HOW NOT TO DEFEND THE INNER ARC

Maritime Airpower for Australia, Part 2

Submarines in Britain’s Defence

Australia’s Leading Naval Magazine Since 1938
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HOW NOT TO DEFEND THE INNER ARC

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Front cover: (From right to left) HMAS ARUNTA leads
HMNZS TE MANNA. HMAS HOBAT. DARWIN and
MANGOBA from Sydney Harbour for exercises off
Nowra during a recent work up period.
(RAN, AB Damien Pawlenko)
FROM THE CROW'S NEST

Many of the editorials and articles that I have written in the past have warned about the growing anti-surface ship community within Defence. This offensive has now taken on a life of its own. A growing number of articles in the mainstream print media are supporting the anti-surface community by making sensational, unsubstantiated and subjective claims about surface ship vulnerability and cost whilst peddling the virtues of air power. The claims made by these articles, whilst being false and lacking insight, have unfortunately created their own inertia, or to put it another way, 'one dog barks at something, the rest bark at him'.

The only saving grace is that none of the writers, who write with air power at the expense of sea power, are recognised by defence media specialists or academics as having any military substance or relevance.

The problem though is that many of our politicians tend to place an over reliance on Australia's media for defence information. An example of which was seen during a recent SLC (Senate Legislative Committee) hearing in May. The Chief of Navy (GEN Vice Admiral David Stockton) was questioned about an article written by Mr Brian Toohey in the Sunday Sun Herald newspaper. The article made a number of unexplainable claims about surface ship vulnerability and production costs when compared to two countries combatants in favour of fighter aircraft. CN's response to the committee's question left the no doubt about the article's factual basis. The committee accused his response and the no more remittances.

Although this may seem trivial, many defence journalists, and academics, see this as a new front of a wider battle. A battle that is becoming as important to the RAN's future as the aircraft carrier debate in the early 1980s. The battle is a battle that is becoming as important to the RN's future as the aircraft carrier debate in the early 1980s. The battle is a battle that is becoming as important to the RN's future as the aircraft carrier debate in the early 1980s. The battle is a battle that is becoming as important to the RN's future as the aircraft carrier debate in the early 1980s.

The growing debate over air power versus sea power comes down to one of money and not military relevance.

The air power lobby that's not to say the RAAM's see the Navy's SEA 4000 DDG as a threat to funds for the AIR 6000 Home replacement programme. As the defence budget is further strangled, more bitterness and sniping can be expected from nearly all quarters as each fights for a bigger share of a dwindling pie. The Government will have to take responsibility for this state of affairs or increase spending to ward off capability cuts.

Another front facing the surface ship is the new 'White' paper. If the predictions about its preference for air power are correct, then the Navy will suffer greatly. A nation not in a world without a strong Navy cannot be considered a worthwhile ally to the region or a full partner in any US led coalition force. It would be a mistake and a grave threat to national security to re-price the surface ship capability with the ADF based on inaccurate academic assumptions on surface ship vulnerability legitimised by a lack of funding.

Mark Schweikert

SAN GIUSTO

Dear Mr Schweikert,

I refer to the article on the international naval contribution to 'Operation Stabilise' in East Timor, which was published in the January-March 2000 issue of your magazine.

The article is very interesting, properly detailed and extremely well timed. However, much to my surprise, I could not find any mention of the Italian LPD SAN GIUSTO and of this important role it played in the operation - except for a picture in the chapter dedicated to the US Navy contribution.

The naval vessel SAN GIUSTO was part of the INTERFET maritime component in the framework of 'Operation Stabilise'.

She reached the theatre of operations on 23 October 1999, carrying personnel and vehicles for the Italian contingent assigned to INTERFET.

Relying on a 280 strong crew, SAN GIUSTO carried 4 helicopters (3 SH-3D and 1 AB-212) particularly suited to the transport of troops, equipment and supplies as well as for MEDVAC's. It has a large on-board hospital with a team of specialists doctors able to perform 1st and 2nd level emergency operations. It also carried a number of amphibious vehicles.

After disembarking the Italian ground troops in Dili, it continued to carry out missions in support of both Italian and international INTERFET; it was the amphibious capabilities combined with some remarkable characteristics, such as its flexibility and capacity to reconfigure itself for specific missions, allowed it to undertake very important operations.

Yours Faithfully

Giulio Timori
Italian Embassy

A Japanese commander signing a document of surrender in 1945. He must be asking himself how Japan could be so unstoppable at the beginning of the war yet end up in defeat? The answer to both is sea control.

With the 'White' Paper expected to continue an inner arc view of defence, Dr John Reeve examines the historical context of such a strategy with some rather sobering insights for Australia if this path is chosen.

Conventional wisdom today amongst Australian strategic planners is that defence of the archipelagic 'inner arc' to our north - as a zone of influence and a barrier against attack - is an essential concern. The arc is officially defined as the chain of islands from Indonesia in the west through Papua New Guinea to the Solomon's and the Southwestern Pacific is that area from which land-based air attack can conceivably be launched against us. There is no doubt that the area of the arc is of critical strategic importance for Australia in virtually every sense. Certainly it must figure in the formulation of our defensive military strategy. Within the wider maritime environment of the Asia Pacific in which the arc is situated, there is clearly a role for Australian joint force strategy and operations when and where required. As the recent deployment to Timor has indicated, this is probably the most likely area for future ADF operations. In this context the Navy, Army and Air Force have intimately related roles within a maritime concept of strategy. "Maritime is an environmental, not a service-related definition and an operative word here. " This article does not argue a navalist position, implying that sea power alone will do the job. Nor is it directly concerned with procurement or budgetary issues. It does however, argue that the concept of defending the inner arc is (as it stands) strategically flawed, potentially dangerous, and in need of further development. It is flawed because it does not relate concepts such as manoeuvre in the littorals (coastal areas) to relevant principles of maritime strategy, especially sea control. The ability to use an area of the sea and deny it to others, which are based upon long historical experience and have been proven correct in every major conflict from the fall of Napoleon to the end of the Cold War, as well as in the Falklands in 1982 and the Gulf in 1990-91. At the same time the concept of defending the arc is linked to an assumption of using sea denial (the tussle of war at sea) which can only operate as a function of sea control. The aim in arguing this is not to score political points but to stimulate constructive debate on an issue of vital concern to this country.

History provides the only real evidence against which we can test strategic concepts. History has advantages in strategic discussion: it is real, it is unclassified, and we know who won. The concept of defending the inner arc can be tested against the Japanese war in the Pacific during the 1940s. Japan's war in Southeast Asia and the Southwest Pacific gives us an actual case study fought over the same area conceived of as the inner arc at the level of high intensity conventional warfare. It involved two phases: that of Japanese victory/Allied defeat (1941-42) and of Allied victory/Japanese defeat (1942 onwards). There are, as in all historical comparisons, variable factors for and against such a comparison between past and present. But the similarities in this case argue for its intellectual credibility and strategic utility.

Japan was ultimately overwhelmed by greater force, but it was the very effective way in which that force was applied, especially in turning the tide, and the strategic ingenuity of the Japanese response which are instructive. The Japanese concept of perimeter defence was produced by inadequate pre-war planning; inter-service rivalry, lack of strategic imagination, an attempt to translate assumptions of continental defence to the maritime sphere, and lack of understanding of the regional maritime environment. The Allied counter-offensive was built upon the establishment and mobile exploitation of sea control.
The battle signified a shift in sea control to the allied forces. Japan never tried to manoeuvre, vulnerability and lack of options, despite the perimeter was thus established, creating the opportunity for commander Yamamoto in 1943 ended the likelihood of Navy. The reactive concept of the defence of a territorial resource basket to be seized and held. The Army and its war in China, where forty-four of its fifty-five strategy was short-term, and plagued by lack of inter-service co-operation and understanding. In 1941 the Japanese Army was preoccupied with the Asian mainland and its war in China, where forty-four of its fifty-five divisions were deployed. It saw Southeast Asia as a territorial resource basket to be seized and held. The Army assumed that the Navy would conduct a defensive war in the Pacific. Ultimately, they saw itself as fighting the Soviet Union. There was thus a lack of forward planning for the Pacific, especially on the part of the Army who were politically dominant. There was a working assumption that Japan should reach and control the Pacific, and any Allies who would respect the Pacific conquests. This fallacious assumption underpins efforts to analyse the problem of sea control. Japanese sea control in early 1942 meant that the battleship strategy emerged during 1942, with the Army's dominance at Imperial General HQ, its winning of the political battle against the Navy's view of a wider Pacific war, the defeat at Coral Sea and Midway which led to loss of sea control, and that at Guadalcanal which led to progressive rolling back of the defensive perimeter. The death of Japan's naval commander Yamamoto in 1943 ended the likelihood of wider strategic use of the maritime environment by the Navy. The reactive concept of the defence of a territorial perimeter was thus established, creating the opportunity for Allied exploitation. 

Without sea control such reactive defence meant little of manoeuvre, vulnerability and lack of options, despite the possession of land-based air power. The perimeter was liable to penetration and outflanking like any defensive line. But strewn in the maritime environment and without use of sea control it was a particularly dangerous position. The withdrawal from Guadalcanal in 1943 precipitated the collapse of the Japanese strategic option. The Japanese strategic option became not knowing when and where the Allies would use the sea to strike next. Seeing their defensive territory as opposed to maritime sectors meant in effect that the Japanese took their sea communications - and hence logistics and reinforcements - for granted. The Allied submarine campaign inside and beyond the defensive perimeter devastated Japan's sea transport in the most successful blockade in naval history. This blockade, like the amphibious power projection which defeated the perimeter, depended upon sea control and was a war-winning weapon. General George, one of the world's most distinguished naval-strategic writers, has observed:

"There was no systematic effort until too late to project within these zones the sea lanes over which the vital cargo ships passed, to meet and match the American submarines, to mount a guerre de course, or, after Midway, to make another try for offensive sea control. Each of these omissions was an astonishing strategic lapse... Pinning all their hopes on the battles expected under their strategy of zone defence, Japan's leaders left unexplored other dimensions of the country's maritime position, failing in every other way to protect the empire's vital access to the sea... The offensive strategy of the United States exposed the weaknesses of Japan's perimeter defence. Static island fortresses, even with air bases, did not constitute an impeneetrable pulsate unless a Navy held local command of the sea. The command and control, Japan's Navy lacked the force and range. The United States, with its dual advance and very flexible naval strategy, kept the initiative. It dispersed its fleet into task forces that kept the enemy off balance. The Americans could assault, or simply bypass and isolate, the Japanese barrier's strongpoints, attacking as they chose and wearing the enemy down. "...and, using this unit, space as the Japanese could not." "

Arrived at by default, the perimeter concept tended to compensate with defeat in the task of perimeter withdrawal was the only option in the face of penetration and out-manoeuvre. In war it is the winners who usually fail to learn the lessons and to think outside the established frame. We should listen to the losers in the major war to work out how they did it, both of which occurred by sea. Above all, the future sea denial potential of three factors: the leapfrogging strategy, the submarine war on shipping, and US carrier air power." In maritime warfare, sea control gave cover against surprise, and allowed submarines to be bypassed.
Japan was open to exploitation by a power possessing or contesting sea control as in the Pacific, where the rate of naval development and the manifestation of sea power was of fundamental importance. The Japanese advance, Twenty-nine submarines in Philippine waters made virtually no impression on Japanese amphibious warfare. The submarines retreated to Java, delivered the final blow. Without a concerted maritime strategy Japan was open to exploitation by a power possessing or contesting sea control as in the Pacific. Moreover, if Australia's local security is threatened it will be by a power possessing or contesting sea control as in the Pacific. The submarines were the key to the defeat of the Japanese, in terms of strategic viability and scope, and we should take care to absorb the lesson. Defensive strategy involving a form of the arc concept may well be viable, but it must be formulated within the context of a fully maritime strategy into which sea control principles are built. This article is written in a co-operative spirit, and with respect for the quality and comprehensive expertise of the various elements of the Australian Defence Force. The fundamental point about the Japanese defeat in the Pacific (beyond the question of whether the war could ever have been considered feasible) is the fatal nature of lack of inter-service understanding.

Bad strategy kills, and bad strategy brings defeat. The island and waters of our region are haunted by the ghosts of fallen empires and defeated forces - some of them our own, and all of them were initially (but not of course fully) defeated at sea. The conventional strategic wisdom which sees the inner arc as a defensive barrier should pay more attention to its maritime setting. Otherwise that conventional wisdom risks leaving a significant gap in Australia's defences and being a danger to national security. The Defence White Paper debate is an opportunity to ponder the expensive lessons of the past and their continuing relevance, for our geography has not changed. Defence of the inner arc, unless conceived of with continuing relevance, for our geography has not changed.

The defendable area is not an island arc, but rather a series of islands and waters of our region. The inner arc as a concept lends to neglect the Indian Ocean and the South China Sea, the inner arc is not a natural barrier, but an artificial one. The fundamental point about the Japanese defeat in the Pacific (beyond the question of whether the war could ever have been considered feasible) is the fatal nature of lack of inter-service understanding.

As the 21st century dawns the world consists of a volatile mixture of alarming trends and growing challenges. Amongst these is a concern in the West of the increasing numbers and effectiveness of Theatre Ballistic Missiles (TBMs) and the associated worldwide proliferation of Weapons of Mass Destruction (WMD). As the RAN's proposed SEA 4000 destroyer will be Theatre Ballistic Missile Defence (TBMD) capable, and given TBMD proliferation in our region, some information on what the RAN may be able to acquire is warranted. The White Paper is timely given world-wide TBMD proliferation with more than 30 nations having or developing nuclear, chemical and biological weapons. The fear of TBMD proliferation became a reality in 1998. In April of that year, Pakistan tested a new ballistic missile, the Ghauri, with a range of 1,500 km. India already possessed ballistic missiles capable of hitting all of Pakistan. Both countries postured against each other by conducting unprecedented rounds of nuclear tests. In June, the press reported that the North Korean No Dong Missile was operational. In July, Iran launched the Shahab-3 with a range that has the capability to strike targets in Israel, Turkey, Saudi Arabia and other Middle Eastern countries. In August, both countries tested extended range, 2,000 km, threatening all of Japan and US bases as far away as Okinawa. This test confirmed the ease with which an impoverished nation with massive economic problems, including famine, could develop and launch a long range theatre missile.
This not only denies the enemy the means to use its air force for defence but also for attack. Consequently, the only way to counter US/Western air superiority and attack the US and its allies is to go over their air superiority umbrella. TBM's provide an attractive counter to Western air power as they are launched with no warning, have short flight times (which limits response times), are impossible to kill without specialised equipment and their payloads can vary from HE (High Explosive) to chemical, biological or nuclear submunitions. A TBM's range means that they can strike targets deep inside USAF defended areas such as air bases where air superiority is vulnerable. Ballistic missiles are also very cheap, plentiful and becoming increasingly accurate. With the recent superfluous victory of airpower during 'Operation Allied Force' over Serbia, many Western nations are falling into the trap of not considering sole air campaigns an option but a necessity.

Part of the problem with the TBM not being seen as a serious threat is the misconception that it is a high priced complex weapon and thus not plentiful. However, Defence strategists should view the TBM as a simple round of ammunition. In WW II Hitler fired over 4300 V2 TBMs whilst allied strategic bombing and massive resource defences, TBMs are also considered inaccurate and thus militarily insignificant however, today, TBMs have GPS to aid in guidance and accuracy and are far less indiscriminate than their V2 ancestors. The Russian SS-21 battlefield ballistic missile, recently used in Chechnya, is a good example of the modern TBM. Small, accurate, cheap, easy to move around and with very different warhead types. Intelligence sources suggest that the SS-21 system and ammunition stocks were recently sold to North Korea via Syrian airbase infrastructure and the inevitable tent city of surged and ammunition stocks were recently sold to North Korea. Intelligence sources suggest that the SS-21 system has made it to North Korea via Syrian territory. Small, accurate, cheap, easy to move around and with very different warhead types. Intelligence sources suggest that the SS-21 system and ammunition stocks were recently sold to North Korea via Syrian airbase infrastructure and the inevitable tent city of surged and ammunition stocks were recently sold to North Korea.

Desert Storm

Desert Storm taught the West several important lessons about the need for TBM defence. After Iraq demonstrated the ease that a belligerent could use them, Scud attacks on cities, despite being tactically unsuccessful, affected coalition military strategy and constrained US options. However, at the Port of Juhayl, a potential production 'show stopper' event occurred. An Iraqi Scud fired at the port fell to the sea adjacent to the dock, but had it hit a major catastrophic would have occurred. Unloaded on the dock were thousands of tonnes of 155mm and 203mm HE artillery shells, aircraft fuel and military vehicles. Tied up alongside that dock was the LHA USA TAWARA, an army barge loaded with ammunition, one bulk fuel carrier and three container ships. Although no damage was inflicted the potential for devastation was made to the threat posed by TBMs thought of as less than real.

Real World TBM Events

USN ships have been in position to obtain real world TBM tracking data. During Desert Storm, AEGIS ships in the north of the Persian Gulf were the first to detect and track Iraqi Scud missiles. In March 1996 USS BUNKER HILL (CG-52) detected and tracked four Chinese M-9 missiles fired into the waters near Taiwan. BUNKER HILL successfully detected and tracked the missiles with an older variant of the SPY-1A radar with no external cueing, no developmental radar improvements and a crew that was not specially trained for the mission. The crew's existing air defence skills translated well to TBM tracking.

Tracking by AEGIS ships continued when USS MITSCHER (DDG-57) tracked Syrian TBM development test flights in the eastern Mediterranean with near-flight control quality. In August 1998, JDS MYOKO (DDG-175) tracked North Korea's first Taepo Dong I missile as it was launched. This launch was unexpected and sudden, yet the ship reinforced personnel. The study concluded that airborne destruction could be achieved with as little as 30 TBMs, or for the price of four F/A-18s, and with land and air based TBM systems still languishing in design and testing, the current level of naval TBM provides the only real answer.

The SM-2 Block IV A

Two naval TBMD systems are currently under testing in the US. They are the Area Wide, using the SM-2 Brik IV A as a common AAW and TBMD missile, and Theater Wide, using the newer SM-3 missile used exclusively for TBMD outside the earth's atmosphere. For the purposes of this article and its relationship to the RAAN and AAW requirement we will concentrate on the Area Wide system. The Standard SM-2 Brik IV A missile is the newest of the AAW Standard missiles produced. It provides the capability for all round defence in a severe electronic environment against aircraft and ASMs (even with low radar cross-sections) from high altitudes down to sea level and with a TMB capability. The Mark 123 warhead of earlier Standards is retained in the missile with a new firing system to meet a wider range of relative target speeds for precise burst-point selection. A Raytheon IR seeker, which is covered by an ejectable fairing, is also fitted to aid in accuracy and provide a real time video data link to the launch ship for missile identification purposes, an indication that the TBM was destroyed and to replay on CNN as proof of destruction. The IR seeker positions the warhead to impact the target or pass close enough to enable the warhead fragments to be effective. The high closing velocities encountered in TBMD engagements require precise fuse timing. To aid a Forward Looking Fuzer (FLF) is fitted. The FLF uses angle and angle-rate information from the IR seeker and range and range-rate information from a high frequency short-range radar incorporated in the SM-2 missile. These two sensors provide data to the FLF to compute warhead detonation time and position to place the most fragments on the target. The new fuse will also direct the blast energy of the warhead towards the side of the SM-2 the TBMD will pass as direct hits at these speeds will be rare.

In the first attempt to destroy a TBM target, a prototype SM-2 Block IV A missile performed as expected. The imaging IR seeker successfully performed target search, acquisition and missile hand-off. Guiding the missile to a lethal intercept. Just before intercept, the IR seeker imagery was sent by real time telemetry to ground stations showing a well defined image of the TBM target. Several sensors fitted to the missile to record warhead fragmentation reported lethal warhead impact with the TBM totally destroyed.

To demonstrate the lethality of the Standard SM-2 Brik IV A warhead design under simulated flight conditions, the USN conducted extensive warhead fire testing. In these tests, a sled propelled the Brik IV A warhead towards replicas of enemy TBM warheads and AAW targets. These tests were as close to actual flight dynamic conditions as possible. Target designs included simulated nuclear warheads, chemical, HE and submunitions. In the tests, the SM-2 warheads were detonated at a miss distance predicted at the outer boundary of 90% of all successful intercepts. These conservative values were used to measure the effectiveness of the warhead in a 'worst case' and 'best case' scenario.

During 1998 and 1999, six sled tests were conducted against nine TBM replica warheads and three AAW targets. In each case the warhead detonated as designed. All tests achieved kills of the TBM and AAW targets. Chemical and submunition casings were penetrated, rendering the chemics ineffective.

Naval TBMD

In the era of 'The UN Operation' international strategy has relied on force deployment from bases around the world. Airlift and sealift are the precursors to these operations, but the ports and airfields through which forces and reinforcements must arrive are under the enemy and thus vulnerable to TBM attack. Currently, the only way to provide protection for these embarkation points is from ships at sea. If these ports and airbases are made unuseable, then the enemy can go ahead, giving the enemy victory. A credible deterrent and warfighting capability independent of foreign control and relatively free from reliance on overseas bases and support is only achievable.
by surface ships. As seen, naval AAW weapons and systems translate to capabilities, and with little cost. Regionally, South Korea and Japan are investing large funds into TBMD technology for their ships. The RAN is also keen to explore the TBMD option for its new SEA 4000 destroyers.

Desert Shield provided a good example as to how land based TBMD or air defense units might arise in theatre during a crisis. After the alert order for Gulf duty was issued, the first Patriot SAM was sent to Air Missile battalion completed airlift to Saudi Arabia in 14 days, while the second battalion was in place on day 82. The two Patriot Fire Units less than a battalion that rapidly deployed from Germany to Israel in 4K hours, due to Iraqi SBM strikes, required more than 50 C-5 Galaxy aircraft. This more diverted over 120 sorties each day from other high priority lift requirements.

Alternatively, a full load of TBMD missiles for a Ticonderoga class cruiser only takes four C-5 Galaxy. The ship could thus be used to defend the air base that the Patriot system needs in order to be deployed.

In 1994, following the Commander in Chief U.S. Forces Korea's request to pre-deploy Patriots to Korea, the political clearance to do so took four months, followed by a halt of four months of delay due to lack of ships and road from Fort Bliss, Texas to assigned locations in the Republic of Korea. Nearly six months in total. A further restriction is that Patriot can only defend one point and has to be deployed and set up at the intended target, assuming you know what that will be. Alternatively, naval TBMD can range out great distances and defend an area such as an entire city.

The deployment of TBMD's ashore was not a politically viable option during the 1996 crisis over Taiwan. The potential to aggravate China by placing US Patriots in Taiwan made that option far too provocative. The ever present uncertainty is whether placing land based defences ashore would deter or incite potential enemy reaction demonstrates a continuing need for the flexibility inherent in using ships in international waters for TBMD. The known deployment of land based TBMD units may also prompt an enemy to fire TBMDs to probe the defences and test their effectiveness, providing an indication of how to counter them. He may also fire in the hope that the missile will be shot down, no damage would be inflicted but the political and military message would still be delivered. The latter course of action would also cause

\begin{itemize}
\item History has shown time and again that in the opening days of a crisis, forward deployed naval forces bring a wide range of capabilities, including TBMD, into theatre in a few days. In the modern context of that could also mean just when the heaviest TBMD attacks would be likely. Naval forces with TBMD provide significant flexibility. From a few stations in the Sea of Japan, USN TBMD equipped surface ships can provide an effective TBMD force covering most of the Republic of Korea (ROK) and Japan. The beauty of ships is that they can be visible or invisible, be self-sustaining and can carry out other traditional naval missions such as protection of air and sea lift, air intercept control, shore bombardment, ASW and maritime interdiction, while simultaneously providing TBMD.
\end{itemize}

\textbf{Conclusion}

Repeated TBMD studies in the US have found that naval TBMD meets their objectives and provides the greatest capability and operational flexibility for the least dollars, and in the shortest time. The US is making major commitments to TBMD and is keen to involve the RAN. This is one of the reasons for the strong US push for Australia to accept their kid's class destroyers. Given that the US has made TBMD and TBMD capable for a fraction of the cost of a new build ship.

Upon deploying naval TBMD, ships will be able to defend forward bases, ports, and airfields and facilitate the arrival of follow-on land based air and ground forces, while simultaneously providing the necessary command and control for joint and Allied forces. Without airfields and ports a modern military operation cannot go ahead. An example of this could have occurred in the opening stages of Operation Stabilise. It is not widely known that during the mid-90s Indonesia seriously contemplated the acquisition of TBMD. Had the West's actions towards Indonesia over East Timor been misinterpreted TBMD could have rained down on Dili, Darwin and Tindal and would have seriously damaged INTERFETs, and the ADF's forces and restricted access to East Timor. Finding mobile TBMD launchers in the jungles and islands of Indonesia would be virtually impossible given the 'Desert Storm' experience.

The RAN needs to develop a TBMD capability as TBMDs become more attractive to the West's adversaries. North Korea, China, Iran and Syria are but a few countries of many who are capable of making and selling TBMDs and tend not to be so selective who they sell to. With advances in Western AEW&C and stealth aircraft the TBMD is the only counter that many nations can hope to employ, militarily and economically.

With the acquisition of an AAW destroyer, the RAN can be expected to use of Standard SM-2 BLK IVA. It makes sense to use the latest Standard available as this will be the only Standard missile in production. The USN will use this missile for some time before entering a 20 year logistics and supply period. The RAN is already provided with the problem that the Standard SM-1MR used in the FFGs ceased production in 1985, preventing supply limitations.

With the acquisition of the SM-2 IVA the RAN would automatically become TBMD capable and would only require the necessary software for its radars. As mentioned above, a missile is also far more effective against aircraft, ASMs, and cruise missiles than any before it. For example, the SM-2 IVA currently represents one of the only counter to the SS-N-22 'Sunburn', SS-N-26 and SS-N-27 ASMs used by Russia, China and India.

A TBMD capability should not offend anyone or start an arms race in the region as the system is purely defensive. With many regional neighbours unable to acquire a TBMD capability for economic and political reasons, RAN TBMD ships would be welcomed during a TBMD threat situation, more likely now than ever as the world trade proliferation. The RAN would thus provide the regional umbrella to TBMD.

In the ADF context nearly all of our major RAAF aircraft are close enough to the sea to be defended by RAN AWA Wide TBMD capable platforms. The question is, will the new 'White' paper see the value in introducing and developing this capability which will not only defend but enhance our fighter and land force capabilities?
ESSM scores kill

The Evolved Sea Sparrow Missile (ESSM) has achieved a kill of a BQM-34S Firebee target drone during its first guided flight test at White Sands Missile Range, New Mexico. ESSM is under development by Raytheon Company’s Missile Systems business unit for the U.S. Navy and the 13 member nations of the NATO Sea Sparrow Consortium, including Australia.

Collins submarine upgrade on track

The upgrade of two Collins class submarines to increased operational capability was on track to meet its December 2000 target. Head of the Submarine Capability Team (SMCT), Rear Admiral Peter Briggs, said "We have now fitted all six submarines and are continuing to upgrade them faster, quieter, more reliable and less vulnerable to detection." RAoM Briggs said three submarines, HMAS COLLINS, HMAS WALLER and FARNCOMB, would be available for operations this year.

Later this year WALLER will take part in RIMPAC - an exercise with and against the US Navy near Hawaii. COLLINS will also travel to Hawaii then on to testing in a US Navy range off Alaska.

Be said by the end of the year five submarines will have been delivered to Navy. The sixth, RANKIN, is expected to be launched in November 2000 and start sea trials in April 2001. All six submarines will be homeported at HMAS STIRLING.

Admiral Briggs said Navy was working to progressively overcome the Collins class submarine's operational deficiencies, improve their reliability and upgrade many of the electronic and platform systems onboard.

$266 million was allocated from the Defence budget and approved by the Government in December last year to achieve the upgrade of DECHAINEUX and SHEEAN to increased operational capability.

RAoM Briggs said half of the funding was being used to incorporate new technology and to enhance the operational performance of the submarines. He said the balance of the funding would be used to rectify shortcomings, many of which were identified by the McIntosh/Prescott report.

ESSM Flash Traffic

Reporting on the progress of the upgrade project RAoM Briggs said modification trials of engine mount stiffeners on one of DECHAINEUX's three engines were successful in reducing vibration.

They have now been fitted to COLLINS and will be finally fitted to the fast-submarine in May.

In 1999 COLLINS and DECHAINEUX trialed various measures in propeller and hull changes that engine fixes which had been successful in improving reliability and reducing the noise signature.

Modifications to the engine system and platform were now being fitted to DECHAINEUX and SHEEAN.

Currently a new Electronic Support Measure (ESM) system is being delivered for DECHAINEUX and SHEEAN. The system is a critical area of self-defense enabling the submarine to detect radar transmissions. The submarines' communication and combat systems will also be augmented this year.

RAoM Briggs said the fast track program built on work approved by the Government in mid-1999 which had already shown significant improvements to noise signature in COLLINS.

COLLINS has also had its combat system augmented and trials of the equipment, together with additional testing of platform improvements, will be carried out at sea in the coming months.

"We have also been encouraged by the response to a number of initiatives to retain existing submariners and attract new personnel," he said.

"In September last year we began to implement our plan to achieve an effective personnel capability. This included an increase in submarine service allowance, a financial bonus for two years' service, a three-watch system, stress management training and a dedicated trials crew to reduce family separation," he said.

"We have four submarines manned. We currently have 42 percent of the final number of submariners required. We will need to build the numbers further to ensure we have enough personnel to run the fleet and support infrastructure based on these." By Vic Jeffery, Navy Public Affairs WA

Sea Eagle ASM withdrawn

The UK has announced the early withdrawal of its locally developed air-launched ASM. The air launched Sea Eagle ASM served the RAF and RN for 15 years. The UK MoD believes that since the demise of the Cold War, for which the weapon was designed, strategic circumstances no longer require such a weapon.

The Sea Eagle entered service in 1985 as a long range fire and fighter ASM. Production was completed in 1992. It was launched from RN Sea Harriers and RAF Tornado GR.1 HS which replaced the Buccaneer in this role.

The decision also comes about from the recent UK Strategic Defence Review recommendation to withdraw the GR.1B fire service as anti-shipping roles would now be in littoral waters as opposed to open ocean operations of the Cold War.

The availability and use of Harpoon in the RN surface fleet also brought about the decision to retire the missile early.

Sea Eagle owes its origin to the mid-1970s, when the Royal Navy wanted to operate a missile for anti-ship and anti-submarine roles. The missile was necessary in order to meet the needs of the Royal Navy, and it was developed by a group of scientists and engineers working on the project. The missile was known as the Sea Eagle and was designed to be launched from an air-launched platform.

The Sea Eagle was first used in action in the mid-1980s, and it was used extensively during the Gulf War. The missile was used to attack targets in Iraq and Kuwait, and it was particularly effective in attacking ships and other small targets.

However, the Sea Eagle was not without its problems. The missile was expensive to produce and maintain, and it was difficult to maintain in a consistent state of readiness. The Sea Eagle was also difficult to operate in adverse weather conditions, and it was often difficult to hit targets accurately.

The UK has now decided to retire the Sea Eagle, and the missile will be replaced by a new air-launched ASM. The new missile will be developed by a consortium of defence companies, and it is expected to be ready for service by the early 2020s. The new missile will be more effective and more reliable than the Sea Eagle, and it will be easier to maintain in a consistent state of readiness.

The decision to retire the Sea Eagle is a difficult one, as the missile has been an important part of the Royal Navy's weapon inventory for many years. However, the decision is necessary in order to meet the needs of the Royal Navy and to ensure that the Royal Navy is able to maintain a modern and effective weapon inventory.
**Two more Sovremenny for China**

Russia is selling two of its existing Sovremenny class DDG to China. This comes on the heels of the arrival of China’s first Sovremenny (see TNI NAVY Vol 62 No.2). The next is due in Chinese waters by the end of the year.

The two Russian Navy Sovremennys will be withdrawn from service and modified at the Severnaya Verf shipyard.

The modifications to be conducted are still unknown but it is thought that the work may be simple repeat and a minor upgrade to bring them on time with China’s brand new Sovremennys. However, China remains in negotiations with Russian officials on possible new weapons for these ships.

The cost to China of the second hand ships will be significantly less than the first brand new ships.

**KIEV destined for China**

The Russian ‘Kommersant’ daily newspaper has reported that the 40,000 tonne aircraft carrier KIEV, mothballed by Russia over six years ago, has been sold to China.

The carrier originally accommodated 12 Forger VTOL fighters, 20 helicopters and had a large complement of anti-ship missiles. She was launched in 1972 and withdrawn from service in 1994.

The Russian paper reported that a US-Chinese firm, Maritime Suppliers, is understood to have signed a sale agreement with the Russian Defence ministry.

What the Chinese paid for the carrier is not known but the MINSK and NOWOROSSIYSK, same class, were sold to South Korea as scrap for US$4.5m and US$4.3m respectively.

According to Kommersant, the Russian Defence ministry has said that all military equipment had been stripped from KIEV.

China has been keen to acquire aircraft carriers for many years. Recent reports have stated that it will complete its first locally constructed carrier in 2005 with construction starting later this year.

It is not known if KIEV will be used as an aircraft carrier or as an example to the Chinese for their carrier construction. However, the carrier is very similar to what India has recently chosen which is to be extensively modified to take the MiG-29K fighter. As the Chinese do not use the MiG they could opt for the SU-27K which is in Chinese airforce hands, incidentally, was thought to be for a carrier when initially purchased.

**Another FFG for Taiwan**

The Taiwanese Government has decided to resurrect plans for an eighth Oliver Hazard Perry class FFG. The plan to build the eighth ship was dropped in 1997 due to budgetary constraints. The Taiwanese FFGs differ from those found in the RAN and USN in two main areas. They have two quad ASM missile launchers behind the bridge for eight independently produced Huang Feng II missiles and two 44mm Type 25 mortar launches behind the ship’s bow. All the ships in the class are named after Chinese generals and war leaders. A Prairie Masker hull acoustic suppression system is fitted and a point defence missile system may be fitted in place of the 40 mm guns. Raytheon’s RAM is a possible choice (see TNI NAVY Vol 62 No.31).

These seven FFGs, and the eighth when built, form the 124th Attack Squadron.

Why Taiwan would resurrect this class of ship is a mystery given that the design dates from the 1970s, is not stealthy like its new La Fayette and stocks of the Standard SM-1 anti-aircraft missile are dwindling. It could not be considered a counter to China’s new Sovremennys as the SM-1 missile and Phalanx would provide little to no protection from the SS-N-22 ‘Sunburn’ ASM now entering service with the PLA-N. It is also understood that China will be licensed to produce ‘Sunburn’ missiles giving it a superb ASM capability against all ships without Standard SM-2 or a sophisticated command, control and surveillance system.

**RSN commissions two LSTs and plans circumnavigation**

The Republic of Singapore Navy (RSN) has commissioned two locally-built ENDURANCE class LST (Landing Ship Tank). The commissioning ceremony signified that the two LSTs, RRS ENDURANCE and RSS RESOLUTION, the first of a total of four, have attained operational status. Singapore’s Deputy Prime Minster and Minister for Defence, Dato Tan officiated at the commissioning ceremony at Tuas Naval Base.

The two LSTs are part of the RSN’s new-generation LSTs, that of the five ageing ex-US Navy Class LSTs. They have greater lift capacity and longer range but operate with half the crew. With its enhanced logistics transportation capabilities, the LSTs have been designed to support Singapore’s overseas training exercises, humanitarian missions and operations in place of the peacemaking and peacekeeping capabilities of the RFA.

The new LSTs are equipped with the latest technology such as the Electronic Chart Display and Information Systems (ECDIS) for more accurate navigation at sea. At the invitation of the USN, RSS ENDURANCE will take part in the International Naval Review (INR) from 3 to 7 July 2000 in New York City Harbour. This is a first for the RSN. While RSS ENDURANCE will be sailing to ports in the United States and Mexico, on its way back to Singapore, it will call on ports in Canada, United Kingdom, France, Egypt and Saudi Arabia. This voyage by RSS ENDURANCE marks the first time that an RSN ship will circumnavigate the world.

**UK to build new landing ships**

The UK Ministry of Defence has invited five UK shipbuilders to tender for the construction of two new large landing ships logistic for the Royal Fleet Auxiliary (RFA). With options for a further three ships on call.

The two new vessels, with an approximate contract value of £130 million, will replace the two RFA Landing Ships Logistic (LSL) SIR PERCIVAL and SIR GERAINT in 2003/2004.

The new ships, expected to be at least 10,000 tonnes each, will be much larger, more capable and more flexible than existing RFA LSLs and will provide a major increase in the capability of the RFA to support amphibious operations and other military tasks such as peacekeeping duties and disaster relief around the world.

The UK Strategic Defence Review gave a clear commitment to improve specialist amphibious landing ships for the Joint Rapid Reaction Force, including the building of two new RFA landing ships. These vessels will enable the UK to maintain its leading position in amphibious capability within Europe and help field a stronger and more coherent contribution to NATO.

The ships will offer flexibility for worldwide operations, and will be essential elements in future amphibious warfare operations. They will be the force multipliers for the UK’s amphibious warfare fleet, moving the heavy vehicles, equipment, stores and troops that sustain a landing force anywhere in the world and disembark them in tactical formation directly into combat.

**USMC AAV water tested successfully**

The USMC has completed the first high-speed water test of its new Advanced Amphibious Assault Vehicle (AAAV), designed and built by General Dynamics Land Systems. The test took place at the Patuxent River Naval Air Station in Maryland.

The AAV is a new amphibious AAVV vehicle (AAAV) designed for the USMC. It can self deploy across water and land with 17 fully equipped Marines. It is armed with a 40mm gun and can travel on the water at more than 30kts in Sea-State 3. On land it has a maximum speed of 75kphs. Its armour provides protection from Armacl-Parcing 14.5mm rounds and the vehicle has an automatic fire extinguisher system.

During the test the AAV prototype reached speeds in excess of 80kts over a one-mile distance. This test also marked the first attempt to power the AAV at the full-up plane position it uses to ride on the water.

'Taking a vehicle that can perform like an M1 tank on land and turning it into a speedboat on the water is quite an engineering feat' said Colonel Blake Robertson, USMC AAAV programme manager.

The New USMC AAV. The vehicle would serve the Australian Army well from the LPAK RANSHIRE and MANDORRA (LSM).

The New USMC AAV. The vehicle would serve the Australian Army well from the LPAK RANSHIRE and MANDORRA (LSM).
Citing costs and the need for more durability testing and another has Quaniico in Virginia. A prototype vehicle is scheduled to continue water testing through this summer in preparation for Early Operational Assessment testing later this year.

USN SSNs may get new life

Citing costs and the need for more submarines, the USN is likely to earmark more than US$1 billion to extend the life of its SSNs rather than convert four Ohio class SSBNs to carry cruise missiles.

The USN placed US$1.1 billion in its 2001 budget request that would be used either to refuel four SSN-688 Los Angeles-class attack submarines or to serve as a down payment on converting several Ohio class ballistic missile submarines to carry cruise missiles.

Under the terms of the 1993 treaty, ballistic missile submarines cannot be used for other missions unless the missile tubes are significantly different from what is already fitted. Otherwise, the modified submarine would still count as part of the warhead totals under the treaty's provisions, even if there are no ballistic missiles on that submarine.

If the USN decides to go with the SSBN conversion option it would have to be forced to pay a huge cost increase if the missile tubes are not addressed before work starts. Rather than lose the opportunity to increase the SSN force structure, it is believed the USN will make the decision to go with the SSBN conversion option and then pay the additional cost.

The Ohio-class conversion at present is considered risky. If changes to the existing Strategic Arms Limitations Treaty II cannot be negotiated to allow strategic missile submarines to be converted to carry cruise missiles, then the USN will be forced to completely remove the missile compartment from each sub and replace it with a different type. This approach is viewed as very costly. It is estimated that this special missile compartment conversion would cost an extra US$500 million per sub, taking the four-ship conversion costs to about US$4.5 billion.

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HMS NEWPORT Decommissions

HMS WELLINGTON, well known to many in the RAN, has decommissioned after 18 years and 332,000 nautical miles in RRNZ service. Following her Gulf deployment in 1996, WELLINGTON was further altered by replacing the old SeaCat missile system with the Phalanx CIWS and enlarging the hangar in anticipation of the replacement naval helicopter. However, personnel training demands were beginning to dominate the Navy's day to day management.

The Indian Navy has announced it has selected the Russian Tupolev Tu-142 ‘Bear’ for Maritime Patrol duties. The Tupolev beat the French Atlantique which happens to be used by India’s nearest and part time enemy Pakistan.

The Indian Navy will purchase six Tu-142 aircraft which will be equipped with the British made Sea Eagle ASM (Anti-Ship Missile, see earlier news item) and cost approximately US$200 million.

The Tu-142 would also operate eight Tu-142 ‘Bear’ for maritime patrol. This was considered a major factor in favour of the decision to purchase the Russian aircraft which have the ability to operate off the Western Australia coastline.

The Indians also have plans to equip the new aircraft with the much feared SS-N-27 ASM.

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HMS WELLINGTON during happier times. (John Montimer)

HMS WELLINGTON was acquired from the Royal Navy in 1981 having already served for 12 years as HMS BACCHANTE in RN Service. As a gun-armed Leander she was fully compatible with existing RRNZ frigates. She sailed for New Zealand in 1982 and went straight into a lengthy refit. Changes were made to bring her into line with RRNZ standards - such as the ASW mortar which was removed and replaced with two triple ASW torpedo tubes. Most significantly though was her fuel capacity being doubled, setting her apart from her contemporaries.

Other changes were made including an RCA digital fire control system and gunnery radar, anti-missile chaff launchers, new ESM and an updated surface search radar.

In 1991 the ship again entered major refit with the installation of the NAUTIS/Faction information system and the new UVH long range air warning radar. Such equipment served her well for one of her most extensive deployments when in 1996 WELLINGTON was sent to the North Arabian Gulf, as New Zealand's first contribution to the UN-mandated sanctions against Iraq, and in late 1997 the ship was designated the Navy's training frigate.

During 1998, incidentally, WELLINGTON conducted the operational flight of a Wasp helicopter.

Last year a decision was made to place her alongside at extended notice following the announcements of a three frigate policy for the RRNZ. None of the three, the ship made one last passage to the city of Wellington where her charter of the freedom of the city was returned. Since then WELLINGTON has served alongside in a training role and support role for the fleet.

In his closing remarks at the decommissioning ceremony on 5 May, the RNZN Chief of Navy said “Farewell WELLINGTON and thank you – for the happiness we have shared, for the friendships made and the frustration’s endured, for the memories, and the sea-stories they generate; and for bringing us safely home. May I wish all that have served in her every success and remember whilst her people will soon leave the ship, the ship will never leave her people.”

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such as HMAS CERBERUS, with a ships company of several thousand, has more opportunities to qualify for the award than a patrol boat with a crew of 20 or so.

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

Until this year it had been presented to a ship on only 4 occasions - HMAS CESSNOCK (twice), HMAS BRISBANE and HMAS ANZAC three years ago.

HMAS ADELAIDE was a very worthy winner for 1999 given the excellent work which the Ship’s Company had done in supporting the Colombian Coastguard. The Adelaide Women’s Company had done in supporting the Special School, and their support for the community which in turn might happen to be the Ship’s Company.

Mr Moore said that “their efforts were a credit to the Ship’s Company”.

The thousands of kilometres that the ship had travelled since it was first awarded demonstrates that Australian sailors, wherever they might happen to be, contribute much to the community which in turn reflects well on the communities perception of the RAN.” He added.

Kidds rejected, Again

The Minister for Defence, John Moore, has announced that the Defence Capability Committee (DCC) has formally decided that the US Navy’s Kidd Class destroyers will not be acquired by the ADF.

The DCC reached its decision on the basis that, in the present environment, they do not provide long term value for money.

“The Kidds were only one option for Navy’s long term Anti-Air Warfare capability and they were closely examined,” Mr Moore said.

“Although they will not be acquired, the examination of the Kidd option proved a useful exercise in exploring issues relevant to the acquisition of an effective Air Warfare capability for the ADF’s surface fleet.”

Mr Moore said that a decision on a naval Air Warfare capability would be made following the Defence White Paper due for release later this year.

A joint Defence and industry team has been established to determine the most effective way to acquire the capability for the ADF.

The Government recognises that an Anti Air Warfare capability in the surface fleet is an important consideration. It also is an expensive one,” Mr Moore said.

“The Federal Government and the Defence Department will continue to work with industry to investigate the question of the future of Australia’s surface fleet, including Air Warfare capable ships.

“This will include consideration of industry’s future ability to support the ADF in the provision of its maritime capabilities,” Mr Moore said. Industry is already gearing up to meet the capability requirement of the RAN with many major shipbuilders from around the world expressing interest. Whether any new ship on offer will be as capable, survivable and powerful as the Kidds is open to debate as much will be acquired is also unknown but the decision is to be based on the White Paper’s recommendations that number could be quite low.

Looking at the defence scene in early May 2000 it appears to the writer that the present government will have to face up to some troublesome defence issues in the very near future.

All the indications point to a defence force expected to perform too many tasks with inadequate resources. Both financial and human. The task ranges from peacemaking and peacekeeping missions in foreign lands to a defence force expected to have the ability to deter anyone contemplating a challenge to Australia’s national sovereignty.

The Defence Department’s decreasing proportion of the national industrial capital is almost, if not quite, as well known as widely reported cost overruns in some acquisition programmes, the additional costs involved in redefining these deficiencies are however small compared with the certain cost of replacing major items of naval, air force and army equipment many of which will become obsolete at about the same time – ‘block obsolescence’ as it is known in defence circles. Ships and aircraft do not come cheaply.

Efforts to avoid block obsolescence have been made by defence planners for many years but governments tend to procrastinate when faced with significant equipment expenditure. Governments failing to act in a timely way can however, claim with some justification that the community has other priorities in the relatively peace time climate in which most Australians have lived, virtually since the Second World War.

Human resources: Not surprisingly, personnel costs have for long formed the largest item of expenditure in defence budgets – merely falling below 50% in recent years particularly these costs have escalated and will continue to do so as pay scales based on rank are increasingly discarded in favour of pay, for specific skills (not so long ago only medical and dental officers received salaries more closely aligned to their civilian colleagues). A fall in uniformed and civilian members has not been matched by a corresponding fall in personnel expenditure - in fact costs will almost increase as the Services strive to match wages and conditions prevailing in civil employment in order to not only attract recruits but to retain serving members.

In addition to the need to meet increased equipment and personnel costs, operational expenses have also grown especially since the East Timor venture; while some peacemaking/peacekeeping expenditure may be reimbursed by the United Nations overall operational costs are unlikely to decrease in the foreseeable future and are more likely to increase in the future due to less signs of easing.

The Howard Government appears to recognise the approaching problems and one might assume it awaits with some trepidation the Defence White Paper commissioned in 1999 which among other things will provide the current strategic outlook. One does not have to be a foreign affairs or defence expert to realise that we do not yet live in a world in which nations have decided to disarm their armed forces, discard their armaments and henceforth live happily alongside one another; indeed one might reach a quite different conclusion.
Submarines in Britain’s Defence

With the UK expanding its submarine capabilities, Dr Lee Willet examines the utility of this capability enhancement and its implications to UK military strategy. The importance of nuclear power in the RN’s submarine force, and future strategic direction, is considered vital in this expanding role for Britain’s submarines.

Initially, submarines were regarded as a weapon of the weak. With nuclear propulsion, submarines emerged as the ultimate weapon of strategic deterrence in the nuclear age. Bringing speed for speed and for deep-dived, sustained reach, nuclear power turned submersible torpedo-boats into submarines. Although the only difference between a nuclear-powered submarine and a conventional submarine is the power plant (sensor and weapons technologies will be equivalent in capability), a nuclear power plant brings opportunities and constraints of a different order of magnitude because of the speed and endurance it brings as core assets to the submarine.

Modern warfighting technology highlights the role of stealth. The most effective way to make a sea-based platform stealthy is to hide it beneath the surface. Nuclear submarines provide - in one multi-dimensional, modular platform - a balanced strategic, operational and tactical force - in one multi-dimensional, modular platform - stealthy is to hide it beneath the surface. Nuclear submarines are particularly suited to providing a sea-based power projection, as they can operate long distances and remain below the surface.

With the advent of nuclear power, British SSNs have conducted operations in some of the world’s most hostile environments. The Trafalgar class SSN HMS TRENTIAN was part of a special blue-water task force operating in the Gulf to examine the threat. The SSNs are capable of conducting special operations and limited nuclear weapon delivery, as well as providing support to joint task groups.

Dr Lee Willet*
The RN’s acquisition of TLAM (Tomahawk Land Attack Missile) gives their SSNs the greater scope to project power from under the ocean. Although the RN’s Advanced Tomahawk Land Attack Missile (Talos) has yet to be deployed, the RN’s decision in 1998 to acquire TLAM prepares the RN to take advantage of the many opportunities that the Tomahawk provides. Moreover, the RN’s SSNs are part of the Royal Navy’s integrated maritime strike force, which is designed to take advantage of the RN’s flexible and deployable assets.

The RN’s SSNs and their embarked forces provide a sustained and forward-deployed sovereign platform, this being a cornerstone of the maritime contribution to joint and combined expeditionary operations. A measure of how far the RN fell short in Operation ‘Allied Force’ was the shortfall in ‘Available Force’. British and American SSNs fired 25% of the TLAMs employed; in Operation ‘Desert Storm’ in 1991 and Operation ‘Desert Fox’ in 1998, U.S. SSNs alone provided only 4% of the TLAMs fired.

### Challenges for Britain’s Submarine Force

The RN Submarine Service clearly is making strides towards meeting the strategic challenges of the modern world and towards maintaining its contribution to British defence policy. However, there remain some significant obstacles to further evolution. These are: connectivity, force size and the costs of nuclear ownership.

#### Nuclear Ownership

Nuclear submarines often are viewed as expensive Cold War relics making only a limited contribution to military operations. Now that the submarine services of Britain and the U.S. have gone some way towards re-aligning and re-communicating the enduring multi-functional contribution of nuclear submarines to such operations, a significant challenge which remains is the issue of the cost of nuclear power. What is often overlooked, however, is the cost-effective capability that is procured with a multi-dimensional and flexible platform whose life expectancy can surpass 30 years. Simply, nuclear submarines provide more bang for the buck. This argues against the logic of force level cuts in SSNs.

#### Force levels

U.S. trends suggest that SSNs should be reduced to 12 to 10 hulls. As SDR sought to reduce Britain’s defence expenditure, two SSNs arguably were sacrificed to fund two more Trident SSBNs. However, this option was aided by the costs of nuclear ownership and, more specifically, by the prospective savings to be made from cancelling some submarine re-fits. Yet SDR’s decision to trim SSN force levels from 12 to 10 hulls is set against a backdrop of increasing requirements for submarine missions and the fact that the background research for SDR showed that more SSNs were needed to meet national taskings. This calculation centred on the need to have five SSNs on station – one each to tackle the tasks of INW, Special Forces insertion, ASW, ASW and land attack. Moreover, in these calculations the requirements for TLAM land attack were not vectored in as force drivers. When procuring TLAM, the RN calculated that three SSNs were required for TLAM missions alone to guarantee achieving the desired coercive effect. Thus, these analyses suggest a requirement for as many as seven SSNs on station in any given operation. A force level of 14 boats produces an operational cycle of five boats on station, a force level of ten produces just three. Moreover, the lack of available SSNs will limit the ability of SSNs to carry out strike mission requirements without impinging on other operations, or vice-versa. Thus, there is an argument that Britain should have been looking to increase, not decrease, its SSN force levels. A recent study by the U.S. Joint Chiefs of Staff has concluded that U.S. SSN levels should rise from the current level of 68 hulls to perhaps as many as 76 boats. This requirement is diametrically opposed to the conclusion of the 1997 Quadrennial Defence Review, which stipulated a force level of no more than 50 hulls.

### Submarine Operations in Kosovo

SSNs made several critical contributions in ‘Allied Force’. In an operation which challenged much of the logic of contemporary Western strategic thought, the nuclear submarines of the American and British Navies showed the ability to exert a range of unique, flexible options across the spectrum of combat. When nuclear capabilities are viewed as a whole, from sea control to stealthy TLAM strike, the ability of an SSN to bring a range of battle-ready capabilities to the combat theatre in a single unit is evident.

From the U.S. Navy’s perspective, USS NEW HAMPSHIRE (SSN 755) became the first SSN to contribute to the land attack strikes in two theatres in the same deployment, having taken part in Operation ‘Desert Fox’ in December 1998 before deploying to the Adriatic for ‘Allied Force’. USS NORFOLK (SSN 714) was switched between INW and TLAM operations, whilst USS ALBUQUERQUE (SSN 706) contributed to the TLAM deployed and operated as a special operations platform. Other U.S. submarines, USS BOREAS (SSN 764) and USS NARWHAL (SSN 671), also contributed to the operations. From the British perspective, HMS SPRINTLIM DIVIDED FATE from the Persian Gulf with the HMS INVINCIBLE Task Group to be the first Allied unit into action on the first night of ‘Allied Force’. HMS TURBULENT was also deployed, as an ASW asset to counter the prospective threat from Serbia’s sole conventional submarine, the Albatros. The RN’s novel ASW capabilities were needed to meet national taskings. This calculation centred on the need to have five SSNs on station – one each to tackle the tasks of INW, Special Forces insertion, ASW, ASW and land attack. Moreover, for many years the submarine lost the capability to apply firepower to shore targets with the deletion of the deck mounted gun. TLAM restores this capability to the RN but with far greater accuracy and effectiveness (RN).

#### Connectivity

Today, there is a greater emphasis in the UK on SSNs providing forward-based intelligence. SSNs must be able to interact more closely in joint and combined operations to make a direct contribution to the real-time intelligence so crucial for shaping the modern battle-space.
It is to be accepted that network-centred operations will provide the framework for implementing military force. The Royal Navy Submarine Service understands that communications remain its Achilles heel. In the words of U.S. Secretary of the Navy Richard Darman, the challenge for submarine services is developing the ability to interconnect the submarine force with the rest of the Navy and the whole suite of national security activities. It is the ability to work with the battle group. It is the ability to connect the battle group to the rest of the battle group. It is the ability to communicate with other forces. We need to overcome the notion that “that silent” is the necessary imperative of the submarine force in all circumstances

Yet an SSN must be able to provide ESW while exploiting its traditional, unique attributes of autonomous, sustained stealth SSNs must generate functional integrity with other units. In recent operations, British SSNs have experienced difficulties in communicating with other forces. However, as was demonstrated in Kosovo, the ILAM communications infrastructure may provide a larger framework for communications with other assets.

From the RN’s perspective, there is a growing argument for upgrading SSN communications to tackle and exploit the changes of kinetic dominance in modern warfare. Here the U.S. Navy already has fitted 50% of its SSNs with EHF (Extremely High Frequency) communications capabilities, including upgrading its ILAM communications infrastructure to EHF. Without EHF, the lack of sufficient bandwidth is a central source of the communications problems facing SSNs. Moreover, limited communications capabilities will restrict Britain’s ability to exchange TIA/M targeting data and broader communications infrastructure may provide a larger framework for communications with other assets.

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The changing role of the submarine has been the key issue for the Royal Navy Submarine Service since the end of the cold war. The primary challenge has been to justify retaining a nuclear force and outward. Despite the strategic changes of the modern world and a general misunderstanding of the vital, unique contribution of submarines to the national security of a maritime power, the British and American submarine communities actively seek to preserve the primacy of nuclear-powered submarines at the leading edge of contemporary military operations. New strategies and new technologies are enhancing this utility further.

First, national tasks for Britain and American submarines are increasing at a accelerating growth rate. Second, a growing number of nations are pursuing submarine and nuclear capabilities. This underscores the enduring need to maintain a strong ASW capability. Third, nuclear-powered submarines provide the cover, sustainable, forward-deployed capability crucial to requirements in contemporary military operations for strategic surprise and active shaping of the battle space. Fourth, developments in sensor technologies may serve to make surface warships increasingly vulnerable. Little progress has been made in improving the transparency of the oceans. Even here, however, the RN has moved to

### Maritime Airpower for Australia

#### Part 2

The Re-emergence of the Light Fleet Carrier

**By George Kaplan**

In part two of our series on Maritime Air for Australia, George Kaplan examines the re-emergence of the Light Fleet Carrier in many Navies around the world. The examples in the article provide an interesting insight into what Australia could afford.

For many years it appeared that the operation of organic fixed wing air support at sea was a task only affordable by the richest of nations. Many of the countries that had embraced naval aviation in the relatively peaceful years following the end of the Second World War had given up the game away when the cost of replacing the ubiquitous ex-Royal Navy Majestic class light aircraft carriers became apparent. While several of these navies had investigated the operation of the Harrier STOL (Short Take Off/Vertical Landing) aircraft, there had always been a question mark surrounding the aircraft’s performance in comparison to more conventional aircraft. These doubts were conclusively put to rest following the Harrier’s magnificent performance in the 1982 Falklands Conflict in the South Atlantic. In the following years the interest of Falklands campaign several navies laid down ships specifically designed to operate VSTOL aircraft, providing organic air cover when and where required. Today the cost of introducing organic fixed wing aviation support to smaller Navies has never been more affordable. A number of shipbuilders have developed ships that provide a level of capability once thought only possible beyond the means of smaller nations.

By George Kaplan

The SSBN IIXIS VIGILANT on the surface. The main role of the SSBN during the cold war was strategic nuclear strike. Today the RN is expanding the SSBN role and its contributions to maritime security and military operations. RN submarines are seizing the opportunity to assert the primacy of nuclear submarines to the national security of a maritime power, and beyond. This underscores the utility of maintaining a forward-deployed capability crucial to the growth in peace keeping operations in more distant parts of the world.

The United Kingdom

The RN has considerable experience in operating VSTOL aircraft at sea, dating back to the late 1970s. The Sea Harrier has operated from the decks of the three Invincible class CVLs, INVINCIBLE, ILLUSTRIOUS and ARK ROYAL, in numerous wars and UN sanctioned operations. So effective is the capability offered by these ships that they are undergoing modifications in allow them to operate additional aircraft. This will see them losing the Sea Data Link to air missile system to make room for additional deck parking space for embarked RAF GR-7 Harriers and their armament.

Controversial when first proposed, the Invincible class was first designed through deck couriers to escape the ire of opponents of the Navy’s plans to acquire air capable
The RN Invincible class-carrier HMS ILLUSTRIOUS after her commission to remove the Sea Dart missile launcher and place instead the Sea Cat. The conversion allows additional deck parking for aircraft while the Sea Dart system now provides more space for the embarked RAE F-5 Thud. (RN)

ships. Comedians of the time described them as "see through carriers." A Defence Review of the early 1980s almost saw INVINCIBLE sold to the RAN, however the Falklands Conflict put paid to any thought of selling any of the class. Since then all three have been busy in trouble spots throughout the world, most recently in operations over Kosovo.

Commissioned in 1980-85, the Invincible class displace 20,000 tonnes and following their most recent refit, can operate a peacetime mix of up to 15 FA2 Sea Harrier and GR-7 Harrier aircraft, in addition to nine Sea King or Merlin helicopters. Several of the Airborne Early Warning variants of the Sea King are also embarked, deemed essential after the RN's experiences in the Falklands.

Powered by four Rolls Royce Olympus gas turbines, the Invincible class have a maximum speed of 28 knots, and a range of 7,000 nautical miles at 20 knots. Aircraft landings and takeoffs are accomplished at 150 knots, and the deck slope is 20 degrees. For self-defence OCEAN carries four of the Invincible class, with a modified superstructure providing more useable flight deck area. While a ski jump is not fitted, the installation of one would be a comparatively minor modification. As currently fitted out, OCEAN can carry and operate Harriers and Sea Harriers however, maintenance facilities are not available. Diesel engines were specified for good range and minimal impact on the ships internal layout, providing a maximum speed of 19 knots and a maximum range of 8,000 nautical miles. For self-defence OCEAN carries three Phalanx close in weapons systems in addition to eight 30mm cannon, as well as the usual suite of chaft launchers.

Coastal units of the ship are 268, plus 180 aircrew and helicopter maintenance personnel. To deliver her troops four Landing Craft Vehicle/Personnel are carried on davits, together with two small Griffin helicopters.

The RN carries AA trials for other Navies looking to return to the aviation fold. Her mix of military and civil systems have produced a capable force projection asset at a discounted price by comparison with a new build vessel constructed to military standards only.

Whilst OCEAN herself is not designed to provide permanent basing for Harrier aircraft, this is a decision made to optimise her for the amphibious-support role. A sister ship designed for carrier operations could operate a much larger air group than the Invincible class, based on the larger hangar space available. Incorporating the benefits of almost 20 years of RN VSTOL operations, a modified OCEAN would be attractive to many Navies worldwide.

Spain

Spain hocked the trend of small Navies' post-World War II and, approached the US, the UK, for a small aircraft carrier. Spain acquired the Independence class light carrier CÁCERES in 1967, a veteran of the Pacific War, under the name of DEDALO. Faced with the requirement to replace the increasingly difficult to maintain DEDALO in the late 1970s, Spain chose to build a new carrier, based on the design of the Independence class. This design was the Sea Control Ship (SCS) concept, championed by Admiral Elmo Zumwalt, USN Chief of Naval Operations during the late 1970s. Admiral Zumwalt proposed the design of smaller helicopter and VSTOL capable vessels as the low end of a high/low mix of naval aviation. The SCS would be built to provide organic aviation support to convoys and amphibious groups, by providing at a useful (and expensive) super carriers for offensive strikes. The plan also had the naval aviation community in the USN saw it as a threat to the continued funding of the large Nimitz class aircraft carriers.

whilst deemed "unsuitable" for the USN, the concept met most of the requirements of the Spanish Navy, and the design was acquired for construction by Bar攒 in Spain. Numerous minor modifications were made, however, the ship remains true to the SCS concept, providing a way to get a useful number of aircraft to sea at a reasonable cost.

Displacing 17,188 tonnes, PRINCIPE DE ASTURIAS has a normal air group of eight EA-6B Harrier II Plus, together with ten Seahawk, AB-212 ASW and Sea King helicopters. Two of the latter are the Airborne Early Warning variant. Spain having taken heed of the RN's hard lesson of 1982. In an emergency a maximum of 37 aircraft could be operated, however this number would involve some overcrowding.

Two of the ubiquitous General Electric LM-2500 gas turbines propel PRINCIPE DE ASTURIAS to a maximum speed of 28 knots, with a maximum range of 6,500 nautical miles at 20 knots. Self-defense is provided by four of the indigenous, locally developed 20 mm close in weapon systems, plus a comprehensive electronic warfare suite. To allow the ship to carry out her role as flagship of the Spanish Battleship Alliance task force, she is fitted with a comprehensive command and control system.

One of the most interesting designs of late is the RN carrier HMS OCEAN. This ship was built using a mix of commercial and military standards in the design to significantly reduce cost yet not at the expense of capabilities. RN
The Royal Thai Navy (RTN) had initially signed a contract with Bremer Vulkan in Germany in early 1991, for a small aircraft carrier, the countries first. This contract was cancelled mid year and a new contract was let with Bazan in Spain, builders of the PRINCIPE DE ASTURIAS, for a smaller version of that ship.

The Thai requirement was for a ship capable of operating a range of tasks, primarily Exclusive Economic Zone surveillance, disaster relief, search and rescue and law enforcement. Secondary tasks are air support for maritime operations and command and control of naval forces.

Commissioned in March 1997, CHAKRI NARUJEBUT was formally completed for a reported SUS303 million, although cancelled mid year and a new contract was let with Ba/an contract with Bremer Vulcan in Germany in early 1991. for support for maritime operations and command and control Economic Zone surveillance, disaster relief, search and smaller version of (hat ship.

The Thai requirement was for a ship capable of operating from the carrier and by whom could also be solved through some judicious forethought. The Harrier, in its various incarnations, is nearing the end of its development life however, a replacement aircraft is under development.

The Joint Strike Fighter (JSF) is a multinational project involving the US and a number of partner nations, with the aim of bringing into service an aircraft to replace a wide range of military aircraft types. The JSF will be built in three types, a conventional take off and landing version for the US Air Force, a carrier compliant version for the US Navy and a vertical take off and landing version for the US Marines. Royal Air Force and Royal Navy.

The RAAF’s F/A-18 Hornet fleet is due to be replaced in 2010-2012 timeframe with the same aircraft in all likelihood replacing the F-111 in 2020. Obviously the most likely contender to replace the Hornet is the JSF. The aim of the JSF is to achieve maximum possible compatibility across all variants, and it would be too difficult to engineer the RAauf acquiring a mix of conventional and VSTOL variants of the JSF. This would avoid the problems of operating two widely dissimilar aircraft types, with their attendant separate maintenance, spare and training costs.

With the eventual retirement of the F-111, and the conversion of the two F-111 squadrons to the JSF joining the current Hornet squadrons, Australia would have five front line JSF squadrons. One of these squadrons could be equipped with the VSTOL variant of the JSF for operations from a Navy carrier.

Thus Navy would provide the platform and rotary wing element whilst the RAAF could provide the fixed wing component. This would answer Navy’s needs for air cover during operations distant from Australia, whilst centralising the management and logistics of the squadron under the logical command of the RAauf.

The possibility exists for the Navy to regain this capability with the support of both Army and Air Force for the acquisition of a carrier.

A suitable vessel, capable of providing support to amphibious operations, and embarking an air group of Navy helicopters and Air Force JSF variants, would provide Australia with a force projection asset vital to the nation. Particularly important if Australia is to be seen a robust defence partner throughout the South East Asian area.

Recent statements from the government and from within the ADF have spoken of the need for the ADF to be able to operate throughout Australia’s area of national interest. The capability to deploy troops, equipment and airlift wherever required is a fundamental capability currently lacking in the ADF.

The acquisition of a basic aircraft carrier/amphibious support ship would provide this capability and together with an embarked complement of fixed wing aircraft, would provide Australia with an invaluable capability for safeguarding Australia’s interests throughout the region.

In Part three of our series we examine an innovative, indigenous design for a multi-purpose air capable platform designed by and for the RAN. The Litoral Support Ship.
MATCH

LEEWIN & MELVILLE Commission

For the first time in the history of the RAN two sister ships have been commissioned together.

The historic commissioning ceremony occurred at Trinity Wharf in Cairns and marked the commencement of official Navy service for Australia’s newest hydrographic ships.

The two ships, HMAS MELVILLE and LEEWIN, replace the existing hydrographic ships, HMAS MORESBY and FLINDERS.

HMAS MELVILLE and LEEWIN will provide the RAN with one of the most advanced hydrographic capabilities in the world. Fitted with state-of-the-art technologies, the sister ships are each crewed by 48 personnel.

In another first for the RAN, personnel have been formed into three crews who will rotate between the two ships. This new manning system will maximise the ships’ operational time, with each ship expected to spend 300 days at sea each year.

DISPATCH

HOBART Decommission

The Commanding Officer, HMAS HOBART, Commander Peter Murray RAN, sent the following message just after he conducted her last speed trial off the NSW coast:

SUBJ: HMAS HOBART FINAL ENTRY TO SYDNEY HARBOR

1. WITH FOUR BURNING AND TWO TURNING HOBART CONDUCTED HER LAST FULL POWER TRIAL AND ENTRY INTO SYDNEY HARBOR, SPEED BY FIX WAS 36 KNOTS, SPEED BY GPS 35.8 KNOTS.

2. AGE DID NOT WEARY HER, BUT THE YEARS CONDEMNED WE WILL REMEMBER HER.

The Royal Australian Navy’s oldest warship, the guided missile destroyer HOBART decommissioned at Fleet Base East in Woolloomooloo on Friday, 12 May.

The White Ensign is lowered for the last time on the decommissioning DDG HMAS HOBART. Brian Morrison, Warships and Marine Corps Museum Inst.

In a traditional naval ceremony, the Australian White Ensign was hoisted for the last time before HOBART’s crew marched off the ship. The Commanding Officer then presented the ensign to the Maritime Commander, Rear Admiral John Lord, signifying the end of HOBART’s 35-year service in the RAN.

After commissioning in 1965, HOBART conducted numerous tours of duty in the South East Asia and Pacific regions. These included three six-month deployments to Vietnam for operations with the US Seventh Fleet during 1967, 1968 and 1969. HOBART was also one of the first ships to provide relief to the citizens of Darwin after the devastation caused by Cyclone Tracy in 1975.

HOBART is the only serving RAN warship to have suffered a missile hit during a conflict. She also holds the record for winning the Gloucester Cup eight times, for having the best overall efficiency, and was the last RAN major surface warship to operate with an all-male crew's company.

The 4720 tonnes warship was the second of three Perh class guided missile destroyers built for the RAN in Michigan, USA. Together with her sister ships, BRISBANE and the recently decommissioned PERTH, HOBART has generally been regarded as one of the RAN’s best balanced and most capable warships.

Truly an impressive ship that will be sorely missed.

PRODUCT REVIEW

Battle of the Java Sea

Odeus Documentaries, 1995

Director: Nick Happen

Length: 155 mins

Price: $45

The footage used in places of the ships before the battle is significant as it is believed the new Australian ‘White’ paper will focus on this part of the world and use the battle as an example of where our defence interests lie.

The Battle of the Java Sea is a very well researched and informative documentary. The only drawback to the movie is that most of it is subtitled in English, being a Dutch film. However, the interviews with crew members from the UK cruiser EKETER, the US cruiser HOUSTON and PERTH are in English, with no subtitles, and adds to the perception that each ship’s crew had a different perspective of the battle. Most of the English speaking crews are interviewed towards the end of the documentary which provides relief from the subtitles as the documentary is quite long.

The film won the ‘Best Documentary’ award at the 1996 Dutch Film Festival and if one is not too put off by reading subtitles then The Battle of the Java Sea is well recommended.

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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 strength and safety depend to a great extent on the security of the surrounding ocean and island areas, and on seaborne trade.

The Navy League:

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

As to the RAN, the League:

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

The League:

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

While recognising current economic problems and budgetary constraints, believes that, given leadership by successive governments, Australia can defend itself in the longer term within acceptable financial, economic and manpower parameters.
The Kidd class DDG USS SCOTT leaving Sydney Harbour for the lost time (see Flash Traffic section). The improvements the R.:N were planning to make to the Kidds, if purchased, would have made them the most powerful and versatile surface combatants in the Southern Hemisphere. (Brian Morrison, Warships and Marine Corps Museum Int)

The Navy
The Magazine of the Navy League of Australia

"THIS SPOT COULD BE YOURS"

Contact
Peter Jordan
(03) 9645 0411

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Mr Joe Christensen.
8 Kamilaroi Cres.
Manilla, NSW, 2346
Exploding the Myth of Surface Ship Vulnerability

Maritime Airpower for Australia, Part 3
Whose systems harness the power of information?

ADI is the answer. For military commanders, information is one of the most valuable assets available. Now, ADI’s advanced command support system provides commanders with a highly automated process to harness the information power necessary to direct strategic, operational and tactical commands. A mass of data is collected, analysed, displayed, updated and disseminated. ADI’s extensive capabilities in electronic systems are features of projects such as the $1 billion minehunter ships contract and ADI’s successful bid for the upgrade of the Royal Australian Navy’s guided missile frigates. A major Australian defence, engineering and systems company, ADI is the answer.
Coral Sea was however, regarded by the Japanese as only a temporary check and planning continued to expand their operations. The Japanese were forced to abandon an assault by sea on Port Moresby and proceeded to attack over the Owen Stanleys.

Unwin Sydney 1994) I can claim to have some knowledge of naval affairs. That attack had begun with Pearl Harbor and had continued with Midway. The Japanese had discovered before they could get into position and when the Battle of Midway on June 21st they were virtually wiped out losing over 300 men to the Marines' 43. This American victory preceded that of the Australians at Milne Bay by five or six days.

I would therefore like to take issue with two points arising from the briefing. The first is that the significance of the victory at Midway is not so much as the carrier support essential for operations in the Central Pacific to the south-west of the United States. The Japanese had to recognise that America held the initiative in the Pacific. That attack had begun with Pearl Harbor and had continued with Midway. The Japanese had discovered before they could get into position and when the Battle of Midway on June 21st they were virtually wiped out losing over 300 men to the Marines' 43. This American victory preceded that of the Australians at Milne Bay by five or six days.

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In my opinion the capture of Guadalcanal should be regarded as part of the battle for Australia because our success there effectively established a major Allied perimeter by capturing Fiji, Samoa and New Caledonia in July. They already held the Solomons which they planned to use as a springboard for operations in the central Pacific. The Japanese had discovered before they could get into position and when the Battle of Midway on June 21st they were virtually wiped out losing over 300 men to the Marines' 43. This American victory preceded that of the Australians at Milne Bay by five or six days.

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by Geoffrey Evans

It is a matter for regret that the early history of the Navy League in Australia is lost in the mists of time but it is known beyond doubt that a branch of Britain's Navy League was formed in Launceston in the year 1900 - on 29th November of that year to be precise - and called the North Tasmanian Branch.

The parent Navy League was formed in Britain in 1896 with the commendable object of "urging upon the Government and the Electorate the paramount importance of an adequate Navy as the best guarantee of Peace." Of concern at the time was the high proportion of foreigners in British Merchant ships, the crews of which were largely interchangeable with those manning Royal Navy ships and formed the Navy's Reserve. It was believed the foreign element weakened the Royal Navy.

At the turn of the century the Royal Navy was still as vital to the wellbeing of the Dominions and Colonies as it was to Britain and Navy League Branches were soon established throughout the Empire. Northern Tasmania was No. 53 while in our region Auckland was No. 52 (formed in 1896) and Wellington No. 80 (formed 1904). Branches were also formed in Sydney and Melbourne but the writer has no knowledge of the dates.

Following the example of the present Navy League, the overseas Branches established organisations designed to encourage young men - teenagers - to take an interest in the sea and nautical affairs. Over the years these organisations carried a variety of names including the early "Naval League Boys Naval Brigade," "NL Cadets" and "NL Sea Cadets" and since 1973 "Sea Cadets" - the Australian Sea Cadet Corps (ASCC). While the League continued to support the NRC - a "Naval Reserve Cadets" - the latter a misnomer as the cadets are not members of the Defence Force. A Naval League was also established in the United States at the turn of the century, but more about this later.

From their inception until World War II the Australian branches of the Navy League took a sporadic interest in naval defence, members spending most of their time on sea cadet training units that had been formed in Northern Tasmania, Sydney and Melbourne. This situation continued until after the war.

In 1947 the Branches formed a loose coalition and sought naval assistance for the NL Cadets. The Naval Board not surprisingly declined to negotiate with a London based organisation and it was not until 1950 that the Navy League of Australia came into being as an autonomous body, governed by a Federal Council that included representatives from each State and Territory of the Commonwealth.

The first Federal Council headed by Commander (S) John Bates RANVR (later knighted) consisted of retired RAN and wartime Reserve Officers whose first task was to gain recognition and practical assistance from the Navy for the cadets. An Australian Sea Cadet Corps (ASCC) was formed with Divisions corresponding to the States and Territories, a partnership arranged with the Navy and a Sea Cadet Council consisting of naval and Navy League representatives to oversee the activities of the Corps.

The Naval Defence Act (this was in the days when the Navy, Army and Air Force were separate Departments of State and had their own rules and regulations) limited the assistance Navy could provide but it was invaluable nevertheless. It included the provision of uniforms, responsibility for training and the supply of some training equipment. The ASCC was responsible for everything else including accommodation (drill halls) and administration.

In the event the ASCC prospered and expanded from less than 500 cadets in three states in 1948/49 to 1700 in 1958 and 2500 in 1963. As growth continued unchecked, Navy no doubt prompted by the treasury became concerned about the escalating cost, while Navy League had major problems in funding the buildings required for new units. Moreover the size of Australia and vast distances caused administrative problems. In practice each Division of the Sea Cadet Corps virtually ran itself.

In 1966 a small sub-committee of the Sea Cadets Council was formed to advise on the future of the ASCC. There were only three members - the Director of Naval Reserves, who was chairman of the Council, the Federal President of the League (CMVD. John House) and the writer as Vice-President.

Given the legal limits placed on naval assistance to what was regarded as a private organisation, as well as the financial strain on the Navy League, the sub-committee recommended that the Sea Cadet Corps be made the responsibility of the Navy and brought into line with the Army's school cadets and the Air Training Corps. The recommendation was accepted by the Naval Board and the Federal Council of the Navy League and the ASCC lost its cadet organisation on 1st January 1973.

Although giving priority to its Cadet training activities the Federal Council did not neglect the naval scene and supported the RAN's efforts to establish a carrier based fleet in the 1970s. However, while the future of the ASCC was being discussed other more worrying events were taking place.

The nineteen-sixties were unhappy years for the RAN - it had been a period of accidents, including the MELBOURNE/VOYAGER collision and the drowning of a number of midshipmen from the carrier SYDNEY. Many in the Navy League felt more interest should be taken in the naval situation while the Chief of Naval Staff, Sir Victor Smith, obviously thinking along the same lines, sought the support of the wider naval community, in particular the Navy League and the Naval Association.

So far as the league was concerned one of the difficulties was lack of knowledge of the RAN's problems, of information that was essential if the League was to be of any real assistance to the Navy. In the event an understanding was reached between the principals involved and the League has been consistently well briefed by Navy for more than 25 years.

The Navy League also found that the more deeply it became involved in naval affairs and with the integration of the three Service Departments into a single Department of Defence, a need to think more broadly and to embrace not only the role of the Army and Air Force but foreign affairs, defence policies and not least, the commercial shipping industry. The seventies and eighties were a stimulating period for the Federal Council.

The wider interests had an effect on the composition of the League's membership - people interested in youth training are not necessarily interested in national security issues and vice-versa, although it is of course an advantage when they do coincide. After the 1973 "take over" of the ASCC, while the League continued to support the NRC - indeed, when the Government decided in 1975 to abolish the three Service-sponsored cadet organisations the intercession of the Navy League kept the NRC intact until a new government re-introduced cadet training - the place.
A Message of Congratulations from the National Patron of the Navy League of Australia

His Excellency, the Governor-General, Sir William Deane

As Patron-in-Chief of the Navy League of Australia I am delighted to send this message of congratulations to the League and all its members and supporters as the League enters its 100th year of service in Australia.

This is a time when many changes are taking place, not only in our own (Australian) society but in communities worldwide. We need to be reminded on occasion that important things and traditions endure.

The Navy League came into existence in Britain in 1884. Its first Australian Branch was founded in Tasmania on 26 November 1900, when a relatively small group of people, realising the importance of the sea, the way it was used and its ultimate influence on the well-being and security of their fellow citizens, formed the League to remind their fellows of that importance and influence.

As the Navy League enters its 100th year and the 21st century it will continue to remind future generations of Australians of the immense importance of the sea to their wellbeing in both peacetime and war and the need to remember that the sea is not simply a place for leisure.

In terms of security, recent events close to Australia have no doubt jogged many Australians who have grown complacent about their country’s future and suddenly compelled to realize how close they are to their neighbours and how different the conditions under which those neighbours live – and die. Memories however, tend to be short and again, the Australian Navy League’s task as an educational body would seem endless. It is however, for the present generation of young Australians to produce leaders who willingly accept the responsibilities involved.

It gives me great pleasure to commend the activities of the Navy League of Australia and to congratulate it on its achievements over 100 years.

Sir William Deane
Governor-General of the Commonwealth of Australia
Message from the Federal President of the Navy League of Australia, Mr Graham Harris

The year 2000 sees a number of notable centenaries. Among them is that of the Navy League of Australia.

On the 25th November 1900, the first Australian branch of the Navy League was founded in Launceston, Tasmania. This year we are to hold our centenary celebrations in that city.

The creation of the first Australian branch of the League followed shortly after the formation of the Navy League in Great Britain at the end of the 19th century. Its object was to be the arousing of interest in the British Navy. No doubt in 1900 that was a view shared in Australia. We of course also had our various colonial naval forces and with Federation in 1901 the need for a Royal Australian Navy was to be considered. Indeed defence was one of the important factors in Federation. 1900 was a timely birth date of the League.

Following the example of the League in Great Britain, cadet units were established in Australia. This was seen to be an effective way of interesting young people in the Navy.

As branches of the League were established so too were units of the Sea Cadet Corp. Indeed, for the first three quarters of the League's first century the Cadets were the principal preoccupation.

The branches of the League had been originally set up as branches of the UK Navy League and this situation remained until after World War II. You can imagine the organisational and financial effort required by these various, in those days separate, branches to run their Cadet units.

After the Second World War the branches formed a loose coalition and sought the assistance of Navy. To facilitate dealings with Navy the various branches in 1950 requested the League to be responsible for everything else. This included accommodation (drill halls) and administration.

The Navy was, by statute, limited in the support it could provide. It provided uniforms, responsibilities for training and some training equipment. The Navy League was responsible for everything else. This included accommodation (drill halls) and administration.

The Australian Sea Cadet Corp, as it was called, was protected with an annual vote of $500 just after the war grew to 2500 by 1965. As growth continued unabated Navy became concerned about escalating costs. At the same time the League had major problems, funding the buildings required for new units. The League was also encountering administrative difficulties running a growing organisation by now spread throughout Australia. By 1970 it was seen to be inevitable that the League and the Cadet Corp would have to separate. On the 1st January, 1973 the Navy assumed responsibility for the Sea Cadet Corp.

Although the League no longer has responsibility for the Navy Reserve Cadets as they are now called it still retains an active interest in their welfare. Each year the best Cadet Unit in Australia receives the Navy League Efficiency Award. In each State there is a similar award for each State Cadet unit.

There are nowadays over 3000 cadets in 75 community based and 8 school units. These days there are girls as well as boys. It is a very worthwhile Navy run, but community based organisation. I believe the Navy League of Australia is entitled to be proud of what it first started 100 years ago.

While the support, maintenance and administration of the Cadets may have been the dominant activity of the League until the 1970s, promoting the wider maritime interest was not neglected. There have been publications of various sorts since the 1920s. The Navy Magazine has been produced since 1938.

In 1970 the League created the Navy League of Australia Perpetual Award-Committee Award. It is presented each year to the ship or establishment which makes the greatest contribution to its local or adopted community. By this award we wish to recognise and encourage Navy working with the community, for it is one of the best ways of reminding people that they do have a Navy and that this wide brown land is in fact just a great big island.

Freed of the responsibility for the Cadets the League, over the last three decades, had has more resources for what is now undoubtedly the number one objective; to promote maritime interest and in particular maritime defence.

Over this period we have issued press releases, made submissions to Parliamentary committees and when requested appeared before them. We have held meetings and seminars in various forms. Numerous letters have been written seeking to promote or argue issues of concern to the League. We have formed the League's Ocean Policy Committee; the recognition of particular ships crews in Vietnam; the support for Naval Museums and historic buildings; the question of a Coastguard; and, the ability of the ADF including Navy, to provide adequate air defence for deployed ADF units.

In the last thirty years we have been a period of transition. We have moved from being an organisation primarily concerned with running a community based youth organisation, the Sea Cadets, to one which has as its number one objective that of keeping the Australian people that we are a maritime nation and require a strong Navy.

It is a quite different task to that which we had in earlier decades. The League must seek to target opinion formers and decision makers. We must be prepared to adapt to achieve our aim. Inevitably we will have to give more attention to the media relations for Australia. By and large the League has been successful in this regard, the leadership, dedication and experiential knowledge of the Australian Navy League has ensured that the Australian Navy has been derived from the sacrifices made by the distinguished members of our Navy League. The current serving members of both the Permanent and Reserve Forces of the Australian Navy have not forgotten the debt owed to our local leaders.

The Royal Australian Navy is an independent entity. Indeed defence was one of the important factors in Federation. 1900 was a timely birth date of the Navy League in Great Britain at the end of the 19th century. Its object was to be the arousing of interest in the British Navy. No doubt in 1900 that was a view shared in Australia. We of course also had our various colonial naval forces and with Federation in 1901 the need for a Royal Australian Navy was to be considered. Indeed defence was one of the important factors in Federation. 1900 was a timely birth date of the League.

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The Federal President of the Navy League of Australia, Mr Graham Harris

The Navy League of Australia Perpetual Award-Committee Award was not neglected. There have been distinctions of being in the best position to represent our nation, many of which have been derived from the sacrifices made by the distinguished members of our Navy League. The current serving members of both the Permanent and Reserve Forces of the Australian Navy have not forgotten the debt owed to our local leaders.

The Royal Australian Navy will continue to look towards the wisdom that is embodied by the Navy League of Australia. Your services to the Australian Navy and indeed Australia as a nation will always be highly valued, and will be in great demand as uncertainty and insecurity dominate our national landscape in the years to come.

Congratulations to the Navy League of Australia – By Vice Admiral David Shackleton AO, RAN

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Vice Admiral, RAN
Chief of Navy

The Chief of Navy, Vice Admiral David Shackleton AO, RAN

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Exploding the Myth of Surface Ship Vulnerability

Is the modern surface combatant all that vulnerable or are the claims based on misinformation and a failure to understand our maritime environment? Mark Schweikert examines the basis of misguided vulnerability claims and details some of the advances in ship self defense and the limitations of Anti-Ship Cruise Missiles (ASCMs).

The two most quoted examples of the threat posed by ASCMs (Anti-Ship Cruise Missiles) to surface combatants remain the Exocet attacks on the UK destroyer SHEFFIELD (1982) and the US frigate STARK (1987). But are these 1980s examples against 1970s era warships justified in demonstrating what some perpetuate to be the intrinsic vulnerability of the modern surface combatant? I would say not, as both these ships were prevented from defending themselves and essentially presented cooperative targets for what could be more accurately described as live fire training exercises. Hardly a scientific method from which it could be reasonably assumed that an Exocet attack would follow.

The two Argentine Super Eriandrs were each carrying an AM-39 Exocet ASCM and approached the group from below the picket's radar horizon. The Argentine's made no effort to locate the carriers and fired both missiles at the first target that was detected, SHEFFIELD, for fear of being shot down.

As luck would have it, the time of the attack SHEFFIELD was communicating by satellite with Fleet HQ in the UK. Although it was known that this mode of communication conflicted with electronic warfare systems used to defend against Exocet type threats, the requirement of higher command for information tends to take precedence. As was expected, this created a condition that rendered the ship deaf and blind. Had SHEFFIELD seen the attack, or heard the warning, appropriate action would have been taken, which in all likelihood would have prevented the ship from being hit by one of the two ASCMs. SHEFFIELD was acting as part of a three-ship radar picket South of Port Stanley when at approximately 15:50hrs on 4 May 1982 the code word 'HANDBRAKE' flashed across the screen. This code word denoted the detection of a Super Eriand attack by one of the ships in the task group from which it could be reasonably assumed that an Exocet attack would follow.

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as evidenced by the very few air attacks after the San Carlos battle.

The real lesson of the Falklands was the fundamental advantage of sea control, which has never lost. The Argentine plan for the Falklands/Malvinas strategy was a strategy of denial through the employment of air power and land forces around an island chain far proposed in the current Green Paper. Even though the Argentine's had air superiority it was the British that won the conflict despite being 8,000 miles from home, fighting for more than three months, in a conflict they had not prepared for, in an area never envisaged, against a worthy non-British Pact opponent. The value of sea control, which can only be achieved with surface combatants, is something our defense planners pay little attention to, as with the case for the RAN air warfare destroyer.

TN-2202

One of the more perplexing ASCM attack examples centres on the 1987 Iraqi Exocet attack on the US frigate STARK. As with SHEFFIELD, STARK did nothing to defend herself due to measures beyond her control.

Two Exocets hit STARK on 17 May 1987 in the Persian Gulf. One of the missiles detonated but ironically caused the most damage due to the fires it started led by large amounts of unspent rocket fuel. Despite being hit by two Exocets, losing 37 crew as well as the ship's most experienced damage control officer, she did not sink nor was abandoned. Although representative of the survivability of warships and the localised nature of ASCM warhead effects does it provide a useful example of surface-ship vulnerability? The point should also be made that the STARK incident proved that survivability and vulnerability are mutually exclusive terms, a hit does not mean a kill.

At the time of the STARK incident the US was engaged in 'Operation Earnest Will', more colloquially known as the 'Tanker War'. 'Earnest Will' was a result of the Iranian-Iraqi war taking on a new role due to the stalemate in the land battle. Merchant ships were being attacked to affect the other sides oil exports and thus income which was being used to finance the war. With the world's oil supply at risk the US and UK began escorting and protecting tankers through the trouble zone.

Immediately the US painted the Iranians as the 'bad-boys'. The US attitude was a result of the Iranian storming of the US Embassy in Tehran and the subsequent hostage drama still present in the memories of the Reagan administration and US military. To the crew of STARK, the Iraqis were the 'good-boys' and not to be feared (the enemy of my enemy is my friend).

On the night of the attack piloting USAF E-3 AEW&C (Airborne Early Warning & Control) aircraft detected and tracked an Iraqi F-1 Mirage fighter flying a familiar pattern observed on many occasions for attacking merchant ships in the lower half of the Persian Gulf. The AEW&C designated the F-1 'friendly' and gave it the designation TN-2202. This information and radar picture was data linked to STARK who accepted it as no posing no danger given its 'friendly' classification.

The Iraqi F-1 was on an anti-shipping mission and carried two Exocet missiles. When the Iraqi pilot found STARK on his radar he fired, without identifying it. Obviously, if he had then he would have ignored STARK and left the area to attack merchant ships, vital to Iraq's war effort, as his mission.

When the CIC crew on STARK realised what was happening it was too late as TN-2202 had already closed to such a short range and fired her ASCMs. This deflection action would have been useless. Of course, had the ROE been written to favour STARK and count the Iraq's as hostile the F-1 would not have gotten so close. STARK would have either identified herself to the Iraqi long before she could fire or shot him down. To prove the former scenario, a few days before another US warship, being far more cautious than STARK, was fired on by an Iraqi Exocet carrying F-1 by using one of its fire control radars to illuminate the aircraft thus identifying its warship status and the fact that it was ready to shoot. The Iraqi aircraft left the target area and attacked a merchant ship elsewhere.

The STARK incident was more a case of fratricide than the victim of enemy action due to intrinsic surface-ship vulnerability. One can reasonably expect allies not to deliberately try and kill you. The Iraqis themselves were quite shocked and embarrassed at what occurred. So much so that when a US delegation visited Iraq to find out what happened the F-1 pilot was 'missing' and had not been seen since he climbed out of his cockpit the night of the attack.

The point should be made that STARK was not only a loss of a warship but a loss of an experienced air warfare destroyer. The targeting and identification problem also gets far more difficult as the range of the engagement increases.

During the Falklands conflict Admiral Woodward sent a rather terse message to RAE Command as their Nimrod patrols were not identifying radar contacts. One occasion a group of RN ships was detected on radar and reported as warships and a container ship an aircraft carrier. The consequences of getting it wrong in a shooting war are obvious, not only for ammunition holdings.

A fortunate example of failed targeting occurred during the Gulf War. HMS SYDNEY was on Combat SAR (Search And Rescue) duties when fired on by an Iraqi 'Silkworm' ASCM. However, due to poor targeting (a common trait it would seem for the Iraqis) the missile hit an oiling instead.

The targeting and identification problem also gets far more difficult as the range of the engagement increases. The greater the range the lower probability of a hit due to the constant moving status of the surface ship, unlike the fixed land target, and navigational errors brought about by weather and sea state (not to mention operator error). The increase in range means that surveillance assets will have to close to identify the ship and remain in contact for follow up attack platforms. If closing on an air warfare destroyer for identification purposes an airborne surveillance asset will more than likely have to close within the destroyer's SAM envelope, with inevitable results for the aircraft (proven time and again in naval exercises such as JACI). Aircraft will also have to close the range if radar jamming or non-combatants are present in the vicinity of the target in order to fix their position.
ASCMS also have other limitations which do not receive much attention. Sea state affects the height at which the sea skimming ASCM can fly and thus its detectability. Although the ASCM can be fired from a ship, usually state 5-6 for most missiles, maneuverable ships can hide a ship. Weather can play a part, strong crosswinds can prevent launch and blow the missile off target. Radar can also degrade the seeker heads ability to search for a target.

One of the big problems with ASCM use, particularly in power countries, is operator proficiency. The old computer adage of garbage in, garbage out is particularly applicable for ASCM use. Operator error can be reasonably blamed for a landed Exocet passing over the flight deck of the RN Type 21 frigate HMS AVENGER during the Falklands conflict without hitting or detonating its proximity fuse. During the tanker war of 1988 an Iranian Harpoon missile fired at the cruiser USS WAINWRIGHT was fixed with the wrong data which negated the missile finding the ship despite passing harmlessly by her port side. ‘Smart Weapons’ cannot overcome the burden of ‘dumb Operations’.

As soon money needs to be spent not only on war stocks of ASCMS but more importantly on training stocks. Not many countries in our region can afford the vast stocks of ASCMs needed to ‘swamp’ the defences of our ships in the world against ASCM so why do we need it? The claims of many countries today, including the Russian sea-skimming SS-N-22 and 27 variants as used by China and India respectively. The Anzac package has yet to be decided but what has already been approved is ESSM, Nulka and a second fire control channel. Other improvements currently on the drawing board include a second type of ASCM missile, long-range chaff launchers and more VLS cells to accommodate more ESSM.

Conclusion

Of course nothing is invulnerable, nothing. The claims and hype created by uninformed commentators present a disproportionate argument with real dangers - particularly if the public and strategists are swayed by them. As seen the case in Australia. Ship vulnerability claims also are the foundation of Australia’s strategic thinkers. The value of sea control to an island nation’s strategic thinkers? Issues such as survivability, ship strategic and tactical importance against specific threats are too long and detailed to go into in one article. But perhaps this is the real turning point.
**Hatch, Match & Dispatch**

**HATCH**

PARRAMATTA launched

The seventh ANZAC-class ship built by Tenix Defence Systems has been launched at Williamstown, Victoria.

The ship, PARRAMATTA, was launched by Mrs Jill Green. The name honours the three previous PARRAMATTAs that have served with distinction in the RAN.

Mrs Green is the daughter of LEUT George Langford, RAN (Mention in Despatches, deceased). LEUT Langford was one of the officers killed while serving in PARRAMATTA II when she was torpedoed and sank in 1941. He had never seen his daughter.

The recently launched PARRAMATTA with the Melbourne skyline in the distance. (Tenix)

Tenix Managing Director, Mr Paul Salteri, said: "The ANZAC Ship Project has had a deep-seated impact on Australian industry. Through participation in the project Australian companies have become more innovative, improved business practices, increased export opportunities and acquired new defence capabilities."

"One in five Australian businesses involved in the ANZAC Ship Project has obtained new technology as a result and ANZAC Ship Project companies are two to three times more likely to implement best-practice business and management techniques," Mr Salteri said.

More than 1300 Australian and New Zealand companies are supplying products and services to the $AUS6 billion project.

A study commissioned by the Australian Industry Group found that by constructing the ANZAC frigates in Australia, instead of purchasing overseas, Australia is generating:

- $200m-$500m in additional annual GDP (growing GDP by at least $1b over the 15-year construction phase).
- $147m-$300m in additional annual consumption (growing consumption by at least $2.2b over the same period).
- Around 7,850 fulltime equivalent jobs.
- Savings of about $520m in through life support.

The growth in Australia's GDP resulting from the project is already sufficient to cover the cost of constructing the Darwin-Alice Springs rail link.

Tenix Defence Systems is building 10 ANZAC-class ships, eight for Australia and two for New Zealand.

**MATCH**

WEEWAK Returns

The LCH WEEWAK has returned to the fleet after a period of 15 years in reserve. Her return to service comes as a result of the Timor and Bougainville operations placing a strain on the availability of other ships of the class.

WEEWAK started life in the RAN in 1972 and was laid up in reserve in 1985 as an economy measure.

The Australian-built LCHs can carry a varied load: either three Leopard tanks, 23 quarter-tonne trucks, four LARC Vs or 13 M-113 APCs. Armament consists of two .50 cal machine guns.

WEEWAK's return to service gives the RAN six functioning and operating LCHs.

NORMAN Commissions

The Huon-class Mine Hunter, NORMAN, has commissioned into the RAN. HMAS NORMAN joins her sister ships HUON and HAWKESBURY with the final three ships, GASCOYNE, DIAMATINA and YARRA yet to join the fleet.

NORMAN was delivered on time and on budget by ADI from its Newcastle facility. NORMAN is seen here during her commissioning ceremony at HMAS WATERHEN in Sydney. (Brian Morrison, Warships and Marine Corps Museum Inc)
The ship of RIMPAC 2000 during a group formation photo.

The very capable South Korean destroyer EUHUMUNDOK entering Pearl Harbor. (Brian Morrison, warships and Marine Corps Museum Inst)

The Japanese helicopter carrying destroyer KURAMA at the entrance to Pearl Harbor. (Brian Morrison, warships and Marine Corps Museum Inst)

HMA Ships ADELAIDE left, SUCCESS middle, NEWCASTLE right, DR ROHIO. top. ARUNTA right middle and GLADSTONE right on formation on the way to RIMPAC (ABPH Damian Pawlenko)

HMAS ADELAIDE's Seaking performing winching exercises on the FJX. (ABPH Damian Pawlenko)

An SM-1MR Missile firing off HMAS ADELAIDE during RIMPAC 2000 (ABPH Damian Pawlenko)

HMA Ships ADELAIDE left, SUCCESS middle, NEWCASTLE right, DR ROHIO. top. ARUNTA right middle and GLADSTONE right on formation on the way to RIMPAC (ABPH Damian Pawlenko)

HMAS ARUNTA with USS ABRAHAM LINCOLN in the background (ABPH Damian Pawlenko)

The Seaking from HMAS SUCCESS flying over HMAS NEWCASTLE. (ABPH Damian Pawlenko)

HMAS WALLER entering Pearl Harbor for the first time (ABPH Damian Pawlenko)
RAN Fixed Wing era comes to an end

The last two RAN fixed-wing aircraft, a pair of HS 748s, have been withdrawn from service. The planes had been on the job for 27 years.

Attached to 723 Squadron, the aircraft were built in the UK and accepted into the RAN in 1973. They were bought to replace the venerable Dakota.

The planes were initially used for navigation training and transport duties. In 1980/81 they were modified to provide electronic warfare (EW) training for the Australian fleet.

As the only EW platform of its type in the south east Asia region the HS 748s took part in most fleet work-ups and in domestic and international exercises.

They also provided logistic support to ADF personnel and were awarded the Navy League of Australia Plaque for aid to the civilian community following Cyclone Tracy.

Two years ago one of the aircraft shuttled between Newra and Merimbula supplying helicopters involved in the Sydney to Hobart yacht race with spare parts, stores and maintainers.

Their departure closed the final chapter of fixed wing operations in the RAN.

Navy is negotiating with Raytheon Systems Company Australia for the provision of Electronic Warfare (EW) Training Services to enhance the operational effectiveness of Navy fleet units.

Five commercial offers were evaluated for the $60m contract which will extend over 10 years. The decision, under the Defence Commercial Support program, is expected to provide an updated EW training capability appropriate to contemporary EW technology on a cost-effective basis.

Raytheon will be required to provide, on a privately financed basis, the platform, equipment and all resources needed to deliver the full training services around Australia and, if required, to units deployed in the South East Asia region.

With the exception of a hole in the forward hatch, the HUNLEY was found intact. It is believed the submarine was quickly covered and filled with sediment. "In many ways this is like recovering a bottle - everything is contained inside the submarine," Neyland said.

In mid-May, a team of experts working in zero visibility began work to raise HUNLEY from the sea bottom, where it lay completely buried under three-to-four feet of sand and shells.

When the recovery, excavation, and conservation of HUNLEY are complete, HUNLEY will be on display at South Carolina's Charleston Museum in a new wing built especially for the vessel and its associated artefacts.

Admiral Zumwalt class DD-21

The President of the United States has announced that the Navy will honour Admiral Elmo R. "Bud" Zumwalt Jr., by naming its 21st century Land Attack Destroyer (DD 21) after him.

Zumwalt, who became the youngest man ever to serve as chief of Naval Operations (CNO) in 1970, passed away in Durham, North Carolina on Jan 2, 2000. Appropriately, this class of 32 future warships will embody Zumwalt's visionary leadership and well-known reputation as a Navy reformer. Entering the fleet at the end of this decade, USS ZUMWALT will usher in the Navy's newest class of destroyers. These revolutionary

Subject to successful negotiations, Raytheon will commence a phase-in of operations in early 2001, with full service delivery by mid-2001.

From Navy News

Historic submarine HUNLEY raised

H. L. HUNLEY, a subservible known as the 'South's secret weapon', had just turned for shore after sinking the Union blockader USS HOUSTON one chilly February night in 1864, when it vanished in Charleston Harbor, South Carolina, with all hands.

The fate of the first submarine to sink an enemy vessel in combat and her nine volunteer crewmen remained a mystery for nearly 135 years, until a team led by the Naval Historical Center (NHC) in Washington, D.C., provided some answers. Doctor Robert Neyland, NHC's chief underwater archaeologist and HUNLEY project director, called the revolutionary vessel "a national treasure" comparable to the Wright brothers' aircraft. "It is the very first successful military submarine", he said. "Not until World War I would another submarine sink an enemy ship."

Novelist and adventurer Clive Cussler and divers from his non-profit National Underwater and Marine Agency found HUNLEY in 1995. A team led by the National Park Service Submerged Cultural Resources Unit surveyed the wreck in 1996 to determine if the submarine could be recovered.

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warships are being designed to meet post-cold war requirements using 21st century naval warfare concepts. The Zumwalt class will incorporate several advanced technologies and introduce a number of design features to improve the DD 21 sailor's quality of life. Armed with an array of land attack weapons, USS ZUMWALT will be capable of delivering an unprecedented level of offensive firepower from the sea. It will also be the first U.S. Navy ship to be powered by a fully integrated power system, including modern electric drive. The cruiser-sized Zumwalt will be manned by a crew approaching one hundred and will feature new habitability standards and shipboard amenities, including state-of-the-art for the entire ship's company.

**SLAM-ER reports for duty**

The USN recently announced that the Stand-off Land Attack Mission - Expanded Response (SLAM-ER) has entered into full production and has reported for duty in the fleet. Rear Adm. John B. Nathman, director of Air Warfare, spoke at a joint Navy/Industry event at the Pentagon to mark the occasion. "Precision engagement is much more going some where and blowing things up. Accuracy and the ability to plan and determine where and how to control the effects of that engagement is key. SLAM-ER is a true stand out of an area defence weapon. Combined with Super Hornet, the potential is tremendous," said Nathman. SLAM-ER provides a surgical strike capability against high value, fixed land targets, ships at sea or in port, and at stand-off ranges greater than 150 nautical miles. High survivability and lethality are assured by SLAM-ER's adaptive terrain following, passive seeker, precise point-target control, and improved penetrating warfare.

**HOBART Gifted to South Australia**

The Minister for Defence, John Moore, has announced that the guided missile destroyer HOBART has been gifted to the South Australian Government for use as a recreational diving attraction.

"This is the first time the Federal Government has made a gift of this type to South Australia. There has been great interest in obtaining HOBART and this decision has the potential to provide a real boost to the local tourism industry," Mr Moore said.

"The bulk of former destroyer-escort SWAN, which was given to the Western Australian Government in 1997, has been dived on by an estimated 14,000 Australian and overseas divers, and I am advised that this has contributed an additional $5.2 million in earnings to Western Australia".

HOBART saw 35 years' service in the RAN, having been commissioned on the 18th December 1965. She completed three tours of duty with US forces during the Vietnam War, coming under fire during while serving as a unit of the US Navy's Seventh Fleet.

**RNZN Seafarers first flight**

The first of the RNZN's new SH-2G Super Seafarers naval helicopters successfully underwent its first flight during the afternoon of 2 August. The aircraft, NZ.3601, will undertake a complex flight test program which will culminate in weapons proving trials in Arizona later this year. It will be joined in the program by the next three aircraft in the initial New Zealand production contract.

A fifth Seafarer is also to be built, but its delivery is not due until 2002.

**Return of the Daring class, the Type 45 DDG**

The UK Government is proceeding with the construction of the Type 45 destroyer. The Type 45 will replace the now ageing 11 Type 42 DDGs. The first three will be built by BAE SYSTEMS and-Vosper Thornycroft.

Twelve Type 45 DDGs are planned with the first ship entering service around 2007 and the last in 2014. Total cost of the program, including weapons systems is estimated to be $6 billion. The MoD will negotiate a $1 billion order for the construction of the first three ships of the class with prime contractor BAE SYSTEMS later.

**USN places Super Hornet Order**

Confident in the performance of the new Super Hornet the USN has placed order for 222 F/A-18E/F Super Hornets valued at $US9 Billion. The first squadron will deploy aboard the US carrier ABRAHAM LINCOLN in June 2002.

The Super Hornet is claimed to provide twice the number of sorties and has 40% greater range than the current Hornet. It also has two extra weapons pylons and stealthing.

The Super Hornet is claimed to provide twice the number of sorties and has 40% greater range than the current Hornet. Every ship has two extra weapons pylons and stealthing.

**AIEWS passes US Navy CDR**

The AN/SLY-2(V) Advanced Integrated Electronic Warfare System (AIEWS) has passed its US Navy Critical Design Review (CDR). The successful CDR was the final design review on the technical progress of the shipboard electronic warfare system that will be widely deployed on all Navy ships for at least the next 20 years.

The low-rate initial production system for installation on the Arleigh Burke class DDG-91 will occur in 2003.

"Because the Navy's battlespace is increasingly being expected to be littoral, or coastal, instead of deep water, it needs a system capable of dealing with the dense electromagnetic environment of the littoral," said Dr. Peter Costello, director, ship electronic warfare systems. AN/SLY-2 is an EW system that provides situational awareness, counter targeting and anti-ship missile defense. It has, for example, radar-angle angular resolution markedly better than what the Navy has ever had available before".

Lockheed Martin Naval Electronics & Surveillance Systems (NESS) in Syracuse is responsible for leading the AN/SLY-2 team which includes Litton Advanced Systems and SESYotech. The team is developing the AN/SLY-2 engineering development model (EDM) high-resolution antenna arrays, receivers, pulse-sorting hardware and complex processing...
Coastwatch gets new surveillance aircraft

Bombardier Aerospace has delivered two Q200 Series turboprops to Surveillance Australia, who will operate the aircraft on the COASTWATCH programme, on behalf of the Australian Customs Service.

The two Q200s were ordered in September 1999 by Surveillance Australia of Adelaide, a wholly owned division of National Jet Systems Pty Ltd. The aircraft has had long-range inner wing fuel tanks installed on the production line. Other specialist equipment includes large observation window inserts in each of the mid-fuselage emergency exits, a Raytheon 5V-1022 search radar in a belly radome, a Wescam 16DS turret containing Forward Looking Infra Red (FLIR) and a daytime television camera. The sensors are controlled from one cabin console, and are integrated with the aircraft's navigation system to provide time and position data. While imagery is recorded for later use, the aircraft control console controls a comprehensive electronics suite that will allow communications with ships at sea and Defence and Customs resources.

The two new aircraft will join three Dash 8 Series 200 aircraft that have been operating successfully with Surveillance Australia since 1996 from bases at Broome, Darwin and Cairns. The COASTWATCH mission is to patrol the Australian Exclusive Economic Zone (EEZ), searching for illegal fishing, immigrants, narcotics smugglers, marine pollution, quarantine threats, etc. Missions can last up to 9 hours.

In its COASTWATCH configuration, the Q200 can transit 300 nm (555 km) at its max cruise speed, fly a low-level search track of about 1,000 nm (1,851 km), resulting in 90,000 nautical miles (260,000 km) of coverage per mission, including a number of target identifications, before returning to base with adequate fuel reserves.

Production of SAN ANTONIO LPD 17 to begin

Liton Avondale Industries has received approval by the USN to begin production of the lead ship in the USN's new SAN ANTONIO (LPD-17) Class of amphibious assault ships.

The LPD-17 Amphibious Transport Dock Ships will replace the LPD-4, LSD-36, LKA-113, and LST-1179 classes of Amphibious ships. The LPD-17 ship's mission is to embark, transport, and land a landing force in an assault by helicopters, landing craft, and amphibious vehicles. It will be capable of embarking the LCAC hovercraft and the MV-22 Osprey Tilt-rotor aircraft.

At the start of production of the LPD-17 lead ship follows a 36-month period of design, material procurement and engineering. In addition to this, a design work begun for the new class in 1997. Liton Avondale has already constructed a series of pilot ship sections to demonstrate the maturity of the design and efficient production processes.

To date, four ships have been awarded in the 12-ship program, with eight additional ships planned in the next four to five years. The first ship will be delivered in late 2003. Value of the four ships awarded to date is in excess of $552 billion.

Eight of the ships will be built at Liton Avondale in New Orleans, while four are currently planned for construction at Bath Iron Works in Maine.

Singapore commissions submarine

The Singaporean Deputy Prime Minister and Minister for Defence, Dr Tony Tan, has efficiated at the commissioning ceremony of the Republic of Singapore Navy's (RSN) submarine, RSS CONQUEROR, at Tuas Naval Base.

RSS CONQUEROR will enhance the RSN's capability to safeguard Singapore's maritime interests and approaches. The submarine was launched in May 99 at the Kockums shipyard in Karlskrona, Sweden. She is the first of the four RSN submarines to arrive in Singapore. Prior to her launch, she has undergone a series of stringent sea trials to verify the performance of the submarine systems in local conditions. The submarines were put through a tropicalisation programme in preparation for operations in tropical waters. Warm tropical waters are more conducive for active marine growth on the submarine surface. The high salinity of tropical waters also makes the pipes and valves of the submarine susceptible to corrosion. Battery cooling is also a concern and can affect discharge and recharge rates.

The tropicalisation programme addresses these problems and also increased crew comfort. It entails:

- Changing the steel pipes and valves that come into contact with seawater to copper nickel iron alloys to reduce corrosion.
- Installing a marine growth protection system to minimise the growth of marine barnacles on the submarine surface.
- Installing a fresh compressor to enhance the cooling efficiency within the submarine.

Sawari II frigate launched

The first of the SAWARI II frigates ordered by Saudi Arabia, the AL RYADH has been launched from the DCN-Lorient shipyard.

The SAWARI II contract, signed by France and Saudi Arabia in 1994, added three more ships to the original Sawan I contract for four ASW frigates. The three SAWARI II multipurpose stealth frigates, designed and built by DCN, the French naval shipbuilder, are derivatives of the La Fayette class frigate used by France and soon to be used by Singapore. They are 135 metres long with a 17-metre beam and displace over 4,500 tons.

Thomson-CSF is prime contractor for Sawari II. Its main industrial partners on the contract are DCN/DCN International for the platform and propulsion system; SFC (a joint venture of DCN International and Thomson-CSF) for the combat system; NAVFOC for crew training; SOFETEC and SOFINFA for design and construction of shore infrastructure in Jeddah (school and facilities); and Aerospatiale-Matra-Missiles for missiles. The frigates' automated information processing system, developed jointly by Thomson-CSF and DCN, is based on the French Navy's La Fayette class system. The frigates will also be equipped with the Asser air defence system currently used on the French aircraft carrier CHARLES DE GAULLE.

Fourth Triomphant class SSBN to be built

France is to build a 4th SSBN (nuclear powered ballistic missile submarine).

The SAWARI II frigate, AL RYADH, is launched from France's DCN. (DCN)

The Royal Saudi Navy's new Sawari II frigate is launched from France's DCN. (DCN)

The submarine, LE TERRIBLE, is expected to enter service in 2008. France already has LE TRIOMPHANT and LE TEMERAIRE in service with VIGILANT expected to be ready by 2004.

The Triomphant class is replacing the L'Unflexible M class SSBNs and are built at DCN's Cherbourg shipyard. The first submarine, LE TRIOMPHANT, entered service in 1997. The second, LE TEMERAIRE, entered service in 1999 with the third, VIGILANT, still under construction.

Each submarine carries 16 vertically launched M45 SLBM (Submarine Launched Ballistic Missiles) supplied by Aerospatiale. Each missile carries six Multiple Re-Entry Vehicles (MRVs), each of 150 kt. The range is estimated to be approximately 6,000 km. The new enhanced M51 missile, due to enter service in 2008, will carry a warhead with 12 MRVs, and an increased range to approximately 8,000 km.

The submarine's sub-surface to surface missile is the Exocet SM-39 supplied by Aérospatiale. It has four 533 mm torpedo tubes and has the capacity to carry a mixed load of 18 ECAN L5 Mod 3 torpedoes and Exocet missiles.

The DR 3000U electronic support system supplied by Thomson-CSF is a radar warning receiver operating in D to K bands. The system uses a masthead antenna array with omnidirectional and monopulse directional antennas and a separate periscope warning antenna.

The submarine, LE TERRIBLE, on the surface. (The French Navy)

LE TEMERAIRE on the surface. The French Navy intends to build a fourth SSBN. (Marine Nationale/French Navy)
The submarine is fitted with the Thomson Sintu DMUX 30 bow and flank array sonar suite. The DMUX 30 provides passive target ranging and interception capability. The submarine's very low frequency towed array sonar provides very long range capability. 

Triumph class submarines have a submerged speed in excess of 20 knots.

**Stonefish Mines for ADF**

BAE Systems has been selected to provide the ADF with the Stonefish Mk III Maritime Mining System, a family of multi-mission ground sea mines. The mines can be deployed from surface ships, submarines and aircraft such as the F-111, F/A-18 and AP-3C Orion. The system uses the one mine type or 'combat mine' with different deployment and influence modes. This is achieved through the shelf software and special purpose kits that configure the mine to the desired mode. A full training package is also included in the deal.

The Stonefish was chosen under Phase 1A of Project 2035. Further phases are expected to acquire a standoff sea mining capability for the Collins class submarines enabling them to launch mines into harbours or to launch cruise missiles to a range of 930miles (they can, of course, cross the middle of the country at mid-latitude, and unmanned Israeli sources). It is widely known that Israel and Sri Lanka share close military relations. Whether the test was conducted by a submarine or a submerged test rig is yet to be confirmed.

The Arabic press has long claimed that the new Israeli subs were intended to carry cruise missiles to use against them.

**Israelis test sub-launched Cruise**

Speculation is mounting that an Israeli Dolphin class submarine (see THE NAVY Vol 61 no.433) fired a cruise missile to a range of 930miles from Sri Lanka in the Indian Ocean. The first indication of the test launch came from a British press report published in mid-June quoting unnamed Israeli sources. It would probably be impossible to keep an invader from gaining a foothold in some relatively deserted part of the country. Successful defence of Australia would require the ability to project military power. The great question is whether the current capability matches current and future needs. It seems a particularly apt question as a new White Paper is being prepared. Hopefully comments by an outsider will seem relevant to this process.

Clearly the single greatest fact of Australian geography is that the country is an island; the other great fact is that the interior is largely empty, and that the country's population centres makes invasion difficult, but the scattered character of the population centres makes defence difficult. Modern forces are very expensive, and it is impossible to multiply them sufficiently to cover the whole country against a determined attack. For over a decade the solution has been to build and maintain a string of air bases to which the limited force of modern F/A-18 fighters can deploy in an emergency. At all other times the bases, which are in largely deserted areas, are unmanned - and unguarded. The basis of the concept was the expectation that the Australian government would enjoy adequate warning of any attack, hence would be able to deploy in good time. Of course, the concept has its problems. A lawyer would call an unmanned base an "attractive nuisance," because seizing it would offer enormous advantages. A historian might observe that warning has not always been available as needed - Pearl Harbor is hardly the latest, or the only, case in point. Should this seem the nattering of a hyper-critical American, the reader may recall that during the Cold War the U.S. Air Force lost an F-111 in the long-range attack on Libya in 1986, whereas naval aircraft flying over
In the past, Australia pursued a national strategy of forward pre-emption, in which troops and aircraft were stationed in places such as Malaysia to demonstrate support. This policy was exemplified by the Confrontation and by Australian participation in Vietnam. It was rejected because the presence of troops on the ground tends to demand involvement; the Australian government would prefer to decide when and where it becomes militarily involved. Moreover, experience shows that it is often difficult to gain agreement to insert troops or ground-based aircraft, and that their withdrawal can carry terrible penalties for national prestige — and can send very misleading messages, with severe consequences. Under the current policy of forward engagement, Australia extends requirements and offers support — using forces which generally do not require permanent basing abroad. That means both the offer of long-range air support (mainly using F-111s) and the offer of naval support. Of the two, naval support has enormous advantages. It is continuous, and it can be highly visible on a sustained basis. Yet it does not require any surrender of sovereignty by the supported country, and there is no basing with consequent possible friction. In the important case of supporting a friend against another country, airships can appear without the uninviting country's consent, yet without actually attacking it (aircraft based on a distant continent do not offer this sort of opportunity). To be meaningful, presence must carry a military capability. For navies that means either the ability to land and support troops, or the ability to do significant damage to assets ashore. Without heavy guns or organic attack aircraft, the Royal Australian Navy cannot do much direct damage — but it can land Australian troops.

The only thing stopping this RAAF Hornet from landing on the USS INDEPENDENCE below is the parked aircraft on the deck. The RAAF's Hornets are among the few aircraft with the modernization to bring them back to the USN carrier borne aircraft standard (RAAF).

From a strategic point of view, then, it can be argued that what Australia brings to the regional table is the ability to project military power in support of regional allies — that is a major reason they are regional allies. For this capability to be worthwhile, it ought to be effective in the face of opposition. Special ships are required, not least in order to maintain multi-service capability in power projection. Anyone aware of Second World War history will know just how difficult it was for the Allies to build up and maintain their amphibious capability, which proved so important — and in which Australia participated very heavily, for example in the Solomons and New Guinea. Without specialist ships, training is difficult at best, and problems that crop up in reality are often missed. That was certainly the case in US pre-1941 amphibious training, conducted with neither specialised ships nor specialised landing craft.

So what is needed? Troops need fast transports, which carry them, their supplies, and, as importantly, their heavy vehicles. For modern assaults, moreover, the ships ought to carry helicopters, both troop carrying and fire support. The larger the number of helicopters (operable more or less simultaneously), the faster the assault and the fewer the casualties. Big transports are likely to have the range needed, but their escorts probably will not, so proper projection requires underway replenishment ships. Preferably both transports and replenishment ships are fast, since speed is a valuable part of the protection of the ship, against submarine attack. The larger the ships, the easier to maintain high speed, particularly in rough weather. What is less widely known is that larger is by no means necessarily more expensive: ship steel is quite cheap. Incidentally, larger ships are generally far less vulnerable to attack because weapons, hitting either above or below the waterline, generally destroy structure over a limited length. The less the proportion of the overall length of the ship, the less damage is inflicted. On the other hand, a larger ship does not have so much larger a signature that she is much more likely to be found or hit.

There are two fundamental requirements for ships with this role. The first is speed. A high speed, sustained for hours, is a major part of any modern amphibious operation. The second is a high degree of flexibility, in the sense that any ship can be adapted for any mission, without the major modifications that would be required for an independent ship. It is expensive to have both requirements in one ship, therefore the Army has a limited capability of this kind right now in the two ex-US LSTs.

In the past, the Australian military has had to rely on ships belonging to other nations to undertake amphibious operations, because the Army lacks the large specialized ships needed to transport troops and vehicles. The only thing stopping this RAAF Hornet from landing on the USS INDEPENDENCE below is the parked aircraft on the deck. The RAAF's Hornets are among the few aircraft with the modernization to bring them back to the USN carrier borne aircraft standard (RAAF).

The LSS, a multi-role ship being able to provide full replenishment services to escorts and other ships, much shorter ranges were unached. Not only does it seem likely that the damage which proved fatal to the F-111 would not have been deadly at shorter ranges, but pilot fatigue was surely a factor. In addition, the F-111 portion of the raid was considerably reduced because so many aircraft had to drop out due to minor defects, which would not have mattered at shorter ranges. These considerations would be important even if the aircraft simply attacked pre-selected targets. However, support of a landing would require that aircraft engage enemy aircraft and also that they hit pop-up targets: in either case, they would have to spend considerable time in the combat area after long tanked flights across Australia. It would seem to follow that some kind of deployable platform for aircraft is a prerequisite for the defence of Australia, given the "attractive nuisance" airfields which would so greatly simplify an attacker's task.

East Timor exemplifies another consideration in Australian defence. Australia is ineptly a regional power, gaining enormously from her connections with nearby countries, particularly in the island barrier to the north. An outsider would observe that such engagement requires that Australian friendship offer some special advantage; otherwise it may well be more attractive for neighbours to seek control over Australian wealth and resources. Australia is more technologically advanced than her neighbours, so from a military point of view the advantage should, in theory, be some form of leverage based on technologically advanced forces. At present, for example, Australia is the only regional power with long-range bombers (the F-111s). The Royal Australian Navy can escort ships in the teeth of air attack, and it can convey range bombers (the F-111s). The Royal Australian Navy has a limited capability of this kind right now in the two ex-US LSTs.

The LSS is a multi-rolled ship being able to provide full replenishment services to escorts and other ships.
Another of the LSS' roles is that of troop and heavy lift transport. The ship can also act as a command and control centre plus support troops ashore with 'Hotel services' as provided by USN Helicopter assault carriers during the recent Turner operation.

training. They soon found that the long flat decks required for the troop vehicle role made it possible for the ship to operate the aircraft the troops might need to support them in combat. The natural size of the ship, about 30,000 tons, turned out to be well adapted to the F/A-18 currently operated by the RAAF. Moreover, built to civilian standards, it would be less expensive than the new air defence cruisers the Navy currently plans to buy. The five current Australian fleet auxiliaries (two underway replenishment, three troop carriers) could be replaced by four of these fast-support ships.

The study called the proposed ship a Littoral Support Ship (LSS), because it was key to supporting Australian intervention in regional littoral areas - in the areas of greatest interest to Australia, and in which she can make the greatest contribution to regional alliances. The ships' open hangar spaces could easily be fitted out as troop accommodations. Vehicles or aircraft could be carried on deck. The key to the design is the realisation that open space makes a ship adaptable to a wide variety of roles. As it happens, one of them is aircraft support (on one version of the LSS, a steam catapult is installed), but in fact the other roles, which a variety of ships already fill.

The Lockheed Martin F-22 Raptor. The aircraft is most vulnerable on the ground, and in presence finance committees with the unit price rising every year (USAF).

With many expecting the new Australian Defence White paper to be a 'Battle of Britain' strategy written for the 21st century version of the Spitfire, the F-22, some balance on the claims about its performance are warranted. If the F-22 is eventually chosen to replace the RAAF's F/A-18 and F-111s each one could cost as much as an Anzac frigate and yet use exactly the same weapons as the aircraft it replaces. The following was first published during 1997 in the United States Naval Institute's magazine 'Proceedings' and is reprinted with the Editor's permission.

The first F-22 aircraft - Raptor 01 - 'The Spirit of America', rolled out of a Lockheed hangar on 9 April 1997 amid a firestorm of budgetary controversy. The stealth fighter, currently estimated at more than S100 million per copy, is catching flak from countless sources, most notably the US Congress.

In an attempt to polish the project for the legislative eye, the USAF (United States Air Force) has expanded the jet's role from an air superiority only fighter to a multi-mission platform. The January 1997 issue of Aviation Week & Space Technology featured a series of articles on the state of the stealth fighter program that aptly summarises the body of F-22 advocacy. At first glance, these arguments seem compelling. A peek beneath their surface, however, reveals the house-of-cards nature of the USAF's 'expanding role' F-22 strategy.

Air Superiority

The three components of air superiority are defensive counter air (DCA), offensive counter air (OCA), and suppression of enemy air defences (SEAD). In DCA, good-guy fighters shoot down bad-guy aggressors before they can drop bombs on good-guy ground and surface forces. In OCA, good-guy fighters clear the sky of bad-guy fighters so that good-guy strikers can bomb bad guys. SEAD, OCA's partner in protecting strikers, neutralises bad-guy surface-to-air missiles.

The F-22's sales pitch frames it as the undisputed master of each air superiority task. I'm sceptical.

Defensive Counter Air.

Being stealthy for the purpose of shooting down strikers isn't a persuasive F-22 selling point. DCA fighters operate over friendly territory and don't have to worry about bad-guy surface-to-air missiles. For the sake of role expansion, however, proponents attribute the aircraft a 'unique' DCA ability to shoot down stealthy cruise missiles. The F-22 also will carry the next-generation AIM-9X and improved versions of the AIM-120 AMRAAM designed to destroy low-observable cruise missiles expected to be on the market early in the next century.

Land-attack cruise missiles avoid radar detection by flying low against the terrain, putting the earth between themselves and enemy radars. Spending extra money to make them stealthy is a curious notion. Even if the arms industry can create a viable market for low-observable cruise missiles, there's genuine doubt as to whether advanced air-to-air missiles will be able to shoot them down.

Regardless, whether whiz-bang air-to-air missiles will be able to shoot down whiz-bang cruise missiles has nothing to do with the F-22's stealthy airframe. The air-to-air missiles and their companion avionics will work equally well on any fighter airplane in the current inventory. More important, fighters are almost certainly the least cost-effective or tactically effective means of defending against cruise missiles. Cheaper, better countermeasures can be found.

* The views expressed in this article are the author's own and should not be attributed to any organisation, including the U.S. Navy, for which he has worked or is currently working.

THE NAVY
Offensive Counter Air

For the OCA role, stealth fighter advocates describe divisions of F-22s circling over enemy territory in ‘free-fire zones’, within which they could attack any ‘positively identified target’. In fact, ‘free-fire zones’ and ‘positive identification’ are mutually exclusive terms in the air-to-air world. Free-fire zones are so named because they don’t require positive identification of a target to engage it.

The free-fire concept declares that because projected F-22 tactics ‘ensure’ that no stealth fighter will accidentally shoot down an aircraft, any aircraft that enters a free-fire zone will be shot down by stealth aircraft. This theoretically, allows for a free-wheeling air to air fight that clears bad-guy fighters from the sky for at least as long as it takes the strike fighters to hit the target and ‘skedaddle’ back to the fort.

What really happens is that in the process of raging around the sky over the bad lands, the sweepers manage to make absolutely certain that every element of the enemy’s integrated air defence system is wide awake and ready to rumble. The sweepers run out of gas before they kill anybody and go home before the strike fighters show up. Bad-guy strip alert fighters get airborne just in time to jump on the strike fighters like sharks on a school of goldfish.

A last word about the sweep: there’s an odd irony in using F-22s as sweepers. You can only sucker bad guy fighters into coming up to fight if they know you’re there. If you’re stealthy, how do they know you’re there?

But forget the cruise missile and sweep things. We’ve got the no-fooling F-22 air-superiority tactic – raid disruption. This is where we sneak up on enemy airfields while bad-guy strike groups are forming up and blow them away before they even finish their rendezvous. This sounds great if you’re going up against one of General Savage’s ‘Twelve O’clock High’ thousand-plane B-17 raids. Problem is, modern tactical air strikes aren’t anything like that. They can consist of as few as two, two, or even one aircraft. It takes very little time for small strike packages to join up and press on to the target.

An F-22 Raplor during one of its many flight trials. By the time it becomes available to the RAAF each one could cost as much as an Anzac frigate with that money going overseas. (USAF)

On Time, On Target, On Per Diem

Expanding into the role of a true strike fighter, the F-22 is being rented to carry and deliver state-of-the-art precision-attack munitions: improved joint direct-attack munitions (JDAM), JAST-1000, miniaturised munitions technology, wind-corrected munitions dispenser (WCMD), low-cost autonomous attack system (LOCAAS), and GBU-22 Paveway. It’s great that they’ll spend tons of money to modify these weapons so a $AUS200 million jet can carry them in its weapons bay. It’s not so great that existing $AUS540-60 million dollar jetties (Super Hornet, JSF, Rafale, Eurofighter) can or could carry the same weapons without having to spend money to modify them.

Hyper-cruise

“You have the stealth of an F-117 but you add supercruise. Therefore, anybody’s reaction time in dealing with F-22 is reduced considerably.”

– A senior USAF official.

Speed is life. It’s the key to mission accomplishment and survival. By the time they see me coming, I’m already gone. Want a mirage? If I’m stealthy, how did they see me coming?

Now You See ‘em, Now You Don’t

“Because the F-22’s [detectability] has been so dramatically reduced, the single pilot’s defensive duties — a time-consuming task in conventional aircraft — have been taken out of the new stealth fighter.”

– A Lockheed Martin official.

The real bottom line of F-22 advocacy is that while it won’t do much that existing tactical aircraft couldn’t do. It’s stealthy! Well, sorta. Besides HARM, the F-22 and its stealthy cousins (the F-117 and B-2) are being designed, refitted, or projected to carry all sorts of advanced standoff weapons. Why would stealth aircraft need to shoot standoff weapons?

Aviation Week & Space Technology, says USAF planners concede that to preserve maximum stealth, F-22s will have to be flown in specific attitudes relative to enemy radars. What if they have to change their attitudes to shoot somebody down? Or drop a bomb? Or launch a HARM? That could get ‘time consuming’.

Yet another unidentified senior USAF official acknowledges that the United States “must guard against the fact that someday, given enough [data] netting and sensors, the value of stealth could be reduced”. This Air Force official, apparently, didn’t predict anything about stealth’s cost adjusting over time in proportion to its value.

Stealth technology is not a panacea. It does not make aircraft invisible to all radars and passive sensors; it makes them less visible. The stealthy plane’s problem is that even before newer, better, and more expensive stealth aircraft come on-line, newer, better, and cheaper counter stealth detection and targeting are out there waiting.

Stealthiness is not a bad thing, even if it is not perfect. The point is to shrink enemy weapon systems’ envelopes as much as reasonably possible. Some stealth is better than none. More stealth is better than some. If we can reduce a threat envelope by 25% or even just 10% at an equitable cost, that’s a significant and affordable tactical advantage.

USAF and Lockheed Martin officials have made numerous and grandiose claims about the F-22’s performance. Some of which are very contradictory. The fact remains that the F-22 is the last remaining expensive hangover from the Cold War. (USAF)

And if had guy really wants to launch massive strikes, he can counter raid disruption with raid dispersion. Dozens, scores, or hundreds of strike aircraft can be launched in small packages from multiple fields spread over a broad geographic area. Raid disruption F-22s would be unable to engage enough of these strike packages to keep the rest from saturating and overwhelming our air defences.

Or, if bad guy doesn’t have enough airfields for dispersion, he can just attack during the day. Stealth aircraft may have radar and infrared detection avoidance characteristics, but they can’t evade the human eye in broad daylight any better than any other aircraft. Raid disruption, like stealth, is pretty much a nighttime thing.

Day attack offers both bad guy a bonus convenience — his pilots don’t know how to fly at night anyway.

Suppression of Enemy Air Defences

HARM (High-speed Anti-Radiation Missile) allows tactical aircraft to destroy or shut down an enemy surface-to-air missile by flying outside that missile system’s range. The launching aircraft can have one or both of two objectives for employing HARM: (1) to attack the missile from a safe distance, allowing other aircraft to fly through its envelope, or (2) to protect itself from the enemy missile. The launching aircraft doesn’t need to be stealthy, and a stealthy aircraft doesn’t need to protect itself from a surface-to-air missile.

However, Aviation Week & Space Technology explains, “Air Force officials favour over flying the target with a stealth aircraft and dropping much more powerful weapons to destroy a radar site”.

If they favour over flying the target so much, why did they spend the money to redesign the HARM so it would fit into the internal weapons bay of the F-22?

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The most recent test of the F-22 Raptor was the firing of a Sidewinder missile. The ironic point about the F-22 is that it uses the same weapons as most other aircraft. The proponents make is that it's stealthy. What they fail to mention is that its stealth is only effective at certain ranges, heights, flight profiles and against particular types of radar and detection equipment (USAF).

But with the prices we're looking at for aircraft such as the F-22 and the B-2, the stuff ought to work like a Romanian cloaking device.

The F-22 Catch

The Joint Strike Fighter, conceived from the ground up as a multirole stealth jet, is just down the road. Most estimates peg it at a third or less per-copy than the F-22. My Vote is to skip the expensive one and buy the less costly capability, which must be a nightmare. For every government dollar gets to their home states and districts. In the United States public indignation has risen measurably over this incident. The Chinese were also uncomfortably aware that other border regions were action anywhere else. The Chinese were also uncomfortable aware that other border regions were.

Particularly interesting is coverage of the Tibetan insurgency, in which the author suggests the CIA may have made contact with as early as 1951 - well before the shooting end of the Chinese Civil War. "The sustained armed rising was a major opportunity, particularly since the Tibetans soon showed that they were very willing to fight. Effective cooperation apparently began in 1956, with equipment and men dropped in. The CIA trained Tibetan recruits, initially in Taiwan, eventually in Colorado. By 1956, the resistance army - was tying down 14 PLA divisions. Maintaining them in Tibet must have been extremely costly, perhaps limiting Chinese freedom of action anywhere else. The Chinese were also uncomfortable aware that other border regions were probably revive."

The overland route using Nepal was maintained but effectiveness could not be maintained as with the airdrops. The Tibetan's never had a "rear area" with which to retreat, rest and train in - as did the Afghan Mujahideen. Nepal eventually closed its borders. Only after the Sinot-Indian border war in 1962 did the Indians become friendly to the cause. In 1958-59, the Tibetans were doing better against the Chinese than the Afghans would do against the Soviets, and they were far more united.

The six parts of the book offer thirty-eight short chapters. Source material is extensive and original, much of the Soviet military changes being based on declassified National Intelligence Estimate (NIE) documents. In the last part, the author offers a perspective on the collapse of the USSR rarely offered, the outcome of the computer and the spread of information in the former-US. Under Gorbachev, the volume is certainly timely, as the Russian bureaucracy and military find them responding to the loss of the "KURSK" nuclear submarine (SSGN) in much the same manner as they did during the Cold War. Yet Russian public indignation has risen measurably over this incident. THE FIFTY-YEAR WAR, CONFLICT AND STRATEGY IN THE COLD WAR is highly recommended.
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 a 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 nearer ASEAN countries, PNG and the Island States of the South Pacific.
- Advocates a defence capability which is knowledge based with a prime consideration given to intelligence, surveillance and reconnaissance.
- Believes there must be a significant deterrent element in the Australian Defence Force (ADF) capable of powerful retaliation at considerable distances from Australia.
- Believes the ADF must have the capability to protect essential shipping at considerable distances from Australia, as well as in coastal waters.
- Supports the concept of a strong Air Force and highly mobile Army, capable of island and jungle warfare as well as the defence of Northern Australia.
- Supports the acquisition of AWACS aircraft and the update of RAAF aircraft.
- Advocates the development of amphibious forces to ensure the security of our offshore territories and to enable assistance to be provided by sea, as well as by air to friendly island states in our area.
- Advocates the transfer of responsibility, and necessary resources, for Coastal Surveillance to the defence force and the development of the capability for patrol and surveillance of the ocean areas all around the Australian coast and island territories, including in the Southern Ocean.
- Advocates the acquisition of the most modern armaments and sensors to ensure that the ADF maintains some technological advantages over forces in our general area.
- Advocates measures to foster a build-up of Australian-owned shipping to ensure the carriage of essential cargoes in war.
- Advocates the development of a defence industry supported by strong research and design organisations capable of constructing all needed types of warships and support vessels and of providing systems and sensor integration with through-life support.

As to the RAN, the League:

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

The League:

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

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

Fremantle, Western Australia 31 October - 2 November 2000

AUSMARINE 2000

AN INTERNATIONAL EXHIBITION AND CONFERENCE FOR THE MILITARY AND COMMERCIAL MARINE INDUSTRY

IF YOU’RE A PROFESSIONAL MARINER YOU CAN’T AFFORD TO MISS AUSMARINE 2000
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