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THE NAVY
Volume 63 No. 1

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

HMAS FARNCOMBE arriving in Hobart November 25 00. (Brian Morrison, Washag and Marine Corps Museum Inc)

Deadline for next edition 5 February, 2001

Vol. 63 No. 1
led the push for the Kidd class destroyers in 1998 and has been a lobby gain for the captive carrier included in the ADF’s order of battle ever since. In the last four months THE NAVY and I have been quoted in a number of national papers on two occasions pushing for more capability and funding. It would appear that not only has the League won a victory, either in spite or despite our efforts, but also that it has been acknowledged.

However this is where I get back on my soapbox, or into my look-out’s position, the one thing that may scratch defeat from the jaws of victory would be a change in government. Despite the Opposition’s public endorsement of the White Paper they have made no secret about their preference for a return to ‘their’ model of defence, which given their record would not bode well. Although they wish to disavow themselves of the ‘Fortress Australia’ tag from their 1987 White Paper the fact remains that this is a highly innovative idea that needs to be pursued further.

It would seem we are on the verge of a change in the government and the priority of air power have thankfully disappeared from this final more mature document. Also missing is the unsupported assertions contained in the Green paper that is fitting compensation for the ADF for years of abuse. It is a better paper and situation for the RAN/ADF than many predicted. At least now there are no warships, full upgrades to the Collins’, a new and modernised army helicopters for amphibious operations, the list goes on.

The White Paper is also free of the broad, vague, and unsupported assertions contained in the Green paper that preceded it. Change about the lack of ship capability and the priority of air power have thankfully disappeared from this final more mature document. Also missing is the destructive single service view. Now we can work together in the same boat, albeit a different one, and why we need to structure our forces for this ‘educated’ guess is also thankfully missing.

The Navy League and THE NAVY have fought long and hard for the air warfare destructor and more funding for defence and thus welcomed the White Paper. The magazine is fitting compensation for the ADF for years of abuse.

Spade or Shovel

Dear Sir,

I am amused to read the concept for the Littoral Support Ship (LSS) referred to as not being an aircraft carrier. Computer generated imagery of the LSS accompanying Dr. Norman Friedman’s excellent piece, (Maritime Airpower for Australia pt. 3 – Australian Strategy and the Littoral Support Ship, NAV, Vol. 62, No. 4 Oct-Dec 2000), along with the author’s description of its capabilities were qualified by statements in the text and not an aircraft carrier in the traditional sense. Yet this vessel will be 30,000 tons in displacement, have a traditional catapult or ski jump to launch aircraft, and arrester gear to recover them. It is designed to take F/A-18 multirole combat aircraft, and be equipped with a hangar deck to store aircraft when appropriate. In effect it looks like an aircraft carrier, and can act like an aircraft carrier, but also do more than an aircraft carrier tie amphibious support, logistics roles, and command and control. Because it would be built to commercial specifications rather than ‘milspec’ it would be cheaper than acquiring a purpose-built ship.

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

But the need to qualify the nature of the LSS as ‘not an aircraft carrier’ highlights the intellectual immaturity of defence debate in Australia that I have followed over the years, being an Australian living overseas. The whole ‘carrier’ vs ‘not carrier’ is back to the early 80’s with the Hawke Government cancellation of the replacement for HMAS MELBOURNE after the purchase of HMS INVINCIBLE fell through as a result of the 1982 Falklands War. We as a nation can learn from that mistake. The last edition of THE NAVY a message of congratulations from the Navy League of the United States was published. By some quirk of modern computing the US National President’s name was printed as RADM John R. Fisher. This should have read RADM John R. Fisher. This should have read RADM John R. Fisher. By some quirk of modern computing the US National President’s name was printed as RADM John R. Fisher. This should have read RADM John R. Fisher. By some quirk of modern computing the US National President’s name was printed as RADM John R. Fisher. This should have read RADM John R. Fisher.

Fixed Wing Remains in RAN

Dear Editor,

The last edition of THE NAVY and THE NAVY NEWS contained an article reporting that the era of fixed wing aircraft in the RAN had come to an end. The RAN still has a laser airborne depth sounder capability to the exclusion of ‘hydrophone’ capability and the LADS Unit has been operational with the RAN since 1993 and comprises a mixture of Navy and contract personnel who operate a Fokker F27-500 ‘Friendship’ aircraft using laser technology to collect hydrographic bathymetry data. The aircraft owned by the RAN however, is lodged on the civil aircraft register and carries a civil registration of VH-EWP.

Data collection is by means of an airborne scanning laser mounted in the aircraft. The LADS aircraft can measure depths between 0 and 50 metres with depths being captured in a 5 x 10 grid pattern. The laser surveys are flown at a height of 500 metres and operate at a speed of 145 knots using a fixed infrared laser beam for aircraft height, and a scanning visible green beam to collect data. The aircraft’s endurance of 7.5 hours gives a maximum effective range (with 2 hours on task) of 600 km from base.

The University of Queensland undertakes four Missions per year, which are flown each year between the coast and Barrier Reef. The aircraft is owned by the RAN and has been operational with the RAN since 1993. Fixed Wing Remains in RAN
Defence 2000 was no doubt awaited with some trepidation by the Navy. Over recent years things have not been easy for the Service. For example it had to grapple with introducing into service the LPAs and Collins with the attendant sensationalist media coverage. At the same time it had to shepherd through the maze of committees important programs such as the air warfaredestroyer and the ANZAC Anti-Ship Mission Defence Project. There were other projects, not so expensive, but also important such as the replacement for WESRALIA and the ageing Standard SM-1 missile. This was in a climate of increasing personnel shortfalls that demanded attention.

In contrast during the White Paper public consultation phase it was clear that the Army benefited from a wave of East Timor goodwill and the Air Force had its strong airpower proponents. The extent to which public and defence opinion was influenced ‘Defence 2000’ remains unclear. What can be said is that the need for a balanced force (including a capable Navy) came out loud and clear in the responses and this is reflected in ‘Defence 2000’. These readers who sent in responses should take some heart in this. So what is the outcome for the Navy? The answer is positive, but how much is difficult to say. This is for five reasons.

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

Second, some of the passages in ‘Defence 2000’ are reassuring. While it espouses a maritime strategy its description of the role of the Navy, namely to “deny an opponent the use of our maritime approaches and allow us to operate at sea ourselves” - is very narrow and pedestrian. What about shaping our strategic environment for example? The ability for navies to contribute more fully to the land and air battles is also not addressed. Clearly the Government and the Defence bureaucracy need to further develop their thoughts on maritime strategy.

The third issue is people. ‘Defence 2000’ is a very uneven document. It is particularly thin on details in the area of personnel. It is clear from the document there is a growing realisation that unless retention and recruitment can be substantially improved then the plans outlined in ‘Defence 2000’ cannot be realised. The emphasis though is “we know we have a problem and these are areas we will look at’.

Whether the measures discussed in ‘Defence 2000’, such as improving pay, superannuation, job satisfaction etc are effective will in large measure depend on how much money and how much real commitment is allocated to the issue.

Fourth, is the issue of the construction program. While the decisions on air defence, replenishment and amphibious ships are very welcome, the stated dates for entering service raise some questions about how much detailed planning and consultation went into Defence 2000. Clearly the Australian shipbuilding industry could handle this programme, but it needs to be more spread out. For example, can the skills required to construct a warship be retained until construction starts on the air defence ships? It is also difficult to imagine that the Navy or industry would really want or be able to commission the replacements to SUCCESS, KANIMBLA and MANOORA all in the same year. The timing and training demands alone would be enormous. It is therefore to say we can expect some refinement in the plan.

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

Putting all these cautionary notes aside however, the ADF capability enhancements should provide a Navy that can operate in our region with combat capable task groups, supported by fully updated Collins submarines. The eventual size of the surface combatant force is unclear. The FFGs will be replaced by “at least three air defence ships”. Therefore the force could be anything from 11 to 14. Much will depend on how much will be allocated to the air defence ship project.

It should be borne in mind that MELBOURNE and NEWCASTLE are much younger than their sister ships and will be in the Fleet in the 2020s. This enhanced fleet could support and protect an Army that will be much more powerful, deployable and sustainable. The RAFA for its part will acquire the much needed Airborne Early Warning & Command (AEW&C) and air-to-air refuelling (AAR) aircraft that will not only enhance the capabilities of the modernised and new fighter/strike force but also the nuclear task group at sea. Indeed the combination of an AEW&C and an air defence ship will be potent indeed.

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

‘Defence 2000’ Major Capability Decisions

NAVY

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

ARMY

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

AIR FORCE

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

By Mark Schweiert

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

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

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

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

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

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

TS TAMAR’s ceremonial guard present arms as the White Ensign is lowered at sunset. A volley of blanks also marked the close of the day.
From left to right: Mr Graham Harris, Federal President of the Navy League of Australia; Senator Eric Abetz, then Parliamentary Secretary for Defence; and Senator for Tasmania, LCDR Michelle Miller RAN, CO HMAS BUNBURY (LCDR Miller is not only the RAN's first female warship commander but also its youngest); and Federal Vice-President of the Navy League of Australia RADM Andrew Robertson AO, DSC, RAN (Retd) at the State Premier's/Launceston Mayor's Civic Reception at the Launceston City Hall.

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

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

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

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

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

Join The Navy League of Australia. See centre section for how.

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

Federal President of the League Mr Graham Harris presents Mr David Cunningham the warrant of the Navy League for the new Ulverstone branch of the League during the League's Federal AGM.
PETER THE GREAT (AKA PIOTR VELIKIY) and deployment into the Mediterranean. On 10 August this involved, including the Ushakov (ex-Kirov) heavy cruiser. On 20 January 1995. The KURSK was a force with which to be reckoned.

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

By Dr Lee Willett

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

On 12 August 2000, the Russian Oscar II-class submarine KURSK (K-141) sank after suffering a catastrophic series of explosions. It is now apparent that many of the crew were killed almost instantly, and that the entire crew was dead within a matter of hours. By the time the news of the tragedy was released two days later, it is believed that the Russian Navy was well aware of the fate of the crew.

What remains uncertain is the precise chain of events which triggered the catastrophe. The most important aspect to note is that, still, there is insufficient hard evidence to prove or disprove any particular theory.

The KURSK

The Oscar IIs are known as 'carrier-busters'. They are designed to sink American aircraft carriers, the most potent symbol of US military power. Throughout the 1980s, Oscar-class submarines made several high profile deployments to US waters - occasionally popping up behind US carriers or just outside major US Naval bases in a political bid to show the US that, despite the collapse of the Soviet Union, Russia was still a military force with which to be reckoned.

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

As part of the exercise, KURSK was tasked with torpedo test-firings. At this time, one key factor that cannot be confirmed is what type of torpedo was being fired. Initially, it was reported widely that a DST-40 was the weapon in question. The DST-40 is fuelled with High Test Peroxide (HTP). HTP is a mix of hydrogen peroxide and kerosene, and was a propellant developed originally for rockets. It is a propellant mix so corrosive and unstable that the US Navy refused to use it. HTP requires much careful maintenance, both in storage and at sea, by specially trained crew members - a significant challenge for a critically under-funded Russian Navy.

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

What Did Not Sink the KURSK

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

One theory put forward was that the KURSK struck a mine. There is no independent analysis by any of the US Navy and Norwegian and Swedish marine research stations points to a series of small explosions initiated by one large explosion and concluded two minutes later by another, much larger, detonation. This does not appear to be a chain of events consistent with that likely to be caused by a collision with a single mine.

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

The presence among the crew of a large number of sailors from the central Asian caucuses prompted suggestions that the submarine had been sabotaged in pursuit of nationalist causes. Also, some sources have argued quite credibly that crew error or poor maintenance may have triggered an explosion in the forward ballast tanks. It was reported in some Russian sources that there had been a failure in the ballast tanks, and an internet article by the Norwegian Bellona Foundation noted that this failure would permit inspection of its submarines by foreign powers. The US, Swedish and Norwegian intelligence and research sources have questioned Britain's refusal to allow SPLENDID to be inspected. Yet it is unlikely that Britain would permit inspection of its submarines by foreign nations, whatever the reason for the request. Russian sources also have seen Britain's recall of its entire SSN fleet for nuclear safety checks, following the much-publicised breakdown of HMS TIRELESS, as a cover to allow SPLENDID to be repaired.

What Sank the KURSK

In sum, there is a lack of hard evidence to support these theories. Although the disaster is still subject to investigation and although it will be impossible to gather conclusive evidence until the wreck has been raised which is planned for some time in March), at this time the primary source of evidence - the acoustic picture put together by the US, Swedish and Norwegian intelligence and research
It became apparent very quickly to the listening US boats that something had gone terribly wrong. The noise signatures did not resemble a standard torpedo launch, and the massive final detonation - quickly followed by easily-recognizable floodwater noises - indicated immediately that the submarine was sinking. The US submarines noted Russian ships congregating at the scene of the sinking - 69° 47'N, 37° 35'E - but no one as yet had realised the full scale of the tragedy. Approximately 30 minutes after the first explosion, the Russian divers finally opened the aft escape hatch, the air in the few pockets they found in the aft of the submarine was opaque with smoke.

The Role of the Russian Psycho

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

On this first point, very few of the claims put forward by the Russian Navy with respect to the cause of the disaster, the condition of the submarine and the crew and the nature of the rescue requirement have been supported by independent and verified evidence. According to the US Navy, no tapping on the hull was recorded at any point. There was no evidence to suggest that radio contact had been made and that power and oxygen cables had been attached to the hull. The Russians claimed also that poor visibility and strong currents were stopping their own diving bells from attaching themselves to the hull. Yet the Norwegian divers later noted that visibility was good, that the currents were only minimal and that the hatch was undamaged. It appears also that what damage had been done was inflicted when a Russian diving bell attempted to mate with the submarine. Other reports have suggested that the footage shown of the damage around the aft hatch was not of the KURSK at all.

A Russian special forces diving team was sent to the scene of the explosion by 14.33, 24 h 8' of the sinking, not to aid in a rescue but to establish the condition of the submarine. Moreover, when the Norwegian diving team was at first unable to open the hatch, because of insufficient guidance provided by the Russians - according to Vice Admiral Skorgen, Admiral Ponomarev and the British - they were forced to bring in two diving specialists and to conduct a demonstration onboard another Oscar-class submarine. This indicates that the Russian naval hierarchy knew that the whole crew of the KURSK had perished within hours, if not minutes, of the explosions. The simple speed with which the submarine went from firing a torpedo to slamming into the seabed highlighted both the enormity of the disaster that had befallen her crew and the likelihood that those not killed outright would not have survived for very long.

As a result of this, the fire and flooding spread uncontrollably. With the temperature rising rapidly over the next two minutes, the twin VM-5 pressurised water reactors were sited, were sealed off. However, even the men in that section would have been subject to appalling initial injuries due to the consequences of this - which would have loosened bulkhead doors and blown high pressure valves from their mountings - and from the submarine slamming into the sea. Moreover, with the submarine's reserve batteries as non-operational (because of a failure of funding for maintenance and stored in the for'ard part of the submarine until use was required for longer missions) and with the nuclear reactor shutting down automatically (either as a result of the shelter pressure from the sea or from the sea-water values becoming cogged as the submarine ran into the mud) there would have been no way for surviving men in the aft section to generate any portable oxygen or air supply. With bulkhead doors and seals loosened, survivors would have been subject to gradual suffocation as the remaining air became intoxicated with fumes from the spreading fire. When the Norwegian divers finally opened the escape hatch, the air in the few pockets they found in the aft of the submarine was opaque with smoke.

Conclusion

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

Insigns to repair COLE

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

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

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

Under this arrangement, the majority of the crew will be able to use shore-based trainers and schools to sustain seagoing skills and knowledge. The use of shore-based trainers and schools is expected to take about a year to complete.

Most of the civilian workers experienced in ship repair are estimated to cost the USN $100 million to $150 million, according to Insigns.

Insigns is planning to repair the ship in phases, with the majority of the work being done during the first year. The ship is expected to be returned to service by the end of 2001.

The repair work will include the following:

- Repair of the ship's hull, including the installation of new plating and the repair of existing damage.
- Repair of the ship's machinery and propulsion systems.
- Repair of the ship's electrical and electronic systems.
- Repair of the ship's communications and navigation systems.
- Repair of the ship's weapon systems, including the installation of new missiles and torpedoes.
- Repair of the ship's damage control systems.
- Repair of the ship's habitability systems, including the installation of new furniture and bedding.

The repair work is expected to be completed by the end of 2001.

DCN France launches new designs at EURONAVAL

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

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

The C1200 corvette is a multipurpose warship designed for E2E patrol duties, intelligence gathering and other related missions. The design represents a decisive advance in the application of full-scale warship technology to multipurpose corvettes.

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

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

The C1800 corvette is fully ocean capable and can hunt submarines, in all seas and at all latitudes, for up to 21 days.

Indonesia negotiating for Mi-17s

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

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

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

Purchase of the helicopters will confirm President Wahid's intention to improve the country's maritime assets. The President has already approved the expansion of the Marine Corps from 15,000 to 25,000. The Mi-17s would add to the Corps' mission capabilities in the archipelago.

27 Exocets for Greece as MM 38s approach shelf life

The Greek MoD has signed a US$56 million contract for 27 MM 40 Exocet Block 2 anti-ship missiles for its 55m super Vlta class fast attack craft as more than a dozen navies face the dilemma of either finding the funds to upgrade their MM 38s or negotiating shelf buy.

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

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The MM 38, which entered service in 1972 with a total of 1,260 missiles sold to 19 navies, is powered by an SNPE Epevier solid-propellant rocket motor with a double-base. These solid-propellant motors have a guaranteed minimum shelf-life of only 10 years, and while this has been exceeded by every buyer, it has only been during the past 10 years that customers have sought motor overhauls. This work has brought the European Aerospace (now part of the EADS group) business worth several million dollars a year.

The overhaul/upgrade programme
involves replacing the sustainer and booster components. Until now, users have favoured new equipment in their MM 38s, but this is no longer an option as customer demand for MM 38s continues to decline. SNPE have also been declining forces in the petrol plant unless there is an upsurge in business.

Aware of this fact and that many customers still retain the MM 38 in service, the French aerospace and defence company French aerospace and defence company has been informng them of the situation. The company hopes that users will be able to raise the funding which will allow for upgrade-overhaul contracts to be signed immediately.

China is expected to have upgraded versions of petrol-filled launch tubes that are equipped with their missiles to meet their requirements, but have not yet made a public announcement. 

Chinese spy ships active

China's Coast Guard has revealed its plans to modernize its naval vessels. The Chinese have a long tradition of deploying ships specifically for intelligence gathering missions. Some of these countries are likely to have difficulty in finding sufficient funds.

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

Chinese spy ships active

Japan’s Coast Guard has revealed in its recent White Paper that Chinese spy ships operate in Japan's EEZ, having increased in number in recent years. In 1999 there were 33 sightings of Chinese intelligence gathering ships in Japan's EEZ, compared to 16 in 1998 and four in 1997.

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

French Navy to order twin-seat Rafale

The French MoD is funding the predevelopment phase for a twin-seat maritime variant of the Rafale fighter. The French Navy was to receive 60 single-seat Rafale M but has decided that 40 of those should be twin-seat models designated Rafale BM.

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

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

A USN SH-60 Seahawk firing an AGM-114M Hellfire ASM (Anti-Surface to Air Missile). The missile can also be used against land targets. The AGM-114M is designed for use against ships and shore targets.

AGM-114M ready for USN

The USN has received the first of 100 AGM-114M Hellfire II anti-ship missiles. The AGM-114M will equip the USN's SH-60 Seahawk and the USMC's AH-1W Super Cobra attack helicopter.

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

2.8 billion euro contract for Horizon

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

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

The first ship is due to be delivered in 2006. The two frigates for the Italian Navy will be built in Genova and La Spezia, and the two frigates for the French Navy will be built in DCN’s Lorient shipyard. The combat system will be developed in Toulon and Rome. Featuring excellent range and endurance, the Horizon frigate is predominantly an AAW vessel for area defence and point defence against saturation missile attacks. It will be equipped with systems also developed through European cooperation, including the PAAMS anti-air missile system.

Taiwan to produce new ASCM

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

An indigenous design from the military run Chang Shu Institute of Science and Technology. Details still remain scarce about the missile’s performance. However, June’s Defence Weekly has reported that the vertically launched missile has a range of 200kms at Mach 2.0.

RMN tests missiles

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

The tests were part of the contract requirements related to the purchase of the four Lekiu frigates from the UAE and four Aster corvettes from Italy.

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

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

The SEA WOLF and EXOCET MM 40 missiles were fired by the frigate KD KEBAR, while the ASPIDE was fired by KD LAKSAMANA TAN PUSMAH. The SEA WOLF missile was fired at a hot nose target towed by a Falcón 30 aircraft. The ASPIDE missile was fired at a CHUKAR III drone, while the EXOCET MM 40 was fired at an old ocean drake hulk, all in the South China Sea.

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

Club family arrives

The Indian Navy has started to take delivery of the Russian Alfa/3M-54E ASCM (Anti-Ship Cruise Missile) for its newest Kilo class submarine. 

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

The Alfa flies a rather unique attack profile. It flies for approximately 200kms at subsonic speed using self-deployed wings and an air-breathing jet engine for its cruise phase. At 20kms+ from the target the missile pops up above the horizon and initiates a few seconds with its radar to fix or search for the target. Once the target's location is established a 'dart' deploys from the lower part of the missile with the cruise section flying off away from the dart. The dart drops to sea skimming height and uses a solid rocket motor accelerates to nearly Mach 3 for the final run in to the target. 5-10kms from the target the missile initiates a weav/cork screw manoeuvre in an attempt to defeat the ship's missile defences.

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

The Alfa belongs to a new family of missiles know as the Club family. The family consists of ASCM and ASW standoff missiles, and soon a land attack variant. The Club family all use the same fire control system, but the difference is the type of weapon and equipment. Each of the missiles can be launched in a vertical or horizontal position, or in the case of India's new Krivak class FFGs due to commission sometime next year.

India is expected to retrofit all its Kilo class submarines to fire the Club family.
At this stage India is the first and only customer for the Club family of submarines.

**RN SSNs recalled**

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

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

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

At the end of the Cold War, the MoD decided to scrap its SSNs in favor of all nuclear submarine fleet.

Checks of all 12 boats are expected to take sometime.

**Egypt to buy Moray SSKs, from US**

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

The deal, under US Foreign Military Funding (FMF) arrangements, includes the first sale of RDM Submarines’ Moray design and will mark the resumption of non-nuclear submarine building in the USA. Damen Schelde Naval Shipbuilding is prime contractor for the order, with RDM Submarines (Rotterdam, the Netherlands) and Lockheed Martin Naval Electronics & Surveillance Systems (NE&S) Undersea Systems (Marina, Virginia) as major subcontractors.

The LoI was issued during October, negotiations are ongoing under the detailed terms of the sale, with the aim to have a contract effective in the first half of this year. The intended purchase of the Moray-class submarines will augment the Egyptian Navy’s existing fleet of four ex-US/UK Improved Romeo-class SSKs.

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

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

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

**RCN takes delivery of first Upholder**

The Royal Canadian Navy (RCN) has taken delivery of, and commissioned, the first of four ex-RN Upholder class SSK.

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

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

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

**WR-21 engine to power Type 45 destroyers**

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

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

The Type 45 will replace the Royal Navy’s long-serving Type 42 destroyers and are due to enter service in the 2015-16 timeframe.

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

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

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

“The intercooled and recuperated WR-21 has already demonstrated over 25% annual fuel savings in mechanical drive configurations compared with existing simple cycle gas turbines,” said Jim Hupton, vice president of Northrop Grumman Marine Systems, a business unit of the company’s Electronic Sensors and Systems Sector (ES3).

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

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

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

**Malaysia leasing Dutch submarines**

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

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

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

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

**South Korea chooses Type 214**

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

HDW has already been involved in South Korea’s submarine building programme. Daewoo Heavy Industries is constructing nine of the German firm’s Type 209 design under license.
the water as possible. Malaysia's sudden turn around was initiated in 1997 when Singapore introduced its own submarine programme. The two 2,640-ton Zwaardvis-class submarines were delivered to the RNN in 1972, modernized in the late-1980s, and decommissioned in 1994-95. The Dutch Ministry of Defence sold the submarines to RDM in 1995. RDM were hoping that they could then sell the submarines on. A decision on weapons, torpedoes, and anti-ship missiles is yet to be announced.

The two 2,640-ton Zwaardvis submarines were delivered to the Royal Malaysian Navy in 1972. It is expected to take two years to bring both submarines back into service giving the Royal Malaysian Navy its first submarines.

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

Spain's first F-100 air warfare fighter enters the water at Ferrol. The ship is fitted with a Mk-11 VLS for Standard SM-2 anti-aircraft missiles as well as an Argos combat system, phased array radars and LM-2500 Gas Turbines making them very common to the RAN and USN.

Two views of the former HMAS ADRIOT after its final role as a target for RNZAF Skyhawks. (RAN)

The Harbour Master was keen to rid the harbour of the enormous debris field which must have existed from the war as an ASDIC training submarine for the British and Indian navies. Paying-off in Fremantle on April 10, 1945 it was handed over to the RAN for transfer to the Commonwealth Disposal Committee on June 21. K.XI was partially stripped in the Swan River at HMAS LEEUWIN II. which was the home of the wartime Naval Auxiliary patrol and merchant raider HSK KORMORAN on November 19, 1941 remains a mystery of the sea. The mists of time have diminished interest in what is arguably Australia's greatest maritime mystery. This mystery is compounded by the fact that the wreck of the KORMORAN has never been located either. Strangely enough, there is no record of an oil slick or the enormous debris field which must have existed from the 9500 tonne ship blowing-up, acknowledging the amount of timber and limed oil carried on the upper deck to enable her to alter her appearance.

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

Two divers, Jack and Terry Sullivan were tasked with removing the hull. They used 24 cases of plasstgel to blow the wreck into removable sections between July-August, 1957. Even today the rusty keel and pieces of corroding metal mark the K.VIII's final resting-place.

The second Netherlands submarine K.XI arrived in Fremantle on March 22, 1945 after spending most of the war as an ASDIC training submarine for the British and Indian navies. Paying-off in Fremantle on April 10, 1945 it was handed over to the RAN for transfer to the Commonwealth Disposal Committee on June 21. K.XI was partially stripped in the Swan River at HMAS LEEUWIN II, which was the home of the wartime Naval Auxiliary patrol and the peacetime Royal Freshwater Bay Yacht Club. Its 3.5-inch deck gun was donated to LEEUWIN II and today still stands in the ground of the yacht club.

The Harbour Master was keen to rid the harbour of the submarine and six weeks of toil saw it raised and further stripped for its final role as a target for RNZAF Skyhawks. (RAN)

By Vic Jeffery

There are at least 20 vessels resting in the silent depths off WA, some in known positions, others unknown, the famous World War II cruiser HMAS SYDNEY is being the most notable. SYDNEY's unexplained loss in mysterious circumstances with her entire crew of 645 is the most intriguing and one that continues to draw a great deal of public interest after almost 60 years. How a ship of SYDNEY's size could vanish, virtually without trace after sealing the fate of the German armed merchant raider HSK KORMORAN on November 19, 1941 remains a mystery of the sea. The mists of time have diminished interest in what is arguably Australia's greatest maritime mystery. This mystery is compounded by the fact that the wreck of the KORMORAN has never been located either. Strangely enough, there is no record of an oil slick or the enormous debris field which must have existed from the 9500 tonne ship blowing-up, acknowledging the amount of timber and limed oil carried on the upper deck to enable her to alter her appearance.

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FORREST. Its 220 volt, 2200 amp main electro motor was removed for installation on the new main Public Works slipway where it served faithfully into the 1980s—supplying DC power to ships in refit. After further stripping in 1943 the hull was towed out of Fremantle and sunk into Cockburn Sound where it was to be beached in Jervoise Bay and broken-up. However, the hull foundered 100 metres offshore and was abandoned. It remained there until 1957 when it was declared a navigational hazard with the increased shipping visiting the new Kwinana oil refinery.

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

- ADROIT (patrol boat): Originally Darwin-based this Attack-class patrol boat arrived at HMAS STIRLING on January 21, 1942, just a day before the German Raider KORMORAN with all hands. Her final resting place is still unknown.

- HMAS FARNCOMB using a Mk-48 torpedo exploding under the keel. sank in Fremantle Harbour. The submarine served out the war as a training vessel.

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- ALACRITY (naval tug and patrol vessel): One of the early links in naval history in WA, it was purchased on January 21, 1983 and officially handed over to the Jervoise Bay awaiting scrapping. A fierce gale in northern section of Garden Island to clear the fuel line and the anchors could not hold the ship. Drifting she struck an outcrop of rock and was holed, quietly sinking.

- The submarine served out the war as a training vessel.

- SC-751 (submarine cruiser): Not a lot is known about the loss of this US Navy submarine cruiser on June 22, 1943. It apparently run aground, was considered a constructive total loss, and was blown up by army engineers

- SDB-1325 (seaward defence boat): Entering service on August 8, 1944, it was recently retired and transferred to the Australian Clearance Diving Team Four on December 21, 1995. It has proved to be a highly successful fish attractant.

- GLADMOR (auxiliary patrol boat): Requisitioned on July 10, 1942 for service with the volunteers in the formation of the National Auxiliary Patrol, becoming HMAS Motor Boat GLADMOR, hull number 713. The 14 meter jarr-bulldozer vessel was armed with a machine gun and two depth charges located on her stern. The sturdy GLADMOR burst for hours before finally slipping beneath the waves.

- JUNEE (corvette): Commissioned on April 11, 1944. JUNEE saw war service in New Guinea waters before being decommissioned on March 28, 1945. It was sunk as a target off the WA coast on August 8, 1994 by Skyhawks of the RNZAF.

- ALACRITY (naval tug and patrol vessel): One of the early links in naval history in WA, it was purchased from a Melbourne company in 1911 and sent West to be used in the construction of the ill-fated Henderson naval base in Cockburn Sound. After World War II it was used as a unarmed patrol/inspection vessel with a secondary role as a minesweeper operating off Fremantle. Post-war the Henderson project was abandoned and ALACRITY was sold on December 16, 1942. Resold in 1931 it was stripped and moored in Careening Bay at nearby Garden Island.

- HMAS DERWENT paid-off at HMAS STIRLING on September 13, 1996 after a 26-year career in the RAN. WA-based since December 13, 1985, it was gifted to the WA Government, and the recently decommissioned HMAS OTAMA, may yet join these other ships in a watery grave off the Western Australian coast. For sale, a number of prospective buyers visited her, the last one being on the afternoon of April 14, 1992. Later that day without warning she suddenly settled in 10 metres of water in the small craft compound. Wedging herself between the pier and the pylons as though she did not want to go, the former SDB 1325 was cut up in situ by Navy divers.

- SIESTA (auxiliary patrol boat): A wartime loss with little detail being available, this Naval Auxiliary Patrol vessel, requisitioned on July 14, 1942, was destroyed by a petrol fire in Fremantle in October, 1943.

- SWAN (destroyer escort): Paid-off at HMAS STIRLING on September 13, 1946 after a 26-year career in the RAN. WA-based since December 13, 1985, it was gifted to the WA State Government after 26 years. Fierce competition from around the State saw Boarders from all over Australia and the SWAN was scuttled in Geographe Bay on December 14, 1999 where it has proven to be a great touring attraction.

- TORNES (destroyer escort): The last steam-powered naval vessel based in WA, TORNES was decommissioned after a 27 year career at HMAS STIRLING on September 11, 1998. Nine months later, in June 1999, TORNES was sunk as a target with a Mk 48 torpedo fired by the submarine HMAS FARNCOMB off the WA coast.

- URIBES (Army stores vessel): Originally a three-masted barque built in 1868, URIBES was re-built in 1934 and by 1940 was in service with the Australian Army as a stores carrier running between Fremantle and Rottnest Island where the Army had numerous gun batteries and installations. URIBES on her last trip could not safely go alongside in the strong winds and the decision was made to return to the mainland with her cargo of two army vehicles and 150 6-inch shells. Leaving the island, near Phillip Rock, her engine cut out and the anchors could not hold the ship. Drifting she struck an outcrop of rock and was holed, quietly sinking.

- The vehicles and some stores were salvaged and the vessel was declared a total loss on May 19, 1942.

- WALLAROO (corvette): Always known as a 'happy ship' HMAS WALLAROO was lost only 60 nautical miles west of Fremantle in a fatal midnight collision with the American merchant ship HENRY GILBERT COSTIN in 1943. WALLAROO had escaped the US ship and then, the JOHN G. WHITTIER to their destination point. With WALLAROO leading an overcast night, it signalled to the following ship to disperse. However, the freighter continued on at 11 knots and rammed before heading back to Fremantle. Three men were lost. Sister ship, HMAS DUBBO, was dispatched to WALLAROO's aid.
Committee of Account and Audit (JCPAA) examining
adventure for members of the Joint Parliamentary
The second half of 20XX provided travel and a taste of
shadow the suspect.

a motorised Indonesian fishing vessel.

northwards to the main area of activity and happened to be
approached from every and any direction, it is a remarkable
-over 14 million square kilometres (5.4 million sq. miles)
Given the enormous area Coastwatch is required to watch
fisheries and quarantine authorities.

passengers and 3 crew were taken into custody by
and the vessel towed to Darwin Naval Base where 101

the scene at short notice (the patrol boat had just arrived in
an easterly course.

receiving fresh water from DUBBO - and another warning
in the day however, it was boarded again and after
receiving fresh water from DUBBO - and another warning
-tumed and headed north for a short time before resuming
an easterly course.

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

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

Over 100 people were found to be aboard the fishing vessel, identified as the DARUMIN BADI and which the Master claimed was on a voyage that would bypass Australia. A warning against entry was made. So far as we could tell, there were no passengers or passengers or crews and efforts were made to have the ship and its wounded return to its home port.

The government also provided additional funds which among other things enabled aerial surveillance to be increased, both in operations and work on new electronic equipment, in effectiveness. Despite improvements however, it can be assumed efforts to penetrate Australia from the sea will still be possible in the near future, which will likely present a problem for the Australian government.

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

The DARUMIN BADI fired on the boarding party, and the vessel was towed to Darwin Naval Base where 101 passengers and 3 crew were taken into custody by Custom's authorities and the vessel was examined by Coastwatch.

The vessel was also examined by immigration officials. The vessel was also examined by immigration officials.

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The DARUMIN BADI was one of 33 vessels detected and apprehended by Coastwatch in the first nine months of 20XX. The DARUMIN BADI had been intercepted by DUBBO. A notice of detention was issued and the vessel was towed to Darwin Naval Base where 101 passengers and 3 crew were taken into custody by immigration officials. The vessel was examined by fisheries and quarantine authorities.

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

The PLAN consists of 268,000 personnel. Of that figure there are 7,000 marines, 25,000 Coastal Defence Guards and 25,000 in the PLAN Air Force (Fleet Air Arm). These numbers also include 4,000 conscripts who serve for three years.

While it has a large fleet of about 64 destroyers and frigates, 63 submarines, 87 missile boats and over 230 other attack and patrol craft, most are technologically inferior to ships of western designs that make up the fleets. The PLAN's main weaknesses are air defence, surveillance and in operating areas near the Chinese coast. The planned in-service date is not known.

**Ballistic Missile Submarines**

The strategic missile submarine force currently consists of two submarines. The first is a 6,500 ton nuclear powered Xia class (Type 092) SSBN which was launched in 1981 and commissioned in 1987. It is armed with 12 JL-1 SLBMs (Submarine Launched Ballistic Missiles) each fitted with a single 250 kT nuclear warhead with a 1.800 km range. The XIA is thought to have commenced a major update in 1995 which included fitting the improved JL-1A, SLBM with increased range, but this is yet to be confirmed. The submarine also has six 533 mm torpedo tubes and carries Yu-3 (SET-65E) homing torpedoes.

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

The first of four new 8,000 ton SSBNs, the Type 094, is expected to commence construction this year. There are also unconfirmed reports that up to 12 boats could eventually be built. There have also been reports of problems with the nuclear reactor power plant which could delay the eventual deployment date. This submarine will be armed with 16 of the new JL-2 missiles which have a range of 8,000kms. When deployed this missile will allow Chinese SSBNs to target positions of the United States from operating areas near the Chinese coast. The planned in-service date is not known.

**Attack and Patrol Submarines**

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

The first of the five 5,550 ton Han class (Type 091) SSNs was launched in 1974 but did not become operational until the early 1980s. The last was commissioned in service in 1990 and all are serving with the North Sea Fleet. They have six 533 mm torpedo tubes and can carry a combination of 20 Yu-3 (SET-65E) active/passive homing torpedoes, Yu-1 (Type 53-51) torpedoes and J18-2 (C-801) ASM (Anti-Ship Missiles). The Han are noted for their problems which include high levels of internal radiation. Apparently crews usually spend some time in hospital between cruises recovering from mild radiation poisoning. Also, their inability to fire missiles while submerged limits their wartime effectiveness. The first pair were extensively refitted in the late 1980s and included the installation of French designed sensors. The next pair completed a midlife earlier this year. At least four of the class are currently operational.

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

To complement its other indigenous submarine building programmes, the PLAN has purchased four Kilo class SSKS from Russia. These 3,800 ton submarines represents a huge advance in technology over other Chinese submarines as they are considerably more quiet, have powerful sensors and are well suited for operations in confined and shallow waters. China purchased two of the earlier Type 877 Kilos in 1995 and two of the more advanced Type 880 in 1998 and 1999 with all based with the East Sea Fleet. The first pair have been suffering from propulsion/battery problems due to cost cutting on the original specifications. Featuring a double hull and an outer covering of sound damping tiles, they have six 533 mm torpedo tubes and carry a combination of 18 TEST 71/64 guided torpedoes and passive wake homing torpedoes. Some may also be armed with an SA-N-4 air- aircraft missile launcher in the fin. Reports suggest that China has agreed to buy a further six of this class and are negotiating to transfer the technology for Chinese construction. It is also possible that follow-on orders may involve the new Russian Atom class SSKs.

The Song (Type 030) class is the first indigenous Chinese design using a teardrop hull and sound damping tiles. It also incorporates a German propulsion system and a French designed sonar and was said to be as quiet as an American Los Angeles-class. Overall, their technology is equivalent to the international level of the early 1980s. Continued production of the Ming class suggests that there have been problems with the Song class and various upgrades are reported to be under development, possibly learning from experience gained from the Kilo's. The first Song was launched in 1994 and commissioned in 1999. Two more are expected this year ahead of what is expected to be series production. They have six 533 mm torpedo tubes for a combination of Yu-4 (SS-A60) homing torpedoes and Yu-5 (Type 53-51) torpedoes and YJ-8-2 (C-801) ASM (Surface to Surface Missiles). The 2,100 ton Ming class (Type 035) is basically a remodeled Soviet Romeo. While these submarines are obsolete by modern standards, they are useful for ASW training and coastal patrol duties. Construction continues to provide an inexpensive replacement for the ageing Romeo class. The first three Mings were built in the 1970s and have since been retired. After a redesign, series production commenced in 1987. The first 15 are operational with the South Sea Fleet and two are with the South China Sea Fleet. An additional two were launched in 1999 and are not yet operational but expected to deployed with the South Sea Fleet as well. The Ming's have eight 533 mm torpedo tubes, six forward and two aft, for 16 torpedoes of the Yu-4 (SS-A60) passive homing type and the Yu-5 (53-51).
Three Ming class SSNs on the surface. The Ming is basically a remodelled 28 Russian Roman class submarine and provides the PLAN with a cheap training tool and replacement for the Romeo. A Russian Sovietov class destroyer. Originally designed to counter USN carriers and frigates, the PLAN has two new and acquiring two second hand Soviet navies bringing their total to four of these powerful ships.

A Jiangwei class frigate. Note the large missile launcher behind the main gun for the HQ-61 anti-aircraft missile system. The HQ-61 is being replaced on newer ships of the class with the more capable French made Crotale (HQ-7). One of the 16 ships is in service split between the various fleets. The principle mission of the class, anti-aircraft, is for which it is armed with two triple launchers for six HY-2 (C-201) (CSS-C-3 Seersucker) SSM with a range of 95 ksm, or eight C-802 (CSS-N-8 Saccade). All but two have no A/S system, instead, having four twin 37 mm or 37 mm anti-aircraft gun mounts. Two ships have been fitted with the HQ-7 launcher in place of the aft gun mount which is expected to be fitted to the rest of the class. They also have two twin 130 mm gun turrets, two triple 324 mm torpedo launchers, two QP 2500 12 tube fixed A/S mortars, two to four depth charge projectors and sea mines. Two ships have been modified to a Type II standard with a helicopter deck and a hangar for two Zhi-9A helicopters in place of the aft 130 mm gun turret and anti-aircraft guns. Electronics also vary in some of the later ships. The last ship built was extensively modernised, primarily for ASW missions, and referred to as a Type III. It has eight YJ-1 (C-801) (CSS-N-4 Sardine) SSM’s and provision for the CY-1 anti-submarine missile.

A French designed Crotale anti-aircraft missile streaks from its launcher on a Laforey class destroyer. Only the Sovremenny and the Luhai could be considered modern.

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

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This force is backed up by 14 H-5 (Tu-16 'Badger') medium bombers, which have a combat radius of 750 miles and can also carry anti-ship missiles. Around 40 of the new Chinese developed JH-7 twin engine attack bombers are thought to be operated by the PLANAF. This aircraft is considered to be roughly the same class as the Tomado and Su-24 'Fencer' strike aircraft. It has a combat radius of 400 miles and can carry a heavy load of guided and unguided munitions. There are also 45 elderly H-5 (IL-28) torpedo bombers of dubious value.

Air defence is provided by 96 J-1 (MiG-17), 330 F-6 (MiG-19), 330 F-7 (MiG-21) and 33 J-3 (Chinese development based on MiG-21) air defence fighters. Most of these aircraft are so obsolescent it is considered doubtful if they could play any function at all in a conflict situation. From 2001 the new J-10 twin engine fighter will start entering service to replace many of the older fighters. The J-10 was built with Israeli assistance and is loosely based on the cancelled Israeli Lavi. A naval version is expected to deploy on the country's aircraft carrier. Also, as mentioned earlier, the Chinese decision to purchase the Su-XM03K could be for deployment on the future carrier.

Conclusion

When measured by number of units and personnel the PLAN is impressive. It is the world's sixth largest Navy (after the US, Russia, UK, France and Japan), but is more backward than any other major Navy with very low technological, maintenance and operational standards. Its efforts to modernise are slow with small amounts of equipment imported from France and Russia. China has been frustrated by Russia's preference for sales of complete systems rather than technology transfers. The inferior quality of Chinese technology is highlighted by the experience of Thailand which purchased six P-3C class frigates in the 1980s. The workmanship was so poor that the first four ships delivered had to be overhauled as soon as they arrived in Thailand. The diesel engines were so unreliable that the ships were confined to coast guard duties. The last pair were delivered as empty hulls so the Thai's could fit western propulsion systems and weaponry.

The most important element of the PLAN is its submarine force which, except for the few Kilo's and possibly the Song's, is mostly non-operational and technologically backward, despite the presence of SSN in the fleet. Despite all the hype about the modernisation of China's armed forces, including the PLAN. China's offensive capabilities remain quite limited and will continue to be for some time, at least till after 2010. Many Chinese vessels rarely put to sea and military manoeuvres are smaller and less frequent than those of most major powers, which raises doubts about China's ability to coordinate and successfully execute complex offensive operations. By contrast, Taiwan, has the world's seventh largest surface fleet, ranking just behind China, but arguably more powerful. In the last decade or so Taiwan has added 24 new frigates to its fleet and plans to replace another 13 old frigates and destroyers in the next few years. Taiwan also includes four US Aegis destroyers. Taiwan's lack of submarines (only two in service) compensates for China's weak anti-submarine warfare capabilities, but the PLAN would be almost helpless to defend itself from a strong submarine force. Even in the South China Sea the PLAN would find it difficult if not to confront the modern and expanding Navies and air forces of Thailand, Malaysia and Singapore.

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

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

"SEA OUR SAVIOUR"

BY REAR ADMIRAL K. Sridharan AVSM (Retd)

The United States Navy originally published a chronology of its operations in World War II in 1955. Titled "US Naval Chronology, WW II", it is now long out of print. It focused on what were then defined as critical and decisive events, strangely omitting the US submarine campaign completely. Auxiliaries and amphibious ships and their loss or damage fared no better and was also ignored.

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

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

Few people would realise that the first USN torpedo bomber crash was in March 1920 when the, Dear Scott-Paine PT-9, it was off-loaded from the merchant ship SS PRESIDENT ROOSEVELT in New York Harbor on 5 September, 1920. It was the prototype for the MTB's constructed by the Electric Boat Company.

I was surprised to read where the USN destroyer EDALL was damaged by the explosion of its own depth charge. The submarine in HMAS DELORaine's Channel Clarence Strait, one of the approaches to Darwin on 23 January 1942. This is of course was three days after BENGAL'S successful contact with the Australian corvettes DELORAINE, KATOOMBA and LITHGOW and sunk the large Japanese submarine I-124 off Darwin.

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

This is first class reference book and although relating to the US Navy, contains many references of Australian actions at sea and in the air during World War II. Ninety carefully selected US Naval Archive black and white photographs support it. There is a very graphic shot of a sailor training a fire hose through the roof of a turret onboard the cruiser USS SAVANNAH on 11 September 1943. It had taken a direct hit from a German rocket bomb off Salerno, while his shipmates treat casualties laid out on the deck.

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

The book, must rate as one of the best chronologies I have come across. Crammed with information, it is worth every cent of its price tag.
The Navy League:

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 develop capability to defend itself. Particular attention to maritime defense. 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 defense is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication to our allies.
- Supports the ANZUS Treaty and the future reintegration of New Zealand as a full partner.
- Urges a close relationship with the nearest ASEAN countries, PNG and the island States of the South Pacific.
- Advocates a defense capability which is knowledge-based with a prime consideration given to intelligence, surveillance and reconnaissance.
- Believes there must be a significant deterrent element in the Australian Defence Force (ADF) capable of powerful retaliation at considerable distances from Australia.
- Believes the ADF must have the capability to protect essential shipping at considerable distances from Australia, as well as in coastal waters.
- Supports the concept of a strong Air Force and highly mobile Army, capable of island and jungle warfare as well as the defense of Northern Australia.
- Supports the acquisition of AWACS aircraft and the update of RAAF aircraft.
- Advocates the development of amphibious forces to ensure the security of our offshore territories and to enable assistance to be provided by sea as well as by air to friendly island states in our area.
- Advocates the transfer of responsibility, and necessary resources, for Coastal Surveillance to the defense force and the development of the capability for patrol and surveillance of the ocean areas all around the Australian coast and island territories, including in the Southern Ocean.
- Advocates the acquisition of the most modern armaments and sensors to ensure that the ADF maintains some technological advantages over forces in our general area.
- Advocates measures to foster a build-up of Australian-owned shipping to ensure the carriage of essential cargoes in war.
- Advocates the development of a defense industry supported by strong research and design organizations capable of constructing all needed types of warships and support vessels and of providing systems and sensor integration with through-life support. As in the RAN, the League:
  - Supports the concept of a Navy capable of effective action off both East and West coasts simultaneously and advocates a gradual build-up of the Fleet to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.
  - Believes it is essential that the destroyer/frigate force should include ships with the capability to meet high level threats.
  - Advocates the development of afloat support capability sufficient for two task forces, including supporting operations in sub-Antarctic waters.
  - Advocates the acquisition at an early date of integrated air power in the fleet to ensure that ADF deployments can be fully defended and supported from the sea.
  - Advocates that all Australian warships should be equipped with some form of defense against missiles.
  - Advocates that in any future submarine construction program all forms of propulsion, including nuclear, be examined with a view to selecting the most advantageous operationally.
  - Advocates the acquisition of an additional 2 or 3 Collins class submarines.
  - Supports the development of the mine-countermeasure force and a modern hydrographic/oceanographic fleet.
  - Advocates the retention in a Reserve Fleet of Naval vessels of potential value in defence emergency.
  - Supports the maintenance of a strong Naval Reserve to help crew vessels and aircraft in reserve, or taken up for service, and for specialized tasks in time of defence emergency.
  - Supports the maintenance of a strong Naval Reserve Cadet organisation.

The League:

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

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

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THE NAVY, the magazine of the Navy League of Australia. Its Your Move.
New Ships for a New Era

Innovation is the future, so we have designed the ships for the twenty first century.
HISTORICAL

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

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

The Navy League of Australia cordially invites you to join us in what we believe to be an important national task.
MEMBERSHIP
Any person with an interest in maritime affairs, or who wishes to acquire an interest in, or knowledge of maritime affairs and who wishes to support the objectives of the League, is invited to join.

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

- Keeping before the Australian people the fact that we are a maritime nation and that a strong Navy and a sound maritime industry are indispensable elements of our national well-being and vital to the freedom of Australia.

- Promoting defence self reliance by actively supporting manufacturing, shipping and transport industries.

- Promoting, sponsoring and encouraging the interest of Australian youth in the sea and sea-services, and supporting practical sea-training measures.

- Co-operating with other Navy Leagues and sponsoring the exchange of cadets for training purposes.

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

- By including in its membership leading representatives of the many elements which form the maritime community.

- Through soundly-based contributions by members to journals and newspapers, and other media comment.

- By supporting the Naval Reserve Cadets, and assisting in the provision of training facilities.

- By encouraging and supporting visits by recognised world figures such as former United States Chiefs of Naval Operations and Britain's First Sea Lords.

- By publishing The Navy, a quarterly journal reporting on local and overseas maritime happenings, past, present and projected.

- By maintaining contact with serving naval personnel through activities arranged during visits to Australian ports of ships of the Royal Australian and Allied Navies.

- By organising symposia, ship visits and various other functions of maritime interest throughout the year.

Member participation is encouraged in all these activities.

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

NEW SOUTH WALES DIVISION: GPO BOX 1719, Sydney, NSW 1043.
VICTORIAN DIVISION: PO Box 1303, Box Hill Delivery Centre, Vic 3128.
QUEENSLAND DIVISION: PO Box 402, Roma Street, Brisbane, QLD 4003.
SOUTH AUSTRALIAN DIVISION: GPO Box 1529, Adelaide, SA 5001.
TASMANIAN DIVISION: C/- 23 Lawlor Road, Attadale, WA 6156.

If you live in the Australian Capital Territory or the Northern Territory, please post the form to the Hon Secretary of the New South Wales or South Australian Division respectively.

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

THE NAVY LEAGUE OF AUSTRALIA
Application for Membership

To The Hon. Secretary
The Navy League of Australia
Division

Sir or Madam,
I wish to join the Navy League of Australia, the objectives of which I support, and I enclose a remittance for $24.20 being my first annual subscription to 30 June next.

Name
(Mr)
(Mrs)
(Ms)
PLease print clearly
(Rank)
Street
Suburb
State
Postcode
Signature
Date

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JOIN THE
NAVAL RESERVE CADETS

If you are between the ages of 13 and 18 years:

The Naval Reserve Cadets provide for the spiritual, social and educational welfare of boys and girls and help to develop them in character, a sense of patriotism, self-reliance, citizenship and discipline.

Uniforms are supplied free of charge.

Cadets are required to produce a certificate from their doctor to confirm they are capable of carrying out the normal duties and activities of the Cadet Corps. If injured while on duty, Cadets are considered for payment of compensation.

Parades are normally held during a weekend day or on Friday evening.

The interesting syllabus of training covers a wide sphere and includes seamanship, handling of boats under sail and power, navigation, physical training, rifle shooting, signalling, splicing of ropes, general sporting activities and other varied subjects.

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

Cadets, if considering a sea career, are given every assistance to join the Royal Australian Navy or Mercantile Marine, but there is no compulsion to join these Services.

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

**NEW SOUTH WALES:** Cadet Liaison Officer, HMAS Penguin, Middle Head Road, Mosman NSW 2088. Telephone: (02) 9960 0560.

**QUEENSLAND:** Senior Officer NRC, Naval Support Office, Bulimba Barracks, PO Box 549 Bulimba OLO 4171. Telephone: (07) 3215 3512.

**WESTERN AUSTRALIA:** Cadet Liaison Officer, HMAS Stirling, PO Box 228, Rockingham WA 6168. Telephone: (08) 9550 0486.

**SOUTH AUSTRALIA:** Cadet Liaison Officer, Naval Support Office, Keswick Barracks, Anzac Highway, Keswick SA 5035. Telephone (08) 8305 6708.

**VICTORIA:** Cadet Liaison Officer, Naval Boatshed, Nelson Place, Williamstown VIC 3016. Telephone: (03) 9399 9926.

**TASMANIA:** Cadet Liaison Officer, Naval Support Office, Anglesea Barracks, Locked Bag 3, Hobart TAS 7001. Telephone (03) 6237 7240

**AUSTRALIAN CAPITAL TERRITORY:** Commanding Officer, TS Canberra, HMAS Harman, Canberra ACT 2600. Telephone: (02) 6280 2762

**NORTHERN TERRITORY:** Cadet Liaison Officer, HMAS Coonawarra, PMB 11, Winnellie NT 0821. Telephone: (08) 8980 4446.

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THE NAVY

All enquiries regarding the Navy Magazine, subscriptions and editorial matters should be sent to

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NAVY LEAGUE OF AUSTRALIA
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UAVs and the RAN

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

The Navy

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THE NAVY

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LSS News

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

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

The Current Market

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

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

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

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

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

Horizon (France & Italy)

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

Air warfare weapons of the Horizon consist of three 76mm Super Rapid guns and the PAAMS (Principle Anti-
As the image from the surveillance drone pulled back, the could see the boats suddenly scattering, each taking a separate course towards the shore. Seconds later, one, then another. Smoke trails lifted from the fleeing boats. "Looks like Israel was right about the pirates having shoulder launched SAMs" noted the XO. "The help wouldn't have lasted long there".

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

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

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

"Fire!"

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"Well done everyone. Order the surveillance Eagle Eyes to wake up their assignments when the merchant ships and let bring the attack home," the Captain ordered.

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

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

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

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

Once again naval aviation stands on the threshold of a new era, similar in scope and opportunity to that which saw the advent of aviation in the 20th century. The linking of sea and air power with the advent of the Twin Tailed Skua, in particular, the US, have invested heavily in the development of Marine AirGround Task Force (MAGTF). The combination of the attack, intelligence, communications and logistics to the naval battle, as force multipliers for future maritime operations and opening new avenues for future maritime achievements in peace and war.

Counter to the pirates who had managed to get on board, the SAS unit was ordered. "Fire!"

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

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

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

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

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

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

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

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

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

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

The return of UAV's to the maritime context took place in the early 1990s, with the deployment of the Israeli-built Pioneer remotely piloted reconnaissance vehicle aboard the battleships USS MISSOURI and WISCONSIN during the Gulf War. The Pioneers were used to provide real time target location and gunfire observation for the battleship's 16-inch guns. A task they performed extremely successfully.

The Pioneer was launched and recovered from the battleship's quarterdeck - a linear descendant of the catapult-launched Kingfisher floatplanes which each ship carried during the Second World War. The Pioneer has the added advantage of not subjecting aircrew to the hazardous environment over a modern battleship, today's 5 AMs (Surface to Air Missiles) have rendered almost too dangerous.

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

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

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

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

A single Global Hawk sortie would also provide a comprehensive monitoring capability over Australia's vast northern coastline, locating and tracking vessels of concern and warning Navy or Customs patrol boats to an intercept well before the offending vessels reach the coast. In an era where drug and people smuggling is on the increase and competition for diminished maritime resources leads to poaching within Australia's 200km Exclusive Economic Zone, high endurance UAV's such as Global Hawk provide an answer. A continuous maritime surveillance capability, which manned aircraft could match under optimum cost, can be provided day and night, over vast distances and for long durations, by a single detachment of Global Hawk UAVs.

Tactical Operations

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

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

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

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

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

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

The aircraft could also measurably add to the ship's ability to defend itself. Armed with infrared homing missiles such as Stinger or Sidewinder, they could be deployed to neutral shipping in crowded waterways.

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The RAN UAV Option

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

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

Whilst the aircraft carrier HMAS MELBOURNE operated a range of fixed and rotary-wing aircraft to conduct surveillance and reconnaisance tasks, a similar but much smaller capability can now be operated from a frigate, and at a vastly reduced cost.

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

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

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

The USN MCSM Bell tilt rotor Eagle Eye UAV during flight trials. The Eagle Eye can take off and land vertically with its engine mount raised forward to provide high speed using nose fire. (Bell)

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

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

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

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

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

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

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Flash Traffic

Sea of white at Fleet Base East

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

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

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

The personnel, drawn from ships in the Sydney region, were back-dropped by HMAS Ships BRISBANE and MELBOURNE (a乳房).

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

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

The Sydney Divisions, which have been and will be replicated for ships based at Fleet Base West, Darwin and Cairns, began at 7:30am as a hedge against heatwave conditions experienced in the time in Sydney.

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

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

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

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

By Graham Davis, NAVY NEWS

Sea King turns 25

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

It was on this date in 1976 that HMAS SUCCESS was acquired with 10 Sea King Mk-50 aircraft, replacing the Wessex 318, greatly increasing its capabilities in the anti-submarine, surface surveillance and utility roles.

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

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

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

The Sea Kings play a prominent role in high profile domestic disaster relief operations as well.

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

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

The squadron will continue to embark flights on board HMAS SUCCESS TOBRUK and the two LPA’s HMAS MANGORA and KANIMBLA.

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

ARUNTA wins Gloucester Cup

The 3600 tonne frigate HMAS ARUNTA is in Sydney for the Governor General, Sir William Drane, to formally present the trophy on the deck of the ship at Fleet Base East.

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

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

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

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

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

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

The Duke of Gloucester, then the Governor General of Australia, first presented the cup in 1947. It has been a much sought after award since.

By Graham Davis, NAVY NEWS

Midshipman for a day

Naval Reserve Cadet Chief Petty Officer, Naomi Ambrose became a 'Midshipman for a day' at HMAS CRESWELL on Friday, 9 February 2001.

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

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

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

**Denmark, Norway and Sweden agree on joint Submarine**

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

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

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

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

The feasibility studies have shown that:

- it is fully possible and very advantageous to jointly procure the next generation of submarines.
- harmonised requirements and a common submarine architecture produced in a larger series, presents a potential for considerable reduction in national development and procurement cost.
- similar submarines provide the foundation for co-operation in areas like maintenance and training, which can lead to reduction in national life support cost.
- a joint programme of this magnitude will contribute to the sustenance of important national industrial competence and to long term co-operation between Scandinavian industries.

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

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

**LHDs for France**

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

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

THE NAVY

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

The design draws on civil sector standards and technologies to achieve significant cost reductions. The NTCD design will feature electric propulsion, a first for a French Navy warship. Four 2.5MW diesel generator sets will power the ship’s propulsion and services.

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

The maximum speed will be 20-24kt. Its range (at 15kt) will be 11,000nm, with a maximum endurance of 45 days. The NTCD will also be fitted with a bow thruster to aid position keeping or manoeuvring in close confines.

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

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

- 16 to 20 heavy helicopters;
- Major control and command centres meeting the latest communication standards;
- Armoured vehicles;
- 450 troops, marine and commanders;
- 2 hovercraft (LCAC class) or 4 LCM landing craft.

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

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

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

As the NTCD is likely to be under the cover of escorts the ships’ self-defence suite will be limited to two short-range missile systems, two 30mm guns and four machine guns. A small action information organisation will be installed for real-time tactical picture compilation and situation assessment. One 3-D surveillance radar will be fitted.
General Dynamics/Lockheed Martin
DD 21 Leads Way To
Navy After Next

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

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

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

General Dynamics and Lockheed Martin said that their multi-mission ship will attain littoral maritime costs to the Navy and the taxpayer.

Martin said that their multi-mission ship will be reduced by 42 percent. In December, will be for a ship with a complement of more than 70 percent compared to conventional ships. With its reduced topside design. The ship will defeat any air threat. With its reduced topside design. The ship will defeat any air threat. With its tumblehome hull and integrated topside design. The ship will defeat any air threat. With its reduced topside design. The ship will defeat any air threat. With its tumblehome hull and integrated topside design. The ship will defeat any air threat. With its tumblehome hull and integrated topside design. The ship will defeat any air threat. With its tumblehome hull and integrated topside design. The ship will defeat any air threat.

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

Equipped with Aegis LEAP Interceptor (ALI) computer programs and hardware. LAKE ERIE launched an SM-3 missile demonstrating third stage airframe stability and control through nominal kinetic warhead (KW) fourth stage separation. The SM-3 is the U.S. Navy's new exoatmospheric missile developed to counter Theater Ballistic Missile (TBM) threats outside the atmosphere. The primary mission of the Navy Theater Wide Ballistic Missile Defense system is to provide defense in depth to the threat of TBM attack for US and allied forces overseas, including vital areas, critical military assets, population centers and large geographic regions.

RADM Rodney P. Rempi, assistant Chief of Naval Operations for Missile Defense, deemed the FTR-1A test a 'major positive event' in the Aegis LEAP Interceptor program. "It's time to deliver what we've promised on the test range," Rempi stated. "Engineering and test teams derived from this test will definitely move us along the SM-3 path to intercept."

The FTR-1A mission flew a guided trajectory within the range safety boundaries. The test was strictly an evaluation of SM-3 airframe stability and control through nominal KW separation. A target was launched to verify launch procedures for future firings; to verify Aegis Weapon System fire control data and tracking performance; and to test engineering data from the missile, including the KW infrared seeker, all in preparation for follow-on flight missions. Program engineers will analyze the data and incorporate changes based on their findings, as required.

Newport News to build new Nimitz-class carrier

Newport News Shipbuilding (NYSE: NNS), has announced that it has been awarded a contract by the USN for the design and construction of the tenth Nimitz-class aircraft carrier, CVN-77.

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

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

The integrated warfare system on CVN-77 will incorporate a new multifunction radar system and an open architecture information network that will enable new technology insertion in an efficient and cost-effective manner. "Our program objectives for the next class of carriers include reducing the total ownership cost of the ship, reducing crew requirements and improving certain operational capabilities," said NNS Vice President of Technology Development and Carrier Fleet Support Irwin F. Edenson. "CVN-77 is both the last ship of the Nimitz class and the first step in the evolutionary process of developing CVNX."

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

Keel laid for first RN Astute class SSN

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

A computer generated image of the new RN Astute class SSN (BAE Systems)
A period of quite intensive public debate followed, mostly proposals were available for public scrutiny in June 1986. Defence Front disappeared from the headlines. It re-appeared briefly – the Government's Defence White Paper – Defence 2(XX): Our old Australian Naval Station, first defined in 1859, and Government did not reduce defence spending “a few weeks any defence paper has allowed such public involvement assumed this contributed to the thinking of those of Australia's defence capabilities conducted by a small all too reminiscent of the ill-fated 1976 Defence White Paper, and "The While Paper was preceded by a review of Australia's defence capabilities conducted by a small team headed by Mr. Paul Dibb of the Australian National University. The review was carried out over a period of some twelve months and the Dibb conclusions and proposals for a modernised Australia's maritime forces were available for public scrutiny in June 1986. A period of quite intense public debate followed, mostly within the defence orientated community, and it might be assumed this contributed to the thinking of those responsible for the White Paper. The White Paper is difficult if war defence paper has allowed such public involvement and it is to Mr. Dibb's credit that it has happened." The writer recalls visiting Paul Dibb in 1985 with Admiral Thomas B. Hayward, retired professional head of the US Navy who was visiting Australia by invitation, and the long and constructive discussion on an American perception of Australia's defence needs.

Unlike the Hawke Government in 1987 the Howard Government did not reduce defence spending "a few weeks later" and is unlikely to do so in the remainder of its second term of office. The 1987 White Paper clearly accepted regional responsibilities and delineated the area of "direct regional responsibilities" and delineated the area of "interest and region in which Australia's interests lay within the area, which was the focus of the Dibb report. The 1987 White Paper was not only a Defence Paper, but a Defence White Paper, and "The While Paper was preceded by a review of Australia's defence capabilities conducted by a small team headed by Mr. Paul Dibb of the Australian National University. The review was carried out over a period of some twelve months and the Dibb conclusions and proposals for a modernised Australia's maritime forces were available for public scrutiny in June 1986. A period of quite intense public debate followed, mostly within the defence orientated community, and it might be assumed this contributed to the thinking of those responsible for the White Paper. The White Paper is difficult if war defence paper has allowed such public involvement and it is to Mr. Dibb's credit that it has happened." The writer recalls visiting Paul Dibb in 1985 with Admiral Thomas B. Hayward, retired professional head of the US Navy who was visiting Australia by invitation, and the long and constructive discussion on an American perception of Australia's defence needs.

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TRITON, FUTURE SURFACE COMBATANT?

By Iain Ballantyne

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

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

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

THE RV TRITON’s operator - the Defence Evaluation and Research Agency (DERA) - which is part of the UK’s Ministry of Defence - has hailed her as being "possibly the most significant design shape change in warship hulls since the advent of the ironclads." Great interest in the TRITON will definitely be the shape of things to come, there is something about her even now which indicates she will be the first of a new breed rather than just a curious one-off.

There is a great deal of proving it. Mr Short points out that structural questions are only half the game: "There are also a number of issues which come under the broad heading of seaworthiness which need to be explored for a trimaran hullform to be accepted by the Royal Navy. Features such as seakeeping, boat handling, upper deck operations and manoeuvring must all be evaluated before a fleet of trimaran warships can be contemplated seriously."

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

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

"Building this ship was a real pleasure and achievement," said Mr Carter. Showing off the amazing array of computers and other monitors in the TRITON’s Instrumentation Compartment, Mr Carter revealed they are connected to 750 sensors in the hull of the TRITON.

Mr Carter has every confidence in the design: "I have no doubts she will be up to the job."

The side hulls of the trimaran are naturally the key to its success or failure. Because of them the vessel is extremely stable. She has a huge upper-deck area and creates less drag. In two parts, the aft and fore parts being brought together virtually complete.

A computer generated image of a US Coast Guard configuration for the TRITON design. Note the large helicopter pad that a tri-hulled vessel can provide.

The image depicts a Bell 609 tilt-rotor. Sikorsky and UAV operations from the ship. (DERA)

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

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Mr Carter agreed the TRITON is truly significant: "It is the new dreadnought battleships. TRITON is a stepping stone towards individual living spaces for smaller crews.

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

During my trip into the Solent, Vosper Thornycroft Executive Project Manager Mike Carter acted as guide for a tour around the remarkable vessel.
A bow on image showing the unique tri-hulled arrangement of TRITON. (DERA)

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

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

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

By Dallas Stow

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

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

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

The biggest constraint on the development of aircraft carriers in the IJN was the Washington Naval Treaty of 1922, designed to curtail the arms build-up that grew out of a post-WW II air of confrontation between Japan and the West. Under the Treaty, Japan was allowed to construct up to 315,000 tons of battleships as against the 525,000 that the US and the UK could each construct. Japan’s response was to convert two battle cruisers into carriers, and the AKAGI (with about 60 aircraft) and the KAGA (about 90 aircraft) were the result. These initial conversions were not particularly successful but they did provide the IJN with vessels upon which they could test techniques and ideas, such as arrangements for flight decks, bridges, islands, funnels, etc. For instance, the AKAGI originally had three flight decks forward, with the idea that she could launch and recover aircraft simultaneously. The aircraft in service at the time were light and did not need as much room to take off as later models did. Her top flight deck had a hump in the middle across the beam to allow aircraft to take off downhill and recover uphill, and she was also produced without an island or a bridge. The AKAGI was in many ways the first of all but three classes of IJN carrier: funnels which came out of the starboard side just under the flight deck and pointed downwards. Reflecting the inter-war doubts as to a carrier’s true role, she also carried 8-inch guns in turrets, six of which were in casemates close to the water-line on either side reflecting her original hull design as a battle-cruiser. Both the AKAGI and the KAGA had bows open under the flight deck. Most IJN carrier designs retained this characteristic while the RN and the USN moved to closed-bow designs for their attack carriers. Some historians contend that both the AKAGI and the KAGA exceeded their declared tonnage under the Washington Treaty by about three to four thousand tons.

As vessels under 10,000 tons were exempted from the Treaty, the IJN then set about constructing a carrier that would be under that limit. The RYUJO was the result. Originally designed to be 8,000 tons and carrying 24 aircraft, a second hangar was added to double the number of aircraft she could carry. This made the vessel too heavy; she suffered from instability and a tendency to dig in her bows in heavy seas. The AKAGI, KAGA and RYUJO became the test beds for the development of aircraft carrier operations in the IJN (and were all later heavily modified). The Treaty continued to restrict the IJN’s construction
down the starboard side of the flight deck of which there were three as seen battle cruiser. She has no island bridge superstructure and her funnel runs The UN carrier KAGA. Like her sister AKAGI, she was modified Irom a of power that characterised the attack on Pearl Harbor, IJN Japan. Then there would be a final, decisive battle between submarine attacks as it sailed across the Pacific to attack than the USN. For instance, despite the forward p:ojection decision not to have armoured light decks. Another UN's adoption and design of the aircraft carrier. The IJN from land-based heavy bombers influenced he IJN through the Panama Canal. As well, the lack of a threat UN's carriers was it) operate in the Pacific and in South developments in naval aviation in the RN and the USN, led own experience in WWI and through observing ways different to those originally envisaged by their Yamamoto ceaselessly and enthusiastically promoted naval aviation, encouraging men to join the air arm and headed the Naval Aviation Department in 1935-36. Yamamoto went on to command the First Carrier Division in 1933-35 Yamamoto was particularly notable as a keen influence on carrier air power. He had developed a keen interest in air power during a posting in the US during WWI. and studied reports of air actions and visited aircraft factories. In 1923-25 he was executive officer of an air training base and, while Naval Attache in Washington in 1925-28, his thinking was further influenced by Brigadier Billy Mitchell. By that time he was convinced that air power would become the mainstay of the IJN. He commanded AKAGI in 1928-29, and from 1930 to 1933 served as Director of the Technical Division (a position he asked for after returning from the 1930 London Conference) where, at his urging, the IJN sponsored a competition in 1932 for design of a long-range, twin-engined bomber capable of carrying a large torpedo. He went on to command the First Carrier Division in 1933-35 and headed the Naval Aviation Department in 1935-36. Yamamoto ceaselessly and enthusiastically promoted naval aviation, encouraging men to join the air arm and develop carrier aircraft in the quantities and in the time needed.-output was paying dividends, and the US turned out not only more aircraft but more capable aircraft than Japan did, or could. The price paid for the Zero's combination of the manoeuvrability of a biplane with the rate of climb of a monoplane was a weak airframe, no self-sealing fuel tanks, and no armour protection for the pilot. It was this combination of increasingly outclassed aircraft and growing numbers of trained aircrew as quickly as it could produce better aircraft in the quantities and in the time needed, coupled with the inability to train aircrew in time, that contributed the most to the loss of the IJN's carrier fleet. The IJN's inability to train enough crews was, in a way, the result of its excellent training program. The training was too intense and rigorous that it took too long. The result was that the IJN produced only 100 pilots each year in the decade before WWII. While the IJN entered the war with superior crews (better trained with combat experience in China), once these crews were lost at the battles of the Coral Sea and Midway, the IJN could not make up the numbers of trained aircrew as quickly as it could produce aircraft for the war. As the number of trained aircrew on board carriers were increasingly poorly trained, with some going on operations without ever having taken off or landed on a carrier. Yamamoto also suffered from an inability to compare the results of carrier innovation with other Navies. That, is, the influence of the USN's experiences during manoeuvres where carriers were used to conduct mock attacks against the Panama Canal and Pearl Harbor. With increased naval aviation in the US, the IJN on one side and the IJN on the other, communication ceased and the IJN could no longer benefit from the experience of these US navies. The RN and the USN continued to share operational experience, as well as information on technical innovations such as deck armour, landing mirrors, catapults, etc. The effect was that the IJN's carriers, for all their good design points, suffered from some serious design flaws. The flight deck on one side and open hangars were poorly protected aviation gasoline storage and fuel line: weathers. Like the USN, the IJN was not subjected to criticism from nationalism, but to a greater degree. At the higher level, this was exemplified by the intense rivalry between the IJN and the Army. Each developed its own air arm, and while there was little or no cooperation between them until after the deteriorating war situation forced the formation of a combined Army-IJN command of air units with naval missions in 1944, some 25 years after the US had established the Joint Board on Aeronautics. As well, the submarine, aviation and surface ship communities of the UN did not interact at lower organisation levels. Doctrine and tactics were integrated at high command levels, but the higher level tactics were not integrated between fleet staffs and a general staff in Tokyo. As well, the UN did not engage in the type of criticism and analysis needed to identify strategic errors. While this is partly the fault of its structure, the IJN culture of the UN, which was itself a sub-set of the Japanese military culture. This culture was so entrenched in the Japanese military that, in effect, it affected every aspect of the UN's employment of carriers to a lesser or greater degree.
Criticism and honest analysis were stifled by the group ethic and loyalty to the 'team' - and especially to one's superiors - no matter how flawed or downright wrong their thinking. It was this 'team ethic' that spurred the intense rivalry and non-cooperation between the IJN and the Army and between the fields within the IJN.

Coupled with this was the hierarchy of Japanese society. In the past, the top group had been the Samurai warriors. Whereas IJN officer cadets had all aspired to become gunnery officers in the 1920s, many aspired to become logistics officers as - along with most other supporting arms - logistics officers were not warriors. Those who were gunnery officers - and hence the successors to the Samurai - held the others with disdain. This meant that important appointments were held by second-rate officers and that when a ship's captain was incapacitated in action, command went to the next deck officer, even though the senior engineering officer may have outranked him. This created serious problems in running carriers in battle. The events surrounding the loss of the TAIHO and the SHINANO, for instance, point to extreme incompetence in ship damage control.

The other great cultural handicap was the Yamato spirit. In essence, this was the idea that a pure and superior spirit - in this case, the purity and superiority of the Japanese spirit - could overcome any material superiority. This produced a 'Master race' notion that came increasingly to the fore (and unstuck) during the war in the Pacific when the Japanese had to adopt Western institutions and ideas on a large scale, often without comprehensive consideration of their suitability. Japanese industry looked, on the surface, to be more organised than the West. However, national policies and intimate relationships between the military and private industry had encouraged industry to become compliant, knowing that the government would support them. The shipyards did not develop mass-production techniques before the war and the rate of construction was much slower as a result. As well, the rate of research and development was much slower than in the US. This affected both carrier and naval aircraft development and production. Both the USN and the IJN gave the task of producing better aircraft to industry, often issuing the same task to several companies. But while the IJN put a great deal of time and money into developing aircraft for both the carrier and naval aircraft, development of aircraft was for both the carrier and navy in the Pacific and in Japan it was primarily military. This meant they had only a single customer and did not benefit from the experience of dealing with both the carrier and navy in the Pacific and in Japan it was primarily military. This meant they had only a single customer and did not benefit from the experience of dealing with both. The IJN followed a pattern that has been repeated in South East Asia since WWII: initially copying designs obtained under licence from the US in the 1930s. But while the IJN had only a single customer and did not benefit from the experience of dealing with both, they also produced with items like wheels and instruments built from designs obtained under licence from the US in the 1930s. So for all that advantage the IJN had at the beginning of WWII, systemic weaknesses combined to undermine its strengths. Perhaps the greatest weakness was to suppress questioning of accepted doctrine and methods. 'Team spirit' is great only as long as the team has got it right. Is there a lesson here for modern Navies?

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

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

DIAMANTINA is named after the Diamantina River which flows through Queensland. The original DIAMANTINA was one of 12 River class frigates and served with distinction in the Pacific War. Decommissioned in 1946 and re-commissioned in 1959. She served as a training ship and oceanographic research ship until her final decommissioning in the early '90s.

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

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

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

DIAMANTINA enters the water for the first time at ADI's Newcastle facility (Pic: Airpower & Maritime Corps Museum)

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

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

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

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

"Managed by the Defence Materiel Organisation in partnership with ADI, this project has been very successful, drawing on the best skills and technologies Australia has to offer. This positive partnership between Defence and industry demonstrates that, with responsible project management, Defence capability can be delivered on time and on budget," Mr Moore said.

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

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

On completion of the Commissioning Ceremony all VIP’s, guests and family members were invited to attend the reception held at Station Pier. The ship was open to the public the following day.

POET Lee Robinson, WARRAMUNGA

DECHAINEAUX and SHEEAN have commissioned into the RAN at HMAS STIRLING - Fleet Base West

The two fast track' submarines DECHAINEAUX and SHEEAN have commissioned into the RAN at HMAS STIRLING. The submarines, have been substantially upgraded.

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

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

This extensive 'fast-track' upgrade program to these submarines, approved by the Government in June 1999, took 12 months to complete and included enduring platform improvements and a critical augmentation of the existing combat system.

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

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

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

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

KANIMBLA

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

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

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

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

DISPATCH

OTAMA

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

The Maritime Commander Australia, Rear Admiral Geoff Smith AM RAN, hosted the Decommissioning on the Diamantina Pier at HMAS STIRLING. The Victoria Naval Band provided music for the ceremony.

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

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

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

The first of the new Oberon-class submarines, HMAS OXLEY was commissioned in Scotland on March 27, 1967 and was followed by OTWAY (1968), OVEN (1969), ONSLOW (1975) and OTAMA (1975). They were originally based at the new decommissioned HMAS PLATYPUS, as Australia’s submarines were gradually transferred to HMAS STIRLING in Western Australia. The first being HMAS OXLEY in 1987. Built at Greenock, Renfrewshire, Scotland by Scott Lithgow Ltd, OTAMA was launched by Princess Anne on September 17, 1974, who also attended the submarine’s Commissioning on April 27, 1978 as the Guest of Honour.

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

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

With the decommissioning of HMAS OTAMA, the bason is now handed over to the submarines which will serve Australia for the next two decades, the larger long range, faster and more capable Collins-class submarines, five of which have now arrived in Western Australia. No decision has been announced at this time as to what OTAMA’s future will be.
The German Navy's plan for a modern Navy to rival the RN is detailed and why it didn't come to fruition. Plan Z was to have provided the Kriegsmarine with aircraft carriers, battleships, battleship destroyers, and submarines but was prevented from being realised due to Hitler's inability to wait and Kriegsmarine may never be referred to as the 'forgotten service'. The Kriegsmarine had been to the detriment of the World and Hitler's inability to wait and had promised the Kriegsmarine would have never been referred to as the 'forgotten service'.

The documentary is highly recommended for those who are just starting on their quest for knowledge about the Battle for the Atlantic and 1942 as he promoted the Kriegsmarine. The documentary shows the first submarine sniper in action and how it was used. The cover of the German Pocket Battleship's inception is quite good but lacks a little in supporting film clips.

Analysis throughout the documentary is provided by interviews with Dr Simon Treth and Tim Bean of the Royal Australian Army, Sandhurst and Dr Robin Clopton of Warwick university. While not being the best documentary I have seen on this subject it is the best priced and one which can make a useful contribution to one's military documentary library.

Kriegsmarine - The Forgotten Service

1999, Cromwell Productions Ltd. Video, 52 Minutes Reviewed by Mark Schweikert

The video documentary KRIEGSMARINE - The Forgotten Service, is a first-rate analysis of the actions of the German Navy before and during WW II. It contains many rare images of German naval exercises involving submarines and battleships before WW II. One of the more interesting aspects of this documentary is the use of a computer-generated 3D movie imagery to show submarines and battleships. It is well worth a look at if you are interested in naval history and the internal layouts and designs of battleship and submarines.

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

The Navy League:
• Believes Australia can be defended against attack by other than a super or major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication to our allies.
• Supports the ANZUS Treaty and the future reintegration of New Zealand as a full partner.
• Urges a closer relationship with the nearby ASEAN countries, PNG and the Island States of the South Pacific.
• Advocates a defence capability which is knowledge-based with a prime consideration given to intelligence, surveillance and reconnaissance.
• Believes there must be a significant deterrent element in the Australian Defence Force (ADF) capable of powerful retaliation at considerable distances from Australia.
• Believes the ADF must have the capability to protect essential shipping at considerable distances from Australia, as well as in coastal waters.
• Supports the concept of a strong Air Force and highly mobile Army, capable of island and jungle warfare as well as the defence of Northern Australia.
• Supports the acquisition of AWACS aircraft and the update of RAAF aircraft.
• Advocates the development of amphibious forces to ensure the security of our offshore territories and to enable assistance to be provided by sea as well as by air to friendly island states in our area.
• Advocates the transfer of responsibility, and necessary resources, for Coastal Surveillance to the defence force and the development of the capability for patrol and surveillance of the ocean areas all around the Australian coast and island territories, including in the Southern Ocean.
• Advocates the acquisition of the most modern armaments and sensors to ensure that the ADF maintains some technological advantages over forces in our general area.
• Advocates measures to foster a build-up of Australian-owned shipping to ensure the carriage of essential cargoes in war.
• Advocates the development of a defence industry supported by strong research and design organisations capable of constructing all needed types of warships and support vessels and of providing systems and sensor integration with through-life support.
• Supports the concept of a Navy capable of effective action off both East and West coasts simultaneously and advocates a gradual build up of the Fleet to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.
• Believes it is essential that the destroyer/frigate force should include ships with the capability to meet high level threats.
• Advocates the development of aflout support capability sufficient for two task forces, including supporting operations in sub-Antarctic waters.
• Advocates the acquisition at an early date of integrated air power in the fleet to ensure that ADF deployments can be fully defended and supported from the sea.
• Advocates that all Australian warships should be equipped with some form of defence against missiles.
• Advocates that in any future submarine construction program all forms of propulsion, including nuclear, be examined with a view to selecting the most advantageous operationally.
• Advocates the acquisition of an additional 2 or 3 Collins class submarines.
• Supports the development of the mine-countermeasures force and a modern hydrographic/oceanographic fleet.
• Advocates the retention in a Reserve Fleet of Naval vessels of potential value in defence emergency.
• Supports the maintenance of a strong Naval Reserve to help crew vessels and aircraft in reserve, or taken up for service, and for specialised tasks in time of defence emergency.
• Supports the maintenance of a strong Naval Reserve Cadet organisation.

The League:
• Calls for a bipartisan political approach to national defence with a commitment to a steady long-term build-up in our national defence capability including the required industrial infrastructure.
• While recognising current economic problems and budgetary constraints, believes that, given leadership by successive governments, Australia can defend itself in the longer term within acceptable financial, economic and manpower parameters.
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