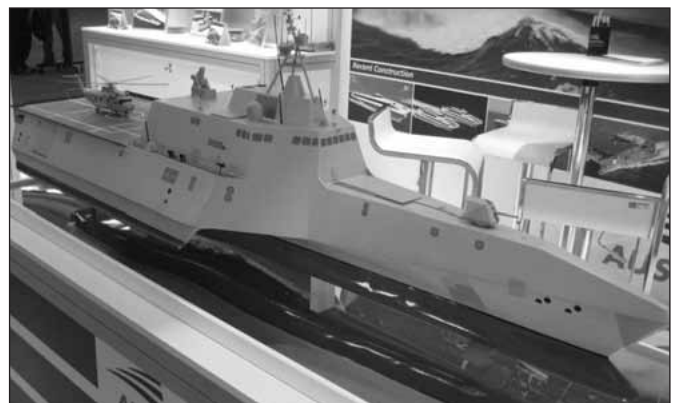
The Minister outlined the importance of maintaining safety and security at sea noting that any interruption to the global trading system can have a rapid and detrimental economic impact. For example a disruption to the oil flow from the Middle East to North East Asia would quickly affect the Australian economy. As a

relatively isolated island continent Australia is particularly dependent on maritime trade. Safety, security and freedom of movement at sea are critical to Australia's economic prosperity and security. Australia's geography means that we need the ability to move offshore and reach beyond our immediate environment to help influence and respond to events.

Of particular importance to defence and industry was the Minister's statement that "the new Government fully supports the decision to acquire two new amphibious ships and three air warfare destroyers for the Navy".

Admiral Shalders opened the first session of the Seapower conference, outlining current naval deployments and the future Air Warfare Destroyer and amphibious ships programmes. Studies had commenced on future submarines. Australia must maintain a balanced fleet for sea control and work had to start now on options for a new class of ship to follow on when the Anzac class ships de-commission.

Regarding force structure he argued that while some commentators have suggested that Australia should adopt a posture of drawing back to rely on submarines and combat aircraft to protect the moat around our northern coastline, this would fail to capitalise on the enormous potential of the sea and the strategic advantage imposed by our geography. Maritime-based forces - not just the Navy - have much more utility if used to control the sea. Australia needed the ability to project power - both hard and soft - in support of our



A model of Austal's unique trimaran design for the USN's Littoral Combat Ship project. The first ship is due to launch this year.



Raytheon's Bridge Simulator demonstrating its worth as a training tool.

national interests. Given our geography this would inevitably be maritime in nature.

The keynote address was given by Dr Tim Huxley the Executive Director of the International Institute for Strategic Studies - Asia, based in Singapore. His theme was "The RAN and Australia's security - What does the future hold?"

He outlined four major factors - the evolving strategic environment - developments in the Asia/Pacific - the domestic environment - and the nature of Australia's security, including the structure of the ADF. It was almost inevitable that the RAN would develop to make significant contribution to coalitions as well as its constabulary and other roles as a regional navy. In his opinion the strength of US leadership may decline due to the rise of China and India; the resurgence of Russia; the emergence of Brazil as an economic power; and the development of the EU. US "soft power" may not necessarily remain world-predominant. The US will continue to build coalitions against terrorism, in NATO, and with Global maritime Partnerships, but it must recognise the interests of others. Weak states may collapse. International trade will expand. Any interruption of sea trade will have very serious consequences. The reliability of energy supply and water will be of great importance. More regulation in international law seems inevitable, but it must serve the interests of the poorer nations as well as the majors.

There could be a dozen nuclear weapon states by 2030 and missile defences and space capabilities could be widespread. Terrorism may not disappear and much would depend on how the Iraq, Afghanistan and Palestine situations resolved.

There were potential major regional problems in the Asia/Pacific including Taiwan, the North Korea nuclear situation, and the South China seas. China and India are likely to continue to expand but the present great rate of growth can't be assumed to continue. Japan with its ageing population is likely to have only slow growth, and elegant decline is possible. The two Koreas may unite and become a nuclear state probably aligned with China.

He expressed cautious optimism over the future of Indonesia which may overcome its many problems. There would be instability in Myanmar, the Philippines, and maybe Malaysia. Australia would be involved in rescuing fragile states around her.

The future was full of uncertainty so Australia should cultivate links with other like-minded countries. Australia's economic and military strength could help shape the future and there was a strong argument to deal with problems as far away as possible. There should be

closer relations with Japan. India and Korea could also be important security partners. China was not an adversary and it would be a tragedy if an assumption of aggressive interest became self-fulfilling.

Dr Huxley posed the question whether Australia was getting value for money in its defence expenditure noting that Singapore with a lower expenditure, could field eight army divisions, 100 aircraft, and a well-equipped navy. Balance was needed and the current replacement syndrome could stifle development.

Mr Greg Sheridan, Foreign Editor of *The Australian* newspaper, gave his views on likely international strategic developments. He expressed concern that Iran, an alleged supporter of terrorist groups, may become a nuclear power within the next few years. It would be a new era. The US with the highest birth-rate in the world would still be central in global politics for 50 years or more. The dynamism of the US would mean it would dominate and the US alliance would be central to Australia's security.

Terrorism in future decades would be as strong as today, and would be the most likely source of nuclear detonation. Islamist terror ideology was religious and spiritual and would not go away.

The Middle East would be a centre of strife for decades. There was no functioning democracy in the Arab Middle East and the strategy to defeat Israel was by demographics. Indonesia was likely to succeed as a democracy. There was likely to be ongoing systemic turmoil in the Melanesian world of seven million people and there would be continuous Australian involvement.

The Good News was that there was likely to be a continued spread of Democracy. An immensely difficult challenge would be a nuclear-armed Iran, a major supporter of terrorism.

China has managed its rise brilliantly and has turned its financial power into political power. Given its past history of stability then instability there may be a radical discontinuity in China. It was inevitable that India - a democracy, and China - a dictatorship, would have strategic competition, which was already evident in Myanmar.

The British representative, Vice-Admiral RP Boissier RN, Deputy Commander-in-Chief Fleet, Royal Navy, spoke on the future of the Royal Navy and coalition operations.

Global communications were now instantaneous and people were now more connected than ever before, but many issues were beyond control.

He spoke of the growing importance of the maritime scene. The



BAE's Talisman Unmanned Underwater Vehicle (UUV) for use against sea mines. It is a contender for the RAN's SEA 1778 mine warfare project.



A model of Israel's Unmanned Surface Vehicle (USV) Protector. Protector is remotely controlled from the ship through an optronic sensor on the boat. It is armed with a large calibre machine gun which can be fired from the host ship.

vast majority of the world's population, mostly in ever growing urban settlements, lived within 100 nautical miles of the sea. There were now over 50,000 merchant vessels carrying the world's trade, with crews of over a million sailors. The stability of the world's maritime strategic choke points was vital to the world economy. For example a closure of the Suez Canal involving a five week delay for ships via the Cape of Good Hope, would be crippling for Western Europe. Closure of the Malacca Straits would cut off 80% of China's oil.

The UK was having a limited re-engagement with the Asia/Pacific area, whose stability was very important. British forces, including Marines, helicopters, and Harriers were heavily involved in Afghanistan and Britain remained a member of the Five Power Defence Agreement (FPDA).

The Royal Navy retained global reach. Within eight years two new 65,000 tonne aircraft carriers, with F-35 fighter/strike aircraft, new assault ships, destroyers, and support ships would join the fleet giving significantly greater strike capability. The nuclear deterrent would be replaced.

The Royal Navy was playing its part in defending the Iraq oil terminals (in the north of The Gulf) through which passed 90% of Iraq's GDP.

In his view, given the changing strategic situation, it would seem in Australia's interests to develop increasing relations with India and to sell uranium to that country.

Dr Robyn Lim, Professor of International Relations at Nanzan University, Japan, gave a forthright overview of the strategic scene in the NW Pacific. A new power balance was emerging. During the cold war the major influences on the area were external but now they were from local countries, causing instability. The aim of the US since occupying the Philippines in 1898 has been to seek a balance of power. The main problem now is that China and Japan hate each other.

The Professor believed that China was now the dominant power and had unprecedented latitude due to the collapse of the USSR. The only serious local challenge to this could come from India or Russia. The US was seen as the most serious military threat and China was adopting an asymmetrical approach and asserting the Middle Kingdom while preparing to take on the US. Currently China benefits from capitalism but the Communists will not give up their power.

During the Cold War Japan accepted that the US provided sufficient security but today China is seen as a problem. Japan wants a formal declaration that the US will defend her in the case of nuclear attack. The US cannot do this. Should North Korea obtain nuclear weapons Japan is not convinced that joint US/Japan missile defences will be sufficient. Nuclear weapons would give Japan greater security but at great cost. An isolated Japan on bad terms with her neighbours would be very difficult for the US. The value of the alliance was now being reassessed.

China's anxieties included concern over her sea lines of communication, piracy, and maritime terrorism. By 2020 about 60% of her energy supplies will come from overseas, most of which will pass through the Malacca Straits. 90% of this today is carried in foreign ships. There was growing Indian and Japanese influence over the control of these Straits.

China was seeking access to bases - the "String of Pearls" strategy. During question time a Senior Pakistani Naval Officer objected to the inference that China was

obtaining base facilities in the new port of Gwadar at the entrance to the Gulf of Oman. There was no base agreement and a Chinese firm had won the contract in open tender. The Port of Singapore Authority would run the port for 40 years.

China was putting huge effort into shipbuilding and planned to have 90 VLCC tankers by 2015, capable of carrying 50% of her energy imports. China had proposed oil pipelines through Thailand and from Myanmar to Yunnan, but so far had gained little support.

Formidable naval strength including the acquisition of aircraft carriers, was being built up. Agreements were also being sought with Indonesia and Malaya for the security of the Malacca Straits.

Dr Lim concluded by stating that China was now a global maritime power whose dependence on the sea was increasing. The question was whether sea lane security would become the scene for co-operation or conflict between the great powers.

Mr Jun Noon Mak, a Malaysian independent maritime security analyst, spoke on the politics of "Sustainable Piracy in the Strait of Malacca Revisited: Pirates, Renegades and Fishermen". Most of the attacks on shipping were for economic, not ideological, reasons. The main suspects were the Free Aceh Movement and corrupt Indonesian officials. Some fishermen paid protection money. Seizing boats and crews for ransom was common. He concluded that maritime predations were due to poor governance and widespread corruption. Since 2005 naval co-operation between Indonesia, Malaysia and Singapore; the Indonesian agreement with the GAM movement in ACEH; and improvement in governance, had resulted in a major drop in piracy.

Professor Geoffrey Till of King's College London and the UK Defence Academy spoke on "Future Navy: Modern/Post-Modern Tensions in Development".

He addressed the theme of Global Maritime Partnership now espoused under the new strategy of the United States. Japan was slowly marching towards the realism of globalisation as witness her navy's refuelling role for coalition forces in the Indian Ocean, but there was resistance to this in Japan. China was becoming increasingly Mahanian. Much effort was going into ship building and maritime power. She was aware of her strategic dependence on foreign energy. India was developing an ability for Sea Control and



On display for the first time was Rafael's new Torbuster. The Torbuster is a submarine launched soft kill decoy that also uses hard kill to protect the submarine. Unlike other noise making decoys the Torbuster can be programmed to move away from the submarine and/or towards the incoming torpedo. Once acquired by the incoming torpedo a warhead detonates when the attacking torpedo comes close thus rendering it inoperable and no longer a threat to the submarine.

nuclear sufficiency. She was more collaborative in maritime matters. He believed that Australia as a medium power, self-evidently a maritime country in a maritime environment, was faced with a dilemma - the requirements of NOW and those of the FUTURE. This was not a choice. Both had to be covered. Sea Control was required. He noted that Sweden had changed its navy in a space of 10 years from one formed for coastal defence to an expeditionary navy involved in co-operation with other nations. There were lessons in this for Australia.

Professor Don Rothwell, of the ANU, Dr Natalie Klein, a Senior Lecturer at Macquarie University and Ms Joanna Mossop, a Senior Lecturer at Victoria University, NZ, covered "International Law Perspectives on trans-Tasman Security".

Whaling in the Southern Ocean and associated legal problems were covered in some detail by Dr Rothwell. He noted that Australia had been a whaling nation from 1805 until 1978.

The control of whaling was first organised by the 1946 International Convention for the Regulation of Whaling. In 1985/6 a Moratorium whereby all commercial whaling was prohibited came into force, but scientific research was still allowed. Japan took advantage of this provision, taking about 850 Minke, 50 Fin, and 50 Humpback whales yearly. Japan stopped Humpback whaling in 2007.

Australia controlled whaling in its waters by the Whaling Act 1960, the Whale Protection Act 1980 and finally the EPBC Act creating a sanctuary in Australia's EEZ, including off the claimed Antarctic Territory. However only four countries (the UK, NZ, Norway and France) recognise Australian sovereignty over parts of Antarctica. The current problem involving Japanese Whalers, the Greenpeace ship *Sea Shepherd*, the *Steve Irwin* (flying the Dutch flag) with its boarders, and the Australian Customs ship *Oceanic Viking* was a legal nightmare.

The Commander Border Protection Command, Rear Admiral James Goldrick, summarised the role of his command as "to co-ordinate and control the whole of government efforts to protect Australia's national interests against security threats in the offshore maritime area". There were 13 Government agencies involved including Customs, Defence, Fisheries and Quarantine. Search and Rescue remained with the Australian Maritime Safety Authority.

The main problems were the illegal exploitation of resources, bio-security, immigration, piracy and robbery, terrorism, prohibited exports and imports, pollution and Protected Areas. He was responsible to both the Chief of the Defence Force and the CEO of the Customs Department.

The Australian Maritime Identification System (AMIS) which integrated all sources of information on maritime surveillance would be operational in late 2008.

Border Protection assets included 14 Customs aircraft air patrols and using AMSA, Army Regional Force Surveillance, and Defence assets. His command had a major call on eight customs vessels, the *Ocean Viking* in the Southern Ocean, the customs vessel *Triton*, seven Armidale class patrol boats, one major RAN fleet unit, one minehunter, one LCH and other resources as required. Trials using the Israeli Herron Unmanned Aerial Vehicles (UAVs) would take place later this year.

There was warm co-operation with France in the Indian Ocean and close contact with Indonesian authorities to reduce pressure in the various areas.

The President of the Submarine Institute of Australia, Rear Admiral Peter Briggs (Rtd) spoke on the Future

Submarine Programme. He emphasised the importance of maximising future strategic options in what was Australia's strategic "sting". By 2025 it had been estimated that, excluding those of the US and the RAN, there would be about 130 submarines in the Indo/Pacific. By that time Indonesia planned to have 10 Kilo class Russian-designed boats.

He considered the future need was to be able to put two submarines on continuous patrol at 3,000 nautical miles from Australia plus two operational boats in support of Task Force Operations. (This would seem to need eight or more boats). He concluded that design trade-offs should be investigated now. A decision was required by 2010 with a contract let in 2016 and sea trials in 2022.

Admiral Muhammad Afzal Tahir, the Chief of Naval Staff, Pakistan spoke on Regional Maritime Security Challenges in the Arabian Sea.

A great expansion in world trade was now underway and more emphasis must be placed on policing the trade routes. Many of the world's sea lines of communication traverse the Indian Ocean and one third of the world's oil supply passes through the Strait of Hormuz. In the Arabian Sea maritime terrorism was not yet a major focus but jurisdiction was anarchic and not under any nation's full control. Threat at sea was now a reality. Piracy was rife in the Straits of Malacca, off Somaliland, and in the South China Seas. Traffic in drugs and arms was also a concern.

International co-operation was required to deal with these problems. The Pakistan Navy had contributed to regional maritime security and had provided the first non-NATO Commander in the North Arabian Sea in 2006. In 2007 Pakistan had run a multi-national maritime exercise involving the US, UK, China, France, Turkey, Italy, Bangladesh and Malaysia. This would be run biennially to promote inter-operability.

The Deputy Chief of the Indian Naval Staff, Vice Admiral Anup Singh addressed the Indian Naval perspective.

Ancient India had active trade links all around the Indian Ocean and up to the end of the 12th Century several Indian states had significant navies. Their decline led to colonisation. Post colonisation has led to the growth of the Indian Navy. The Indian Navy was "Indian Centric" and "where one stands depends on

where one sits". India sits on the main routes from Suez and the Gulf to East Asia. 100,000 ships cross the Indian Ocean yearly, some 60,000 traversing the Malacca Straits. There were seven major choke points in the Indian Ocean. Critical was the safe passage of petroleum, 1,000 million tons of which passed India every year. Also relevant was that 70% of the world's natural disasters took place in the Indian Ocean Area.

India has 13 major ports, 15,000 km of coastline, and an EEZ comparable in size to its land mass. Her primary area of interest was the whole Indian Ocean with a secondary area of interest from South America to Sakhalin (with its oil reserves). India and China had the economic imperatives that their oil requirements were growing so rapidly that they were central to geo-politics. Japan and India also shared interests including in Sakhalin oil. ASEAN was very important to India. The great proportion of India's trade was to the east.

Captain Chris Skinner (Rtd), the Inaugural Maritime Australia Award winner, gave a presentation on the National Benefits and Costs of the Collins class submarine, which had been the theme of his award paper. After this Rear Admiral Goldrick the President of the Australian Naval Institute announced and presented the Maritime Australia Award winners for 2007.

## International Maritime Conference

There were also most important presentations given at the concurrent International Maritime Conference. This conference covered a huge range of the more technical aspects of the Maritime world including ship economy, maritime engineering, harbour control, maritime research, naval technology, navigation and operation, high speed vessels, structures and materials, ship design, naval design, human factors in high speed craft, high speed craft engineering, unmanned maritime vehicles, education training and safety, and Australian shipping and environment.

Excellent presentations were also given on the AWD and LHD projects which will give a great boost to Australian defence industry and employment, as well as greatly enhancing the mobility and capability of the ADF. Each LHD with its helicopters and landing craft will be able to land and support over 1,200 troops. They are equipped with excellent communications, command facilities, air traffic control, a hospital with two operating theatres and close range anti aircraft and missile defences.

Apparently the aircraft carrier role equipment fitted in these Spanish-designed ships will not be fitted in the Australian versions. This seems to the Navy League to be unwise, for it removes an option for future governments who may in some situations see the advantages of purchasing, embarking, and operating some of the STOVL (Short Take-Off and Vertical Landing) version of the RAAF's projected F-35 stealth fighter to provide air support to deployed forces.

A presentation of particular interest was given by Mr Rick Newlyn, the Assistant National Secretary of the Maritime Union of Australia (MUA) on "It's time to restore the role of shipping in the Australian Transport and Logistics Industry".

He stated that the new Australian Government has signalled its intention to revitalise Australian coastal shipping, with the full support of the MUA. 99% of merchandise trade is moved by sea and Australia has the 5th largest shipping task in the world in terms of tonnage and kilometres travelled. A strong merchant navy provides a 4th arm of national defence. In the US, bipartisan support for the Jones Act and for maritime cabotage stem from merchant marine integration with

national security and national defence. He summarised the task to revitalise Australian shipping as:-

- Reform cabotage to revise the coastal permit and ship licensing provisions,
- Promote competitive neutrality between all transport modes,
- Stimulate investment in Australian ships,
- Overhaul maritime skills and training,
- Reform key legislation particularly the Navigation Act,
- Integrate shipping into manufacturing supply chains,
- Establish a national commercial shipping safety regulator,
- Reform Auslink to include maritime infrastructure planning and funding,
- Ensure port planning responds to domestic shipping needs,
- Include shipping in a national emissions trading scheme.

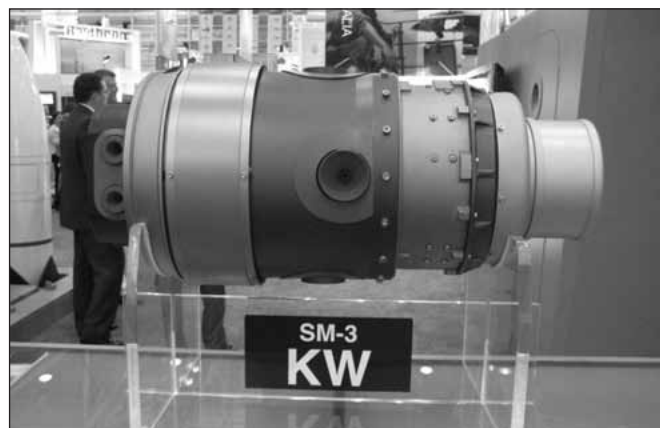
Readers will be aware that the Navy League of Australia has for some decades been pressing for the development of the Australian Merchant Marine.

## Broad Deductions

Overall it seems clear from the many observations of competent authorities at this Conference that a major change in the balance of power is taking place in East and South Asia. While Australia can hope and work for a satisfactory and peaceful outcome, the future is full of uncertainties. These are not lessened by the major build-up in maritime, and especially naval forces, including submarines, taking place in those areas.

Against this background and given the long lead times involved in naval construction it would seem wise for Australia to consider a steady build-up in the maritime elements of the ADF. A good starting point, noting our two ocean basing policy, would be to increase the initial order for the Air Warfare Destroyers to at least four vessels. Re-consideration of the decision to remove the aircraft carrier equipments from the LHDs and examination of the possibility of the acquisition by the RAAF of some of the STOVL version of the F-35 fighter/strike aircraft would also seem to be in the national interest.

Clearly the major build-up in modern submarines in the Asia/Pacific, including nuclear-powered boats, points to the need to put more emphasis on Australia's ability, with its allies, to defend its essential sea lines of communications.



The Kinetic Warhead (KW) from the SM-3 anti-ballistic missile weapon. A KW like this recently destroyed a non-functioning US Spy Satellite in space over the Pacific. It uses no explosives to destroy the target. Just the kinetic effect of mass and velocity colliding with the target. The KW has an IR sensor and control rockets to steer it into the oncoming target.

# How to Fly a Sea Harrier

## Part 2 – The Fight



By Mark Boast

An F/A-2 Sea Harrier in flight. The F/A-2 is identifiable by its larger rounded nose compared to the earlier FRS-1 Sea Harriers. (RN)

**Former RAN Skyhawk pilot later Sea Harrier fighter pilot, Mark Boast, provides a first hand account of how to fly a Sea Harrier in this three part series in *THE NAVY*. In Part 2 Mark talks us through how to fight a Sea Harrier.**

In my first article on the Sea Harrier I discussed a little bit of Sea Harrier history and then concentrated on take off techniques. I also promised at the end to discuss in the next article, this one, the apparent paradoxes of this small and unconventional aircraft when it came to flying operations and combat. Paradoxes such as “how can an aircraft designed for high speed and low level bombing, also be effective when it is asked to perform medium and high level air defence?” Or “why isn't vectoring the nozzles in flight a good idea in air combat when I've heard that it is one of the Harrier's best tricks?” So let's launch...

The airframe and engine combination form the heart of any combat jet, so I will discuss this first. Again, let me do this from a pilot's eye and very subjective point of view since a purely objective study would suggest that in this area, the Harrier was woefully short of the mark. The weapons systems that adorned the Sea Harrier will be covered later and I think you may be surprised at how these systems developed and performed through the 25 years or so that the Sea Harrier was in service.

The most famous operational employment of the Sea Harrier was during the Falkland's Conflict in 1982. The Sea Harrier Force was in it's infancy at the time and with very limited weapons systems and experience, air engagements were invariably a combination of directions from ship based fighter controllers leading to visual engagement

by the pilot, or even visual engagement with no external direction or warning. The bulk of air fighting was conducted at low altitudes and in this situation the rapid acceleration and small size of the Sea Harrier, combined with its ability to persist (non afterburner fuel flows) and employ the AIM-9L Sidewinder made it a fearsome opponent for the Argentinean Air Forces. But it should not be forgotten that other factors such as the comparative distances of the Sea Harrier to its host



The earlier FRS-1 Sea Harrier's small radar mounted in the nose is evident in this image of the author and his steed! (author)



The trials FA-2 Sea Harrier cockpit before installation of the radar. Typically British and note the central location of the traditional flying instruments despite the HUD. (A&AEE Boscombe Down)

carrier, and the Argentine aircraft to their airfields, as well as the absence of Argentine air surveillance were equally significant factors in this tragic and melancholy conflict.

But back to paradoxes; you can probably already guess from the first article that there was plenty of thrust in an aircraft that is able to hover, to push the Sea Harrier along in conventional flight. But this really was true only for low level performance. The turbofan characteristic increasingly loses thrust with altitude and without any augmentation such as afterburning, the Sea Harrier at altitude was more akin to an airliner than a fighter; good fuel economy but limited spare thrust. In normal fighting configuration, the later Sea Harrier variant had an initial climb capability not much different from a loaded 747! And nor did it improve much as fuel was burnt off.

Another paradox; the airframe was designed primarily for low level performance to fulfil the RAFs and US Marine Corp requirements for a Close Air Support aircraft. The small wings were just large enough to provide sufficient carriage points and internal fuel capacity for Close Air Support and tactical bombing, but not large or clever enough to impart long range or sustained high rates of turn at any altitude. So when the Royal Navy came along and adapted the aircraft for Naval operations predominantly in the Air Defence role, the airframe was arguably the opposite of what was required.

An ironic paradox; the fuel efficient engine and benign characteristics of the wings at medium and high altitude (20-30,000ft for the Harrier) meant that it was quite

straightforward to maintain a Combat Air Patrol for relatively reasonable periods. The altitude not only provided a “perch” from which it was possible to swoop down to pick up speed and begin the chase, but in later versions an optimum position for radar search and missile employment. It also kept the aircraft above a large number of sea or land based air defence systems. But the Harrier design was the only one at the time that could be easily converted to operate off the RN's Invincible class small flight decks that were devoid of catapults and arresting gear. On a side note, there is a fascinating history of early Naval Harrier development commencing with the Hawker P1154, a contemporary of the more famous TSR-2, which casts a very ironic light on the RN's eventual use of the Sea Harrier in overland operations. Another paradox involves the use of the engine nozzles to help combat manoeuvring performance. Called Vectoring In Forward Flight, or “Viffing”, the nozzles could be moved (vectored) whilst in normal flight to achieve a range of effects. The most dramatic was to simply select the nozzle down to the maximum braking position (slightly forward of pointing straight down). Be certain to lock the pilot's harness for this action as the deceleration bordered on vicious and headbutting the instrument panel was well within the scope of possibility. This completely controllable control effect invariably forced another aircraft chasing the Harrier from behind to quickly slip out in front where the weapons pointed - and all without the usual visual clues of hard turns or radical manoeuvres.



The small opening on the leading edge of the wing of this Harrier is part of the reaction control valve system. It uses bleed air from the compressor to enable the Harrier to manoeuvre like a helicopter in the hover. However, selecting a small amount of nozzle at low airspeed would open up the reaction control valves situated at all the corners of the aircraft to give excellent low speed control ability.

aircraft handled a bit more like the famous Gee Bee racer of the 1930's than a Cessna 150. Yet in many respects it was a Cessna.

That high wing was sufficiently sloped down (anhedral) to impart a nice mid mounted wing feel and predictable flying characteristics throughout the normal manoeuvring envelope. The anhedral also gave two other benefits. Firstly, the outrigger legs were sufficiently long to provide good shock absorption, but not too long that they became "fragile". Secondly, the absence of a crew ladder meant that if the normal ladder was not available, the pilot could get to the ground by sliding (carefully to avoid the jagged vortex generators) down it. Same for going back up although the "all fours" technique was recommended when things were damp.

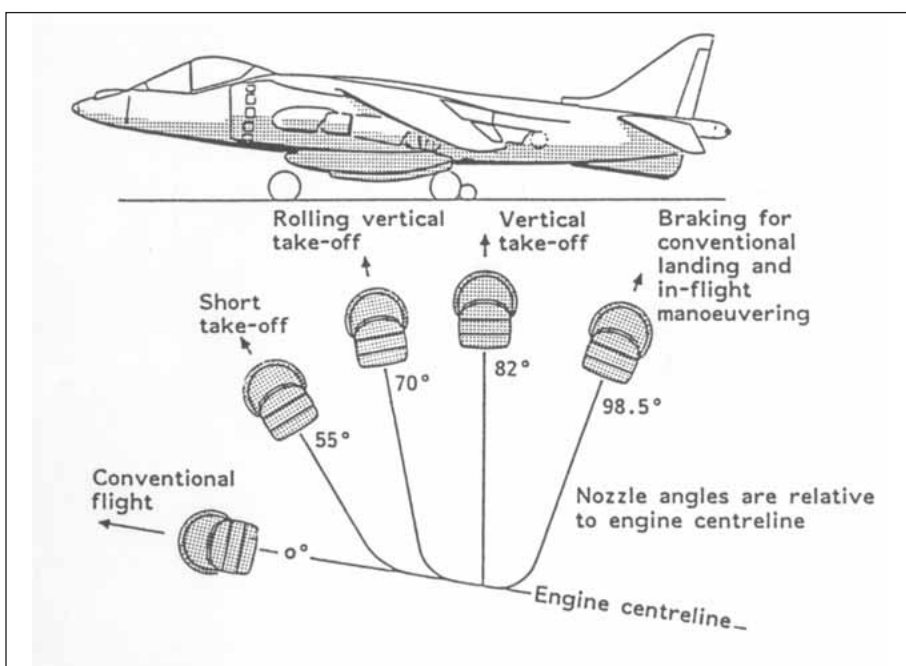
The swept and small wings have at times been described rather unflatteringly as "stabilisation fins for the engine" and in a no-power glide as gracing the aircraft of the "glide characteristics of a bunch of car keys"! No matter, they were actually sized to balance the high speed/low level role of the original ground attack Harrier, and fortuitously were well supplemented in the takeoff and landing phases by the direct life from the variable angle engine nozzles. To the pilot they felt not unlike delta planform wings as they gave the aircraft relatively benign characteristics at very slow speed and imparted a characteristic wing rock when manoeuvring up against the turn limits. The Harrier II family which followed the first generation Harriers has a far larger wing with a complex cross section, massive flaps and perhaps most significantly, a greatly increased fuel capacity. So what about the weapon systems? It would be a fair

Once experienced very few opponents ever fell for the same trick twice unfortunately.

A less dramatic use of 'Viffing' was achieved by selecting a small amount of nozzle at low airspeed. This opened up the reaction control valves situated at all the corners of the aircraft to give excellent low speed control ability. But 'Viffing' came with an Achilles Heel. It could only be achieved by reducing part or all of the forward thrust. As any fighter pilot would know, it is the thrust pushing the aircraft forward that 'powers' the wing via airspeed. So whilst spectacular, 'Viffing' effectively handed the fight to the opponent unless the surprise element could be exploited very quickly. And of course it could sometimes save the day if all you wanted was to get out of the way by using a combination of 'Viffing' and violent manoeuvre with the control stick to achieve a very interesting departure from controlled flight - usually accompanied by an engine surge if you forget to pull the throttle back. It was also thought that as a last ditch manoeuvre that moving the nozzles and turning the aircraft hard would mask the IR signature through shielding the hot exhaust air and dissipating it in a less usual manner. Well, you have to do something in these situations but it is well known that the one that gets you is the one you don't see.

Let's discuss some of the handling basics of the Sea Harrier. Normally this would be the first port of call for any discussion like this but often the traditional flying characteristics come last whenever the Harrier is the topic! A look at the arrangement of fuselage, wings, overall proportions and size would give the impression that this

times been described rather unflatteringly as "stabilisation fins for the engine" and in a no-power glide as gracing the aircraft of the "glide characteristics of a bunch of car keys"! No matter, they were actually sized to balance the high speed/low level role of the original ground attack Harrier, and fortuitously were well supplemented in the takeoff and landing phases by the direct life from the variable angle engine nozzles. To the pilot they felt not unlike delta planform wings as they gave the aircraft relatively benign characteristics at very slow speed and imparted a characteristic wing rock when manoeuvring up against the turn limits. The Harrier II family which followed the first generation Harriers has a far larger wing with a complex cross section, massive flaps and perhaps most significantly, a greatly increased fuel capacity. So what about the weapon systems? It would be a fair



A diagram showing the different angles of nozzle to control the Harrier.



A trials F/A-2 Sea Harrier with four AIM-120 AMRAAM. The application of the larger Blue Vixen radar and AMRAAM made the Sea Harrier one of the most formidable air superiority fighters in Europe, which it remained so until the arrival of the Eurofighter/Typhoon.

generalisation when discussing the Sea Harrier's operational capability that the STOVL capability was all about take off and landings, and that the weapons systems made up for what could be considered to be a relatively poor fighter airframe/engine. There were two distinct weapons system phases associated with the first variant, the FRS-1, and the second and final variant, the F/A-2. The FRS-1 used a pulse radar based system that had poor range, required lots of pilot input, and served a short range IR missile. It was called the Blue Fox.

Whilst the close in combat mods for the FRS-1 were excellent and the guns aiming for the twin 30mm Aden bordered on spectacular, the whole approach to air combat was to get in close and if possible, stay low and sneaky. Not a very comfortable prospect at times when the opposing fighter usually had a significant edge in manoeuvrability and had probably already fired his first missiles when the Sea Harrier pilot was still engrossed in radar handling and initial detection. Nor was it much more comfortable with the Soviet

bombers that could shoot backwards and had plenty of flares and other tricks to keep the Sidewinder away.

The F/A-2, on the other hand, brought with it arguably one of the era's best fighter radars, the Blue Vixen, with an outstanding integration of the AIM-120 AMRAAM medium range air-air missile. The tactics associated with this system heralded a completely new approach to combat and the Sea Harrier pilot now found himself at medium/high level applying stand off tactics. Early and accurate detections allowed early employment of the AMRAAM and post launch tactics went from avoiding getting in close, but standing off to maintain missile guidance and keeping out of danger. The game went from torrid close in encounters in the FRS-1 requiring strong pilot abilities with air combat manoeuvring and fast visual teamwork, to an almost intellectual challenge of situational awareness and non visual

cooperative tactics.

Many times more effective than the FRS-1, the F/A-2 finally answered the RN's call for a sea borne fleet defender able to reliably 'dissuade' any type of attacking aircraft. As is the way of the world however, all this happened in a time of rapidly declining requirements for fleet air defence. Bosnia, Sierra Leone and Iraq (between the wars) were the new conflicts. Multi role capabilities were the new fashion and there were restrictive new requirements including identification of air targets before engagement, collateral damage constraints for bombing and minimum heights when operating overland. None of these were easy to meet in the Sea Harrier and nor were they operational environments that had been envisaged. Despite these constraints, the Sea Harrier found itself in almost continuous operational employment as yet again the STOVL characteristics and its ability to operate effectively from ships meant that it was highly employable just because it was relatively easy to get it into the operational theatre.

Hopefully I've given you the impression that the Sea Harrier was not a fighter pilots airframe, but that it did compensate for this shortcoming with increasingly effective weapons systems which when combined with its unique STOVL characteristics enabled it to pop up in operational areas where and when required. Always a high piloting workload and complex supporting job for engineers and developers, the Sea Harrier nevertheless developed a reputation for reliably getting on with the job and being there when required. Just don't try and explain how it all works every time someone asks the question.....!

Next time we'll come back and try out the landings. Is it really easier to "stop and land" than "land and stop" as so many Harrier advocates have claimed? And what happens when the big light bulb in the sky drops below the horizon?



Two F/A-2 Sea Harriers at altitude. The Sea Harrier's turbofan characteristically lost thrust with altitude and without any augmentation such as afterburning, the Sea Harrier at altitude was more akin to an airliner than a fighter; good fuel economy but limited spare thrust. (RN)

# Flash Traffic

## Egypt completes 10 years of Seasprite operations

The Egyptian Air Force has completed 10 years of successful service with its fleet of Kaman Super Seasprite SH-2G(E) helicopters. Egypt was the first international military force to select the aircraft.

The Egyptian Air Force operates its Seasprites from land and aboard vessels of the Egyptian Navy performing a number of maritime missions, including ASW, anti-ship surveillance and targeting and search and rescue operations. They also use the aircraft extensively for vertical replenishment, personnel transfer and maritime coastal patrol and homeland security missions. The nine aircraft have accumulated more than 8,000 hours of flight time over their 10 years of service.

"The Egyptian Air Force continues to operate the aircraft with the highest degree of operational capability in very adverse environments," said Bob Manaskie, senior manager, SH-2G Programs for Kaman Aerospace. "Individual missions can have the aircraft operating in a humid, marine environment as well as in the hot, windy and sandy conditions found in the Egyptian desert. They also operate closely with the Egyptian Navy conducting both local and international exercises, honing the operational skills required to operate in today's challenging national defence environment."

Other international customers for the SH-2G Super Seasprite include the Royal New Zealand Navy and the Polish Navy. The SH-2G fleet has accumulated more

than 1.3 million flight hours throughout its life span and continues to have the highest power-to-weight ratio of any maritime helicopter.

## Globemaster flies into HMAS ALBATROSS

During December 2007 an RAAF C-17A made a delivery flight to HMAS ALBATROSS.

The Globemaster was ferrying two of 816 Squadron's Seahawk helicopters that were returning from Western Australia where they had been involved in an anti-submarine exercise.

816 Commanding Officer, Commander Simon Bateman, was impressed by the speed and efficiency of the operation: "Normally when we deploy across to WA we fly the helicopters across there and it takes up to 18 hours of flying and three days work. To be able to send them to WA and bring them back in just over four hours demonstrates just what a welcome addition the C-17 is to the Australian Defence Force."

With a length of 53m, a height of 16.8m and wingspan of 51.7m, the Globemaster is large enough to transport the Army's M-1A1 Abrams tank, a Chinook helicopter, or up to three Black Hawk or Tiger armed reconnaissance helicopters. The Globemaster can also carry five Bushmaster infantry vehicles or more than 70 tonnes of cargo.

The RAAF currently operates four Globemasters with No 36 Squadron at RAAF Base Amberley in southern Queensland. These will significantly

enhance the ADF's ability to support national and international operations and major disaster relief efforts.

## Extreme Short Range (ESR) mode for SPY-1

Lockheed Martin has successfully demonstrated a new Extreme Short Range (ESR) mode for its family of SPY-1 naval radars.

This new ESR mode provides an additional layer of ship defence that supports close-in operations, such as helicopter approach control, and enhances small surface target detection and performance in the littorals. The mode was developed as part of the continuing product improvement efforts to the SPY family of radars.

During the recent demonstration of the ESR mode with Norwegian Navy and USN participants, the SPY-1F radar successfully tracked a live helicopter test target as it performed a variety of challenging approaches. While operational in ESR mode, the SPY-1 radar continued normal operations, maintaining its performance in surface, horizon and area surveillance with 360-degree coverage. The test demonstrated the ability for the ESR mode to establish initial detection and acquisition of the test target with seamless transition to steady-state tracking for outbound targets, and seamless transition of the test target tracks from standard mode to ESR mode for inbound targets.

## No blueprints delays VIKRAMADITYA refit

The absence of blueprints for INS VIKRAMADITYA (formerly ADMIRAL GORSHKOV), the 44,750-tonne Kiev-class aircraft carrier, is the principal reason for the delay in retrofitting the vessel for the IN (Indian Navy) a Russian Newspaper has reported.

IN officers associated with VIKRAMADITYA's refit at the Sevmashpredpriyatiye shipyard in Northern Russia told the newspaper that the carrier's drawings had not been passed on to Russia by the Nikolayev South (Shipyard No 444) in Ukraine, where it was built, after the disintegration of the Soviet Union in the early 1990s.

This led to a gross miscalculation by Russian engineers about the extent of cabling required for the carrier and the cost for it to remain operational for at least 25 years in keeping with the IN's requirements.

The vessel, the fourth Project



An Egyptian Air Force Super Seasprite retrieving its ASW dunking sonar. The Egyptians have enjoyed 10 years of trouble free Super Seasprite operations. (Kaman)



The former Soviet aircraft carrier ADMIRAL GORSHKOV. Note the additional work on the bow to enlarge the flight deck and add a ski jump. The carrier is not expected to be ready for the Indian Navy until 2012 due to the absence of original blueprints.

1143/Kiev class carrier named BAKU, was laid down in 1978, launched in 1982 and commissioned five years later.

Following the Soviet Union's collapse it was renamed ADMIRAL GORSHKOV after an officer who was credited with building the Soviet Navy. In 1994, after a boiler room explosion, it docked for a year of repairs. Though it briefly returned to service a year later, it was finally withdrawn from service in 1996 and sold to the IN in January 2004 for the price of its refit finalised for around USD\$974 million.

An additional USD\$525 million was agreed for 16 MiG-29K fighters, including four trainers that would form part of the carrier's air group in the overall USD\$1.5 billion deal.

IN officers said without blueprints and necessary technical drawings, Russian engineers had originally estimated that the carrier would require 700 km of cabling. Once work began, this was revised to 2,400 km.

Thereafter, the Russians reportedly wanted to only partially re-cable the carrier but the Indians insisted that it be completely re-wired.

This requirement, IN sources said, was conveyed in 'no uncertain terms' to Moscow by former Indian Defence Secretary Shekhar Dutt and recently by the Indian Defence Minister A.K. Antony during their Russian trips.

In July 2007, the gross error in estimating the cabling led to the removal of Vladimir Pastukhov, general director of the Sevmash yard, and an announcement of a delay in the carrier's delivery deadline by nearly three years to 2011-12.

However, Russia followed this up with

the demand for an additional USD\$1.2 billion for the refit, triggering a negative response from the IN chief, Admiral Sureesh Mehta. "It is a fixed price contract and they (Russians) should honour it" Mehta said. "If today we re-open GORSHKOV, tomorrow all our projects with Russia can be opened for renegotiation.

"We have already paid USD\$500 million for the ship and own it," Mehta stated. "If the Russians put enough manpower on it today we could take delivery of the ship by 2010 or early 2011."

## BUNKER HILL to get open architecture Aegis system

The USN has given its final approval for Lockheed Martin to proceed with the

integration and shipboard installation of the world's first, fully-open architecture Aegis weapon system for a major surface warship. Aegis Open Architecture will be installed in the cruiser USS BUNKER HILL (CG-52) during its Depot Modernization Period (DMP), which commenced in February 2008.

Aegis Open Architecture will allow the USN to stay on technology's leading edge through its innovative use of commonly-available commercial off-the-shelf computing hardware and open system software, enabling the service to more easily implement technology refreshes and capability upgrades to the weapon system as they are developed in the future.

BUNKER HILL is the first of 22 cruisers scheduled for modernization with Aegis Open Architecture over the next 10 years. In 2012, the USN will begin a similar modernization programme for the 62-ship class of Aegis-equipped Arleigh Burke destroyers.

The road to Aegis Open Architecture included extensive systems engineering to reconfigure Aegis with commercial off-the-shelf computing hardware and open system software. The end result is a weapon system that can absorb frequent technology refreshes and can readily accept upgrades in capabilities, whether they be accomplished through new development or through the integration of separately developed third party products.

## Final farewell for two RNZN ships

Two of the RNZN's remaining three In Shore Patrol Craft, HMNZS WAKAKURA and HMNZS KIWI were decommissioned from operational service



The cruiser USS BUNKER HILL (CG-52). The ship will be the first to receive the Aegis Open Architecture during its Depot Modernization Period. (USN)

on Tuesday 11 December, 2007 at New Zealand's Devonport Naval Base.

Sister ships HINAU and MOA were decommissioned on 23 January 2007, with the fifth In Shore Patrol Craft, HMNZS KAHU, to remain in operational service as the Navigational and Seamanship Training Ship.

Named after WW II minesweepers of the RNZN, Inshore Patrol Craft KIWI and WAKAKURA were attached to the Royal New Zealand Naval Volunteer Reserve Divisions (RNZNVR) in Christchurch and Wellington respectively until April 2005.

Built in Whangarei, New Zealand in the 1970s, the ships were used for conducting basic seamanship and navigation training. The Inshore Patrol Craft crewed by the Volunteer Reserve supported many Naval and Defence Force exercises, as well as multi agency government work during their service. They conducted fishery patrols, search and rescue operations, mine counter-measure activities, started yacht races, and carried out seamanship training, contributing to the functions of the Defence Force as a whole. They were relocated to Devonport Naval Base for use as training ships whilst the new ships of Project Protector are being built.

An end of an era for the In Shore Patrol Craft heralds a new beginning as the new In Shore Patrol Vessels being built under Project Protector, ROTOITI, HAWEA, PUKAKI and TAUPO, commission into operational service in 2008 as replacements.

## First improved Oyashio with Stirling AIP launched

The first of Japan's improved Oyashio-class submarine for the Japan Maritime Self Defense Force (JMSDF) was launched at Mitsubishi Heavy Industries' shipyard in Kobe on 5 December, 2007. Fitted with Kockums Stirling Air Independent Propulsion (AIP) system, the leading submarine - SORYU - will significantly enhance the boat's stealth and special operations capability.

Gunnar Larsson, CEO of Kockums states "This is a major milestone in Kockums long term and successful relationship with Japan, in particular with our industrial partner Kawasaki Heavy Industries in Kobe. It also recognizes Kockums as a world-leading supplier of well proven submarine AIP technology - the Japanese are known to only choose the best. HMS GOTLAND's joint exercises with the USN during two years also evidenced the strength of our submarine



A JMSDF Oyashio-class submarine on the surface. The newer improved Oyashio class submarines are fitted with the Kockums Stirling Air Independent Propulsion (AIP) system.

technology."

An extensive programme has been undertaken in Japan to evaluate Stirling AIP technology with the objective to incorporate that technology on future JMSDF submarines.

## First Type 214 submarine for Korea

On 26 December 2007 the Republic of Korea Navy took over command of the first of three Type 214 class submarines equipped with an air-independent fuel cell propulsion system.

The German shipyard at Kiel, Howaldtswerke-Deutsche Werft (HDW), provided the design and major components of the submarine, a company within ThyssenKrupp Marine Systems.

The Type 214 class submarines for the Republic of Korea Navy are being built under licence from HDW at the Hyundai Heavy Industries Ltd. Co. shipyard in Ulsan (South Korea). The submarine,

named SON-WONIL, will join the submarine flotilla of the Republic of Korea Navy, which consisted until now of nine units of the Type 209 class.

The new submarine has a displacement of approximately 1,700 tons, is 65 metres long and operated by a regular crew of 27. It has a combined diesel electric and fuel cell propulsion system. Equipped with ultra-modern sensors and an integrated Command and Weapon Control System, it is optimally suited to its future reconnaissance and surveillance tasks.

## Russia accepts RIMPAC 08 invitation

Russia has accepted an invitation to participate in this year's Rim of the Pacific (RIMPAC) naval exercises, Adm. Robert Willard, commander of the US Pacific Fleet, stated at the 7th annual Hawaii-US Military Partnership Conference 3 January.

"Whether that will continue to hold,



The newly commissioned South Korean Type 214 submarine SON-WONIL with the USN's USS NIMITZ in the background. (USN)

given the political dynamic associated with the Russian military and ours and our various administrations will remain to be seen,” Willard said, “but they showed up at the mid-planning conference (in November) with an expectation to actually participate this year. That is great progress.”

RIMPAC is a biennial, multinational exercise held in Hawaiian waters. Russia was invited to observe the 2004 and 2006 RIMPAC exercises but did not send observers.

“Russia is a member of the Western Pacific Naval Symposium, and Russian participation in RIMPAC would further US Maritime Strategy objectives of developing collaborative partnerships and strengthening collective security,” Pacific Fleet spokesman Mark Matsunaga said.

“Working together with partners in the Pacific builds confidence and trust to allow the partners to focus on common threats, combat transnational crime, strengthen maritime security and achieve mutual interests,” Matsunaga said.

China has not been invited to participate or observe RIMPAC 08. The US National Defense Authorization Act of 2000 precludes direct military-to-military contacts with China, except for search-and-rescue and humanitarian assistance operations.

A small Chinese contingent did observe RIMPAC in 1998, before that law was passed.

In 2006, a waiver to the restrictions allowed a Chinese team to observe a portion of the Valiant Shield exercise off Guam. However, there are no plans to invite China as a participant or observer for RIMPAC 2008.

## Russia delays Indian submarine refit

The delivery of an IN (Indian Navy) Kilo class diesel-electric (SSK) submarine which recently underwent a two-year refit at a Russian Barents Sea shipyard will be delayed by at least six months.

The IN has refused to take delivery of the SINDHUVIJAY, a Project 877 EKM diesel submarine, whose overhaul began at the Zvyozdochka shipyard in Severodvinsk in late 2005, saying its Club-S cruise missile system had not met specifications.

“The submarine has passed all its sea trials and was ready in November 2007, but the delivery had to be delayed due to problems with the Club-S system,” a Zvyozdochka spokesman said.

The IN claimed that the anti-ship cruise missiles failed to find their targets in

six consecutive test firings in September-November last year.

The Zvyozdochka official said the submarine would remain at the shipyard awaiting further missile firing tests at a White Sea testing site in July-August of this year.

The much-touted Club-S submarine launched cruise missile family includes the 3M-54E1 anti-ship missile and the 3M-14E land-attack versions, with a range of 275km (about 170 miles). The precision standoff missile can be launched from standard torpedo tubes from a depth of 35 to 40 metres (130 feet).

In a contract signed in 2001, India had sent 10 Kilo class submarines to Russia for refitting to make them capable of firing the Club-class cruise missiles.

The SINDHUVIJAY is the fourth IN submarine that has been overhauled at the Zvezdochka

## Contract awarded for Harpoon Block III

The US company Boeing has been awarded a USD\$73.7 million USN contract to design and develop the Harpoon Block III missile, a next-generation weapon system that will enhance naval surface warfare capabilities.

The system design and development (SDD) contract will result in a kit upgrade programme for existing Navy weapons that will return 800 enhanced surface- and air-launch Harpoon missiles and 50 ship-launch systems to the USN's inventory.

“The start of SDD is a big milestone for the Harpoon programme and is the first major development for the US Navy on Harpoon for many years,” said Jim Young, Jr., Boeing Harpoon Block III programme manager. “Harpoon Block III will provide the warfighter with a capable, near-term

solution to over-the-horizon, surface warfare threats.”

Equipped with a new data-link system, Harpoon Block III will offer warfighters more control after the weapon is released, resulting in improved accuracy for littoral and open-ocean warfare. The Block III upgrade also positions the missile for future spiral developments, including extended range and vertical launch capabilities.

Harpoon Block III adds in-flight target updates, positive terminal control and connectivity with future network architectures to a proven missile that already provides autonomous, all-weather, over-the-horizon capability.

The surface-launch version of Harpoon Block III will achieve initial operational capability (IOC) in early 2011 with IOC of the air-launch version scheduled for later that year. The next major programme milestones will be the Systems Requirements and Preliminary Design Reviews, both scheduled for 2008.

## Corvette BRAUNSCHWEIG delivered

BRAUNSCHWEIG, the first of a series of five K130 corvettes for the German Navy, has been handed over on Tuesday, January 29, to the German Office for Defense Technology and Procurement (BWB) at the naval base Warnemunde.

In a small ceremony on board the corvette the acceptance certificate was signed in the presence of representatives of the German Office for Defense Technology and Procurement and the German Navy.



The German corvette BRAUNSCHWEIG seen here on sea trials.

## South African sub programme complete

On January 30, 2008 the South African Navy took command of SAS QUEEN MODJADJI, the third and last of three Type 209/1400mod class submarines. The delivery of the three submarines was part of a large-scale programme to modernize the South African Navy. The boat was handed over after the successful completion of all necessary sea trials at Howaldtswerke-Deutsche Werft GmbH (HDW) in Kiel, a company of ThyssenKrupp Marine Systems.

The SAS QUEEN MODJADJI is expected to leave for South Africa in April, where she is due to arrive on May 22. The official commissioning ceremony will take place at a later date, still to be defined, after the submarine has arrived in her new home port of Simon's Town in South Africa.

There the submarine will be united with her two sister ships, SAS MANTHATISI and SAS CHARLOTTE MAXEKE, which have already been in the service with the South African Navy since September 2005 and November 2006 respectively.

## Singapore commissions three frigates

Singaporean Minister for Defence Mr Teo Chee Hean officiated at the commissioning ceremony of three of the Republic of Singapore Navy (RSN)'s Formidable-class frigates, namely, RSS INTREPID, RSS STEADFAST and RSS TENACIOUS, at Changi Naval Base (CNB) on 5 February, 2008.

The new frigates follow into service the lead ship of this class, RSS

FORMIDABLE, which was commissioned earlier on 5 May 2007. The remaining two frigates are expected to become operational next year.

Under a technology transfer agreement with French Shipbuilder Direction Des Constructions Navales (DCN), the first ship was designed and constructed in France, while the rest were built locally by ST Marine in Singapore.

## AMBUSH takes shape

Delivery of the RN's second Astute class submarine is on course as AMBUSH takes shape at Barrow-in-Furness, Cumbria, UK.

The most recent stage of the build at the BAE Systems shipyard was to lift the 76-tonne bridge fin onto the hull of the submarine.

AMBUSH's senior officer, Lieutenant Commander Bruce Russell, watched as the fin was lowered into place: "You can really see how she's coming together and taking on the familiar submarine shape," he said.

Due to be launched in June 2009, AMBUSH, whose very apt motto is 'Hide and seek', will join its sister-ship and first in class, ASTUTE, at Her Majesty's Naval Base Clyde which the submarine and its company will make their home.

The Astute class submarines are built using a modular process, by which key elements of the submarine are built and tested outside the hull and then shipped into the hull on a 'plug and play' basis. The bridge fin shipping worked on the same principle with much of the internal fit out of pipes and cables carried out in a special manufacturing area of the Devonshire Dock Hall before being shipped onto the submarine hull.

Nuclear-powered attack submarines are the heart of the RN force structure. They have a wide variety of roles and are capable of deployment either as an integrated layer of defence within a Task Force or independently in advance of such a force.

## YURY DOLGORUKY launched

The new nuclear powered ballistic missile submarine YURY DOLGORUKY was floated out from a floating dock at the Sevmashpredpriyatiye shipbuilding yard in Russia on 13 February.

"The submarine's launching marked the end of a significant stage in the work that has been done after the ship was taken out of the assembly shop," Sevmashpredpriyatiye spokesman Mikhail Starozhilov told Interfax.

YURY DOLOGORUKY has been moored at the completion berth now, Starozhilov said. "The vessel's trials and its transfer to the Navy will go in line with the general construction schedule," he said.

The YURY DOLGORUKY, a Project 955 Borei class SSBN, has a displacement of 24,000 tonnes. Its dimensions are 170m by 13.5m by 9m. It can operate at a depth of up to 450 metres at a speed of 29 knots. The crew of 107 includes 55 officers.

The construction of three Project 955 Borei class SSBNs is to be finished in Severodvinsk by 2010. Project 955 SSBNs are to serve as the core of Russia's naval strategic nuclear forces after 2018, when the Typhoon, Delta III and Delta IV class have to be decommissioned.

Sevmashpredpriyatiye is also building two other Borei class SSBNs, ALEXANDER NEVSKY and VLADIMIR MONOMAKH.

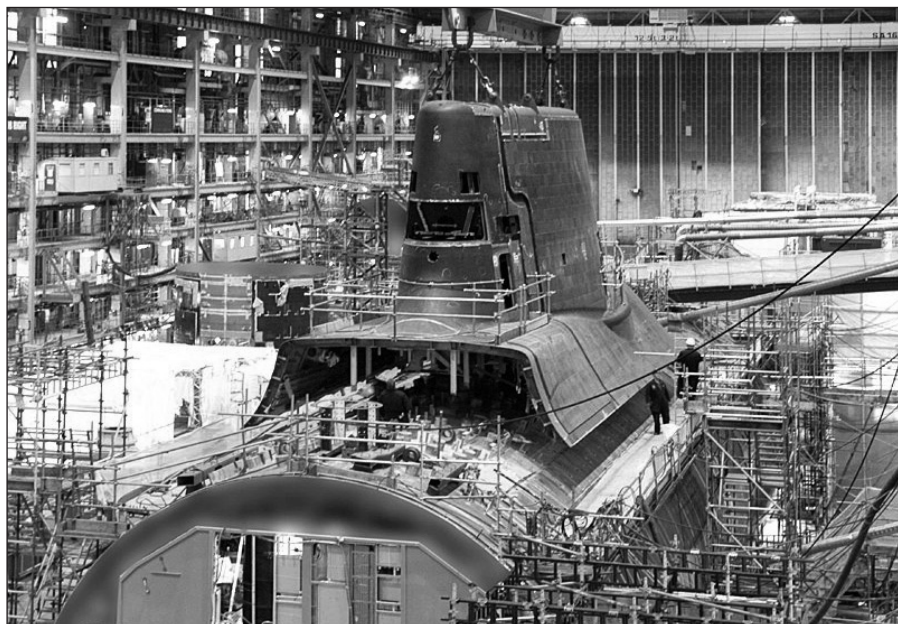
## 6-inch gun revival for RN?

The return of the six-inch (15cm) gun to RN warships could be on the cards as a study into increasing firepower on surface ships reaches its next phase.

A team from across BAe Systems has been awarded the second phase of an UK MOD study programme to integrate a 155mm gun on future warships. The study will also assess fitting the more powerful system to existing ships.

If successful, and assuming continued funding, the new gun could potentially replace the current Mk-8 4.5 inch gun which is a standard fit on the Navy's fleet of destroyers and frigates and has been the customary weapon for much of the last 30 years.

Commander Clive Murgatroyd of Above Water Effects in the UK MOD's



The Astute class SSN AMBUSH takes shape at Barrow-in-Furness, Cumbria, UK. (BAE Systems)



Russia's newest nuclear powered ballistic missile submarine, YURY DOLGORUKY, just before being floated out from a floating dock on 13 February.

Equipment Capability organization says the 155mm-gun project is part of a programme to satisfy a naval fire support requirement: "This requirement cannot be met by the current 4.5 inch gun which is limited in range and precision," he said.

"This would mean moving to the 155mm gun where the RN could take advantage of improvements in 155mm technology in the land domain, while realizing whole life cost reductions by using the same munitions as the army.

"The first and second phases are aimed at de-risking some of the challenges of replacing the 4.5 inch ordnance with 155mm in the existing 4.5 inch Mk-8 Mod 1 mounting, such as barrel heating mitigation, automated handling and loading of munitions and charge ignition.

"The team at BAe Systems Land Systems, Barrow-in-Furness, is making good progress, and has already designed some elegant engineering solutions, making the return of a 6-inch (155mm) naval gun look more viable as each phase progresses," he added.

Led by CORDA, BAE Systems' specialist consultancy arm, and the company's Land Systems business, the study will be delivered in conjunction with QinetiQ, Surface Fleet Solutions and Integrated System Technologies.

BAe Systems is also exploiting the breadth and depth of experience in wider business units such as Armament Systems in the US and Bofors in Sweden to ensure the UK customer benefits from its global corporate experience:

"This research could provide the RN with access to a more capable and wider range of munitions and allow them to benefit from land sector investments in

155mm calibre," said Samir Patel, CORDA's programme manager.

"The conversion will also present opportunities for significant through-life support savings as the Army and RN could potentially use a common stock."

During the first study phase, valued at £1.5M, CORDA examined a low risk route to fitting an AS90 self-propelled howitzer ordnance onto the existing 4.5 inch Mk-8 Mod 1 gun mounting structure.

The second phase, worth around £700,000, will build on this research and examine in more detail some of the technology risks of the proposed solution.

Should this phase of research prove successful, a further work package will be undertaken this year to perform initial land-based firing trials.

The last RN ship to boast 6-inch guns was the cruiser HMS BLAKE, laid down in 1944 but not commissioned until 1969 and broken up in 1982. She was the last cruiser in RN service.

## India tests submarine launched ballistic missile

India has successfully tested a submarine-launched nuclear capable ballistic missile.

The K-15, which is a two-stage ballistic missile with a maximum range of 700-km (435 miles), was launched from a submerged platform towards the end of

February.

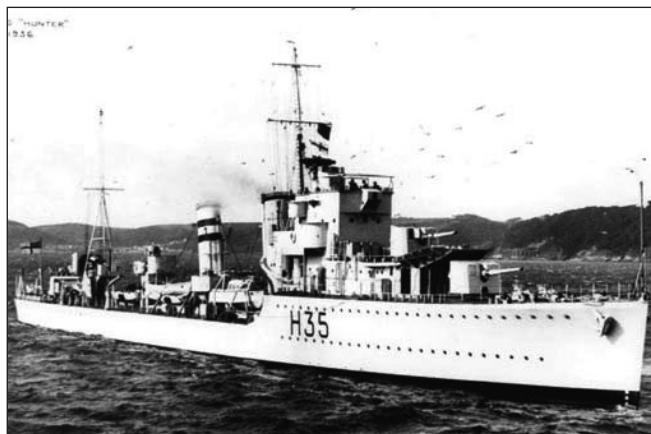
The K-15 is expected to be deployed on a nuclear submarine currently being built at a shipyard in the city of Visakhapatnam in the country's east. The submarine is expected to be ready for tests in 2009. With the submarine's commissioning, India will complete the creation of its nuclear triad composed of land, sea and air components.

## HMS HUNTER found

The missing RN warship HMS HUNTER, lost on the 10th April 1940, has been located 305m under the icy waters of a Norwegian fjord by the Norwegian Minehunter HNOMS TYR.

HNOMS TYR was participating in a large multinational exercise involving the RN, Royal Norwegian Navy and the Royal Netherlands Navy along with ships from Spain, Belgium and Germany when she discovered the sunken vessel with her echosounder. On dispatching her remote operated submersible to investigate, it became clear that this was the long lost HMS HUNTER, lying as she was when she had finally succumbed to the unforgiving waters after bravely fighting during the Battle of Narvik; an action that would result in the first VC of WW II being awarded.

The presence of the Commander of the United Kingdom's Amphibious Force, Major General G. S. Robison, and other RN ships participating in the exercise



The WW II RN warship HMS HUNTER seen here before her loss. She was only recently found, by accident, 68 years after her sinking.

allowed for appropriate marks of respect to be paid in a ceremony at sea. The ships of the RN, the Netherlands Maritime Force and the Norwegian Navy, who were participating in Exercise Armatura Borealis, laid wreaths over the site in a commemorative service complete with the ships sailing past in formed line.

Major General Robison said: "Finding HMS HUNTER was a poignant moment

and being able to pay our respects along with our Norwegian and Dutch allies is particularly fitting to those who lost their lives.”

The Norwegian National Joint Headquarters was pleased to inform the British Authorities that they had finally found HMS HUNTER after several attempts over the years had proved unsuccessful.

Senior Norwegian Spokesperson, Col John Ogland, said: “Being able to host this large multinational exercise is great for us but to find HMS HUNTER whilst doing so makes it very special indeed. We remain close allies and are eternally grateful to those who helped preserve our freedom.”

HMS HUNTER was an H-class destroyer of 1,880 tonnes, armed with 4.7inch guns and 2 x 4 Torpedo Tubes. She had a crew of approximately 145 at the time of sinking.

She was sunk at approx. 0530 GMT with 110 killed on board. The Germans lost four destroyers during the 1st Battle of Narvik whilst the Allies lost only HMS HUNTER and HMS HARDY.

## Land attack BrahMos test successful

A ship launched Russian-Indian BrahMos supersonic cruise missile has successfully hit a ground target for the first time.

“The missile was launched from INS

RAJPUT at a target located on an island in the Andaman archipelago and hit the designated target,” a spokesman for BrahMos Aerospace said.

This was the first test of a surface launched BrahMos missile at sea against a land target. All the previous test launches were aimed at sea-based targets, according to the spokesman.

In 1998, Russia and India established the BrahMos Aerospace joint venture to design, develop, produce and market a supersonic cruise missile.

The BrahMos missile, named after India's Brahmaputra River and Russia's Moskva River, has a range of 180 miles (290 kms) and can carry a conventional warhead of up to 660 pounds. It can be used in the land attack and anti-ship roles while flying at an altitude as low as 10 meters (30 feet) and at a speed of Mach 2.8.

The INS RAJPUT guided missile destroyer serves as the trial ship for the BrahMos cruise missile, which is expected to carry part of the strategic second-strike capability of the Indian armed forces.

The missile was first tested successfully against sea-based targets in 2004. Its ship launched version was adopted in June 2006



INS RAJPUT's new BraMos launcher seen her forward and below of the original SS-N-2 Styx launcher.

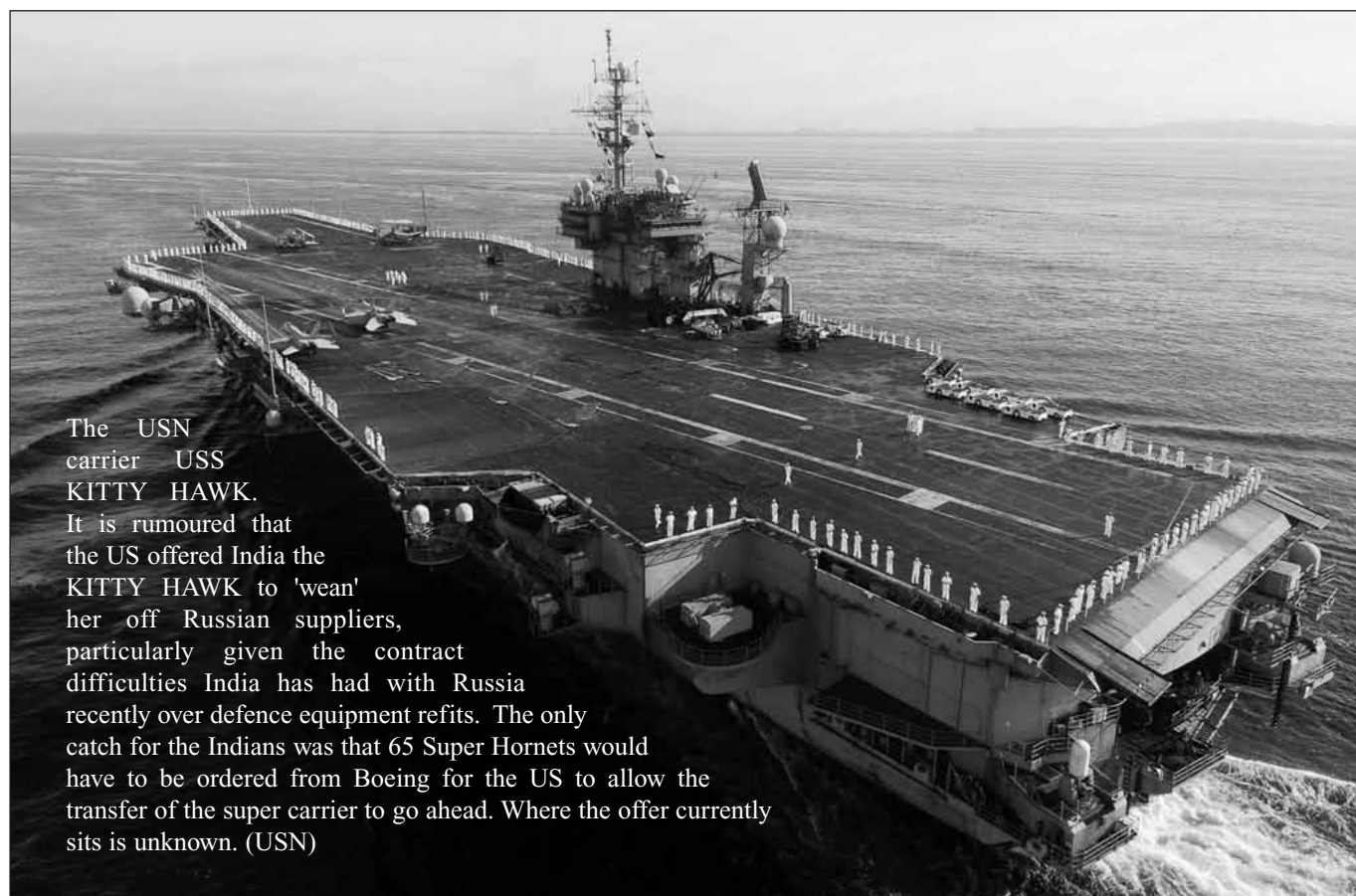
and deployed on India's Project 11356 Talvar/Kashin class destroyers built in Russia for the Indian Navy.

However, it took Russian and Indian experts a while longer to develop the missile so that it was capable of destroying land targets.

Work is currently underway to create aircraft- and submarine-launched BrahMos missiles.

The airborne version could be installed on the Sukhoi-30MKI air superiority fighters of the Indian Air Force.

Experts estimate that India might purchase up to 1,000 BrahMos missiles for its Armed Forces in the next decade, and export 2,000 to third countries during the same period. Indonesia is thought to be one of the potential export customers.



The USN carrier USS KITTY HAWK. It is rumoured that the US offered India the KITTY HAWK to 'wean' her off Russian suppliers, particularly given the contract difficulties India has had with Russia recently over defence equipment refits. The only catch for the Indians was that 65 Super Hornets would have to be ordered from Boeing for the US to allow the transfer of the super carrier to go ahead. Where the offer currently sits is unknown. (USN)

# Observations

By Geoff Evans

## A Very Uncertain Future

From time to time this writer has referred to the problems facing Australia's defence planners, required to decide the form the nation's future defence force should take when the future itself could hardly be more obscure: In this regard an article in the November 2007 issue of the United States naval Institute's *PROCEEDINGS*, received too late to be mentioned in the Jan-Mar *THE NAVY*, had some relevance to Australia's security outlook.

The article, titled 'Getting it Right At Navy', contributed by respected defence writer and author Harlan Ullman, concerned a statement by the US Naval Academy's newly appointed Superintendent, Vice Admiral Jeffrey Fowler, and prospective changes to the way Midshipmen are trained at the Academy.

Referring to Iraq, the Admiral is reported to have declared that his nation was at war, a war he believed would last for the entire commissioned careers of the midshipmen then at the Academy. While agreeing with Admiral Fowler about being in the conflict for the long haul, Ullman commented "...the United States is anything but a nation at war. Our military is at war. Slices-of our government are at war. But the nation as a whole is not at war". There is surely a parallel for this in Australia where only the Armed Forces and those associated with the Services in one way or another, together with a small part of government, are involved in the several conflicts currently costing a number of countries dearly in terms of death and destruction. Perhaps if whole communities were involved, as in the major wars of the 20th century, wars would end more quickly or not even start.

Author Ullman goes on to say "... for the past 100 years the strategic and military environment midshipmen faced after graduation principally arose from preventing, preparing for, or waging conflict between states with relatively well-defined armies and navies. Today conflict is of a far broader and more complex nature in which the likely enemy has no army or navy": He sees the broader geostrategic challenges arising from several revolutions, one of which is in knowledge and information, knowledge increasing every year and with information often available instantaneously to friend and foe alike.

Two other revolutions, in the Arab world and in the Islamic world, are essentially for much the same reason - 'new versus old'; in the Arab world old and autocratic regimes meeting opposition from those who want greater freedom in their lives and in the Islamic world, the 'old' represented by fundamentalists who do not want change, under challenge from progressives, the 'new' who want to modernise Islam. Both struggles take place without the need for large armies but involve

terrorism, insurgency and disruption as the way to seize power. Ullman points out that the struggles are in a part of the world where terrorism, oil, nuclear weapons and instability commingle and if mishandled the results could be catastrophic.

Ullman, a graduate of the Naval Academy, believes Service academies no longer prepare midshipmen and cadets-for operational environments "that by today's standard unfolded in slow motion as the threats were ponderous. That world is long gone." The American admiral and Australia's security planners clearly have a great deal to ponder as they gaze ahead.

## A Very Large Destroyer

Another article in the same *PROCEEDINGS* under the heading "Naval Race in the Far East" referred among other things to a helicopter-carrying destroyer for Japan's Maritime Self-Defence Force (Navy). The ship, launched in August 2007 is reported to be of some 13,500 tons, very large indeed for a 'destroyer'; not so long ago a ship of this size would have been considered a heavy-cruiser. Even more surprising the ship appears from the photograph accompanying the article to have a full-length flight deck - in effect a mini aircraft carrier (one is reminded of the Royal Navy's through-deck cruiser design that, rather like the caterpillar/butterfly metamorphosed into the Invincible-class aircraft carrier) Although classed as a helicopter carrying destroyer the new ship could no doubt operate VSTOL aircraft if and when production of that type of fixed-wing aircraft is resumed.

As to a 'naval race' in the Far East, in the eyes of this observer there is no clear indication that countries in Australia's area of interest are engaged in a race for naval supremacy. Certainly tensions exist between a number of countries but most new naval ships entering service are replacements for older vessels rather than additions to fleets. Even Japan's new helicopter-carrying destroyer (through-deck destroyer) is a replacement for a much smaller destroyer that operates its helicopter from a platform on the stern of the ship. No doubt it will be more capable but new naval ships are expected to be better than their predecessors. If there is a race in progress Australia does not appear as a competitor.



The JMSDF's newest... 'destroyer'?

# HMAS ALBATROSS

## White Elephant or Wolf in Sheep's Clothing?

*By John Henshaw*

This essay examines the Australian government's curious decision of June 1925 to acquire a seaplane carrier, HMAS ALBATROSS, and her singularly unimpressive service life and poses the questions: was the acquisition of ALBATROSS a bad decision; was she already obsolete when she was commissioned; and did she possess an unrecognised potential to be something much better than she was?

Naval aviation, barely twenty years old when ALBATROSS was ordered, had seen an initial blooming of seaplanes until improving techniques saw deck landings of conventional aircraft became more refined. Notwithstanding the hazards, the age of the true deck-landing aircraft carrier had well and truly arrived when Australia chose to place an each-way bet on a seaplane carrier and gain some experience in naval aviation.

By mid 1922, three years before Australia announced plans to build a seaplane carrier, there were three converted aircraft carriers in service, HMS FURIOUS, HMS ARGUS and USS LANGLEY, a fourth nearly ready (HMS EAGLE) and two purpose-built carriers nearing completion (HMS HERMES and IJN HOSHO). In 1925, The USN launched two aircraft carriers, USS LEXINGTON and USS SARATOGA and IJN AKAGI and IJN AMAGI were well underway in their conversion from battle-cruisers. Doolittle had demonstrated the effectiveness of aircraft against naval targets - admittedly at anchor, defenceless and without crews to instigate damage control.

The aircraft carrier die was clearly set. Australia did not need and could not have justified, or afforded, a true aircraft carrier. Yet Australia did its own thing. Someone, somewhere, somehow knew

better. Australia ignored obvious trends and sailed up a naval cul-de-sac with HMAS ALBATROSS.

If the intended use was for ALBATROSS to be the eyes of a cruiser force, then her 20-knot plus maximum speed was insufficient to keep up with the 30-knot plus cruisers soon to be commissioned in the RAN. Furthermore, her method of recovery for seaplanes while underway necessitated a reduction of speed to little more than steerage-way to create a temporary lee for aircraft to taxi alongside and be hooked up to a crane and lifted onboard. But, of course, cruisers with their own, catapulted seaplanes, had to do the same thing.

Her main disadvantage was that she was obsolete, before she even took to the water. She was the wrong ship for the time. She fulfilled a function that was not needed, had no viable operational application and no strategic value. Even in the Royal Navy, ALBATROSS would have been an anachronism. In a tiny navy like Australia's, she stood out like a sore thumb as a lot of defence capital and manpower tied up in one vessel whose operational use was virtually non-existent.

A potted history of how and why ALBATROSS came into being and its career is as follows:

Prior to World War II, the RAN was always seen as an adjunct to the RN. It was never intended to be a balanced, stand-alone force in the event of hostilities but, rather, to blend as seamlessly as possible, with units of the RN based in Singapore and Hong Kong. In February 1924 the British Government decided not to spend further funds on the Singapore naval base. This prompted a defence rethink by the Australian government and an expansion of



The RAN seaplane carrier HMAS ALBATROSS in Sydney Harbour. ALBATROSS could carry up to nine seaplanes for reconnaissance duties and had a maximum speed of 21 knots, but was obsolete by the time she joined the fleet. (RAN Seapower Centre)

the RAN was initiated in June to acquire two 10,000-ton cruisers (County class - AUSTRALIA and CANBERRA) and two ocean-going submarines (O Class - OTWAY and OXLEY). After consideration of possible construction of the cruisers in Australia, the government placed the order in Britain (cruisers with John Brown and submarines with Vickers) with the £1 million so saved allocated for the construction at Cockatoo Island (then short of work) of a seaplane carrier "to give the RAN its first organic aviation capability"<sup>1</sup> and "to offset the carriers being introduced into the Pacific area by Japan".<sup>2</sup> The announcement was made at the opening of parliament in June 1925 and came as a shock to the RAAF and to the RAN in particular as "no aircraft carrier specification had been prepared". The Admiralty Director of Naval Construction received a cable stating the two only known specifications - "a speed of 21 knots and a cost of one million pounds!"<sup>3</sup> The Naval Constructor in charge of the Admiralty's Aircraft Section is on record as retorting - "a more unsatisfactory way of producing an aircraft carrier I do not know, and I cannot imagine!"<sup>4</sup>

The designer of ALBATROSS, constructor Stephen Payne said that; "the hull was designed around three holds, three cranes, and 21 knots."<sup>5</sup> While there is only one hatch/lift shown in any of the photographs, this reference may be to the hangar space being subdivided into three individual spaces - a common practice using bulkheads with Fearnought fire curtains or shutters or doors to seal off one area from another in the event of a fire. Payne was assisted in the design and documentation process by a young Australian naval architect, Woolnough, who obtained piecemeal information including that ALBATROSS would be required to carry a maximum of nine aircraft, assumed to be Fairey IIID's, and the dimensions of the aircraft determined the size of the deck hatch, the hangar size and the capacity of the three cranes.

ALBATROSS was designed with a prominent high freeboard forward topped by a flat deck under which the two-deck high hangar was located. The ship's bridge and engines were located well aft giving a distinctive, if awkward, appearance.

The keel of ALBATROSS was laid down at Cockatoo Island on April 16, 1926 - 10 months from placement of order to commencement of construction no mean feat. She was launched on 23 Feb 1928 and commissioned on 23 January 1929. On her trials she exceeded the required speed of 21 knots, and 22.5 knots was attained with 12,910 SHP.

Working up exercises for HMAS ALBATROSS were carried out in Australian waters where the carrier, and her aircraft, operated as a reconnaissance element for the new HMA Ships AUSTRALIA and CANBERRA. In November 1929, ALBATROSS took part in combined exercises with the RAN and RAAF in Port Phillip Bay. After a little over three years of service, involving winter cruises to the New Guinea area, spring cruises in Australian waters and various exercises, ALBATROSS was paid off into reserve during April, 1933 - largely a victim of the Great Depression which also saw the return of the two submarines, OTWAY and OXLEY, to Britain. Thereafter, she was either berthed at Garden Island or anchored in Sydney Harbour. Some time in 1936 an aircraft catapult was fitted to the foredeck for trials in preparation of the receipt of the first Supermarine Seagull Type 236 V amphibians (the precursor of the Walrus AKA "Shagbat").

On 19 April 1938, ALBATROSS was reluctantly accepted by the Admiralty as a "trade-in" on the

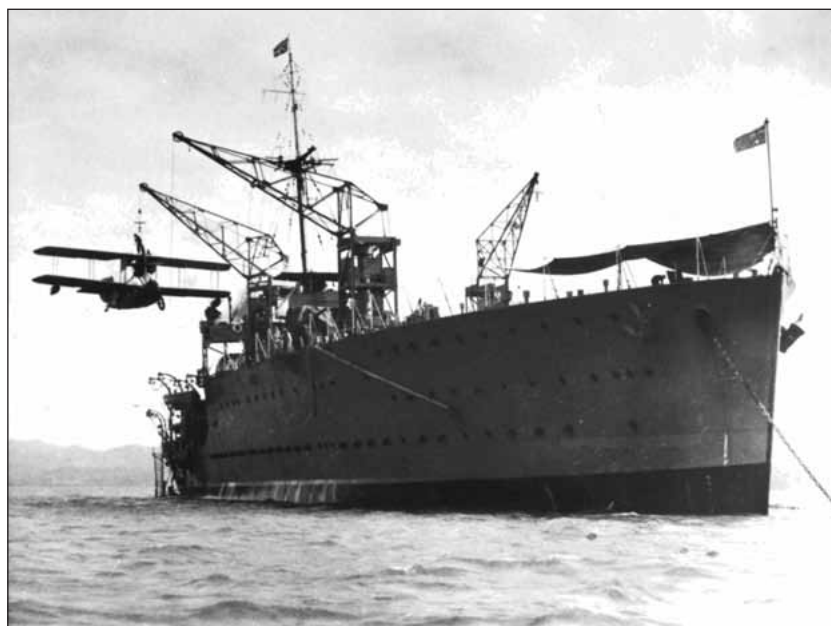
new cruiser, HMAS HOBART, due for delivery later that year. Flying her not very long paying-off pennant, HMAS ALBATROSS sailed from Sydney on July 11 1938. The disposal of ALBATROSS in many respects mirrors its acquisition: nobody, except a few self-serving politicians, wanted it to start with and nobody wanted it after Australia was finished with it. The RN "thought they had been sold a pup".<sup>6</sup> Vice Admiral Sir Ragnar Colvin, Chief of the Naval Staff, described her as "not of great value".<sup>7</sup> The far-from-noteworthy wartime use of ALBATROSS would seem to substantiate these statements. But, were they fair? To analyse this, we need to look, first, at how ALBATROSS was used and, secondly, at how she might have been used.

Unfortunately, there is little detailed material available on the war history of ALBATROSS. It was not a vessel that attracted interest.

Upon arrival in Britain, ALBATROSS (now pennant number I22) was used briefly as a trials ship at Devonport then was placed in reserve, then decommissioned and used as an accommodations ship. She languished in this role until, with war clouds darkening over Europe, she was recommissioned on 25 August 1939 and embarked No. 710 Squadron, FAA, comprising six Walrus 1 amphibians, but without a catapult fitted.

The best use - perhaps the only use - the RN could find for ALBATROSS was to send her to Freetown, Sierra Leone in 1939. Her role was to provide a mobile, floating base for conducting trade protection patrols as far out into the South Atlantic as the limited range of the Walrus' would allow. Apart from a brief venture into the Indian Ocean with the invasion of Madagascar in 1942 and a refit in the United States in 1941-42, the 21-knot ALBATROSS basically remained in harbour - surely a role that could have been fulfilled by a much lesser vessel or even a shore base.

In July 1943, ALBATROSS disembarked her aircraft in East Africa and headed back for Britain where she decommissioned and was converted to a repair ship. She saw action in the English Channel during the Normandy invasion as a base and repair ship for landing craft and was damaged by a German Dackel T3D long-range torpedo off Courseulles-sur-Mer, Juno Beach, on 11 August 1944 with the loss of some 50 lives. The damage was such that she was judged not worthy of repair and on 30 August she was placed in reserve. In November she was recommissioned as a minesweeper depot hulk then in January joined the Reserve Fleet



ALBATROSS as seen looking towards the bow lifting a Seaplane onto her deck. (RAN Seapower Centre)



One of ALBATROSS's Seaplanes being lowered through the hanger deck hatch into the hanger below.

at Portsmouth, and later Falmouth, and in July was put up for disposal.

In 1946 she was sold for conversion to a luxury cruise ship but the plans did not proceed. In 1948 she was resold to a Greek shipping company for use as a refugee transport and became *Hellenic Prince*. On December 5 1949, carrying some 1,000 displaced persons from Europe, *Hellenic Prince* returned to Sydney where she had first taken the water some 21 years previously. She made several such trips to Australia before being sold and scrapped in Hong Kong in August, 1954.

How then might ALBATROSS have been better used? What qualities did ALBATROSS have that might have made her more valuable to the RN?

ALBATROSS was, first and foremost, designed and built to Admiralty specifications. She had steam turbines, a top speed of at least 21 knots, had damage control systems, fire-fighting systems and had a spacious aircraft hangar. A hatch was fitted at the aft end of the flight deck over the third bay of the hangar, served by the aftermost two cranes. As completed, ALBATROSS was fitted for (but not with) a catapult at the forward end of the flight deck. Certainly the two after-most cranes, port and starboard, could have accessed the hatch for lifting seaplanes in and out.

ALBATROSS had some 75 metres of flight deck, had an aircraft fuel storage and distribution system, had ammunition magazines and ammunition handling mechanisms and could accommodate some 450 personnel.

In the early days of the Battle of the Atlantic, the concept of providing convoys with ship-based air cover, particularly in the mid-ocean gap where land-based air-cover was not available, saw the desperate measure of Fairey Fulmars and battle-weary Hawker Hurricane Mk I or Sea Hurricane IA fighters, being catapulted off Fighter Catapult Ships and Catapult Merchant Ships, respectively, for once-only missions to chase away or preferably knock down the German Focke-Wulf Condor

aircraft that shadowed convoys.

At the very least, ALBATROSS could have been used as a Fighter Catapult Ship with one fighter at the ready on the catapult, some on deck and others stowed in the hangar. As such, she would have been a more capable vessel than HMS PEGASUS (ex-ARK ROYAL), which was, coincidentally, an ex-seaplane carrier too - albeit of much older vintage having been originally converted from a collier.

Captain M.S. Slattery, Director of Air Materiel, proposed to fit suitable merchant ships with a flight deck, arrestor wires and safety barrier and six Hurricanes. The captured German *MV Hanover*, renamed EMPIRE HANOVER then HMS AUDACITY (commissioned June 1941, first convoy, September 1941, lost 21 December, 1941), provided the prototype with a flight deck of 112 metres (368 feet) x 18 metres (60 feet) on a displacement of 5,537 tons. There was no hangar and a total of six Grumman Martlet Mk I's (Grumman F4F-3's) were carried. The only slightly younger USS LONG ISLAND (ex- *MV Mormanclad*), also commissioned in June 1941, had a flight deck of 91 metres (300 feet) long,

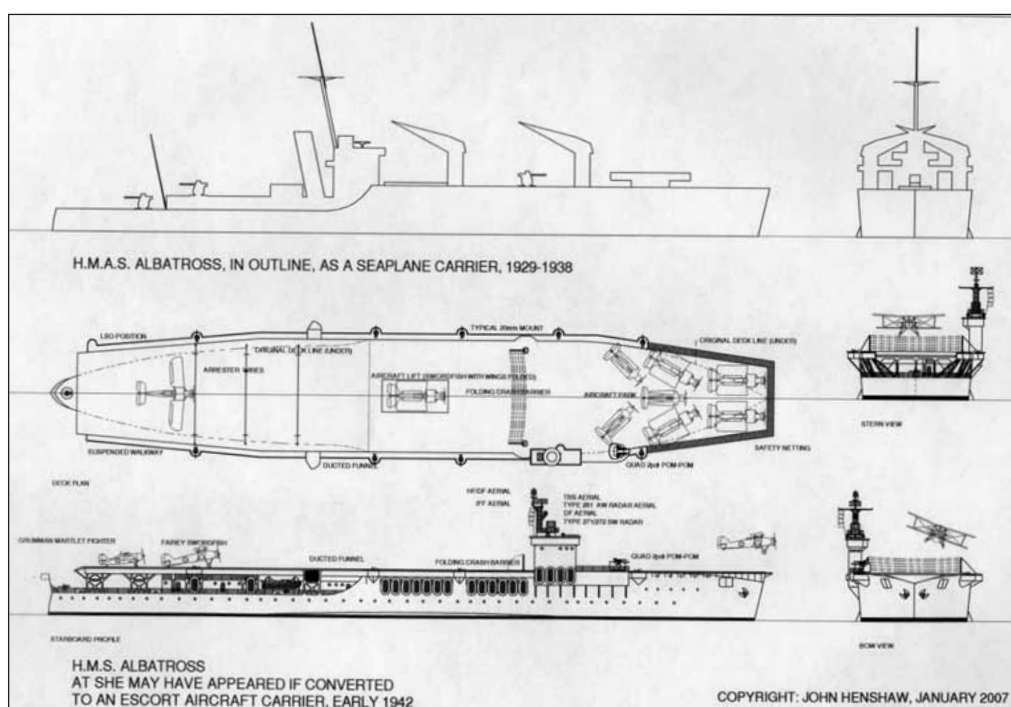
subsequently extended to 124 metres (410 feet). A squadron of 15 aircraft could be carried in an aft-hangar. Initially these were the unsuccessful Brewster Buffalo F2A-1, later replaced by Grumman Wildcats F4F-3.

Thirty-eight Escort Carriers for the RN followed from American shipyards and another five came from British shipyards.

But why wasn't ALBATROSS considered for conversion to an Escort Carrier? With so many attributes in a vessel that was just over ten years old and had seen very little use, the conversion of ALBATROSS to an Escort Carrier would have been easier, quicker than the mercantile conversions and would have produced a better result.

My illustrations show how ALBATROSS may have looked as an Escort Carrier after the following works:

- Move anchor-handling equipment down one deck,
- Remove all flight-deck cranes,
- Remove all four 4.7" mounts,
- Remove all flight-deck obstructions,
- Remove all super-structure aft of flight deck to immediately below flight-deck level,
- Extend flight deck some 55 metres aft, with appropriate



A redesigned view of HMAS ALBATROSS in her 'wolf's' guise. (John Henshaw)



An aerial shot of HMAS ALBATROSS. Note the large deck space forward of the bridge. This essentially formed the 'flight deck' and the hanger roof. (RAN Seapower Centre)

catwalks, access stairs etc. supported on light-weight stanchions over remaining superstructure,

- Fit arrester wires and emergency crash barrier,
- Build deck landing control position to port side, aft,
- Extend aircraft fuel-handling system,
- Extend deck fire-fighting system,
- Build bridge to starboard side,
- Divert funnel to starboard side (or port and starboard),
- Fit quad 2 pdr. pom-pom at starboard forward of bridge,
- Fit single 20mm Oerlikon mounts to sponsons as appropriate,
- Fit Type 281 air warning radar to mast,
- Fit Type 271 surface warning radar to bridge,
- Fit HF/DF to bridge,
- Fit hinged radio aerials,
- Ballast hull to compensate for increased top weight and uneven fore-and-aft trim,
- Add a complement of twelve-plus aircraft - Swordfish or Martlets or a mix of both.

The addition of a flight deck, aft of the original flight deck, would have added considerable weight and top-hamper compared with the relatively small top-weight that would have been removed. Following common American practice the flight deck might have been timber-planked, rather than steel in order to save weight. Irrespective of construction, its dimensions could have been 130.25 metres (427 feet 3 inches) by 21.11 metres (69 feet 3 inches) - both of which exceed the AUDACITY and the LONG ISLAND even when lengthened.

Had ALBATROSS been so converted, the RN would then have had an aircraft carrier capable of performing more roles than the considerably slower, somewhat fragile Escort Carrier conversions. For instance, ALBATROSS could have:

- Operated as part of a task force providing anti-submarine or combat air patrol or night-fighter aircraft, thus freeing up fleet carriers for dedicated strike aircraft;
- Provided air cover in low-threat areas, like the West Indies, thus freeing up a larger fleet carrier;
- Formed the core of a submarine hunter-killer group such as the famed Captain F.J. Walker's 2nd Escort Group that operated with Black Swan class sloops having similar speeds to ALBATROSS;
- Provided added air cover and anti-submarine cover for covering forces or fast convoys like Operation Pedestal;
- Ferried aircraft to Malta like USS WASP;
- Accompanied amphibious landings. Her superior wind-over-deck speed would have been an advantage in windless conditions such as experienced at Salerno;
- Been used as a training aircraft carrier.

There must have been some very good reason for a better use never being found for ALBATROSS.

Had too many years in reserve seen an unacceptable deterioration in the fabric of ALBATROSS?

Indeed, had it been built well enough?

Was the hull shape perhaps too fine aft to support such extra top-hamper? FURIOUS, EAGLE and HERMES - to mention but a few - were similarly configured so perhaps this was not the problem.

Was the hull capable of accepting the extra top-weight and still meet stability standards? Perhaps her relatively shallow draught was a deciding factor.

Could the hull be satisfactorily re-ballasted to compensate for not only the extra weight but also its changed disposition?

These are all questions beyond my technical expertise. However, a very poor photograph of

*Hellenic Prince* is very easily recognised as having been ALBATROSS. No significant superstructure seems to have been added during her post-war conversion to the emigrant ship *Hellenic Prince*, although there seems to be a continuous, side-to-side boat deck aft (with four lifeboats per side). The only alterations apparent to the old flight deck are the removal of the cranes and the addition of four lifeboats per side. Presumably the aircraft hangar space (two decks high) was converted into some sort of dormitory accommodation. Perhaps the lack of any additional accommodation aft of the hangar was due to potential instability problems. Perhaps the economic reality was that she performed her role adequately without the expense of more extensive alterations.

It does seem a pity though, that such a substantial vessel as ALBATROSS was sidelined to an operational backwater when it just might have gone on and achieved grander things in the world conflict.

One can only wonder: was ALBATROSS too easily dismissed as a white elephant? Why wasn't she appreciated as a potential wolf in sheep's clothing?

## PARTICULARS

Length	443 feet 7 inches (135.20 metres) overall
Beam	60 feet (18.29 metres)
Draught	16 feet 3 inches (4.95 metres) mean
Displacement	4,800 tons standard, 7,000 tons full load.
Horsepower	12,000
Speed	21+ knots
Range	unknown
Armament	4 x 4.7", 2 x 2 pdr
Aircraft	6 -9 seaplanes, depending on type
Complement	450

<sup>1</sup> Odgers, George. Navy Australia: An Illustrated History. 4th Ed: Child & Associates, Frenchs Forest, NSW, 1989. Page 73.

<sup>2</sup> Isaacs, Group Captain Keith. First of the Line - HMAS Albatross, first aircraft carrier. October 1977, Page 1. <http://www.navyhistory.org.au/first-of-the-line---hmas-albatross-first-aircraft-carrier/>

<sup>3</sup> Isaacs, op cit.

<sup>4</sup> Isaacs, op cit.

<sup>5</sup> Jeremy, John. Cockatoo Island: Sydney's Historic Dockyard. University of NSW Press, Sydney, 2005. Page 82

<sup>7</sup> Gillett, Ross. Warships of Australia. Rigby Limited, Adelaide, 1977. Page 63.

<sup>8</sup> Wright, Anthony. Australian Carrier Decisions: The acquisition of HMS Ships Albatross, Sydney & Melbourne. Papers in Australian Maritime Affairs, No. 4., Royal Australian Navy, Maritime Studies Program, 1998. Page 40.

# THE THOUSAND SHIP NAVY

## *WORTHY ASPIRATIONS; CONSIDERABLE CHALLENGES*

*By Paul D. Pelczar*

**The term '1000 Ship Navy', initially announced in 2005 provides a vision of a harmonious global maritime partnership. The aspiration is worthy and if fully realized, would result in increased mutual benefits for all sovereign nations that have a reliance on the sea; however, near-insurmountable challenges will need to be overcome if significant progress is to be made towards this Utopian vision.**

US naval doctrine during the Cold War was centred on defeating a single enemy at sea and maintaining sea control. By the early 1990s, the US and other western nations, expanded maritime interaction using defence diplomacy to include strategic engagement with former or potential enemies, in particular Russia and China, encouraged multilateral regional cooperation, supported the democratization of civil-military relations and assisting states in developing peacekeeping capabilities.

With the events of September 11, 2001, there was a distinct shift in the American psyche and coupled with the rise of neo conservatism<sup>1</sup>, American foreign policy - commonly referred to as the '*Bush Doctrine*' - engendered unilateral and pre-emptive operations that laid the path to current military campaigns in the Middle East. Several years on, a prolonged commitment in supporting ongoing operations in Afghanistan, Iraq and maintaining a credible presence in other regions of American interest coupled with the reduction in the size of the US fleet, budgetary concerns, procurements of technology and a shortage of personnel all contributed to US senior naval staff seeking alternative solutions.

The US realised that even though their navy remained the most powerful and most flexible in the world, it could not respond alone to the security challenges that have emerged since the end of the Cold War: It would require a multi-lateral contribution from the global maritime fraternity collectively. These issues have contributed to the planned transformation of the United States Navy.

The introduction of the '*1000 Ship Navy*' concept is inspirational, commensurate to this new approach and follows on from other initiatives such as the international Maritime Organization (IMO) sponsored automatic identification system<sup>2</sup>. Its intent is to create a global partnership to combat destabilising threats within the maritime domain such as weapons of mass destruction, transnational crime, piracy and terrorism to ensure freedom upon the world's oceans to all sovereign nations.

It is not a revolutionary concept but it is an ambitious one. The vision is based on the more capable navies supporting the less capable in providing presence and vigilance in the maritime commons. It will also facilitate the closer interaction between (and provide expertise as requested to) port operations, fisheries enforcement, customs and border protection,

salvage, harbour security, law enforcement and commercial seaborne shipping enterprises.

It intends to evolve current coalitions, bilateral and multilateral agreements that bond the international maritime fraternity together with common themes. It also reflects the subtle policy shift of the US since 2005 to re establish partnerships/coalitions that were damaged by issues concerning '*Operation Iraqi Freedom*' as well as to seek new agreements with non-traditional partners.

The concept has been received well in principle within the international maritime fraternity but there are concerns about executing the more complex roles. Admiral Mullens has tactfully conveyed a pragmatic, non-partisan approach stating that modern technologies, trade and economies are intricately linked and that security within the maritime environment can no longer rest with nations by themselves.

Domestically it would mean the US fleet capability would be effectively enlarged by even closer cooperation with allied navies such as Australia and Japan, and formulating complimentary strategies with countries such as India, China and Russia. The US appears to be aware of the sensitivities involved and has reiterated that the combined operations will be based on cooperation and coordination vice command and



A powerful site. A USN Carrier Battle Group and a Marine Expeditionary Group centred on the aircraft carrier USS ENTERPRISE. While finding it difficult to achieve a fleet of 313 ships the USN is embarking on the Thousand Ship Navy construct based mainly on agreements and arrangements. (USN)



(from R to L) Italian, German, US, French, Pakistani and Spanish ships working together. Through shared information and communications links ships from all nations can come together to combat mutual maritime challenges such as terrorism. (USN)

control; and that they do not propose US leadership but will readily provide assistance to those nations who request it.

## Benefits and Challenges

The basic principle of many forces working together for global maritime security and humanity has immense merit. Effective cooperation and adequate communication between seafaring nations would logically result in improved coordination to confront illicit commerce and facilitate the efficient use of humanitarian assistance.

Mullens has cited several current programs that this strategy could evolve from. The coordinated operations by Malaysia, Singapore and Indonesia (Operation MALSINDO), which provides security and surveillance principally within the Malacca Strait to counter piracy and the threat of terrorism coupled with Indonesia's Integrated Maritime Surveillance System<sup>3</sup> has been reported to be successful, however Indonesia and Malaysia continue to refuse 'front-line' contributions from the US and Australia due to sensitivities over sovereignty.

He also suggests that the international assistance provided to Indonesia after the Tsunami in 2004 was an excellent example of the concept and intent of the vision.

The Proliferation Security Initiative (PSI)<sup>4</sup> operates without a formal support structure or headquarters. Although controversial, the initiative is highly acclaimed and probably has a significant deterrent effect. The cooperation in intelligence sharing and practicing operational responses constitutes a general improvement by the preferred assets being available and collectively combating proliferation. Critics, however, have stated that it undermines the United Nations process, misrepresents international law and is politically divisive.

Task Force 150<sup>5</sup> is a multinational operation that appears to be the closest current example to the '1000 Ship Navy' concept, albeit only a portion of the commitment required for the envisioned global network. The coalition maritime task force conducts maritime security operations (MSO) in the vicinity of the Horn of Africa, Red Sea, North Arabian Sea,

and the Gulf of Oman aimed at facilitating security and stability in the maritime environment.

## Possible Benefits

Similar to the USA, governments globally are concerned with defence budgetary deficits, technology obsolescence; and particularly to western nations, a shortage of adequately trained personnel. These combined pressures are influencing domestic defence policy and governments are considering alternative options to maintain their maritime sovereignty and pursue national interests.

The benefit of closer relationships between navies would reduce budgetary pressures on individual nations as collaboration would result in large scale defence procurements through economies of scale. By coordinating primary purchases, interoperability would be further enhanced with common platforms and systems integration; and allow better levels of equipment to be installed in more platforms. Technologically advanced systems would also have the benefit of reducing the required manning.

Nations would increase their participation in combined exercises and improve their capacity to engage in international military operations due to politico-diplomatic goodwill and to possibly enhance their prominence within world institutions. Those nations would be rewarded by having varying levels of increased access to US intelligence and information sharing to affect the global concept but also to benefit the nation's domestic interests.

Notwithstanding the sensitivities of sovereignty involved, forging closer ties would offer realistic possibilities of merging part of individual countries' maritime forces under a permanent central (joint/combined/regional) command system as required. Closer cross border cooperation, utilising individual nations' core strengths and niche capabilities would strengthen authority across the maritime commons.

Closer cooperation would also increase the level of mutual understanding of participating nations and result in - presumably - a less likelihood of regional conflict. This level of acceptance through such events as combined operations



A massive combined US and Japanese fleet on exercise in the Pacific Ocean. Traditional partners to the US like Japan will have little to no trouble integrating into the 1000 Ship Navy construct. (USN)

Korea but they will continue to be reluctant to participate unless there are at least changes to existing international law or a Security Council resolution is obtained.

Trust and sincerity between nations which is essential to progress this strategy may be overshadowed by each participating nation's intent to participate being scrutinised by each other. Nations with a predominately 'internal' focus and finite resources may not see a pressing reason to contribute to the global maritime network at all. The United Nations would attempt to be perceived as the impartial and respected third party in

would at least attempt to strengthen efforts against nuclear proliferation, the threat of terrorism at sea, refugee flows and conflict over disputed territory. Ancillary benefits would include a better understanding of global warming, the protection and awareness of the marine environment; and prevention of violations against human rights.

The global maritime network would assist in isolating natural global pandemics by assisting navies that lack the resources and infrastructure to contain the pandemic in its crucial early stages. Increased dialogue between maritime governments would ensure reinvigorate support for the United Nations as the principal peace keeper and state builder. The reduced level of threats that affect instability would positively impact on the reduction of shipping insurance premiums, time constraints imposed by routing merchant traffic by other than the most expeditious route and ultimately, the cost of maritime commerce.

## Certain Challenges

Most nations, specifically those not naturally aligned with the West, will be cautious of a concept perceived to be principally a US based strategy. Noting the maritime rise of India, China and a resurgent Russia, the latter two may see this as a provocative move by the USA to renew and extend partnerships in an effort to contain these nations' desire for expansion and influence. The intent to place sites in Eastern Europe to support the 'Missile Defence Shield' is a recent example of Russia's inherent distrust of the West's intentions. Russia has, however, participated in NATO Operation 'Active Endeavour<sup>6</sup>' which is seen as a role model for a competing national interest to contribute constructively with non-traditional partners.

In order to gain further acceptance from non-traditional allies and partners, America will need to alter the global community's perceived view of unilateral US power, a disregard for international law and that the concept is not seen as an attempt to gather global support to secure US sovereignty. To facilitate this, the USA will need to tacitly accept certain UN functions as the unwillingness of the American Government to fully ratify the UN's Law of the Sea Convention makes advocacy of the concept somewhat hypocritical. For example, the PSI would enhance its effectiveness if it included China, India, Indonesia and South

order to prepare the international community for action should it be needed but consensus would never be assured.

During the recent Israeli - Hezbollah - Lebanon conflict of 2006, 170 vessels from 17 countries came together - self organized with no treaty or alliance, and accomplished an evacuation mission, however, it was domestic political resolve that was the primary driver for the evacuation effort. Similar to the Tsunami 2004 international response, this operation was politically low risk, was in response to a humanitarian crisis and had international consensus. To gain general concurrence on more politically sensitive issues such as those addressing Iran's nuclear ambition and operations in monitoring North Korean maritime trade will be more difficult to solicit widespread participation.

On these more politically uncertain ventures, it would require individual governments' determination to persevere in order to achieve effective multilateral coordination. The possibility of potential members failing to supply assets and manpower could be damaging and have significant implications to newly formed partnerships/coalitions resulting in inequitable burden sharing and contribution limitations.

The Revolution in Maritime Affairs provides the United States Navy with the most technologically advanced systems in the world. Because of this, difficulties are experienced with communications, intelligence and asset compatibility even with its closest allies such as Australia and the United Kingdom. The transition to Network Centric Warfare will only exacerbate the technology gap between the US and the rest of the world. This is not a new problem and a number of alternative solutions have been used to good effect such as in CTF 1587 operations in the Middle East. The USA has recently sponsored a communications network in the Pacific Theatre that links the various navies in the region and there are similar efforts being continued in the Mediterranean and elsewhere around the globe.

## Relevance to Australia

Australia is a maritime nation. Globalisation is resulting in greater interdependence of national economies and therefore an ever-increasing requirement for global movement of bulk cargoes that have a direct influence on our regional maritime environment. Our strategic interest is intricately linked to the relations between the Asia-Pacific major powers and our most



At sea with the USS CONSTELLATION Battle Group accompanied by units of the Singapore Navy. Smaller navies could provide themselves a force multiplier effect by joining in the 1000 Ship Navy. (USN)

immediate interests are in the arc of islands stretching from Indonesia to the islands of the Southwest Pacific. Maintaining security of these sea lanes of communications is fundamental to Australia's existence and prosperity.

The RAN stated that it would adopt the US proposal soon after it was first announced but also acknowledged the Navy's current significant contributions in existing programs such as *'Pacific Cooperation'*<sup>8</sup>, responding to requests for assistance; and exercises with other navies. Australia has also had relatively recent operational experience leading multilateral maritime operations in support of East Timor in 1999 (INTERFET) and current coalition operations in the North Persian Gulf (CTF158). Recent security agreements with both Japan and Indonesia coupled with ongoing commitments such as FPDA<sup>9</sup> indicates Australia is well placed to merge regional security order in Asia.

Defence papers and strategic reviews since 2000 all refer to the importance of increasing regional engagement at every available opportunity and striving for ever closer cooperation. The RAN will be required to participate in engagements in our strategic interest and beyond; and be involved in the region through defence and security arrangements. Cooperation would be extended to political, social and economic support.

As a prominent nation within the region, the RAN would be expected to play a key role in the implementation of the concept. Australian capability acquisitions and current force structure is well suited to the required tasks of patrolling choke points, maritime interdiction and maritime domain awareness: Skills continually refined after seventeen years of conducting similar operations in the Middle East.

The South East Asian/Southwest Pacific region as well as Australia has generally benefited from Australia's regional initiatives, so as participation would be on a voluntary basis, Australia would be encouraged by likeminded countries to contribute assets and hopefully be looked upon to also provide expert assistance to other regional nations so as to enhance their domestic maritime security.

Asia-Pacific regional challenges will evidently be difficult to overcome. Any tangible progress will continue to depend heavily on Japan, China and India, however, differing maritime strategies, perceptions and sensitivities inclusive of long standing and unresolved territorial disputes, particularly

in the South China Sea (ie. Spratly Islands) will certainly impede any significant results.

Australia has already established close relationships with most countries in the region but flash points such as China/Taiwan, the Korean Peninsula, Ambalat<sup>10</sup> region and even to a lesser extent Japanese whaling, will require judicial prudence coupled with intensive relations within the region to overcome these difficulties and combat maritime-borne threats. The RAN's adoption of NCW will be of great benefit in assimilating with the USN however, will be a limiting factor when conducting operations with a less technologically advanced partner and a practical portal to share information with will be required.

## Conclusion

If the *'1000 Ship Navy'* is to achieve worthwhile progress, all nations will require significant engagement to serve towards common goals. The partnerships will require considerable flexibility and the development of

compatible and relevant strategic policy. Cooperation, shared capabilities and seamless connectivity, which include the wide dissemination of information, will be essential.

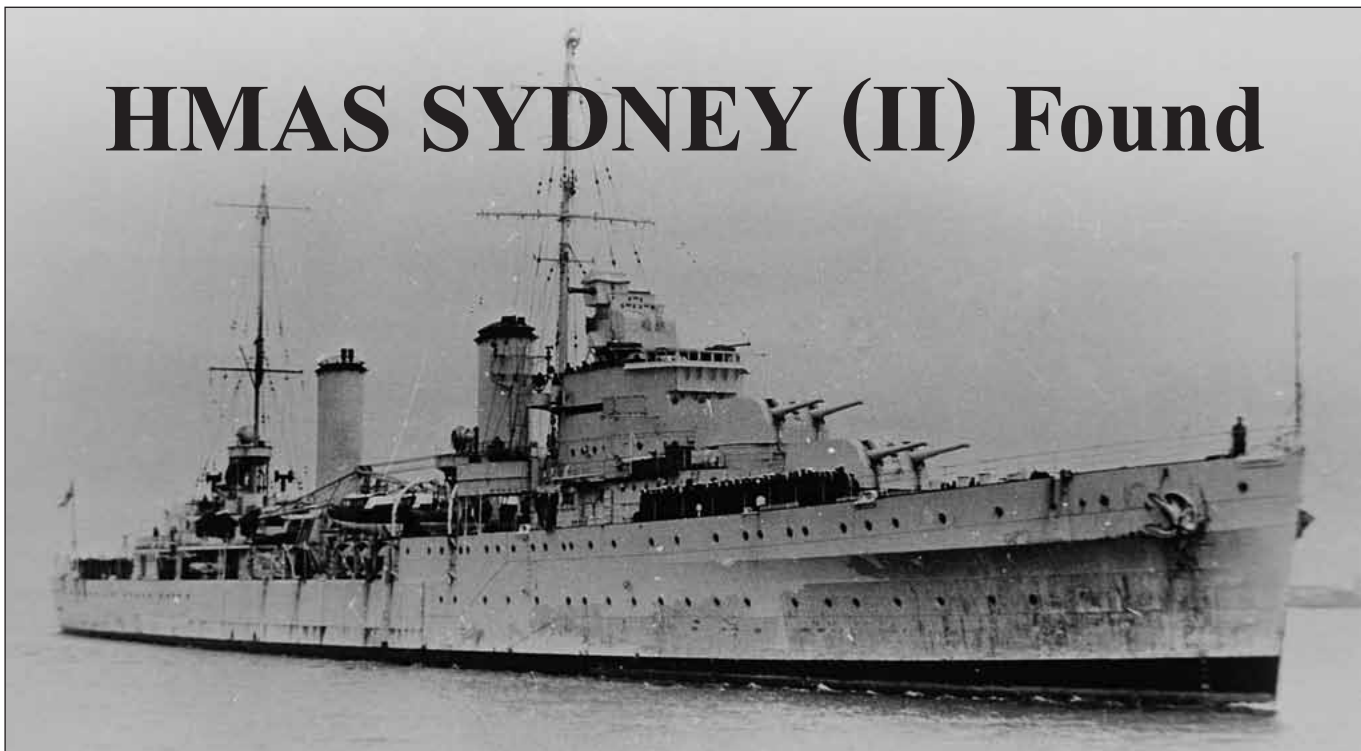
A strong consensus dependent on the type of mission, the prevailing outcomes and the perceived achievements will need to be clearly articulated. If pursued with attitudes of genuine sincerity and with a global conscience, a solid foundation for effective partnerships within and beyond the maritime domain will evolve.

As much of the challenges to global security occur in waters of the world's poorest nations, these countries will have to overcome national sensitivities over sovereignty and request assistance from possibly non-traditional and even previous adversaries: Thus the success of the *'1000 Ship Navy'* will ultimately depend on how the maritime nations of our region - and those of the world - value their own contribution as responsible partners within the global maritime network.

## Notes

- 1 Neo-conservatism is a political philosophy associated to assertive interventionist foreign policy.
- 2 Automatic Identification System is a system used by ships principally for identification and locating vessels. AIS helps to resolve the difficulty of locating ships when not in sight and assists government authorities to track and confirm vessel identification.
- 3 Indonesian efforts to enhance security in the Malacca Straits are further strengthened with the launch of project SURPIC, a sea surveillance system. This system allows security elements of Malaysia and Indonesia to share a common real time sea situation picture of the Straits.
- 4 Implemented in May 2003. Aims to improve coordination among its partner states in intelligence, diplomacy and operational techniques in order to improve their capability to detain, inspect and seize cargo.
- 5 A naval task force which is commanded usually by a non-US Flag officer with approximately nine ships from seven countries and a Joint Special Operations Task Force.
- 6 NATO ships are patrolling the Mediterranean, monitoring shipping and providing escorts to non-military vessels through the Straits of Gibraltar to help detect, deter and protect against terrorist activity.
- 7 Command and Staff of Coalition (Australia, USA, United Kingdom) in charge of operations in the North Persian Gulf.
- 8 The reinvigoration of a regional leadership role in the South Pacific displays a capacity to build favourable regional order, encourage economic development and a liberal democratic form of good governance within its own neighbourhood.
- 9 Five Power Defence Arrangement are a series of defence relationships established by bilateral agreements between the United Kingdom, Australia, New Zealand, Malaysia and Singapore signed in 1971, whereby the five nations will consult each other in the event of external aggression or threat of attack against Malaysia or Singapore.
- 10 Ambalat is a sea area in the Celebes Sea which is rich in crude oil and lies in the disputed maritime boundary between Malaysia and Indonesia.

# HMAS SYDNEY (II) Found



The cruiser HMAS SYDNEY (II) before her tragic meeting with the German raider HSK KORMORAN. (RAN)

The wreck of the RAN cruiser HMAS SYDNEY (II), missing for 66 years, has been found.

HMAS SYDNEY (II) was tragically lost in November 1941 off Western Australia with its entire crew, following a fierce engagement with the German raider HSK KORMORAN during WW II.

The discovery was announced on 17 March 2008 by the Prime Minister, the Hon. Kevin Rudd, the Minister for Defence Science and Personnel, the Hon. Warren Snowdon, MP, Chief of the Defence Force Air Chief Marshal Angus Houston, Vice Admiral Russ Shalders, Chief of Navy and Mr Ted Graham, Chairman of The Finding SYDNEY Foundation.

The search first focused on finding the German raider KORMORAN which was located on 12 March approximately 112 nautical miles off Steep Point, Western Australia lying in 2,560 metres of water. The wreckage was found in the approximate position 26° 05' 49.4" S; 111° 04' 27.5" E. With KORMORAN's sinking position established, and the identity of its wreckage confirmed on the basis of high quality sonar imagery, the discovery of the main

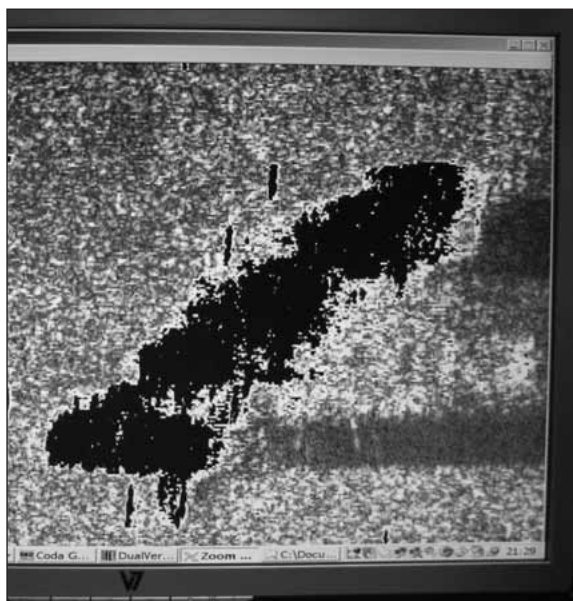
battle site, less than four nautical miles south of KORMORAN's position, was then used to direct the team's effort in searching for SYDNEY.

The wreck of SYDNEY was confirmed on 16 March, approximately 12 nautical miles off KORMORAN, under 2,470 metres of water. Her position was recorded as being 26° 14' 37" S; 111° 13' 03" E.

Mr Ted Graham said they were prepared for the search to take upwards of 35 days so to find them both in a matter of weeks has been a stunning achievement for the entire crew.

"A remotely operated vehicle (ROV) with video filming capabilities able to operate in depths of up to 3,000 metres will be deployed in order to further examine both wrecks of the SYDNEY and KORMORAN." Results of this closer examination will take some time to filter into the public domain.

The Minister for the Environment, Heritage and the Arts has already made a declaration to ensure HMAS SYDNEY (II) is protected under the Historic Shipwrecks Act.



This image of KORMORAN's bow (with the stem at the top of the image), collected using the highest resolution of the SM30 sonar (800 metre swathe), shows the crucial detail in the acoustic shadows trailing off to the right that confirmed the wreck as KORMORAN's. KORMORAN has a flared bow with a raised foc'sle deck above the main deck. This structural detail, particular to KORMORAN and not to SYDNEY, is evident by way of the acoustic shadow at the top of the image. This long shadow could only be caused by the wreck having the type of flared bow and raised foc'sle deck that KORMORAN had. Fortunately, this section of hull is sitting upright on the seabed which allowed such analysis of the acoustic shadowing. The separate acoustic shadow at the bottom of the image is caused by the bridge superstructure of KORMORAN, which has been measured to be in the correct position relative to the stem.



This sonar image is a magnification of just the main hull from the third sonar track. The acoustic shadow to the left of the hull is used to help identify structures that have height. For example, the tallest shadow could be being caused by SYDNEY's superstructure. Careful analysis and measurements of the hull length suggest that while the hull is sitting upright on the seabed and is largely intact, a portion of the bow could well have broken away and that this event was the trigger that finally caused SYDNEY to sink.

# HATCH, MATCH & DISPATCH

## MATCH

### MARYBOROUGH Commissions

The RAN has welcomed HMAS MARYBOROUGH, the thirteenth Armadale class patrol boat at a commissioning ceremony alongside Bulimba Barracks Wharf in Brisbane on Saturday 8 December, 2007.

The event was attended by the Chief of Navy, Vice Admiral Russ Shalders, AO, CSC, RAN; Commander Australian Fleet, Rear Admiral Nigel Coates, AM, RAN; and dignitaries from the Ship's two affiliated towns of Maryborough in Queensland and Victoria. Naval Cadets from Training Ship Maryborough also took part in the ceremony.

Additionally, the commissioning ceremony also marked the formal inauguration of the 'Aware Three' crew into Naval service. 'Aware Three' is the twenty first and final patrol boat crew to be formed under the multi-crewing initiative. Multi-crewing facilitates the maximum use of each patrol boat, while providing adequate crew rest and balance between work and life commitments.

The combined ceremony signified a coming of age for the new patrol boat squadron after a two-year development period, which coincided with the phasing out of service of the ageing Fremantle class patrol boats.

## GLENELG

### The final Armadale Commissions

HMAS GLENELG, the fourteenth and final Armadale class patrol boat, was welcomed into Navy in a time-honoured ceremony, alongside Dock One at Port Adelaide 22 February, 2008.

The historic event was attended by the Governor of South Australia, His Excellency Rear Admiral K.J Scarce, AO, CSC, RANR; the Chief of Navy, Vice Admiral R.E Shalders, AO, CSC, RAN; the Commander Australian Fleet, Rear Admiral Nigel Coates, AM, RAN; and dignitaries from the ship's affiliated town of Glenelg, South Australia.

Mrs Dianne Millington, the Naming Lady of GLENELG and daughter of Arthur Brierley, a former crew member of GLENELG (I), was the guest of honour for the commissioning ceremony. As the ceremony unfolded, GLENELG's commissioning order was read, and the Australian White Ensign and the ship's commissioning pennant were hoisted for the first time.

"The commissioning of HMAS GLENELG is a proud day for the RAN," said Rear Admiral Nigel Coates.

"The addition of GLENELG signals the maturity of the patrol boat fleet, with the purpose-built class representing a quantum leap in technology, which will better help the RAN to protect Australia's maritime interests."

HMAS GLENELG will be primarily employed in the important role of border protection, conducting patrols to protect Australia's fisheries and immigration. She will be one of 10 patrol boats based in Darwin.

## Dispatch

### HMAS ADELAIDE Decommissions

The frigate HMAS ADELAIDE was decommissioned at Garden Island in Western Australia on 19 January, 2008.

The ceremony marked the end of 27 years of service for what was the Navy's oldest frigate.

The ship's Australian White Ensign was lowered for the last time and handed to ADELAIDE's Commanding Officer, Commander Robert Slaven.

"Today is an historic occasion, one which the crew of ADELAIDE is proud to be a part of," Commander Slaven said. Parliamentary Secretary to the Minister for Defence, the Hon Dr Mike Kelly MP; Chief of Navy, Vice Admiral Russ Shalders;

Commander Australian Fleet, Rear Admiral Nigel Coates; and a number of other distinguished guests joined Adelaide's crew, past and present, for the ceremony.

ADELAIDE is the second of the Adelaide-class frigates to be decommissioned, the first being HMAS CANBERRA in November 2005. Their four sister ships SYDNEY, DARWIN, MELBOURNE and NEWCASTLE remain in service.

ADELAIDE was constructed by Todd Pacific Shipyard in the United States and commissioned into the RAN on 15 November 1980. She was the second ship in the RAN to bear the name: Her predecessor ADELAIDE (I) was a light cruiser that served from 1922-1946.

ADELAIDE has proudly represented Australia in a number of theatres of conflict during her years of service. She was one of the first Australian warships to be deployed to the Persian Gulf in 1990. ADELAIDE was again deployed to the Gulf on two more occasions in 2002 and 2004. She also participated in both major East Timor operations in 1999 and 2006.

In peacetime, one of ADELAIDE's more notable achievements was her involvement in the high profile search and rescue of solo yachtsmen Thierry Dubois and Tony Bullimore from the Southern Ocean in 1997.

The name ADELAIDE will not be missing from the Australian fleet for long, with one of the forthcoming Canberra-class Landing Helicopter Docks to bear the name.

ADELAIDE will be gifted to the NSW Government and sunk off the NSW Central Coast at Terrigal as an artificial reef and dive attraction.



The Ship's Company of HMAS ADELAIDE march off the ship and onto the wharf during the ceremony at Parkes Wharf at HMAS STIRLING, Garden Island, WA. (RAN)



Where it all began, two brand spanking new frigates, ADELAIDE (01) and CANBERRA (02) at Todd Shipyard in the US in 1979 before commissioning into the RAN. (Todd)

# STATEMENT of POLICY

Navy League of Australia

*For the maintenance of the Maritime wellbeing of the nation.*

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 the 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 close relationships with the nearer ASEAN countries, PNG and South Pacific Island States.
- Advocates the acquisition of the most modern armaments, surveillance systems and sensors to ensure that the Australian Defence Force (ADF) maintains some technological advantages over forces in our general area.
- Believes there must be a significant deterrent element in the 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 modern Air Force and a highly mobile well-equipped Army, capable of island and jungle warfare as well as the defence of Northern Australia and its role in combatting terrorism.
- Advocates that a proportion of the projected new fighters for the ADF be of the Short Take Off and Vertical Landing (STOVL) version to enable operation from suitable ships and minor airfields to support overseas deployments.
- Endorses the control of Coastal Surveillance by the defence force and the development of the capability for patrol and surveillance in severe sea states of the ocean areas all around the Australian coast and island territories, including the Southern Ocean.
- Advocates measures to foster a build-up of Australian-owned shipping to support the ADF and to ensure the carriage of essential cargoes in war.

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 and its afloat support ships to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.

- Believes that the level of both the offensive and defensive capability of the RAN should be increased, and welcomes the decision to build at least 3 Air Warfare Destroyers (AWDs).
- Noting the increase in maritime power now taking place in our general area, advocates increasing the order for AWDs to at least 4 vessels.
- Advocates the acquisition of long-range precision missiles and long-range precision gunfire to increase the RAN's present limited power projection, support and deterrent capabilities.
- Welcomes the building of two large landing ships (LHDs) and supports the development of amphibious forces to enable assistance to be provided by sea as well as by air to island states in our area, to allies, and to our offshore territories.
- Advocates the early acquisition of integrated air power in the fleet to ensure that ADF deployments can be fully defended and supported by sea.
- Supports the acquisition of unmanned surface and sub-surface vessels and aircraft.
- Advocates that all warships be equipped with some form of defence against missiles.
- Advocates the future build-up of submarine strength to at least 8 vessels.
- Advocates a timely submarine replacement programme and that all forms of propulsion be examined with a view to selecting the most advantageous operationally.
- Supports continuing development of a balanced fleet including a mine-countermeasures force, a hydrographic/oceanographic element, a patrol boat force capable of operating in severe sea states, and adequate afloat support vessels.
- Supports the development of Australia's defence industry, including strong research and design organisations capable of constructing and maintaining all needed types of warships and support vessels.
- 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 and for specialised tasks in time of defence emergency.
- Supports the maintenance of a strong Australian Navy Cadets 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 budgetary constraints, believes that, given leadership by successive governments, Australia can defend itself in the longer term within acceptable financial, economic and manpower parameters.



A recent image of a new class of Chinese warship, the Project 054A or Jiangkai II class guided missile frigate. This is the second ship of the class, seen here being fitted out in Shanghai, China. The Project 054A is an air defence version of the general purpose Project 054 FFG but with a 3D air search radar and a 32-cell VLS forward of the bridge for HHQ-16 anti-aircraft missiles. Note the angled sides and enclosed superstructure for a reduced radar signature. (Chris Sattler, Nov 2007)



Another recent image of a new class of Chinese warship. The Type 071 class LPD is the first large amphibious warfare ship to be made by China. Her angled sides and enclosed superstructure provide her with a reduced radar cross section. She has a well deck for four air-cushion landing craft and hanger space for at least two troop lift helicopters. It is unknown how many troops or armoured vehicles can be embarked. (Chris Sattler)



The Spanish LHD JUAN CARLOS I seen here launching on 10 March 2008, at 6:09 pm, from Navantia's Ferrol shipyard. The JUAN CARLOS I is the same class of ship that will be known as the Canberra class in Australian service. Australia's two ships, CANBERRA and ADELAIDE, will be built at the same yard by the same workers who have just built and launched the Spanish LHD, ensuring a smooth building process. (Navantia)

The Spanish LHD JUAN CARLOS I was launched at a ceremony which included H.M. King Juan Carlos and Queen Sofia of Spain accompanied by the Prince and Princess of Asturias. The LHD is the biggest ship in the history of the Spanish Navy. She will commission next December. (Navantia)

