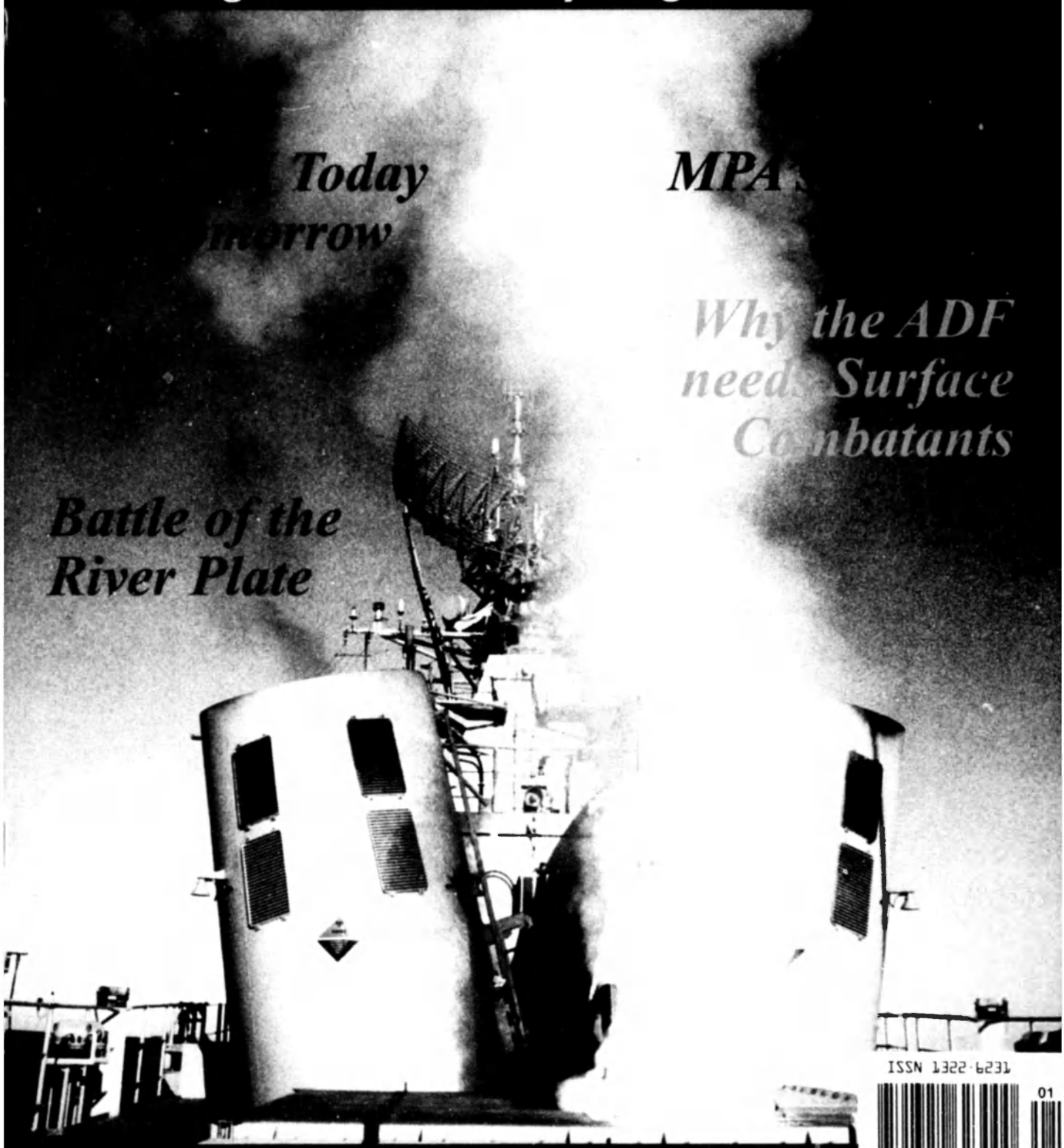
THE NAVY

The Magazine of the Navy League of Australia



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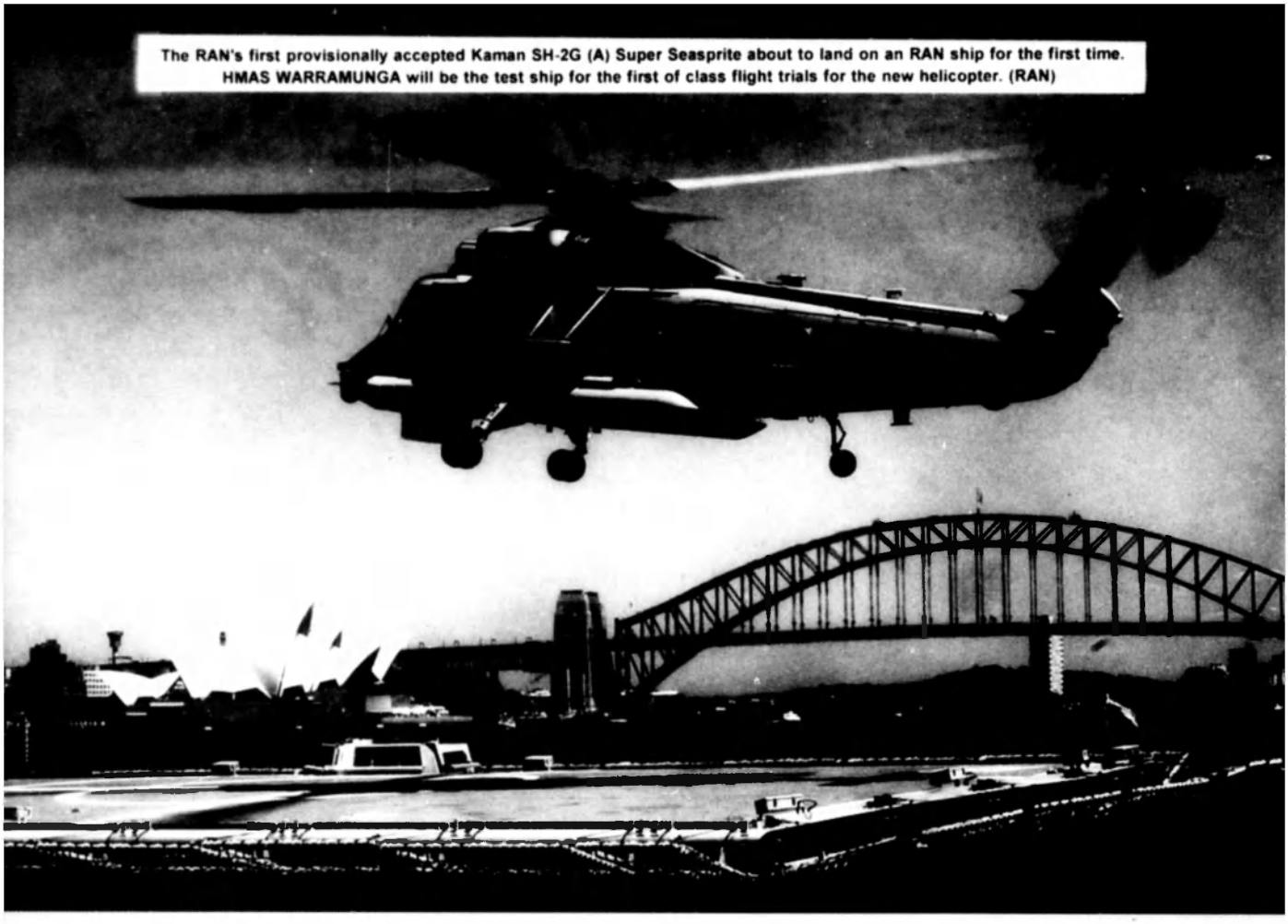
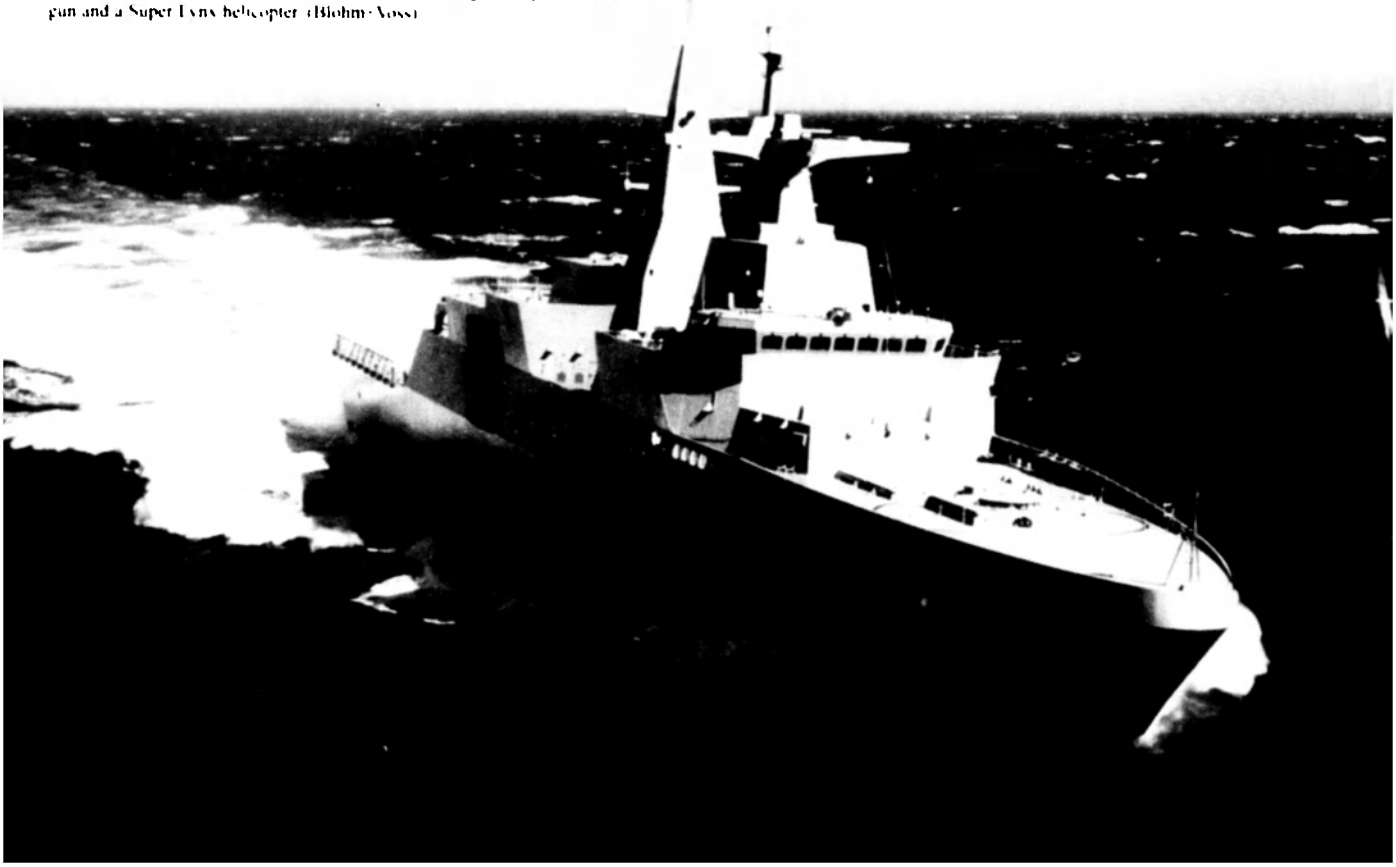
The RAN's first provisionally accepted Kaman SH-2G (A) Super Seasprite about to land on an RAN ship for the first time. HMAS WARRAMUNGA will be the test ship for the first of class flight trials for the new helicopter. (RAN)



South Africa's new Meko A200 corvette at sea and on her way to South Africa to be fitted out before her expected commissioning in August 2004. The new stealth ship is one of three which will be armed with eight MM-40 Block II Exocet anti-ship missiles, an indigenous VLS with 16 cells for the South African Umkhonto anti-air missile, a 76mm super rapid gun, torpedoes, a 35mm gun and a Super Lynx helicopter. (Blohm+Voss)



THE NAVY

Volume 66 No. 1

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Regular Features

Front cover: An Evolved Sea Sparrow Missile (ESSM) leaves the Mk-41 Vertical Launch System (VLS) of the RAN Anzac class frigate HMAS WARRAMUNGA. See news section 'Flash Traffic' for more details. (RAN)

The Navy
All letters and contributions to:
The Office of The Editor
THE NAVY
Navy League of Australia
GPO Box 1719
Sydney, NSW 2001
E-mail to: editorthenavy@hotmail.com

All Subscription and Membership enquiries to:
The Hon Secretary,
Navy League of Australia, NSW Division
GPO Box 1719,
Sydney, NSW, 2001

Advertising enquiries only to:
Mr James Rickards
0419 731 371, e-mail: james@rickards.net

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THE EXAMINERS HAND IN THEIR REPORTS

Three of four significant inquiries concerning security and economic policies ended in the second half of 2003, the reports receiving varying degrees of public attention; in order of publication they were:

- The Defence Procurement Review 2003 - better known as the Kinnaird Review, named after the chairman of the reviewing team. Submitted in August.
- The Independent Review of Australian Shipping - "A Blueprint for Australian Shipping". Submitted in September.
- The Defence Capability Review. Decisions announced in November.

The findings and recommendations of the fourth enquiry, that of the Defence Sub-committee of Parliament's Joint Standing Committee on Foreign Affairs, Defence & Trade into Australia's maritime strategy, was not available in mid-November when this article was compiled; this might be thought surprising as the policy has been a major factor in defence capability for many years.

The Kinnaird Review, commissioned by the Government in late 2002 to examine defence procurement arrangements, not only criticised existing acquisition arrangements but also queried the adequacy of advice given to the Government concerning capability assessments and requirements. The recommendations of the Review, "largely accepted" by the Government would seem to have an important bearing on the realisation of the acquisition objectives of the Government contained in the capability review. (Further comments on the Kinnaird Review may be found in *"Observations"*).

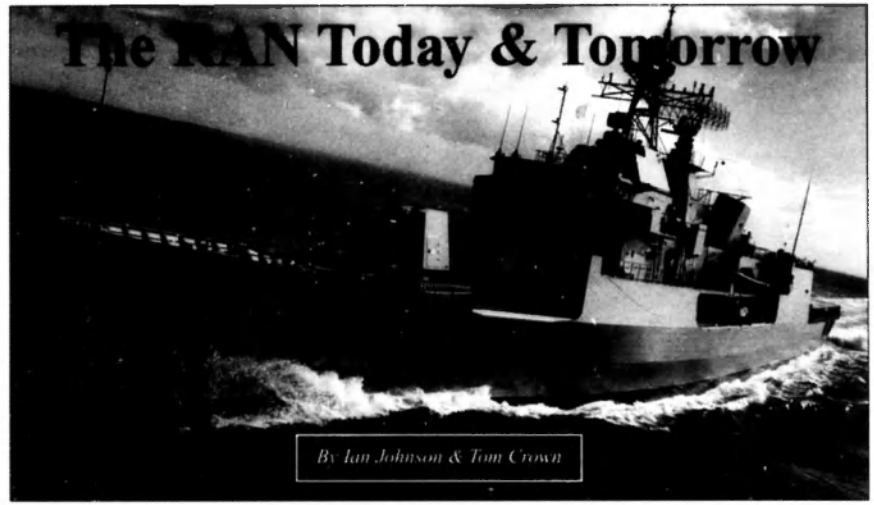
The Independent Review of Australian Shipping (IRAS) was commissioned by the Australian Shipowners Association about 12 months ago and carried out by Messrs. Peter Morris and John Sharp, former Transport Ministers in Labor and Coalition ministries respectively. Their report stressed the need for the industry to be independent of "Government largesse" but at the same time pointed out the need for Government support, not least in the form of relief from repressive laws and regulations.

Defence Capability Review: The latest review fulfils the Government's intention to review annually the capability proposals contained in the defence policy White Paper *Defence 2000*. In that document the Government recognised the importance of long-term planning if ever the Australian Defence Force was to attain the desired level of capability. It is to the Government's credit that despite all manner of distinctions, in two annual reviews it has confirmed the basic capability plans outlined in *Defence 2000*.

So far as the Navy is concerned its people have reason to be pleased. There are no major 'casualties' in equipment planning and the announced intention to retire two FFGs "from 2006" is reasonable when it is considered the first two FFG's, ADELAIDE and CANBERRA, were launched (in Seattle USA) in 1978 and have been worked hard by the RAN. Two of the six coastal mine hunters will also be laid up, presumably as part of the plan to overcome personnel shortages.

The Government has said it would prefer the planned three air warfare destroyers and two amphibious ships to be built in Australia rather than purchased overseas. While the dimensions of the new ships is unknown (or have not been published) the equipment to be fitted to the destroyers and the purpose of the amphibious ships indicates fairly large vessels; this may cause some problems as Australia has not built large ships for many years and building yards would almost certainly need extensions, e.g. slipways. Also, some of the Kinnaird recommendations could be applied and options such as off the shelf acquisition considered. These are not insuperable problems and it would undoubtedly be in the country's long-term interests to maintain the shipbuilding industry.

Geoffrey Evans



The newest ship in the RAN, HMAS PARRAMATTA. (Tenix)

The Royal Australian Navy of 2003 is experiencing a very high 'tempo of operations' rate. It has been part of an international naval task force during Operation Falconer against Iraq. It is operating independently during Operation Anode in the Solomon Islands and maintaining its Operation Relex duties intercepting illegal smuggling vessels. This effort is quickly wearing out ships and crews far quicker than envisaged. Ian Johnson and Tom Crown take a look at the plans the RAN had for its future and ask if this is still the case given the recent DCR (Defence Capability Review).

The RAN has changed considerably in the past twenty-five years. In 1978 nearly all RAN ships were based on the east coast and the aircraft carrier HMAS MELBOURNE was the fleet flagship. The Perth and Daring class destroyers and the River class destroyer escorts formed the backbone of the RAN. However, by 1983 all that had changed. There was no carrier to replace MELBOURNE, the Daring class were decommissioning and new ships and weapons were coming into the fleet with differing manpower requirements. The fleet was slated to become a 'Two Ocean Navy' with HMAS STUART (DE-48) to be the first to have HMAS STIRLING in Western Australia as her homeport.

In 2003 the 'Two Ocean Navy' is reality with half the surface fleet and the Collins class submarines home ported at HMAS STIRLING. New ships and weapons, as well as new doctrine on all aspects of naval power are allowing the RAN to continue to enjoy world seapower status. Like 1983, the RAN is moving forward.

In the document 'Australia's Navy for the 21st century', more widely known as *Plan Blue*, long range planning for Navy's future was articulated with a view of the future extending through to 2030. While such planning helps with future manning levels and budget requests, the reality is that the defence dollar will shrink and that new threats to the nation are unpredictable and could change the way Australia is defended. These events could wreck *Plan Blue*.

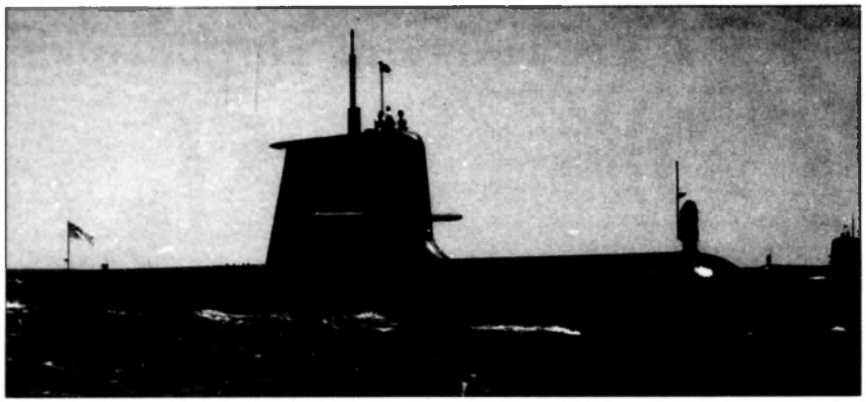
The following is a snapshot of the RAN today, its plans for the future taken from *Plan Blue* and how the DCR has affected the RAN. However, it should be stressed that *Plan Blue* was written before the higher than expected Tempo of Operations and before the DCR.

COLLINS

With the move from Sydney to HMAS STIRLING in 1999 by the Submarine Force Element Group (FEG), a new era began for the RAN's submarine service. With the introduction of the Collins class submarines being behind schedule and over budget, public criticism grew, while many also questioned the move to have women serve on these submarines. As the new submarines were coming into the fleet, all was not well; the RAN admitted that the Collins class were not up to scratch. A number of problems were identified by an inquiry, which by 2000 were being worked on.

By March 2003 all six Collins class submarines were commissioned, with COLLINS, DECHAINEUX, SHEEAN and RANKIN having the 'Fast Track' upgrades recommended by the 'Briggs inquiry'. Another problem for the submarines was and still is the public's perception, due mostly to incorrect and sensationalist reporting by the media. In fact the 'Fast Track' improvements to four of the submarines have made the class a formidable force, with USN submarine Captains stating that during exercises the Collins class submarines are tough to impossible to beat. The class has also chalked up a few USN aircraft carriers by beating layers of ASW defence screens in the form of other submarines, aircraft and escorts.

The biggest problem currently facing the submarine service is having enough people to man all six submarines. Even with women serving on submarines the RAN does not have enough to man all with the issue causing morale problems. Also of concern are the continuing faults of the



The Collins class submarine DECHAINEUX on the surface in WA. The Collins class are expected to be fully operational by 2006 with the 'fast Track' improvements making them the most formidable diesel electric submarines in the world. (RAN)

Collins class such as faulty valves, which must have an unsettling affect on those who man these submarines.

With the commissioning of HMAS RANKIN in March last year, the first phase of the COLLINS class project comes to a close, with the next phase of refits and upgrades designed to keep the submarines in service for the next twenty to thirty years. However, the submarine fleet is not expected to be fully operational until 2006, when all submarines would have been through the 'Fast Track' process, with faults corrected and a new fire control system installed.

FUTURE PLANS

While construction of the Collins class has ended the RAN should begin long term planning for their replacements. Although the submarines are not due to start decommissioning till 2026, the RAN could begin to plan a replacement class in order to ensure the mistakes of the Collins program never happen again. The skills of the Submarine Corporation workforce that have been developed over the course of the past 14 years of this project must not be lost given the time and money that has been spent on the Collins class.

DESTROYERS

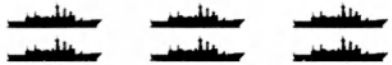
With the decommissioning of the last DDG, HMAS BRISBANE in 2002, the RAN lost a command and control platform as well as a major anti-air and naval gunfire support ship. The failure to acquire the four ex-USN Kidd class destroyers as replacements for the DDGs (and to a lessor extent the first two FFGs) has left a gap in the RAN's capabilities. That gap is to be filled by the Adelaide and Anzac class frigates through upgrades to their defensive suites, as a replacement anti-warfare destroyer capability is not expected to be in service before 2013.

FUTURE PLANS

While no replacement program on a 'one for one' basis existed for the DDGs, Project SEA 4000 is understood to provide a new air warfare destroyer capability for the RAN. A call for tenders is expected soon for three new ships however, with the RAN needing to replace its amphibious fleet sooner rather than later it is unknown when the air-warfare destroyer might come into service given this competing demand. A number of sources within Navy have suggested that a plan was being considered for inclusion in the DCR to alleviate this pressure. The plan called for the acquisition of three of the USN's first five Ticonderoga class cruisers, which are due to start decommissioning next year. These ships, while representing a significant capability boost, would have provided the RAN with a useful transition platform to the new air-warfare class of destroyer given the similar technology and weapons. It would also have had the effect of allowing for a delay in SEA 4000's delivery date and thus freeing up funds for the replenishment and amphibious replacement programs. It is said that the USN was approached about the possibility of acquiring some of the first five Ticonderoga's and that they agreed to supply them if the RAN asked.

The recent DCR reiterated the RAN's plans for three new build air-warfare destroyers, announced in the Defence White Paper of 2000, built in Australia and with a US Aegis combat system. The fascinating part of this announcement wasn't the ships or the combat system but the mass media's belief and portrayal of the announcement as something new. Defence's spin doctors seem to be worthy of their title, again.

FRIGATES
FFGs



The RAN's six Adelaide class frigates (USN Oliver Hazard Perry class) were originally designed for the USN as cheap and expendable surface ships for use as convoy escorts if the 'Cold War' became 'hot'. They were designed for both anti-air and anti-submarine warfare and are armed with Standard SM-1 Surface to Air Missiles, Harpoon Anti-Ship Missiles, a 76mm gun, two sets of triple torpedo tubes for Mk-46 ASW torpedoes, a Mk-15 Block 1 Phalanx CIWS (Close In Weapon System) and two S-70B2 Seahawk helicopters for over the horizon targeting and ASW tasks. The current problem for the RAN is the fatigue and useful life of the first four frigates (ADELAIDE, CANBERRA, SYDNEY and DARWIN). The last two (MELBOURNE and NEWCASTLE) were built in Australia with a much stronger steel thus giving

The FFG HMAS ADELAIDE. The recent DCR, announced by the Minister, has the first two FFGs, ADELAIDE and CANBERRA decommissioning as soon as the last Anzac class frigate joins the fleet. This is approximately six to seven years early. (RAN)

them far more useful life in the hull than their US built counterparts. Due to a number of advances in anti-ship missile technology and shortages of SM-1 four of the six frigates are earmarked for an upgrade program to not only extend their life but enhance their capabilities to deal with future threats. However, this upgrade program is currently running two years behind schedule with HMAS SYDNEY only recently entering dry dock to undergo the upgrade. Plans for upgrading ADELAIDE and CANBERRA are thought to have been shelved given their early retirement in approx 2006 as announced in the DCR.

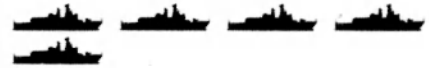
FUTURE PLANS

The FFG Upgrade will be the last major upgrade of the FFG's life. Recent plans announced in the DCR state that the SM-2 anti-air missile will be used to replace the SM-1 in the four upgraded FFGs. Potential problems with SM-1s reliability and war stocks supply have been articulated by some in Navy for some time. While upgrades to the SM-1 have been offered by Raytheon, the question of supply cannot be resolved as the production line for SM-1 ended in the 1980s.

An SM-2 from and RAN FFG however, cannot be used to its full extent. The missile requires a 3-Dimensional air search radar and data link from the launch platform in order to realise its extended range of approx 80km. Updates from the 3-D radar allow the missile to intercept its target by adopting a predictive flight path, given the three inputs from the 3-D radar. Illumination is then only required in the last few seconds of the engagement giving the target virtually no warning or time to use countermeasures. Without these two system inputs, an RAN FFG will need to illuminate the target for the entire engagement, meaning the missile will have to 'chase' it and thus use up most of its range enhancement over the SM-1. Current estimates from the maker suggest that an increase in range of only 10-15kms will be achieved by an FFG launched SM-2 over an SM-1. So it must be stressed that the real reasons and benefits for the SM-2 purchase is failing reliability and supply of SM-1 only

The FFGs will also be fitted with an 8-cell Mk-41 VLS (Vertical Launch System) for 32 ESSMs (Evolved Sea Sparrow Missiles) to better enable anti-ship missile defence and form another anti-air layer to the ship's SM-2 missile. A number of other improvements to habitability, helicopter handling and surveillance should see the ships through to their decommissioning date.

ANZACS



The introduction into service of the RAN's first five Anzac class frigates (ANZAC, ARUNTA, WARRAMUNGA, STUART and PARRAMATTA) has been on time and on budget. These are the first RAN ships to be equipped with the Mk-41 VLS for the ESSM. They also carry a 127mm (5-inch) gun, two triple Mk-32 torpedo tubes for Mk-46 ASW torpedoes, four .50-cal machine guns and a Seahawk/Super Seasprite helicopter, with the Seasprite having the IR guided AGM-119 Penguin anti-ship missile. They are also fitted with the Australian designed Nulka hovering rocket which employs an electronic warfare payload to seduce ASMs away from the ship.

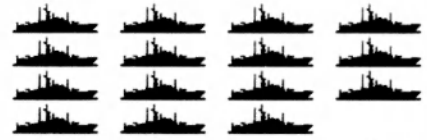
While the class are understood by many to be 'fitted for but not with', the reality is that 'space and weight' have been provided for only.

The three remaining ships, BALLARAT, TOOWOOMBA and PERTH, are expected to be in service by 2006, with the eight ships of the class becoming the mainstay of the fleet.

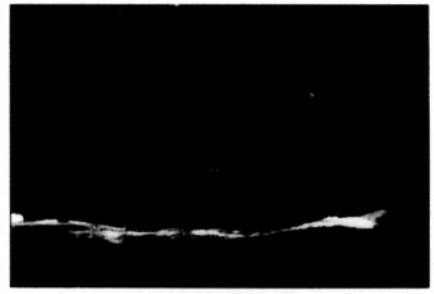
FUTURE PLANS

The Anzac class are about to undergo a warfighting improvement program. This program will entail the fitting of a second fire control channel to guide the ESSM, Harpoon ASMs, a torpedo defence system and a second type of anti-air missile, thought to be the French made Mistral II for ASM defence and as a second anti-aircraft defensive layer. They will not be fitted with the Phalanx CIWS as current thinking dictates that the ESSM and the second anti-air missile will be enough to defend the ships from modern ASMs.

PATROL BOATS



The Fremantle class patrol boats are approaching the end of their useful and economic service life. The Fremantle class are armed with a 40mm Bofors gun and two .50-cal machine-guns. The Fremantle's have proven to be valuable



The Fremantle class patrol boat HMAS CESSNOCK. The Fremantle's have given the RAN a great capability over their lives. They are soon to be replaced with the new Armidale class to be built in WA. (RAN)

and reliable units for the RAN. Most of the class are based in the North in an effort to stop illegal fishing and people smuggling with many of the patrol boats spending up to 7-8 months at sea.

FUTURE PLANS

The replacements for the Fremantles, known as the Armidale class, will be built in Australia by Austal Ships based in Western Australia. These patrol boats will be the front line of the RAN in Northern Australia as they continue the outstanding work of the Fremantle class.

The new aluminium boats will operate out of Cairns and Darwin and will be armed with an Israeli Rafael 25mm Typhoon stabilised automatic cannon and equipped with state-of-the-art communications systems. They will be able to operate in a greater range of sea conditions and will improve Navy's capability to intercept and apprehend vessels suspected of illegal fisheries, quarantine, customs or immigration offences.

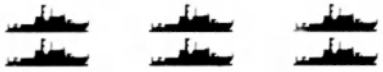
The fleet of 12 new patrol boats will also carry two smaller sea boats to allow crews to conduct boarding and surveillance missions with greater flexibility, reliability and security.

Navy will be able to operate the new Armidale class boats for a combined total of 3,000 days per year, plus have the capacity of an additional 600 days for short notice tasks. This compares to an average 2,700 operational days per year currently undertaken by the existing Fremantle boats.

The boats will have a range of 3,000 nautical miles, a 25 percent increase over the Fremantles. Being some 14.8m longer than the Fremantles, and fitted with an active ride control system including fin stabilisers and trim tabs, the new patrol boats will be able to operate in a greater range of sea conditions, further improving their use at sea. They will have a capacity to carry up to 20 extra people in additional accommodation, whereas the Fremantles have no dedicated additional accommodation.

However, it should be stressed that like the Fremantles, the Armidale's warfighting role is limited at best.

MINE HUNTERS



The Huon class minehunter program that has delivered six new minehunters to the RAN has been trouble free, on time and on budget. Based on an Italian design the six ships of the class are among the best in the world. Fitted with the most advanced minehunting equipment the Huon class are a major asset to the RAN and will be for some time to come.

However, there are two questions surrounding the minehunter capability. Does the RAN have enough of these ships, and should at least two of the Huon class be based in the West. The answer is probably no, and to the second, yes. In the age of Asymmetric warfare, harbours such as Wepia, Port Hedland, and Dampier are attractive targets for those who have the capability and experience to lay mines. If just one port were targeted it may take every mine-hunting ship and clearance diving team in the RAN to both sanitise and to check the approaches to the affected port. If Port Hedland or Dampier were affected it will take weeks for a minehunter to arrive on site from Sydney, where a HMAS STIRLING based ship can be in position inside of three days.

The Minehunters can also provide an effective 'backup' for the patrol boats as seen in the current operation in the Solomon's with HMAS HUON conducting very successful patrol and SAR (Search And Rescue) duties.

The recent DCR actually announced the laying-up of two unnamed Huon class minehunters as a cost and personnel saving measure.

AMPHIBIOUS WARFARE SHIPS

The nine ships of the RAN's amphibious squadron are busier now than over the past 30 years. The heavy landing ship HMAS TOBRUK is nearing the end of her service life. A reliable ship, TOBRUK is the heavy lift backbone of the amphibious squadron and without an appropriate replacement the Army's ability to deploy vehicles and armour over the beach will be limited.

The two LPA's, KANIMBLA and MANOORA, have been used extensively since mid 2000. The question as to whether these two ships were worth the wait and the negative media coverage has been answered with a resounding yes. From the Pacific to the Persian Gulf, these modified Newport class tank landing ships have been hailed as vital assets for their load carrying capacity, aviation support facilities, hospital and their considerable Command, Control and Communications facilities, something the RAN has been lacking since the decommissioning of HMAS MELBOURNE (R-21) in 1982. Both ships are to get new landing craft (to be built by ADI Newcastle).

The LPA MANOORA in the Persian Gulf. The term 'Rust Buckets' has thankfully disappeared from the mainstream media when talking about these two ex-USN ships. Their worth to the ADF is almost immeasurable with their replacements being much larger and capable. The LPAs are helping the RAN prove to the ADF, and the politicians, that big ships with aviation and command and control facilities are vitally important. (RAN)

The six ships of the Balikpapan class have seen service in operations from East Timor to the Solomon's in the past three years alone. Although the class is over 30 years old they still feature in many RAN operations and exercises.

FUTURE PLANS

The nine ships of the RAN amphibious squadron will need to be fully replaced by 2015, which is when the last of the LPA's is expected to decommission.

While there has been much discussion on the replacements for TOBRUK, KANIMBLA and MANOORA with a common hull type, plans announced in the capability review go some way to providing direction for the RAN. TOBRUK is now to be replaced in 2010 with a "much larger amphibious ship". The two LPAs will also be replaced by a "much larger amphibious ship" and a sealift ship. Whether the two "much larger amphibious ships" will be a common hull is unknown as is their size and capability, although it is known that Army wants the capability to deploy a Battalion sized combined arms group made up of infantry, armour (with Army to get a new heavyweight tank), artillery and aviation support.

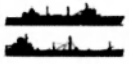
The replacements for the Balikpapan class are being examined under Joint Project 2048 'Amphibious Watercraft Program', with several concepts, from monohull to catamaran being considered to replace these workhorses.

HMAS TOBRUK entering Sydney Harbour. TOBRUK will be replaced earlier than expected with a "much larger" amphibious warfare ship. TOBRUK has been an important workhorse for the RAN of late. (RAN)

SURVEY VESSELS

The RAN's fleet of survey ships is relatively new, with the oldest ship less than 10 years old. The survey ships are based in Cairns and use the most advanced hydrographic tools available. They had some success recently with charting a new course through the Great Barrier Reef for large ships. This should save shipping companies millions of dollars, which should hopefully be passed onto the consumer. However, the two largest ships, LEEUWIN and MELVILLE, recently swapped their usual all over white colour for RAN grey in order to take up some of the strain of Operation Relex duties. Relex is the operation to patrol and intercept Suspected Illegal Entry Vessels known as SIEVs. The fact that these ships have been turned into warships and pressed into operational service is an indication of how the Federal Government's policy towards People Smuggling is wearing out the Navy.

REPLENISHMENT SHIPS



The RAN currently has two replenishment ships, HMAS SUCCESS, which is 16 years old, and HMAS WESTRALIA, which is over 40 years old. Both ships need to be replaced.

The replenishment ship HMAS SUCCESS in Dili Harbour. While not being compliant with new international regulations calling for double hulls for ships that carry fuel or oil, she can be made compliant for a modest cost. (RAN)

New international laws pertaining to oil and fuel carrying ships, such as the RAN's two replenishment ships, will mean that neither ship will be compliant. The new laws, ratified by Australia, call for all fuel/oil carrying ships to have a double hull to contain oil spills in case of collision or grounding.

FUTURE PLANS

The recent DCR announced the decommissioning of WESTRALIA and replacement by 2006. Her replacement is understood to be a standard double hulled bulk oil merchant ship refitted and modified for use as an at sea replenishment vessel. SUCCESS can be modified for a modest price to make her compliant with the new laws but nothing has been heard on this subject as yet.

FLEET AIR ARM

The RAN Fleet Air Arm (FAA) has had a rebirth after the scrapping of the fixed wing elements in 1983. The MK-50A Sea King and S-70 Seahawk helicopters currently form the backbone of the FAA and are being used extensively from the Persian Gulf to the Solomon's.

HMAS ANZAC and WESTRALIA conducting an underway replenishment in the Indian Ocean. WESTRALIA is to be replaced by 2006 with a similar merchant ship modified to naval requirements and with a double hull. (RAN)

The first Seasprite to land on an RAN ship to start certification trials approaching the photographer on HMAS WARRAMUNGA. The Seasprites are still behind schedule but will be a valuable addition to the fleet's stand off anti-shipping capability. (RAN)

Problems continue with the SH-2G(A) Super Seasprite which has delayed their introduction into service. At present the Seasprites are not expected into service until 2005, at least three years behind schedule. Although, the first Seasprite has recently been provisionally accepted into service and started shipboard trials aboard HMAS WARRAMUNGA.

The other helicopter type used by the RAN is the French built Squirrel. Its roles consist of pilot training, SAR and general utility transport.

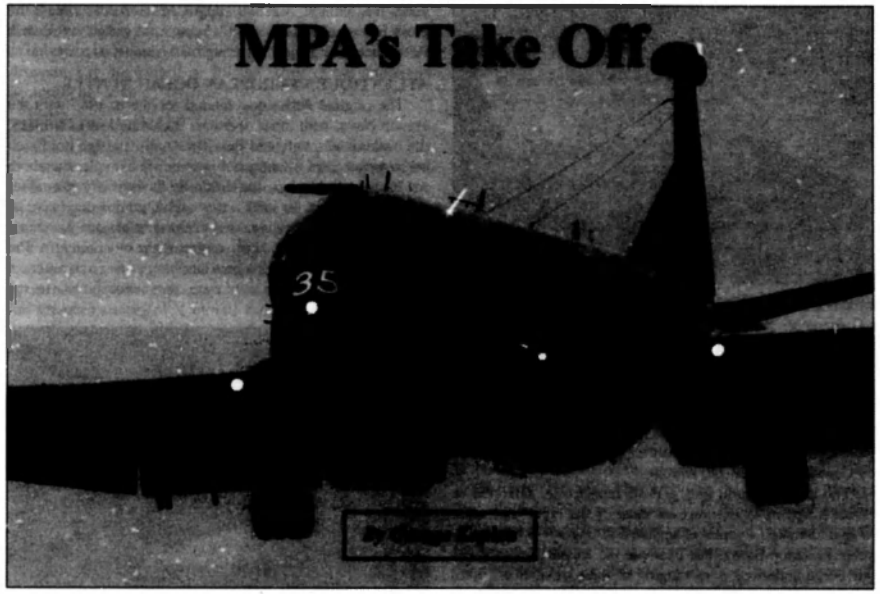
The ADF is currently undergoing a study to try and reduce the number of different types of helicopters it uses. The plan calls for reducing the number of airframe types from the current figure of eight (soon to be nine with the Army's Tiger attack helicopter) to around three to four. It is hoped that the Seasprite, Seahawk and Sea King can be replaced with a common airframe which will also be common to the Army's Iroquois and Black Hawk replacement, AIR 9000 is expected to report within the next 12 months however, in the interim a fleet of 12 new marinised helicopters are to be acquired for the Army for operations from KANIMBLA and MANOORA. They should also form part of the early replacement for the Sea King and may even replace many of the helicopters listed above in later phases. Thus, it is vital that this next purchase is done correctly with the right airframe chosen, despite the fact that it will then give the ADF 10 helicopter types for a short period.

CONCLUSION

The war on terror, as well as the mission to the Solomon Islands and Operation Relex, has increased the operation tempo of the RAN. This has both good and bad points. One of the good points is that the tempo of operations is giving much needed experience to younger sailors of what can be expected in the future. The bad point is that supplementation funding for this increased tempo has not been forthcoming thus having a detrimental effect on replacement programs. Ships are also being worked harder than budgeted for with maintenance schedules and refits suffering.

Despite Navy's efforts in drafting *Plan Blue* the DCR has changed some aspects. Meaning Navy will have to go back to the drawing board and re-do *Plan Blue*.

MPA's Take Off



An RAF Nimrod MPA on final approach. The Nimrod has been in service for some time and saw active service during the Falklands War in 1982.

The Maritime Patrol Aircraft (MPA) was for many years considered the quintessential symbol of the cold war however, its role is changing and the aircraft's capabilities with it. The thought of an MPA being able to assist in a Special Forces war in a land locked country was, up until 18 months ago ludicrous. But this did happen in Operation Enduring Freedom in Afghanistan. George Kaplan takes a look at the world's MPAs and their future.

Year in and year out, NATO Orion's, Nimrods, Neptune's, Atlantique's and carrier borne Viking's swept the cold waters of the North Atlantic or the warmer waters of the Mediterranean, keeping tabs on Soviet and Warsaw Pact warships. They spent long and often fruitless hours searching for lurking conventional and nuclear powered submarines, which, in wartime, would menace the maritime life lines between the old and new worlds. In turn, the May's, Bear's and Mail's of the Soviet Union mirrored the role of their NATO adversaries.

This pattern was repeated around the world, in the Sea of Japan, the Indian Ocean, the deep waters of the Pacific and across the world's oceans.

With the fall of the Berlin Wall, many observers expected the day of the MPA to pass. With the Soviet submarine fleet descending into decrepitude and rusting apart in harbour for want of funds to maintain them, it was felt that the West would no longer need the specialist skills that the MPA provided.

In fact, the New World Order following the Cold War has seen an ever-increasing demand for the varied capabilities and vast endurance of Maritime Patrol Aircraft.

Operations in support of United Nations sanctions and missions over the Balkans, Rwanda, the Persian Gulf, Afghanistan and Iraq have seen the west's MPA's take on new and increasingly critical roles, while still calling on their well-proven capabilities to provide surveillance over the maritime environment.

In 'Afghanistan, MPA's were called upon to act as communication nodes for Allied forces in that country's difficult terrain, a role reprised in Operation Iraqi Freedom where their ability to operate for 8 to 12 hours without requiring air to air refuelling was highly prized.

THE PRESENT

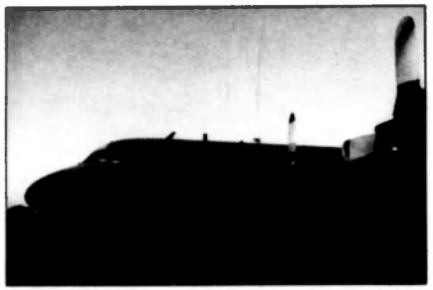
The main problem for future operations is the growing age of the base platforms, which, having operated in the harsh maritime environment for so long, are becoming more and more susceptible to corrosion and fatigue life limits.

While upgrade and refurbishment programs have been undertaken by many operators, they cannot escape the fact that the majority of the designs are now some 30+ years old, and a replacement is needed within the decade.

A short look at current MPA's will highlight the problems facing their operators and some of the possible replacements that may one day take their place.

ORION THE HUNTER

The most popular and prolific of the MPA's is the Lockheed P-3 Orion. Ordered in 1960 to replace the Neptune, the Orion was based on Lockheed's Electra four turboprop-engined passenger aircraft, suitably modified to incorporate an array of sensors and a weapons bay for a wide range of stores, including mines, torpedoes and depth bombs, including the 10/20 kiloton B57 nuclear weapon.

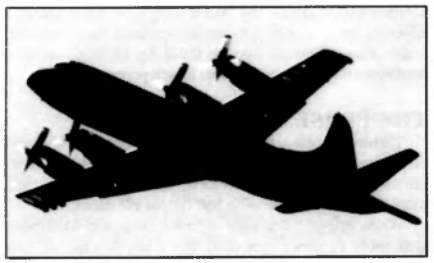


A new RAAF AP-3C Orion, regarded by many as the best example of the Orion MPA in the world. (RAAF)

Since the original P-3A took flight in 1961 and continuing through the P-3B and P-3C models, the design has been operated by a dozen nations, with Australia, Norway and New Zealand early operators. Licence production of 110 aircraft was also undertaken in Japan for the Japanese Air Self Defence Force, while a generally similar aircraft was operated by Canada as the CP-140 Aurora.

The last new build unit, a P-3C model, was delivered to South Korea in 1995, however most of the types' operators have undertaken a series of update and upgrade programs to keep the Orion flying. For example the Royal New Zealand Air Force undertook a re-winging of their small fleet of six P-3K aircraft to ensure their continued operation. The Royal Australian Air Force has undertaken a major upgrade of the electronics of their Orion fleet, resulting in the new designation AP-3C.

With the fleet of US Navy Orion's declining, several countries have acquired surplus aircraft, with India reportedly interested in acquiring a number of aircraft to replace its aging IL-38 May aircraft. This would result in the Orion operating on opposing sides of the continuing India – Pakistan tensions.



A USN P-3C Orion MPA armed with Mk-20 Rockeye cluster bombs to deliver on a land target. The MPA's role has evolved over time from ASW to multi-mission platform. (USN)

FROM COMET TO NIMROD AND BEYOND

The Nimrod, solely operated by the Royal Air Force, began life as a derivative of the De Havilland Comet, the first jet powered airliner. Development began in 1964 with the newly christened Nimrod entering service in 1969. The Nimrod was a derivative of the Comet, incorporating an enlarged fuselage to support the electronics fit and weapons stores bay. The Nimrod has four jet engines, with two engines usually shut down when on patrol, being brought back on line for transits and for when higher speeds are required. Over the years the Nimrod has been upgraded numerous times, the most recent of which is still being undertaken by British Aerospace, in a project suffering massive cost overruns.

ATLANTIQUE – EUROPEAN OCEAN HUNTER

The original Atlantique entered service in 1965 with the French Navy, with other operators including West Germany, the Netherlands, Italy and Pakistan. A new design not based on an airliner, the Atlantique 1 is somewhat smaller than both the Nimrod and Orion, and differs in having only two rather than four engines. In 1989 a new and upgraded derivative of the Atlantique, the imaginatively named Atlantique 2, entered service with the French Navy, replacing the older aircraft. The new aircraft incorporates a new auxiliary power unit and new electronics, many of which were first incorporated in the Atlantique 1.

A French Atlantique MPA launching an AM-39 Exocet anti-ship missile. MPA's can be quite dangerous to ships. They can appear when and where least expected due to their long range and can launch a devastating array of weaponry.

THE OCEAN RAIDING VIKING

The Lockheed S-3 Viking was a carrier borne anti-submarine and maritime patrol aircraft designed to package much of the Orion's electronics and capabilities into an aircraft capable of operating from the US Navy's aircraft carriers. First flight of the twinjet powered Viking took place in 1972, with the Viking entering service in 1974.

Over the next quarter century numerous upgrades to electronics and other equipment were undertaken, as well as the conversion of some aircraft to electronic warfare roles, however the decision was taken in 1998 to phase out the Viking in the MPA/anti-submarine/EW roles.

A USN S-3B Viking MPA firing a TV guided Maverick missile at a land target. The USN has adapted the S-3 to the changing world by adding land attack, electronic warfare and in-flight refueller to its repertoire. (USN)

Some of the remaining aircraft were refitted to land-attack and tanker roles. More recently there has been suggestions made that the stored S-3 fleet may be converted to water dropping fire bombers if no foreign buyer shows interest in acquiring the Viking.

THE MARITIME MAY

The Ilyushin IL-38 (NATO reporting name May) was, like its counterpart the Orion, derived from a turboprop powered commercial airliner, the IL-18. Entering service in 1968, the May served with the Soviet (now Russian) Navy, the Ukraine and India. It has followed a similar path to the Orion, Nimrod and Atlantique, incorporating a range of electronics upgrades to adapt to the revolution in computing power and changing operational circumstances. In addition, like its counterparts it has spawned a series of electronic warfare derivatives as well. A continuing upgrade program, project Sea Serpent continues today.

THE RUSSIAN BEAR

The Tupolev Tu-95 Bear reversed the more usual progression from civilian airliner to military derivative; the Tu-95 preceded the civilian Tu-114 by several years, entering service in 1956. Given the NATO code name Bear, this massive aircraft incorporated a series of contradictions; it was powered by four massive contra-rotating turboprop engines, but incorporated swept wings, despite conventional science stating that swept wings only become effective at speeds unattainable by propeller driven aircraft. Despite this the Bear has proven a particularly effective aircraft, with derivatives operating as bombers, electronic warfare aircraft, airborne command posts and cruise missile carriers.

The maritime patrol variant, designated Tu-142, is operated by both Russia and India, with the Russian Navy upgrading the Bears electronics and armament under a project dubbed Sea Dragon.

Two Russian made Bear MPAs flying in formation during a fly past in India. India is a user of the Tu-95 Bear which can see it operate the aircraft off the Australian west coast. (John Mortimer)

SEA MAIL

The Beriev Be-12 amphibian conducted maritime reconnaissance in waters closer to the mainland of the Soviet Union, a task it carries on to a limited extent today. Introduced into service in 1964, and given the NATO reporting name Mail, the Mail today is slowly being retired, a victim of increasing age and cutbacks in the Russian military budget. The scant Russian Navy funding available for the MPA fleet is being used to fund urgently needed upgrades to the more capable May's and Bear's.

THE MULTI-MISSION MARITIME AIRCRAFT

The majority of the popular maritime patrol aircraft we have examined initially entered service in the 1960s or early 1970s, the exception being the Atlantique 2 which is now some 15 years old. While all have had numerous electronic and structural upgrades to allow them to continue into service, none are still in production, and each aircraft lost to mishap or fatigue results in the permanent reduction of the available fleet.

While some Russian and European paper plans exist for replacement aircraft the only serious options currently being offered are by the US manufacturers.

Two manufacturers are vying to fill the United States Navy's Multi-mission Maritime Aircraft requirement for a P-3 replacement. Due to the size of the USN requirement, the winner of this competition will automatically be catapulted into the position of favourite for other Orion replacement programs worldwide.

Lockheed Martin, who can lay claim to the most successful MPA aircraft of the last four decades, the P-3 Orion, have proposed opening a new production line for their MMA contender, the Orion 21, incorporating the latest technologies in materials, power plants, electronics and production methods. The proposed new aircraft bears a striking resemblance to today's P-3C, the most notable difference being the six bladed propellers of the new aircraft's turboprop engines, the same engines fitted to Lockheed Martin's new C-130J Hercules.

Despite a close resemblance to the original Orion, Lockheed Martin are emphatic that their proposal is a combination of cutting edge technology, mated with a tried and tested design, one which will utilise the latest of today's construction materials and techniques to offer unparalleled improvements in reliability, sustainability and capability over the Orion it would replace.

Lockheed Martin emphasises that it is building on the strength of 40 years of MPA experience, and that the Orion is the standard maritime patrol aircraft for the western world, with hundreds still in service, and its proven expertise makes it the logical source for an Orion replacement.

Perhaps the main weakness in Lockheed Martin's proposal is that the Orion 21 indeed looks so similar to the Orion that it is intended to replace, leading to its opponent suggesting that it is offering a warmed over Orion to meet a new centuries challenges, a claim Lockheed Martin strenuously deny.

The alternative to the Orion 21 comes from a name not previously associated with maritime patrol aircraft, Boeing. Better known for the thousands of its airliners in service across the globe, and for the range of McDonnell Douglas fighter aircraft it now produces under its name following the acquisition of that company, Boeing has thrown its hat into the ring with a design based on its best selling 737 airliner.

The Boeing MMA is based on the 737-800 passenger aircraft. The original 737-100 aircraft flew in 1967, and was followed by the similar 737-200. In 1981, Boeing announced that it was developing a larger and more advanced version of the original 737 family, which would incorporate new engines and avionics amongst other improvements. The resulting aircraft, the 737-300 and its derivatives, the larger 737-400 and smaller 737-500 went on to serve in airlines around the world, with some 2000 examples sold.

Building on that success, Boeing launched the 737 New Generation series, the smaller 737-600, mid-sized 737-700

and the larger 737-800 and 737-900. These aircraft incorporated substantial improvements in aerodynamics, engines and avionics, resulting in substantial improvements over the older "Classic" series of 737 aircraft, leading to sales of more than 1200 aircraft, with the production line still in operation.

Boeing is hoping to build on this legacy of reliability and worldwide network of operators and maintenance expertise by adapting the 737-800 to a new role as a Maritime Patrol Aircraft.

Boeing claims a long and successful track record of modifying commercial aircraft for military use, with the 707, 737, 747 and 767 all having been modified into a range of roles including Airborne Early Warning, air to air refuelling tanker, airborne command post, ground surveillance, electronic warfare aircraft and VIP transport amongst others.

Critics of the Boeing proposal point out that the company has never had to fit a weapon stations to the wings and a bomb bay to the fuselage of an airliner before, nor operate a modified airliner in the harsh environment of low-level flight in the salt laden air of the world's oceans.

Boeing responds that it has extensive experience in the maritime environment, through its F/A-18 Hornet program for the United States Navy, and that the Orion began life as an airliner as well.

In addition, Boeing points out that the 737-800 derivative enjoys a 100-knot speed advantage and a 3.5 kilometre altitude advantage over the P-3 that it would be replacing.

Boeing further points out that the USN's Orion fleet is spending less and less time at low level hunting submarines, and more at higher altitude, monitoring shipping for illegal activity, and over land in support of operation in areas such as Bosnia, Afghanistan and Iraq, a pattern likely to continue.

The two manufacturers continue to argue the merits of their competing designs, each stressing their strengths and deriding their opponent's weaknesses, in a competition that will determine the future of manned maritime patrol aircraft for decades to come.

One thing that everyone agrees on is that the USN is not going to be replacing the P3 fleet with either of the contenders in anything like equal numbers, with a figure of perhaps 150 aircraft being required.

The reason for this change is that a new contender is emerging from the labs to stake a claim as the new future of maritime patrol, Unmanned Aerial Vehicles, or UAVs.

THE FUTURE IS ROBOTIC?

UAVs, with their capability for remote operation, well beyond the normal limits of aircrew, offer the military the potential to maintain constant, 24 hour surveillance of an area, perhaps thousands of miles from the nearest base, with far fewer assets (UAVs) needed than would be required if carried out with, for example, P-3C Orion's.

The largest and perhaps best known of the UAV's currently under development is the Northrop Grumman Global Hawk. This large UAV, almost as large as a small airliner, is capable of some 14,000 miles range, and boasts an endurance of 42 hours aloft.

It has demonstrated its capabilities by deploying from the United States to Australia non-stop across the North and South Pacific Oceans, the first unmanned aircraft to do so, and has been deployed on combat operations over Afghanistan and Iraq.

A Northrop Grumman RQ-4 Global Hawk Unmanned Aerial Vehicle (UAV). This high endurance UAV could be the future for wide area surveillance tasks previously done by the manned MPA. (USAF)

Plans are afoot to fit the Global Hawk with a range of maritime sensors as part of the USN's Broad Area Maritime Surveillance project (BAMS), allowing vast areas of the worlds oceans to be scanned with the results immediately available via satellite data link from the Global Hawk to the control station, which could be located anywhere on earth.

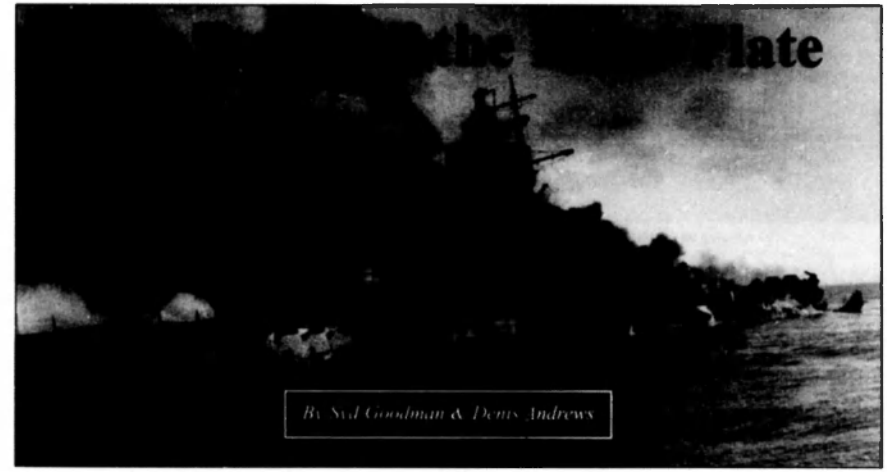
Another UAV manufacturer, General Atomics is proposing a version of the combat proven Predator UAV for the BAMS role. Whilst smaller and less capable as a platform than the Global Hawk, the Predator is substantially less expensive, allowing more aircraft to be acquired with available funds.

Such are the benefits that a UAV offers, that a manufacturer of piloted aircraft has proposed converting one of their aircraft to a UAV for the surveillance role. Grumman Aerospace is offering a version of their Gulfstream business jet, modified for pilot-less operation, to compete against the Global Hawk for the BAMS competition.

CONCLUSION

Whilst the range of roles carried out by the MPA has grown over the years, as has the number of nations operating these large and versatile aircraft, the number of possible replacements has dwindled to only two serious contenders, with whomever wins the MMA competition seemingly assured of the lions share of the future MPA market for decades to come.

Looking beyond the results of this current competition, it is possible to see the eventual replacement of manned maritime patrol aircraft with large, very long range UAVs, at least for the surveillance role. Their ability to remain on station for very long periods of time at extended ranges from operating bases, free of the constraints of aircrew endurance, offers a capability that few nations with a requirement for maritime surveillance can afford to pass up.



The pocket battleship GRAF SPEE on fire and sinking after being scuttled by her crew rather than face defeat at the hands of a phantom force off the River Plate.

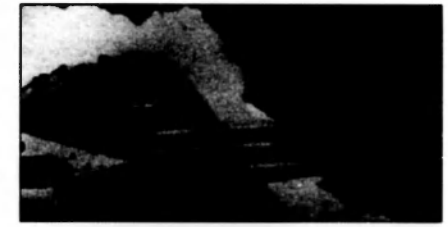
On December 8 1914 the German Admiral Graf von Spee was lost with his flagship, SCHARNHORST, in the Battle of the Falkland Islands. Twenty-five years later, the pocket battleship named in his honour was driven to self-destruction in the same waters of the South Atlantic.

The German pocket battleship Admiral GRAF SPEE had sailed from Wilhelmshaven on August 23 1939, as Europe teetered on the brink of war. When war broke out in early September she was therefore already on station to attack cargo laden ships, on the commerce routes to the United Kingdom and Europe. GRAF SPEE became a serious problem for the Royal Navy, as she roamed the seas wreaking destruction on solitary, unprotected merchant ships, tying up a number of RN ships in the desperate hunt for her.

Captain Hans Langsdorff, GRAF SPEE's Commanding Officer, was determined to remain elusive, for he had been ordered to avoid any action involving enemy naval forces. He sank his first victim off the Brazilian coast and then crossed the South Atlantic to prey on the shipping lanes off West Africa, where he sank four more ships, then briefly deploying into the Indian Ocean. Two more ships fell victim to the Kriegsmarine predator before the wireless operator of the sinking *DORIC STAR* managed to send off a signal reporting GRAF SPEE's position.

This was the first time in three weeks that the pocket battleship's position had become known. The day after the sinking of *DORIC STAR*, the merchant ship *TIAORA* was stopped by a large warship flying a dirty, French ensign. It was GRAF SPEE, employing one of her many ruses to lull her victims into a false sense of security. The object of this was to get as close as possible, without alarming the merchant ship, and thus prevent the use of the ship's radio to give away the German warship's position. Bravely, despite Langsdorff's clear warning – "Do not use your wireless or you will be fired upon!" – *TIAORA* transmitted warning signals, which were received and relayed to the Royal Navy squadron hunting for the raider.

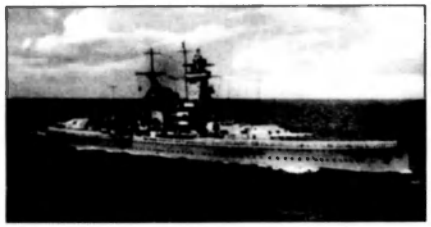
GRAF SPEE had been at sea now for nearly four months, supplied by a string of support ships including the infamous *ALTMARK*, and had sunk nine ships. However, many of the raider's support ships were being hauled into the Royal Navy net and GRAF SPEE would soon need to return to Germany. Confidential papers from the unfortunate *STREONSHALH* indicated to Langsdorff that the Plate Estuary off Uruguay could offer rich pickings and there was mention that a small convoy escorted by a naval auxiliary was due to leave Montevideo on December 10. Captain Langsdorff reversed course for this promising goal, some 2,000 miles away.



GRAF SPEE's forward 11-inch gun turret about to fire to starboard. The term pocket battleship came about from the six massive 11-inch guns mounted in two turrets which were installed on a relatively light hull of 11,000 tones. Her guns could fire a 670lb projectile to over 30km.

Patrolling off the coast of South America, though, was the Royal Navy's Force G, commanded by Commodore Henry Harwood, who shrewdly calculated GRAF SPEE would make for the River Plate. Early on the morning of December 12, 1939, Harwood's two 6-inch light cruisers, HMS AJAX and HMNZS ACHILLES, were joined by the 8-inch heavy cruiser HMS EXETER.

The following morning GRAF SPEE was to arrive in the same area, 150 miles east of the Plate Estuary, on a final search for merchant shipping, before returning to Germany for



The German pocket battleship GRAF SPEE before the war. The pocket battleships were feared given their 11-inch guns and excellent range however, they suffered in having little armour protection. The ships were also the first to be electrically welded and use diesel power exclusively.

Christmas. Langsdorff planned to attack the British *HIGHLAND PRINCESS*, since newspapers taken from his last sinking gave details of movements of merchant shipping in the area he was now in. As December 13 dawned, Harwood's cruisers were steaming in line ahead, with the early morning visibility already good. Around 6.15am AJAX sighted a plume of smoke far away to the north-east and Harwood ordered EXETER to investigate, having already given much thought to the way his squadron would operate should it meet GRAF SPEE.

Minutes later EXETER signalled: "I think it is a pocket battleship." Harwood ordered full speed and his ships quickly took up their pre-planned positions, with gun crews manning turrets. GRAF SPEE's armament was heavier than that of the three cruisers, comprising six 11-inch guns in two turrets, but the British cruisers' speed was superior to that of the Germans, and, by splitting the enemy's fire, they stood a chance.

Langsdorff was about to make his first mistake, he thought the force he faced comprised one cruiser and two destroyers, due to the speed of the approaching ships. Believing they were protecting a convoy, and confident he could make short work of the cruiser, he closed with HMS EXETER. This error cost him his advantage, for he could have outgunned the heavy cruiser at a greater range.

At 6.18am GRAF SPEE's forward turret fired the first salvo. EXETER returned fired two minutes later, followed closely by AJAX and ACHILLES. Within minutes, though, GRAF SPEE's guns had wrecked EXETER's B turret and damaged her bridge, killing many of her officers. However, her Commanding Officer, Captain F. S. Bell had survived, and, to save his ship from the hammering she was taking, ordered EXETER's starboard torpedoes to be fired, forcing GRAF SPEE to turn away.

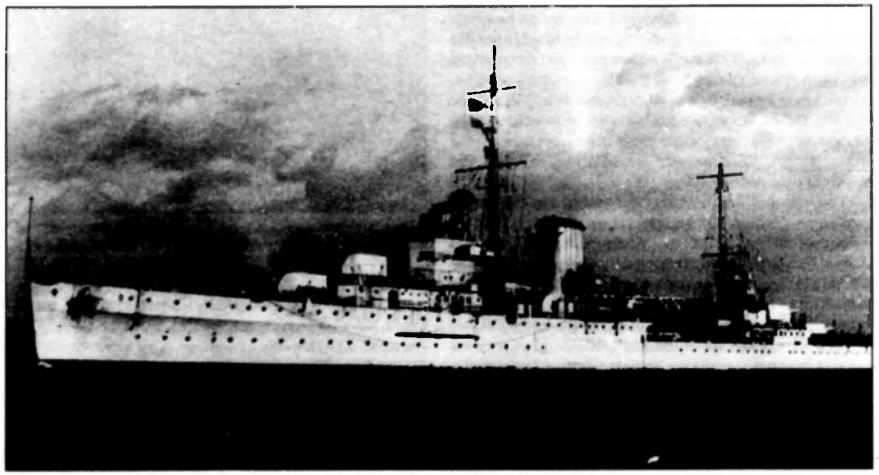
During the confusion Langsdorff saw his chance to finish off EXETER, but AJAX and ACHILLES raced in with all guns blazing, compelling the German to turn to face them. This provided an opportunity for EXETER to haul off and withdraw from the action, as all her guns were now out of action. Luck was with the British until AJAX's two after turrets were put out of action by an 11-inch shell.

Harwood ordered torpedoes to be fired and opened the range of both ships under cover of a smokescreen. After 90 minutes the battle subsided. GRAF SPEE had suffered superficial damage to her superstructure and secondary armament, although her main armament remained intact.

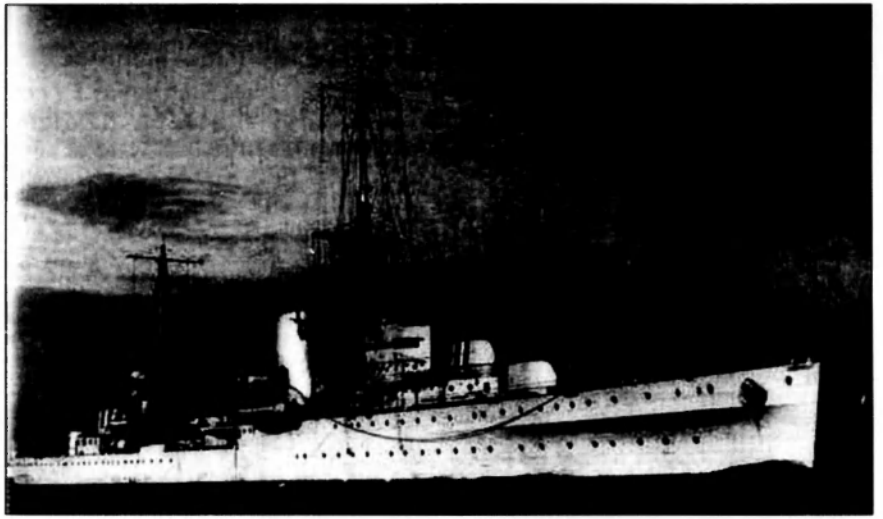
Casualties had been heavy in EXETER and her damage control parties now fought to put out the fires and make her seaworthy for the long passage to the Falkland Islands where she could be repaired. EXETER had lost 64 officers and men and AJAX had two of her gun turrets out of action, with seven crew killed. ACHILLES, which had suffered least in the engagement – mainly splinter damage – took up station astern of GRAF SPEE to shadow the enemy ship, keeping just out of range of the 11-inch guns.

Langsdorff now made another significant mistake, for, instead of taking on the two smaller cruisers and finishing the action, he decided to make for the neutral port of Montevideo, in Uruguay, to under-take repairs.

GRAF SPEE anchored just before midnight in the harbour, while Captain Langsdorff reflected on his position. The ship's bow was damaged, making an Atlantic crossing in winter unlikely. There was also the damage to the ship's oil separators and secondary armament, with estimates that the



The Leander class cruiser HMS AJAX. AJAX was one of the three ships that engaged the pocket battleship at the mouth to the River Plate.



The Leander class cruiser HMNZS ACHILLES. ACHILLES was one of the three ships of Commodore Harwood's force ordered to hunt down the pocket battleship in the South Atlantic.

pocket battleship had taken over 50 hits. In addition, 50 per cent of the ammunition had been expended and food supplies were low and with no German bases or supply ships near enough to be of help.

Over the next four days, intense diplomatic pressure and manoeuvring took place ashore. The Germans wanted 14 days to conduct repairs. The British wanted GRAF SPEE to stay in Montevideo for four or five days at least, to enable reinforcements to reach AJAX and ACHILLES. However, on the diplomatic front, so as not to reveal their weakness in having just two waiting RN ships, the British were insisting GRAF SPEE should not be allowed to stay for longer than 24 hours.

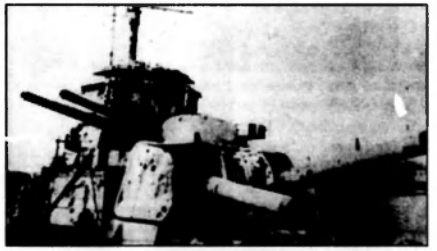
In the meantime the British also made sure cargo ships sailed daily from Montevideo, as this prevented GRAF SPEE from leaving. International regulations stated that 24 hours had to elapse after a merchantman had departed a neutral port before a belligerent could also sail from the same place. The battlecruiser HMS RENOWN and the aircraft carrier HMS ARK ROYAL were still several thousand miles away.

In Montevideo, erroneous BBC broadcasts reported on reinforcements of a battleship and aircraft carrier, probably ARK ROYAL, which had joined Harwood's cruisers at the mouth of the River Plate. It was also known that heavy cruiser HMS CUMBERLAND was steaming from the Falklands at top speed, as a replacement for EXETER. German diplomats pleaded with the Uruguayan Government for 15 days grace to make GRAF SPEE seaworthy, but this was refused. The repair work went on aboard her as she received fuel, steel plates and welding equipment – preparation for the climactic battle to come.

Sunday December 17 dawned, with the populace of Montevideo flocking to the harbour and seashore, hoping to see the wounded German ship sail to death or glory. Diplomatic activity continued throughout the day, but shortly after 5pm GRAF SPEE raised first one anchor, then the second. At 6pm, onlookers were surprised to see many of her crew leaving, transferring to the *TACOMA*, a German merchant ship in the harbour. Then, at 6.19pm, GRAF SPEE left the inner harbour with only a skeleton crew on board. She slowly sailed down the fairway, followed by several launches. At 6.40pm she turned west, as if making for Buenos Aires, then turned again and moved slowly toward the open sea. At 7.00pm she halted in the middle of the estuary and observers thought that Langsdorff was waiting for darkness to make a dash through the waiting British warships.

A terrific explosion ripped through the ship, followed by a great column of smoke, and flames leaping into the sky. The time was 7.50pm. Playing out before the eyes of the world was a drama of defeat and ignominy, not one of German bravery and defiance! It was thought that Langsdorff had died with his ship, but boats were later seen moving away from the wreck and they were taken aboard the *TACOMA*.

Speculation held that Hitler was furious because the ship was trapped and had ordered her to be scuttled. But communication between GRAF SPEE and Naval High



Some of the damage suffered by HMS EXETER at the hands of the 11-inch armed pocket battleship GRAF SPEE. EXETER was nearly finished off by the German ship but was saved by ACHILLES and AJAX forcing the pocket battleship to engage them instead.

Command in Berlin expressly forbade internment and proposed two options. Option one was to attempt a breakout into the Atlantic or to Argentina, but, if either were likely to result in the destruction of the ship, option two was to scuttle. Langsdorff, had maintained there was no solution but to sink his ship by blowing her up near the coast, since breaking out into the Atlantic would be pointless considering GRAF SPEE's condition. Going to Argentina would bring the same problems experienced in Uruguay. As the glow of sunset reflected off the water, the explosions inside GRAF SPEE's hull continued, providing a memorable spectacle for the onlookers. Finally the ravaged hulk settled into the water, a humiliating end for a once proud warship that had sunk over 50,000 tons of allied shipping and tied down many Royal Navy warships.

Captain Langsdorff reached the safety of pro-German Argentina where he was to state in a note: "I am quite happy to pay with my life for any possible reflection on the honour of the flag." He wrapped himself in the Imperial German Flag and shot himself. The world realised that this was the final gesture of a truly gallant seaman, who had gone against the Fuhrer's orders and chose to save his crew from certain death. In Germany, the Nazi propaganda machine found it hard to explain what had transpired.

The GRAF SPEE's Captain, Hans Langsdorff. After he scuttled his ship he claimed full responsibility for its defeat and shot himself whilst wrapped in a German Navy Imperial Flag

GRAF SPEE
CLASS: Deutschland.
LENGTH: 596ft.
DISPLACEMENT: 11,700 tons (standard).
DRAUGHT: 24ft (deep load).
MACHINERY: 2 MAN diesels generating 54,000 bhp.
ARMAMENT: 6 x 289mm; (11-inch) guns; 8 x 150mm; 6 x 105mm.
AIRCRAFT: 2.
CREW: 619-1,150.
TOP SPEED: 28 knots.

EXETER
CLASS: EXETER.
LENGTH: 540ft.
DISPLACEMENT: 10,490 tons.
DRAUGHT: 21ft (deep load).
MACHINERY: Geared steam turbines generating 80,000shp
ARMAMENT: 6 x 8-inch guns; 4 x 4-inch.
AIRCRAFT: 2.
CREW: 630.
TOP SPEED: 32 knots.

CUMBERLAND
CLASS: Kent.
LENGTH: 590ft.
DISPLACEMENT: 9,750 tons.
DRAUGHT: 22ft (deep load).
MACHINERY: Geared steam turbines generating 82,000 shp
ARMAMENT: 8 x 8-inch guns; 4 x 4-inch.
AIRCRAFT: 1.
CREW: 710.
TOP SPEED: 31 knots.

AJAX and ACHILLES
CLASS: Leander.
LENGTH: 522ft.
DISPLACEMENT: 6,985 tons standard.
DRAUGHT: 20ft (deep load).
MACHINERY: Geared turbines, generating 72,000shp.
ARMAMENT: 8 x 6-inch guns; 4 x 4-inch.
AIRCRAFT: 1.
CREW: 570.
TOP SPEED: 32 knots.

(*) This article first appeared in the UK based Magazine WARSHIPS IFR and is reproduced with the kind permission of the Editor

In 1959 the story of the Battle of the River Plate was told on the big screen with a British production entitled *The Battle of the River Plate*. Here is one of the original movie posters advertising the film which starred Peter Finch as Capt. Hans Langsdorff, Anthony Quayle as Commodore Harwood and John Gregson as Captain Bell, CO of EXETER.

Flash Traffic

Navy League calls for improved Air Defence

The Royal Australian Navy's ability to protect Australian interests from military and terrorist threats was being hampered by inadequate air defence capabilities. The Navy League of Australia, whose national membership includes a wide range of people with an interest in maritime affairs, has said that there was a pressing need for the Navy to be provided with a credible area air defence capability.

The Federal President of the Navy League of Australia (NLA), Mr Graham Harris, said: "With the Australian Defence Force (ADF) increasingly likely to be called upon to intervene within Australia's area of strategic interest – which could be in response to regional terrorist or more serious threats – forward deployed units of the ADF need to be assured they can be protected from air and missile attack.

"While the Government has made a commitment to acquire three or four air warfare destroyers this will not happen before 2013. The Government needs to address the earlier acquisition of these ships as well as the immediate air defence requirement by fitting improved air defence missile systems in the Navy's existing ships" he said.

A number of other matters of national importance were considered at the Annual Council Meeting of the League held recently in Canberra.

"The serious under-manning of the Navy, particularly in important technical and seaman officer categories, is seen as a particularly serious issue and could be prejudicial to the future conduct of naval operations." Mr Harris said.

"The inability of Navy to maintain its approved manpower levels is seen primarily as a failure on the part of the new centralised Defence personnel organisation, and the Department's public relations."

The Council, which is a strong supporter of the Australian shipbuilding industry, both naval and civilian, noted both the economic and industrial benefits this activity brought to Australia.

In the case of the vibrant high speed catamaran industry and the increasing involvement with the United States Military, the Council is firmly of the opinion that in negotiating a Free Trade Agreement with the United States, the Government should seek to have the US Government revoke the Jones Act as it applies to Australia. The Jones Act is American legislation which prohibits the import of ships into the USA.

The Navy League expressed its particular concern that the Howard Government has presided over the virtual demise of the Australian shipping industry. The NLA strongly recommends that the Government begin to redress this situation by implementing the recommendations of the Sharp Morris Report (September 2003).

The report recommends the Government introduce a wide range of measures, particularly in the areas of regulation and taxation to re-vitalise the industry.

Australian-owned and operated shipping services are seen not only as an important element of the Australian economy but also provide essential strategic sea lift capability for any military or quasi-military operations, whether offshore or in the direct defence of Australia, and as a reservoir of sea-trained personnel, the Navy League said.

The recent re-arrangement of ministers within the Howard Ministry whereby a separate Assistant Minister for Defence now has responsibility for defence personnel was welcomed. "Minister Brough, as his first priority, must address the many problems in this vital area." Mr Harris said.

Navy League Executive members pose for a photograph at the entrance to Canberra's HMAS HARMAN during the League's recent AGM. From left to right (back row), John Jeremy (NSW), Alan Presket (SA), Robert Albert (NSW), Graham Harris (Federal President), Harry Josephs (Federal Vice President), John Bird (Federal Vice President), Admiral Peek, Keith Adams (NSW), Harry Adams (Federal Vice President), Mr Bill Dobbie (NZ Navy League), Andrew Robertson (Federal Vice President) and Ray Corboy (Federal Secretary). Front row, L to R, Trevor Vincent (WA), Geoff Evans (Vic) and Kevin Hurd (TAS).

Adelaide wins Collins contract

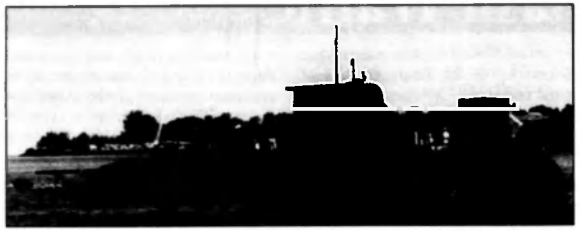
The Australian Submarine Corporation has been awarded a contract worth up to $3.5 billion over 25 years to refit the Collins class submarines.

The refits of each submarine will be conducted on a 12-month cycle in Adelaide under a long-term maintenance agreement to be signed by the ASC and the Defence Material Organization.

Senator Hill and Senator Minchin said the contract reaffirmed ASC's reputation as Australia's pre-eminent centre for submarine construction, modification, repair and maintenance.

The skilled ASC workforce at Osborne is integral to Australia's long-term submarine capability. This contract is a significant investment in Australian technology and intellectual capital to ensure the proper service and maintenance of our fleet, which are the most capable conventional submarines in the world.

The initial duration of the agreement is for 15 years, with the option to extend it for a further 10 years. Each refit of a submarine costs about $80 million. The fleet of six Collins class submarines will be refit every seven years over their 28-year lives. The 25-year contract could be worth up to $3.5 billion, the majority of which will be spent in Adelaide providing full cycle dockings – a huge boost to the South Australian economy. The remainder will be spent on other submarine maintenance activities,



HMAS FARNCOMB on the surface in Darwin Harbour just prior to Operation Stabilise in East Timor. FARNCOMB is the last submarine to be refitted before the new maintenance contract with ASC takes effect (RAN)

including mid cycle dockings and other contractor work to be carried out primarily in SA and Western Australia, where the submarines are homeported.

It provides significant benefits to Defence, local industry and subcontractors by securing long-term, in-country support for a key strategic defence capability while providing commercial certainty to ASC.

ASC completed the submarine build contract earlier this year and has been involved in maintenance of the Collins class since 1996.

HMAS WALLER will be the first submarine to be refitted under the new contract which is expected to commence in late 2004. HMAS WALLER will benefit from the experience ASC has gained on the current refits of HMAS COLLINS and FARNCOMB.

New sweeps delivered

ADI Limited has handed over in Adelaide the first of 16 new generation acoustic minesweeps ordered by the RAN.

The Australian Acoustic Generator (AAG) is a water driven, turbine powered sweep which can be programmed to emulate the acoustic signatures of specific classes of ships.

Developed by ADI in conjunction with the South Australian company, Resonance Technology and DSTO, the AAG reflects Australia's ability to design and manufacture world leading mine countermeasures systems.

The RAN and the Polish Navy purchased the first generation AAG some three years ago. ADI made enhancements to the generator following a test and evaluation program by the RAN, and additional orders followed earlier this year.

Compared to older technology noise generators, the AAG provides a stable acoustic line structure, increased towing speed range and an acoustic spectrum which can be programmed to emulate the acoustic signature of a particular class of ship.

All of these features are required to defeat modern mines equipped with sophisticated sensors and computerised signal processing capabilities.

Eight countries including Denmark, Japan and the United States have bought the system.

By LCDR Andrew Stackpool, NAVY NEWS

RAN begins Super Seasprite trials

The RAN has begun acceptance testing of the SH-2G (A) as an Interim Training Helicopter (ITH) after receiving a critical 'intent to proceed' from the Australian Commonwealth. The first Super Seasprite was provisionally accepted at a ceremony at Nowra last October.

Kaman Aerospace International Corporation presented the first aircraft for production acceptance in July following the Commonwealth's decision to continue to plan for provisional acceptance, upon completion earlier last year of Critical Design Reviews of the final integration software.

In parallel with the acceptance process, the RAN's Super Seasprite helicopter squadron, 805 Squadron, has commenced training of the SH-2G (A) maintainers. Additionally, Kaman's Australian agency for training Australian Navy personnel, Scientific Management Associates, has now been certified to conduct flight training.

The RAN is currently conducting SH-2G (A) First of Class Flight Trials (FOCFT) and shipboard interface testing after provisional acceptance, operating under a special flying permit. The first helicopter recently landed aboard HMAS WARRAMUNGA which was berthed at Garden Island, Sydney, at the time.

"This is a major milestone for Kaman Aerospace as well as the Australian Project Office," said Sal Bordonaro Kaman's General Manager of Helicopter Programs. "The successful completion of the detailed software review and commencement of the training by 805 Squadron maintainers and pilots is a significant event in the overall schedule for final acceptance and operational introduction of the Super Seasprite". Kaman, along with Northrop Grumman Information Technology (NGIT) and Computer Sciences Corporation (CSC) Australia, will continue to develop the Super Seasprite's final operational system software while the aircrew training and shipboard interface testing proceed in parallel.

SH-2G (A) flight training will initially be for Australian Navy test pilots that will conduct FOCFT and subsequently transition training for 805 Squadron instructor aircrew. Kaman is planning to have six of the eleven SH-2G (A) Super Seasprites accepted in order to support the initial flight test and training program. Four additional Seasprites are completing fit out at Nowra and will be offered for provisional acceptance when complete, with the eleventh SH-2G (A) remaining at Kaman's helicopter facilities in the USA for the support of continued software development and flight testing.

The Australian Defence Force is looking toward a SH-2G (A) training and utility capability under an Australian Military Type Certificate in the second quarter of 2004 and delivery of the full capability of the ITAS weapons system software by the end of 2004.

Chief of Navy giving a speech at the provisional acceptance ceremony at Naval Air Station Nowra of the first SH-2G (A) Super Seasprite. (RAN)

WARRAMUNGA's ESSM firing success

The RAN has successfully test fired another of the new Evolved Seasparrow Missile (ESSM). The ESSM is one of the next generation of ship self-defence weapons against the latest anti-ship missiles.

The firing took place from HMAS WARRAMUNGA at the USN's Pacific Missile Range Facility off Hawaii.

HMAS WARRAMUNGA is the first Anzac to be fitted with the missile and leads the way for it to be brought into service in the remaining Anzac ships.

The test firing off WARRAMUNGA is part of the operational evaluation stage of the project which is being managed by the Defence Materiel Organization, while the DSTO participated in the development and test programs for the missile.

The missile has been developed, tested and manufactured under a cooperative program by Australia, Canada, Denmark, Germany, Greece, the Netherlands, Norway, Spain, Turkey and the United States.

The ESSM is now expected to be fitted in the other Anzacs along with significant combat system software and illumination radar upgrades.

This will make the RAN the first navy world-wide to bring the ESSM into active service.

By LCDR Andrew Stackpool, NAVY NEWS

A ESSM leaves the Mk-41 VLS of HMAS WARRAMUNGA during trials to integrate the new missile into the RAN. (RAN)

Thales sonar upgrade for Collins class

The Defence Materiel Organization has signed a $22.9 million contract with Thales Underwater Systems Pty of Rydalmere NSW to provide a new suite of data processors and sonar displays as part of the SEA1439 Replacement Combat System (RCS) project for the Australian Navy's six Collins Class submarines.

The contract involves the implementation of Thales Underwater Systems' (TUS) sea-proven Scylla Sonar Interface (SSI) Sonar display processing engine that has already seen service with the RAN in the Collins Class fast-track combat system augmentation project.

This upgrade contract introduces the latest elements of the new SSI intuitive sonar display architecture and processing from Thales' highly successful TSM 2233 sonar that is already being implemented globally on Agosta, Scorpene and other SSKs.

The SSI displays and data processing will be integrated with the existing Thales Scylla sonar arrays and processing suite that have operated very successfully since the launch of the first of the Collins Class, HMAS COLLINS, in 1993.

The upgraded sonar will be integrated with the new replacement US Navy CCS MK II Combat System (produced by Raytheon) to be introduced to the Collins Class under the RCS Project.

The introduction of the SSI Processor across all six of the Collins Class platforms represents a significant enhancement to the existing TUS SCYLLA sonar suite on the Collins Class. The new SSI data processors and sonar displays will provide the submarine's sonar operators with a comprehensive suite of state of the art sonar display capabilities that maximize the sonar operator's target detection, localization and tracking capabilities.

Under this contract the existing Thales Underwater Systems SSI Processor will be further developed with additional sonar display capabilities across the full set of functions within the Collins Class SCYLLA Sonar Suite. In addition, Thales will also be implementing a new sonar high bandwidth data port functionality based upon technology from the Defence Science and Technology Organization (DSTO). The new SSI 'opens the architecture' through TUS' leading approach to open architecture sonar systems in conjunction with the DSTO. Thales Underwater Systems will also be providing capabilities for the future implementation of the DSTO CIRCE Self-Noise Monitoring processor to be housed within the Collins Class sonar.

The introduction of this significant sonar enhancement will ensure that the Collins Class submarines maintain their world class sonar capability. This new contract maximizes the investment that the Commonwealth has already made in the Collins Class, and provides the foundation for the future continuous enhancement of Australia's submarine capability.

Air Warfare Destroyers for PLAN

The Chinese People's Liberation Army Navy's (PLAN) second Type 052C guided-missile destroyer was launched from the Jiangnan shipyard in Shanghai on 29 October 2003.

The first of the Type 052C class, designated Lanzhou by some Chinese and Western sources, was launched at the same yard in April of 2003 and is nearing the sea trials stage.

The class are thought to displace approximately 6,000 tonnes with a primary mission of air defence. The Type 052C is fitted with a four-face phased-array radar system, leading some to call it the Chinese Aegis.

While sharing the same basic hull as the new Type 052B destroyers, which are equipped with two single-arm launchers for the Russian-made Shtil-1 medium-range air-defence missile system, the Type 052C is fitted with vertical launchers believed to be associated with the HQ-9 theatre air-defence missile system.

Malaysian OPVs arrive

The Royal Malaysian Navy's second MEKO A100-based offshore patrol vessel has arrived in Lumut in Malaysia, where it will be outfitted and undergo sea trials. The keel for this second ship was laid on 21 December 2001.

The first ship left Hamburg on 1 April and is expected to enter service in late 2004.

The last four units ordered by Malaysia will be built at the PSC-NDSP shipyard in Malaysia.

The ships will be fitted with a 76mm gun and a Mauser 27mm automatic cannon aft above the medium helicopter platform. They will also be fitted for the French made MM-40 Exocet surface-to-surface missile and a short-range air-defence system. It is thought that up to 21 ships may be ordered.

Thailand plans for future

New Thai Navy chief ADM Chumpol Pajjusanon plans to improve combat readiness by acquiring new ships with the additional funding the government has promised over the next 10 years. DM Chumpol succeeded ADM Thaweesak Somapa recently.

He said the Defence Ministry budget was set to rise from 16 billion baht to 24 billion baht a year.

The navy planned to purchase two frigates from Britain for about 10 billion baht. Under a bilateral agreement, Britain would import Thai agricultural products or find markets for them as part of the deal.

Other buys would include new armaments and radar systems worth 900 million baht for the aircraft carrier Chakri Naruebet (150 million baht to be spent in the 2003-2004 fiscal year), three coastal patrol vessels costing 300 million baht and two to four offshore patrol vessels for about 1.5 billion baht each.

ADM Chumpol said the navy needed to increase its capabilities because its responsibilities were growing. It would soon begin joint patrols with the nations with adjoining waters such as Malaysia, Vietnam and India.

He also planned an increased public relations effort to explain the navy's role, and improve intelligence collection and the personnel welfare scheme.

India seeks more Barak

With the much-delayed indigenous surface-to-air (SAM) Trishul missile program still floundering and nowhere near completion, the Indian Navy is planning to acquire several more Israeli Barak anti-missile defence systems for its frontline warships.

The Indian Navy had pressed for installation of six Barak systems on its Delhi Class destroyers and Godavari Class guided-missile frigates, in addition to the one already approved for its solitary aircraft carrier INS Viraat, during the 1999 Kargil conflict. This was necessary since Pakistan had acquired Harpoon and Exocet air and submarine launched sea-skimming anti-ship missiles, which posed a threat to Indian warships.

"We had no effective answer to them. Western countries were not prepared to part with their advanced anti-missile defence systems. So, we turned to Israel," said an officer.

Now, the Navy wants at least 10 more Barak systems, valued around Rs 100 crore each, to be installed on its other warships, including the Brahmaputra Class frigates, to further bolster its sea-based defences.

"Despite almost 70 flight-tests, the Trishul program is simply not materializing due to repeated snags in the guidance, control and propulsion systems. With the Barak system already being installed on seven warships, it makes sense to make our anti-missile systems Barak-centric and bring in standardization," said sources.

Similarly, the Navy plans to centre its anti-ship capabilities on the 290-km-range supersonic cruise missile BrahMos being developed jointly with Russia.

The fire-and-forget BrahMos, which can fly at a speed of up to Mach 2.8 is to be introduced in another six months. It is claimed to be more advanced than the anti-ship missiles used by China or Pakistan at present.

The quick-reaction Barak SAM, in turn, is an integrated system, which employs vertically launched missiles and command to line-of-sight radar guidance, to destroy incoming sea-skimming missiles and hostile aircraft.

Israel has emerged as the second-largest supplier of military hardware and software to India after Russia in recent years, especially in the field of surveillance and anti-missile systems.

An Israeli Barak missile leaves a vertical launch tube. India is the missile's biggest foreign customer with the Indian Navy stating a requirement for more of this effective anti-ship missile defence weapon.

Final Bob Hope class delivered

Northrop Grumman Corporation's Ship Systems sector has delivered USNS BENAVIDEZ (T-AKR 306) to the USN, successfully completing nearly a decade of construction of the Bob Hope-class ships.

The USNS BENAVIDEZ (T-AKR 306). The BENAVIDEZ is the final Bob Hope class sealift ship to be delivered to the USN. The recent Australian Defence Capability Review called for the acquisition of a sealift ship for the RAN but it is doubtful that it will be in the same size and capability class as the Bob Hope. (Northrop Grumman)

BENAVIDEZ is the final ship of seven of the LMSR (large, medium-speed, roll-on, roll-off) vessels built by Ship Systems' Avondale Operations in New Orleans, La. The ship has already conducted successful sea trials and recorded an excellent rating by the USN.

The 950-foot-long ships in the Bob Hope-class are among the largest in the USN's fleet, and are designed and constructed with more than 380,000 square feet of cargo capacity on six decks. They are capable of carrying up to 1,000 military wheeled and/or tracked vehicles and other cargo.

"We are proud to have built seven great ships in the class, and are particularly pleased with the first six ships' impressive service in our nation's war on terrorism," said George Yount, vice president of operations at Avondale. "We are confident BENAVIDEZ will continue the legacy of constant support as she begins her commissioned service".

Construction of the vessel began June 7, 1999 with its keel laid on December 15, 1999. The ship was christened Benavidez July 21, 2001 in honour of Medal of Honor recipient Army Master Sergeant Roy P. BENAVIDEZ, of Lindenau, Texas. In 1968, Sgt. Benavidez distinguished himself in a series of daring and extremely valorous actions while serving in Vietnam as part of the First Special Forces, U. S. Army. Retired Master Sergeant Benavidez was 63 when he died Nov. 29, 1998 in San Antonio, Texas.

Pontoon loss sank submarine

The Russian November class nuclear submarine K-159 sank in the Barents Sea on August 30 because the pontoons keeping it afloat tore off in a violent storm, the press service of the Russian Defence Ministry has said.

Unnamed officers presiding over the scrapping said that the pontoons, which were made in the 1940s, were welded to the rusted hull of the submarine which in parts was as tin foil.

The submarine sank in the early hours of August 30 in the Barents Sea on its way to Polyarny where it was supposed to be scrapped.

The Russian Navy Commander-in-Chief ADM. Vladimir Kuroyedov has said that the wreck of the K-159 will definitely be retrieved.

"The sunken submarine will definitely be raised. We will not leave a nuclear object on the seafloor, despite the fact that its current condition does not pose any kind of threat and our special services did not find any evidence of radioactive pollution," Kuroyedov said.

"It is somewhat early to talk about the dates, methods, and participants for the raising operation. All these issues are being actively examined. The possibility and necessity of involving foreign companies is being considered as well," he said.

The K-159 is currently located at a depth of 170 metres. There were 10 people onboard the sub at the time of the sinking. One of them was rescued, two bodies were retrieved, and the remaining seven are still considered missing.

The sub's nuclear reactor had been brought to safe condition and its ammunition had been unloaded prior to the sinking.

Delta III test fires missile

Russia has successfully test-fired a submarine launched intercontinental ballistic missile (ICBM).

The missile was launched by the Project 667BDR (Delta III) submarine PODOL'SK of the Russian Pacific Fleet stationed in the Far Eastern Okhotsk Sea.

Minutes later, it successfully hit its target at the Chizha military target area near the Barents Sea in Russia's northeast, a Russian news agency quoted navy spokesman Igor Dygalo as saying.

ALMIRANTE WILLIAMS commissions

The former Royal Navy Type 22 batch 2 frigate HMS SHEFFIELD has recommissioned as the Chilean ALMIRANTE WILLIAMS. Military and civilian authorities of Chile, the United Kingdom and other countries attended the ceremony. During the commissioning ceremony, the national ensign and commissioning pennant was hoisted and the ship officially named ALMIRANTE WILLIAMS.

ALMIRANTE WILLIAMS is the first of three second hand ships the Chilean Government has authorized the navy to purchase under the terms of Project Puente (Bridge). This program is part of the efforts to replace ships of the current naval surface force that are past their life expectancy. In addition, Project Fragata (Frigate) calls for the construction of three new ships; the first to be built overseas and the next two at ASMAR, Talcahuano.

The Russian November class nuclear submarine K-159 being towed to the breakers yard before her sinking. The pontoons attached to her hull were made in the 1940's and were welded to the subs rusted hull, which was said to have been as thin as tin foil. Nine sailors lost their lives in the tragedy.

Next-generation VLS designated MK 57

The USN has officially designated Raytheon's Advanced Vertical Launching System as the MK 57 Vertical Launching System (MK-57 VLS).

The MK-57 launcher is being designed for DD (X) – the next-generation destroyer now being developed by the DD (X) National Team. Raytheon Integrated Defense Systems serves as the ship electronics and weapons systems integrator for DD (X), and the MK-57 development is led by Raytheon in partnership with United Defense, L.P. Construction of the first DD (X) ship is expected to begin in 2005.

"We are proud to be in the forefront of developing new naval systems for DD (X) that will significantly improve ship firepower and survivability," said Jack Cronin, Raytheon vice president for the DD (X) program. "In addition, the MK-57 VLS will reduce costs by lowering manning requirements and facilitate the Navy's open architecture vision for ship electronic systems."

The MK-57 will be able to fire all of the missiles currently in the USN inventory and projected to be in inventory for the foreseeable future. The MK-57 is scaled to accept the heavier missiles that could potentially be used in the future for ballistic missile defence, as well as lighter missiles such as the Evolved SeaSparrow Missile (ESSM). The MK-57 is also expected to be incorporated into future US and foreign navy ship designs.

Seawolf Block 2

MBDA's new Seawolf Block 2 naval point defence missile has been successfully fired for the first time at the Vidsel missile test range in Sweden. The new Seawolf Block 2 variant, which will enter service with the RN in 2005, was test fired on 4 September 2003. The missile is designed to operate with existing in-service Seawolf missile systems while benefiting from cost-effective new missile technologies introduced by MBDA. These technologies, coupled with the introduction of a new fuse, have led to significant improvements in the Seawolf missile's performance.

Technology developments include a new electronic fin actuation system to replace the former gas actuation system, resulting in improved missile control and extended range. Drawing on experience gained from MBDA's highly successful ASRAAM air-to-air missile programme, Seawolf now incorporates ASRAAM's multichip module to provide more in-flight computing power in a much smaller package. This technology also greatly simplifies the production process. A new fuse incorporating IR/RF sensors has also been developed to improve engagement success against very low sea skimming, low signature targets. Other enhancements serve to reduce cost and component package size.

MBDA has developed this cost-efficient enhancement to the missile while working with the Royal Navy to meet its future Seawolf warstock requirements. Importantly the Block 2 missile will be compatible with the Seawolf ship system installations in service with the Royal Navy and other Seawolf users. Of significant logistic benefit to navies is the fact that both the conventional and vertical launch versions of the new Block 2 missile now share a common modularity with vertical launch being provided to the standard missile by the simple addition of a boost and turnover pack.

Commenting on the development of Seawolf Block 2, MBDA's Chief Operating Officer, Guy Griffiths said: "This programme is an excellent example of incremental acquisition, where new technology is being progressively applied to an existing, in-service system in order to enhance its effectiveness. The achievement of this critical firing milestone confirms that this improvement programme is firmly on track."

With the success of this first test firing, the way is now clear for further test firings of both conventional and Vertical Launch Seawolf Block 2 during 2004. Production deliveries are scheduled for 2005 when the new missile will enter service with the Royal Navy's Vertical Launch Seawolf missile system for the Type 23 frigates and conventional launch versions, without the turnover boost, for the Type 22 batch 3s.

Seawolf has been the UK Royal Navy's standard naval point defence weapon system since first coming into service on the later Leander Class frigates and the Type 22 frigates in 1979. The first Seawolf featured a conventionally launched missile. Subsequently, in 1990 the Vertical Launched Seawolf variant, VL Seawolf, entered service on the Royal Navy's Type 23 frigates. Since 1979, over 1,000 vertical and conventionally launched Seawolf missiles have been fired and the system has been successfully exported to Brazil (conventional launch Seawolf) and to Malaysia (VL Seawolf).

CLEMENCEAU stranded

The former flagship of the French Navy (Marine Nationale) the aircraft-carrier CLEMENCEAU has been stuck off the coast of Sicily as a result of a contractual dispute over asbestos and scrap rights.

Decommissioned in 1997 after 35 years of service, the 33,000-tonne carrier was sold to a Spanish company which undertook to tow it for scrapping in the port of Gijon in northern Spain, according to the French defence ministry.

However, after leaving its Mediterranean base at Toulon under tow, the carrier, which had a French frigate as escort, was seen heading not towards the straits of Gibraltar, and thus to Spain's Atlantic coast, but eastwards towards Turkey.

"There are European conventions on the issue of asbestos removal. A clause in the contract stipulated that the scrapping had to take place in Europe and not in Turkey, where there is reason to believe the European rules are not respected," explained spokesman Jean-Francois Bureau.

"Faced with this flagrant violation of the commitments made by the company, the French government cancelled the contract," he said.

Instead the government offered the ship to a German firm which plans to break it up in the Greek port of Piraeus, and with negotiations underway between the two companies CLEMENCEAU was stranded at anchor off the Sicilian coast.

The 265m-long CLEMENCEAU was built at Brest, France in 1957. The vessel was equipped with four steam turbines developing 126,000 bhp and had a speed of 32kt. The ship and its sister, FOCH, became symbolic of former French president Charles de Gaulle's desire for military independence from NATO.

CLEMENCEAU carried out its last mission in July 1997, before being laid up in Toulon. Plans emerged a few months ago to scuttle the ship off Marseilles to make it an artificial reef, but the idea was dropped. The FOCH was sold to the Brazilian navy and renamed Sao Paulo.

STANDARD gets improved manoeuvrability

White Sands Missile Range (WSMR) successfully launched a Standard Missile Flight Test Round 24 (FTR-24) from the Desert Ship facility Vertical Launcher on November 15.

The former French aircraft carrier CLEMENCEAU laid up at the Mediterranean port of Toulon. Her fate is currently thought to lie in the Greek port of Piraeus after the carrier was seized by the French when it was realised the scrap metal company that bought her contravened the sale contract.

The FTR-24 flight test successfully demonstrated the increased flight performance capabilities of the Standard Missile 2 Block IIIB equipped with the Manoeuvrability Upgrade package.

The launch achieved all test objectives, demonstrating highly controlled flight performance throughout a sequence of high-G turns.

The Manoeuvrability Upgrade program is a part of the PEO Integrated Warfare Systems (PEO IWS) Standard Missile 2 In-Service Missile improvement effort. This test successfully concludes flight testing of the Manoeuvrability Upgrade capability and is expected to lead to implementation of the upgrade into Fleet missiles in the near future.

"Those are the two constraints that defined the size of the rotor system, the size of the fuselage and the capability of the aircraft."

According to Bill Spruce, the lead Bell-Boeing contractor for the recent testing phase, the purpose of the trials was to verify the efficiency of new software installed to correct a problem that came to light during a previous testing sequence.

"We evaluated software in the installed flight control system to counteract roll tendency that was noted during a previous phase of testing when airplanes were landing in front of the V-22," said Spruce. "In addition, we conducted envelope expansion testing, to increase the wind-over-deck envelope for landings and takeoffs. We also obtained downwash measurements to determine the force of the wind coming off the rotors."

Osprey back at sea

The Marine Corps MV-22 Osprey tilt-rotor aircraft completed its latest series of sea trials Nov. 23, using the amphibious assault ship USS BATAAN (LHD-5) as a testing platform.

The V-22 tilt-rotor is a hybrid of helicopter and airplane and was designed jointly by Bell Helicopter Textron, Inc. and Boeing Company. It combines standard aircraft cruise flight with vertical take-off and landing, and short takeoff and landing capabilities. Its mission is to support amphibious assaults by transporting personnel and equipment to a battlefield using high speed and high altitude to bypass enemy troops and terrain.

According to Lt. Col. Kevin Gross, the government flight test director for the V-22 Integrated Test Team, the V-22 has twice the speed and range of the CH-46 Sea Knight helicopter, the aircraft it will replace, and can carry three times the payload.

"Actually, with our wing tanks, we have almost six times the range of the CH-46," said Gross. "We can go 800 nautical miles without refuelling. With refuelling, we can go 2,200 nautical miles."

The V-22 was specifically designed to operate from LHD and LHA-class ships, Gross added.

"It was designed with the required distance between the rotor and the island, and between the left wheel and the edge of the ship," Gross said.

RAAF win FINCASTLE

The RAAF anti-submarine warfare hunters have come out on top against an international field of submarine hunters, winning the coveted FINCASTLE trophy, in a competition off the coast of WA.

FINCASTLE is an annual Anti-Submarine Warfare competition held between the Maritime Patrol Squadrons of Australia, Canada, New Zealand and the United Kingdom.

The Chief of Air Force Air Marshal Angus Houston presented the trophy to the RAAF team in a ceremony held at Defence Science and Technology Organization in Edinburgh SA.

In congratulating the Squadron, Air Marshal Houston proudly recognised the skill and dedication of the crew and the excellent performance of the AP-3C.

"I am deeply impressed that once again an Air Force team have excelled in international competition and have successfully regained the trophy.

The performance of all the teams was of a very high standard, emphasizing the level of expertise and professionalism of our people."

The competition this year saw the debut of the AP-3C's and continues its excellent performance since the aircraft's recent upgrade as demonstrated in Operation Catalyst and operations off the North coast of Australia.

Participation gives the Orion squadrons the opportunity to hone skills needed to perform one of the aircraft's major combat roles – anti-submarine warfare.

Australia has won the FINCASTLE trophy 13 times though the RAF won it last year.

A parallel competition for maintenance crews is also held. This time around it was awarded to the RAF Maintenance crew.

Second F-100 frigate delivered to Spanish Navy

Izar has delivered, fully operational, the second F-100 class frigate, F-102 ALMIRANTE JUAN DE BORBÓN to the Spanish Navy.

The ALMIRANTE JUAN DE BORBÓN (F-102), named after the father of King Juan Carlos, is the second of four frigates completed under the Spanish F-100 program. The ship joins the Spanish fleet only four months after the lead ship, ALVARO DE BAZAN, successfully completed Combat System Ship Qualification Trials (CSSQT) off the coast of Virginia with the U.S. Navy destroyer USS MASON – the first-ever joint international CSSQT. ALMIRANTE JUAN DE BORBON is scheduled for similar trials in fall 2004.

The F-100 is a multipurpose frigate, with a bias towards anti-air warfare and acting as a flagship. The combat system has the capacity for being able to shoot down medium range and/or ballistic missiles.

The US Aegis combat system fitted to the class enables them to engage simultaneous threats from over, under and on the sea. Lockheed Martin provides the Aegis Weapon System to Spain under a Foreign Military Sales agreement between the U.S. and Spanish Navies. The agreement covers production, testing, installation and product life cycle support for Aegis Weapon Systems that will be deployed aboard all F-100-class frigates.

The Aegis Weapon System includes the SPY-1 radar, the most advanced naval computer-controlled radar system. When paired with the MK-41 Vertical Launching System, it is capable of delivering missiles for every mission and threat environment in naval warfare. The system can simultaneously

track hundreds of targets while defending against multiple incoming aircraft, missiles, submarines, torpedoes and attacking ships, and automatically implement defences to protect the fleet. Aegis is capable of countering the existing and emerging threats to a naval battle group, as well as striking inland targets.

APAR tested

The Air Defence and Command frigate HNLMS DE ZEVEN PROVINCIEN successfully test fired its new air defence system on November 26 and 27 2003. Together with Germany, the Netherlands is the first country in the world to have such a system.

The Standard SM-2 missiles were fired from DE ZEVEN PROVINCIEN at unmanned incoming targets.

These launchings mark the first time the technical working of the air defence system has been fully demonstrated. It involved the testing of a new guidance principle through the help of the multifunctional APAR (Active Phased Array Radar) and the missiles adapted for that purpose. The APAR system uses a 3-D rotational radar for volume search and four phased array panels for search and tracking. Using the pencil beam technology of the passed array radar the ship is able to designate up to 16 targets simultaneously.

The system has been developed in close cooperation with the Royal Netherlands Navy, the German Navy and the Royal Canadian Navy. The U.S. Navy has also been involved, as have been various defence-related industries and research institutes in these countries. Thales Naval Netherlands is the prime contractor. Through extensive integration of sensors and weapons the system has a very short response time, which enables naval task forces or other units to be effectively protected against the modern air threat, both on the open seas as well as in littoral areas.

Petrel for RAN ANZAC frigates

Sydney based Thales Underwater Systems Pty Limited has signed a $21million contract with Tenix Defence Pty Limited on behalf of the ANZAC Ship Alliance, to supply eight 'Petrel' Mine and Obstacle Avoidance Sonar systems for the Royal Australian Navy's ANZAC Class frigates.

The 'Petrel' Mine and Obstacle Avoidance Sonars will further enhance the self-protection capability for Australia's new fleet of ANZAC frigates.

The 'Petrel' Mine and Obstacle Avoidance Sonars detect mines and navigational hazards in sufficient time for ships to avoid them.

The 'Petrel' Mine and Obstacle Avoidance Sonar has been developed by Thales Underwater Systems in Australia for the Department of Defence and is the first of its type of sonar system in the world. This unique sonar provides a 3-dimensional picture of the ocean ahead of a ship including the sea floor and obstacles in the water column such as mines and other threats to safe navigation. The system can also be used while ships are at berth to detect divers thereby providing a self-defence capability against terrorist threats. 'Petrel' Mine and Obstacle Avoidance Sonars are also currently being supplied to the Royal Australian Navy's FFG Upgrade Project as part of Thales Underwater Systems underwater warfare system.

Scorpene submarine for Chile

Chilean Defence Minister Michelle Bachelet and the Commander of the Navy Admiral Miguel Angel Vergara presided at the christening ceremony of the first of two French-Spanish Scorpene class submarines in Cherbourg, France.

Once the BERNARDO O'HIGGINS becomes totally operational and is delivered to Chile in the second half of 2004 it will be Latin America's most modern submarine.

The Scorpene class submarine O'HIGGINS is the first completely new vessel to be incorporated to the Chilean Navy since 1984 and is described as "the best conventional submarine of our time".

The diesel-electric submarine carries a crew of 31, can patrol for 51 days and has been built with a sound absorbing 'acoustic discretion' system that makes its underwater movements particularly silent. The 1,700 ton and 66.4 metre long submarine can submerge to 300 meters and cruise at over 20 knots.

The Scorpene class is jointly built by Spanish Izar dockyard and the French Directory of Naval Constructions. Izar concentrates on the sub's propulsion and the French in the weaponry and state of the art equipment.

The second unit, CARRERA, will be delivered at the end of 2005 with the final assembly and sea trials done by the Spaniards.

The two Scorpene class replace two older British built Oberon class that have been decommissioned. Chile ordered the two new submarines in 1997 at a cost of US$450 million after a long bidding process.

Correction

On page 13 of the last edition of *THE NAVY* (OCT-Dec 03, Vol 65 No.4) the builder of the high-speed catamaran TSV-1X SPEARHEAD was incorrectly attributed to Austal Ships of WA. This should have been INCAT of Tasmania.

Chile's new Scorpene class submarine BERNARDO O'HIGGINS being launched at DCN's facility in Cherbourg, France. (DCN)

Observations

By Geoff Evans

THE KINNAIRD REVIEW – A CRITICAL REPORT

As has been remarked in *THE NAVY* before, the Department of Defence has been the subject of numerous reviews and inquiries ever since the separate Service Departments were abolished and their functions merged into a single department 30 years ago. The Kinnaird review into defence acquisition procedures is likely to prove one of the most significant, involving as it does the very large sum of money required to equip a modern defence force.

The Kinnaird recommendations to overcome deficiencies found in the existing acquisition procedures were not confined to the Defence Material Organisation (DMO), but extended to the initial capability assessment process which it contended was failing to provide sufficient advice to enable the government to determine resource needs and priorities in the light of possible options and costs.

The three-man team headed by company director and businessman Malcolm Kinnaird AO made 10 recommendations in all, four of which were referred to by Defence Minister Robert Hill at a press conference launching the review; they were decisions to:

1. Change the structure of the DMO (formed in 2000) and appoint a chief executive officer (CEO) who would be responsible to the Defence Minister for the financial management of the DMO and its 8000 staff.
2. Establish a new capability group within Defence, headed by a very senior official, to assess and cost projects before they proceed to the DMO.
3. Form an 8-member advisory board including four senior private sector representatives to provide outside advice to DMO.
4. Give the new CEO an expanded range of powers to improve the delivery of projects; the powers would include appointments and remuneration.

Other recommendations elaborated on the foregoing.

Some impressions of a very comprehensive report follow.

With regard to (1) and (4) the DMO will in effect be 'privatised' and the new CEO – the position was quickly advertised – quite apart from being responsible to the Defence Minister rather than to the Secretary of the Department, will decide if uninformed or civilian members will be appointed as project managers. Service personnel will need to be prepared for much longer than normal appointments or transfer to the public service to be considered. It seems the Service Chiefs, in their capacity as capability managers, may cease to have an input once the acquisition process gets under way.

The recommended establishment of a new capability group (2) headed by a 3-star level serviceman or civilian is intended to relieve pressure on the Vice Chief of the Defence Force (VCDF) who presently has responsibilities for capability definition and assessment as well as numerous other roles. Instead of creating another senior position it would seem preferable to appoint a less senior officer to relieve VCDF of the less-important duties.

With regard to (3) the ADF already has many advisers, both inside and outside the Department; an excess of advice can be confusing rather than helpful.

Probably intentionally the Defence Minister qualified acceptance of the Kinnaird recommendations by saying they had been "largely accepted", thus providing the Government with a way out if some recommendations proved impractical. Cost overruns, such as those reported to have occurred with some items of equipment, are by no means restricted to defence projects, indeed it could be said cost blowouts are a feature of many major civil works. The Kinnaird objectives will not be achieved overnight but hopefully they will be realised in the longer term.

PIRACY ON THE RISE

THE MELBOURNE AGE in November reported a 26% increase in high seas attacks on ships in the first nine months of 2003 compared to the same period in 2002 – a jump from 271 to 344, an almost daily event.

Quoting the director of the International Maritime Bureau, it was stated that Indonesian waters headed the "black list" with 87 attacks, 24 taking place in the Malaccan Straits, one of the most strategically important passages of water in the world.

The bureau director said there had been an alarming increase in violence with pirates using high-tech weaponry including sub-machine guns, rocket propelled grenades and knives. Twenty crew members had been killed and very few of the attackers had been brought to trial; until this happened and the attackers punished, the figures were unlikely to be reduced.

Given the vital importance to Australia of the area in which this violence takes place, in both an economic and a security sense, it might be thought surprising the Government does not put its border protection forces to better use by assisting our neighbours to combat pirates rather than hunting a relatively small number (by international standards) of boat people.

Why The ADF Needs Surface Combatants

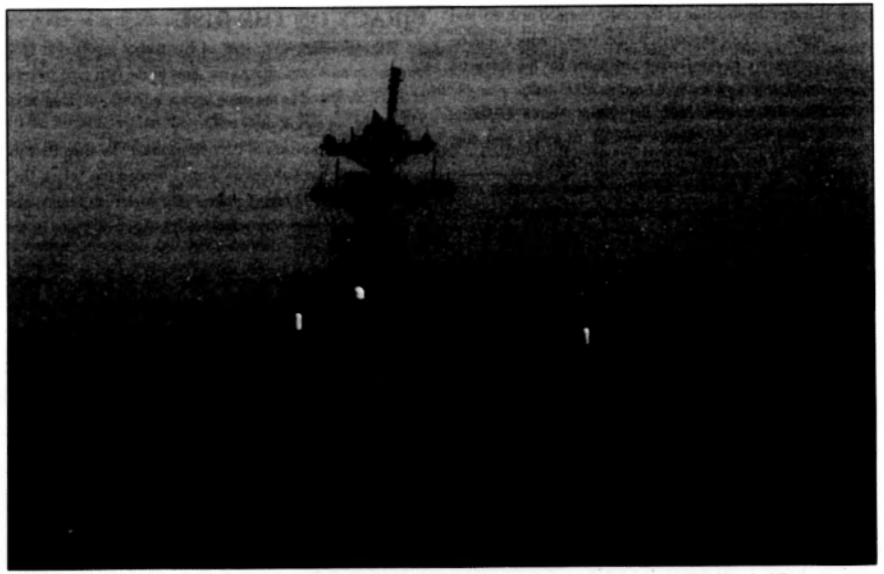
The following article was taken for the RAN Seapower Centre's 'Semaphore' series of Newsletters and is reproduced with the Seapower Centre's permission.

Australia confronts uncertain threats from global terrorism and regional instability with a renewed emphasis on meeting trouble before it gets to our shores. There is consequently increased emphasis upon military engagement in the resolution of such crises. For this reason, and given the maritime nature of the Asia Pacific region, continued emphasis should be placed on maritime power, with significant implications for Australia's Navy.

The application of maritime power encompasses a wide range of operational situations from peacetime constabulary or benign activities to full hostilities in high intensity joint situations involving the projection of power. This includes applying naval diplomacy as a means of keeping the peace and thereby avoiding the actual use of the full range of their military capabilities.

Fundamental to the exercise of maritime power and use of the sea is the ability to gain and maintain sea control. Sea control may be defined as that condition which exists when one has freedom of action to use an area of sea for one's own purposes for a period of time and, if required, deny its use to an adversary. Importantly, sea control includes not only the sea surface, but also the air space above, the water and seabed below, and, particularly in a littoral environment, adjoining land areas. This is a critical capability for any maritime nation that seeks to preserve sovereignty over its resources, territories, right of free trade and interests, and is essential for the joint projection of power. Importantly, from a maritime perspective, implicit with sea control is control of the air above it. It is therefore, a joint responsibility. Without sea control Australia could not have fought in New Guinea in World War II and more recently, the ADF's operations in East Timor would not have been possible without the ability to sustain the force by sea and the attendant sea control required to achieve this. For the ADF to undertake most of the objectives envisioned by the Government, it will need to establish a certain level of sea control in order for its operations to succeed.

In many senses the 'workhorses' of the fleet, major surface combatants, which include both destroyers with a strong air warfare bias and general-purpose frigates, are the vital means by which the Government exercises sea control and its use of the sea in close partnership with the Air Force. Surface combatants are multi-purpose vessels, uniquely capable of operating across the full spectrum of operations, with an emphasis on anti-air, anti-surface and anti-submarine warfare, but with significant utility in many other areas.



The USN Arleigh Burke class destroyer USS RUSSELL. Ships such as the Arleigh Burke class are important assets to the US military's ability to wage war. Their impressive array of weapons, sensors and command facilities enable them act as sea control ships and even impose 'effects' against terrorists many thousands of kilometres inland. (USN)

Apart from their primary function of sea control, the surface combatant offers other unique capability options for Government. More specifically, the flexibility of surface combatants in rapid role change between different levels of operations and their ability to apply graduated force commensurate with the prevailing situation across a broad spectrum of operations, make them particularly versatile assets. They are the smallest surface units that are deployed autonomously for extended periods for military tasks, and their numbers and capabilities allow them individually to cover a wide range of military, constabulary and diplomatic tasks. They are particularly useful in establishing maritime presence. They are also versatile building blocks for larger national and coalition formations, essential defensive elements of task groups, and contributors of organic helicopters to a force.

Because warships operating outside the 12nm territorial sea of other countries do not challenge sovereignty in the way that land forces or over-flying air forces do, in some instances warships may be the preferred or only military diplomatic option available to the Australian Government. International legal regimes, such as the United Nations Law of the Sea Convention, allow for warships to linger indefinitely on station, providing ongoing presence and an immediate response to a developing situation. The influence of such presence devolves fundamentally from credible combat power, and the demonstration of military capabilities that can be used to reassure, impress or deter a foreign power. Surface combatants possess substantial combat power, enabling them to exercise a range of influences, from the benign to the coercive, without violating national sovereignty. This range of response makes them particularly useful tools in periods of uncertainty or crisis, providing the Australian Government with the maximum freedom of decision.

The utility of surface combatants in peacetime for policing, interdiction and boarding is considerable and Government has often called upon these inherent capabilities. Examples include southern ocean fisheries law enforcement, remote ocean border protection, support to Government agencies in the board and seizure of ships involved in illegal trafficking of contraband, and regional peace keeping support. In the diplomatic role, surface combatants provide a powerful psychological impression through their perceptible presence while retaining the ability to continue action through to combat if necessary.

While each of these roles can and have been very effectively performed by Australia's surface combatant force, these types of activities cannot alone be allowed to determine the level of capability invested in new surface combatants. High intensity operations must remain the basic force determinant, for while advanced surface combatants can effectively contribute to the full spectrum of war fighting missions, the same assertion cannot be made for those ships tailored for the lower end of the spectrum. This is particularly relevant in an era of increasing violence when many of the military capabilities hitherto required for higher order contingencies, are becoming increasingly relevant in situations previously thought of as being constabulary in nature.

In higher intensity operations, surface combatants, which must be fully interoperable with our major allies, can be rapidly deployed and sustained for joint or combined

The former HMAS BRISBANE conducting a replenishment at sea. The RAN's DDGs were an important contributor to joint operations with the RAAF given their sensor, command, control and communications abilities in the air warfare sphere. (RAN)

A German F-124 frigate. The F-124 is a possible contender for the RAN's upcoming SEA 4000 air warfare destroyer program which is critical to the RAN's ability to conduct operations at sea in the future.

operations wherever Australia's national or international interests demand. Surface combatants provide a significant contribution to littoral manoeuvre and land operations and are critical for the joint projection of power in other than benign circumstances. This includes both open ocean and littoral escort to ensure ground forces and their support reach their objective safely, force protection-including area air defence-in support of littoral operations, maritime command and control, fire support for forces ashore, special forces insertion, limited sea lift and support, and evacuation. During the 2003 Iraq conflict many of these capabilities were exercised by Australian surface combatants, which very effectively integrated with the multinational maritime force.

In terms of evolving capability, surface combatants have undergone a significant transformation of their capabilities in recent years. While submarines still pose a threat to both merchant ships and naval vessels, the most significant threat comes from the air in the form of air attack and long range air and surface launched anti-ship cruise missiles. Previous generations of destroyers and frigates carried mostly defensive weapons to screen higher-value ships such as aircraft carriers, amphibious ships and merchant vessels from attack. Today, surface combatants can still carry out those critical missions, but they are increasingly taking on new roles such as land-attack (using both missiles and extended range guided munitions) and theatre ballistic missile defence. With further improvement to their radars, combat systems and missiles, they will also likely play a key role in national or regional missile defence in the future.

In the future, Air Warfare capable Destroyers will seamlessly integrate with other ADF assets, including the Joint Strike Fighter and Airborne Early Warning and Control aircraft (supported by Air to Air Refuelling aircraft). Over the Horizon Radar, Global Hawk, and land force capabilities (especially Ground Based Air Defence systems) to provide a pervasive, networked and continuous air defence umbrella for both maritime and joint littoral operations. This potent complementary joint capability will be critical in order to provide area air defence for an ADF task force deploying from Australian shores and establishing itself in some other place. Furthermore, an air warfare capable destroyer will provide a high level of air control, 24 hours a day, even in the absence of continuous aircraft support. This is particularly relevant given Australia's maritime geography and the extended ranges at which aircraft may be required to operate within our region. The Air Warfare Destroyer, while having a strong core air warfare bias, will not, however, only be used for air defence. Capable of operating at the highest end of the conflict spectrum, with their significant warfighting and maritime command and control capabilities, they will be Australia's primary sea control capability across the full spectrum of operations. Given their multi-role capability, the Air Warfare Destroyers could perhaps more appropriately be referred to as 'Sea Control Combatants'.

While the Air Warfare capable Destroyers will be critical in maintaining air control, particularly during times and in areas where aircraft are not continuously available, they are by no means the sole requirement to achieve sea control. A balanced surface combatant force is essential. The ANZAC Class frigates, which will complement the Air Warfare Destroyer, and which will be progressively updated to improve their self-defence capabilities, will equally need to be capable of working in the littoral environment as well as independently in the open ocean.

Maritime power is critical to Australia's national defence, given our enduring maritime geostrategic circumstances. Fundamental to the exercise of maritime power and use of the sea is the ability to gain and maintain sea control. Major surface combatants, as part of a balanced fleet, provide this critical capability in close partnership with the Army and Air Force. The modern surface combatant remains an adaptable, flexible and potent instrument for the Government to apply to ensure continuous use of the sea and whenever and wherever diplomatic and/or military effect is desired.

Hatch, Match & Dispatch

MATCH

PARRAMATTA (IV) joins the fleet

On Saturday morning 4 October 2003 at Sydney's Garden Island the RAN's newest Anzac class frigate was commissioned into the Navy. HMAS PARRAMATTA is the fourth ship to bear the name and is under the command of CMDR Michael Noonan RAN. The ceremony was attended by the Minister for Defence, Senator Robert Hill, numerous other Senators and MPs, the CDF General Cosgrove, the Chief of Navy Vice Admiral Chris Ritchie, the Secretary of the Department of Defence Mr Ric Smith, the commissioning Lady Mrs Jill Green and ex-PARRAMATTA (III) crew members.

A Sea King helicopter passes with a large RAN White Ensign below it signalling the ship's commissioning. (Chris Sattler via Warships and Marine Corps Museum International, Franklin Tas.)

CMDR Michael Noonan boards his ship for the first time as HMAS PARRAMATTA to greet the official party at the conclusion of the commissioning ceremony. (Chris Sattler via Warships and Marine Corps Museum International, Franklin Tas.)

At a press conference at the gangway to the RAN's latest addition Senator Hill said "this ship is a credit to all who've been involved through to design and build, Tenix and all their sub-contractors, to the government officials who've worked through the DMO and the other various bodies contributing to its construction, to the crew of the ship that has worked it up to the commission ceremony today. It's a credit to them all and I think it's a great day for the Navy and its proud traditions, a great day for the Australian Defence Forces.

"I just want to take this opportunity to wish Commander Noonan and his crew well. We do live in uncertain times. We of course had one ship of this class engaged in action in the recent operations in the Gulf and it performed superbly. It demonstrates that, in operations, these ships are just as good as they were planned to be. But they're largely made as good because of the quality of the crews that serve on them". As the RAN White Ensign was broken for the first time on the ship a Sea King helicopter trailing a large White Ensign below it flew past with perfect timing, signalling the ship's entry into the RAN.

PARRAMATTA's crew board the ship to man the rails for her commissioning. (Chris Sattler via Warships and Marine Corps Museum International, Franklin Tas.)

PRODUCT REVIEW

TO SAIL NO MORE

Published by Maritime Books, Lodge Hill, PL14 4 EL, England
Website Site: www.navybooks.com.
E-Mail: orders.marbooks@virgin.net.
Recommended price (UK 14.95 pounds)
Reviewed by Vic Jeffery

Perhaps the best way to describe this seven book series is as "The Magnificent Seven".

Just what does happen to old, surplus and obsolete warships?

For 10 years after World War II many ports, rivers and creeks around the United Kingdom were host to a wide variety of warships–Portsmouth, Plymouth, Penarth Dock, Devonport, the Gareloch, Scotland and Llanelly North Dock, Wales were amongst them.

Once the glamour ships and submarines of their respective Navies, most eventually end their days in the shipbreakers yards, some after years in reserve awaiting the recall to duty which never comes, and others sunk as targets.

The "*To Sail No More*" series is seemingly gathering a cult following of ship lovers who, like myself are intrigued and have a morbid fascination with photos of those ships of yesterday and once household names, being broken-up.

Five of these soft cover 'picture books' relate to the Royal Navy, with parts Five and Six covering the Royal Australian Navy and the United States Navy

The books are edited by Mike Critchley, Ben Warlow, Ian Buxton, Steve Bush and Daniel Marsden, with the RAN volume by my esteemed colleague Ross Gillett and myself.

In black and white, most photos are afforded a full page and accompanied by a lengthy detailed caption. I quickly found you could spend minutes studying particular photos, be they battleships, aircraft carriers, cruisers, destroyers, submarines, frigates, depot ships or other fleet units, your mind drifting back to a bygone era.

Dating back to World War One vessels through to the missile age, there is a tremendous range of representation and size from battleships to minesweepers and patrol craft.

Battleships and there are plenty of them, some looking pristine and others rust streaked and tired are the most striking examples as the breakers firstly 'draw their teeth' by cutting through their massive gun barrels and allowing them to crash on to the teak decks.

Former Royal Navy battleships with well-known names such as VANGUARD, DUKE OF YORK, KING GEORGE V, NELSON, RODNEY, ANSON, HOWE, IRON DUKE, COLOSSUS, MARLBOROUGH, REVENGE, ROYAL SOVEREIGN, RAMILLIES, MALAYA, VALIANT and the battlecruiser RENOWN, they all ended their days in grey and overcast Scottish shipbreaking yards.

United States battleships include SOUTH DAKOTA, INDIANA, WASHINGTON, MASSACHUSETTS, DELAWARE, SOUTH CAROLINA, and the laid-up NEW JERSEY, IOWA and WISCONSIN.

Then there are the British aircraft carriers such as VICTORIOUS, ARK ROYAL, EAGLE, FURIOUS, FORMIDABLE, INDEFATIGABLE, IMPLACABLE, BULWARK, OCEAN, GLORY and UNICORN with US entries including CORAL SEA, MIDWAY, FRANKLIN, BUNKER HILL, ORISKANY, BON HOME RICHARD, HORNET, SALERNO BAY, FORRESTAL and SARATOGA. Australia's MELBOURNE and SYDNEY appear in Part Five.

Many still looking graceful and well maintained, British cruisers such as SHEFFIELD, GLASGOW, BIRMINGHAM, GAMBIA, TIGER, LION, AJAX, CUMBERLAND, SWIFTSURE, DIDO, CLEOPATRA, MAURITIUS and SUPERB along with Australia's AUSTRALIA and HOBART and the US Navy's LONG BEACH, OREGON CITY, DAYTON, NEWPORT NEWS, VICKSBURG, WORCESTER, OKLAHOMA CITY, HUNTINGTON, FOX and GRIDLEY are included.

Among Royal Navy destroyers and frigates included are: DIAMOND, DEVONSHIRE, JAVELIN, ESKIMO, BROADSWORD, CAPRICE, CHEVIOT, TRAFALGAR, DELIGHT, SOLEBAY and the Frigates AMETHYST, BLACKPOOL, LOCH LOMOND, OXFORD CASTLE, ULSTER, BRAVE, BEAVER, LEOPARD, JUPITER and RUSSELL.

British submarines include TALLY HO, AMPHION, TRUMP, TRENCHANT, ANDREW, RORQUAL, SERAPH, OBERON, WALRUS and TIPTOE with the USN Part Six represented by SKIPJACK, BONITA, PAMPANITO, BOWFIN, NAUTILUS, BARBEL and ANDREW JACKSON and others.

The series is an interesting addition to the existing naval literature and is thoroughly recommended reading.

Enemy on Island. Issue in Doubt
The Capture of Wake Island December 1941

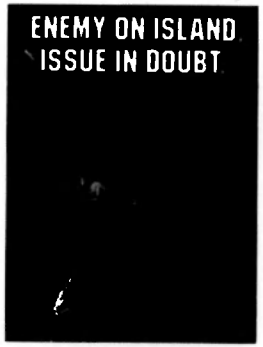
By Stan Cohen
Soft Cover 106 pp illustrated
Pictorial Histories Publishing Company
Reprinted 1998
Reviewed by Paul D. Johnstone

A short but full in detail booklet *Enemy on Island. Issue in Doubt*. The Capture of Wake Island December 1941, is a informative and easy read. Filled with photographs, maps, diagrams, technical data, sketches and propaganda cartoons it provides significant information regarding this event of Imperial Japanese and American history. Well researched it tells the pre war history of Wake Island as a Pan Am clipper station and explores both the role of USMC on the island, its stoic defence, entry into captivity and survival.

One particular short story relates to that of LT. Col. Charles Harrison who was captured on Wake Island by the Japanese and had the misfortune of later being captured by the Chinese in 1950 near Changjin Reservoir during the Korean War.

If anything is a downside of this book is its relative shortness at 106 pages and the failure to achieve a complete synergy with the included updates since it was first printed in 1983. In regards to having a people side, this book manages this component in as much that it is still factual and delivers a serious historical account that will also please the historian.

Containing a balanced combination of both colour and black and white photos from prior to the war until recent times it relates well the story of how Wake and Guam were the first sites of USMC defeats since 1846. *Enemy on Island. Issue in Doubt* which takes its title from the famous message communicated by the Commander of the Wake Island garrison Admiral Winfield Scott Cunningham to Hawaii is different from many of the books I have reviewed in the past. This book has many surprising qualities and its length should not be a deterrent to the reader



Hitler's Miracle Weapons,
Secret Nuclear Weapons of the Third Reich and their Carrier Systems Volume 1

By Friedrich Georg
Hard Cover 127 pp
Helion & Company Lt
Reviewed by Lionel Hutz

How close did Hitler come to his dream of developing nuclear weapons? What evidence is there for the design, testing and production of such weapons? *Hitler's Miracle Weapons, Secret Nuclear Weapons of the Third Reich and their Carrier Systems* is the first volume in a series of at least three where German author Friedrich Georg has begun to answer these questions in great detail. The result is a groundbreaking and controversial book in which the author claims that Nazi Germany developed and tested nuclear weapons by 1944.

This first volume describes the efforts of the Luftwaffe and Kriegsmarine to design and produce carrier systems for the nuclear weapons the scientists of the Third Reich were developing. Following an introductory section in which the author outlines the Nazi nuclear weapons programme, Georg then investigates the enormous variety of craft the Luftwaffe began to either adapt, or develop, that would be used to carry such weapons of mass destruction. These included the search for the much talked about intercontinental 'Amerikabomber', designed to attack New York and Washington DC. Lighter designs such as the Messerschmitt P 1107, 1108 and Junkers EF 132 and 140 are also described. Air delivered bombs are also investigated from the 1-ton to the massive 30-ton bomb. Information on a variety of carrier systems that were being developed for the Kriegsmarine is also presented such as the world's first submarine launched ballistic missiles. Finally the author explains why Germany failed to use nuclear weapons.

The Appendices in the book are provided to supply the reader with the most up to date understanding of the sources of Georg's arguments.

Apart from black and white photos and other images, *Hitler's Miracle Weapons Volume 1*, features 16 full pages of colour photos of scratch built models of many of the aircraft and vessels that were designed for the Third Reich but didn't make it, as well as line drawings and computer generated artwork showing these craft 'in action'.

Despite the book being expensive at $95, it is a rather amazing account of the German military's scientific, research and experimental weapons programme which is still the envy of the world's military today. While the claims in the book about German nuclear weapons and research seem fantastic at times they usually can be corroborated by another source.

The book is thoroughly recommended for anyone with a keen interest in German military technology of world war II.

Both Books:
Enemy on Island, Issue in Doubt
The Capture of Wake Island December 1941
and
Hitler's Miracle Weapons,
Secret Nuclear Weapons of the Third Reich and their Carrier Systems
Volume 1
Are available from:
Crusader Trading
9 Townsville st
Fyshwick ACT 2609
Ph: (02) 6239 2332
Website: www.crusaderbooks.com.au
Price: $27.50 and $95 +pp respectively.
(Trade enquires are welcome)

STATEMENT of POLICY

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.
- 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.
- 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 modern Air Force and highly mobile Army, capable of littoral and jungle warfare as well as the defence of Northern Australia.
- Supports 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.
- Endorses the transfer of responsibility for the co-ordination of 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 the Southern Ocean.
- 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.

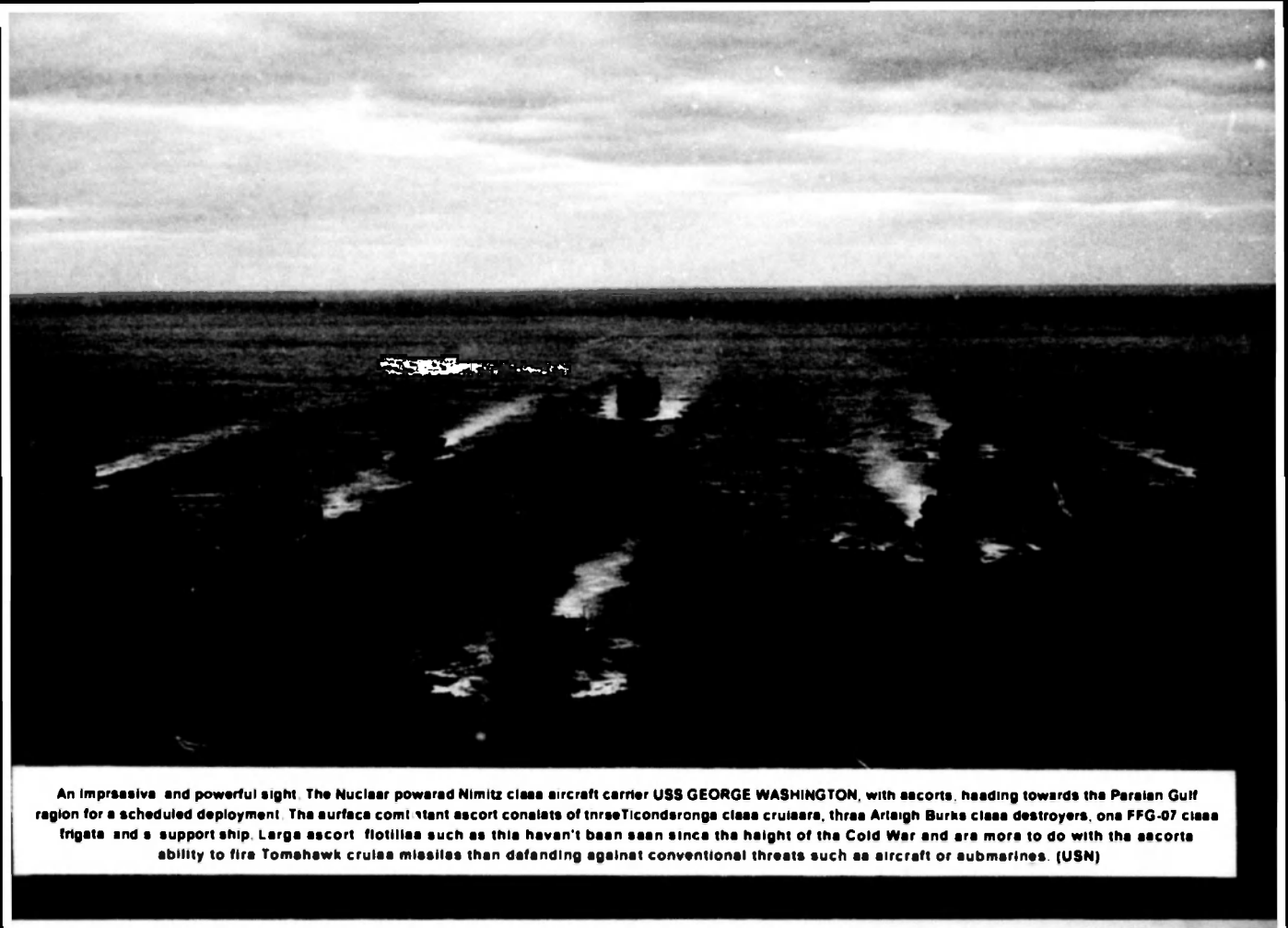
As to the RAN, the League:

- 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.
- Is concerned that the offensive and defensive capability of the RAN has decreased markedly in recent decades and that with the paying-off of the DDGs, the Fleet will lack air defence and have a reduced capability for support of ground forces.
- Advocates the very early acquisition of the new destroyers as foreshadowed in the Defence White Paper 2.
- Advocates the acquisition of long-range precision weapons to increase the present limited power projection, support and deterrent capability of the RAN.
- Advocates the acquisition of unmanned surveillance aircraft such as the GLOBAL HAWK primarily for offshore surveillance.
- Advocates the acquisition of sufficient Australian-built afloat support ships to support two naval task forces with such ships having design flexibility and commonality of build.
- 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 be examined with a view to selecting the most advantageous operationally.
- Advocates the acquisition of an additional 2 or 3 updated Collins class submarines.
- Supports the maintenance and continuing development of the mine-countermeasures force and a modern hydrographic/oceanographic capability.
- Supports the maintenance of an enlarged, flexible patrol boat fleet capable of operating in severe sea states.
- 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 Australian Navy Cadets organisation.

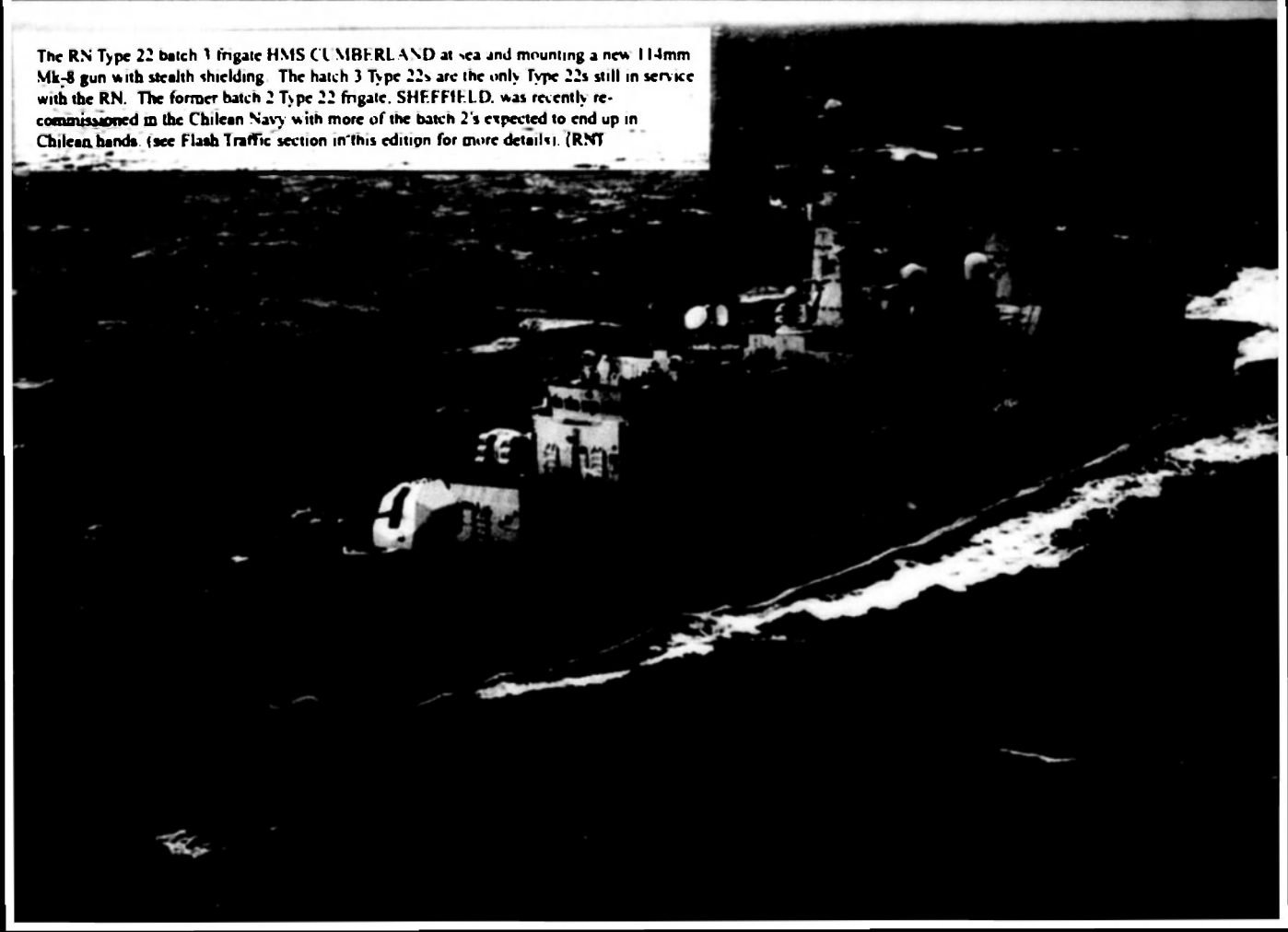
The League:

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

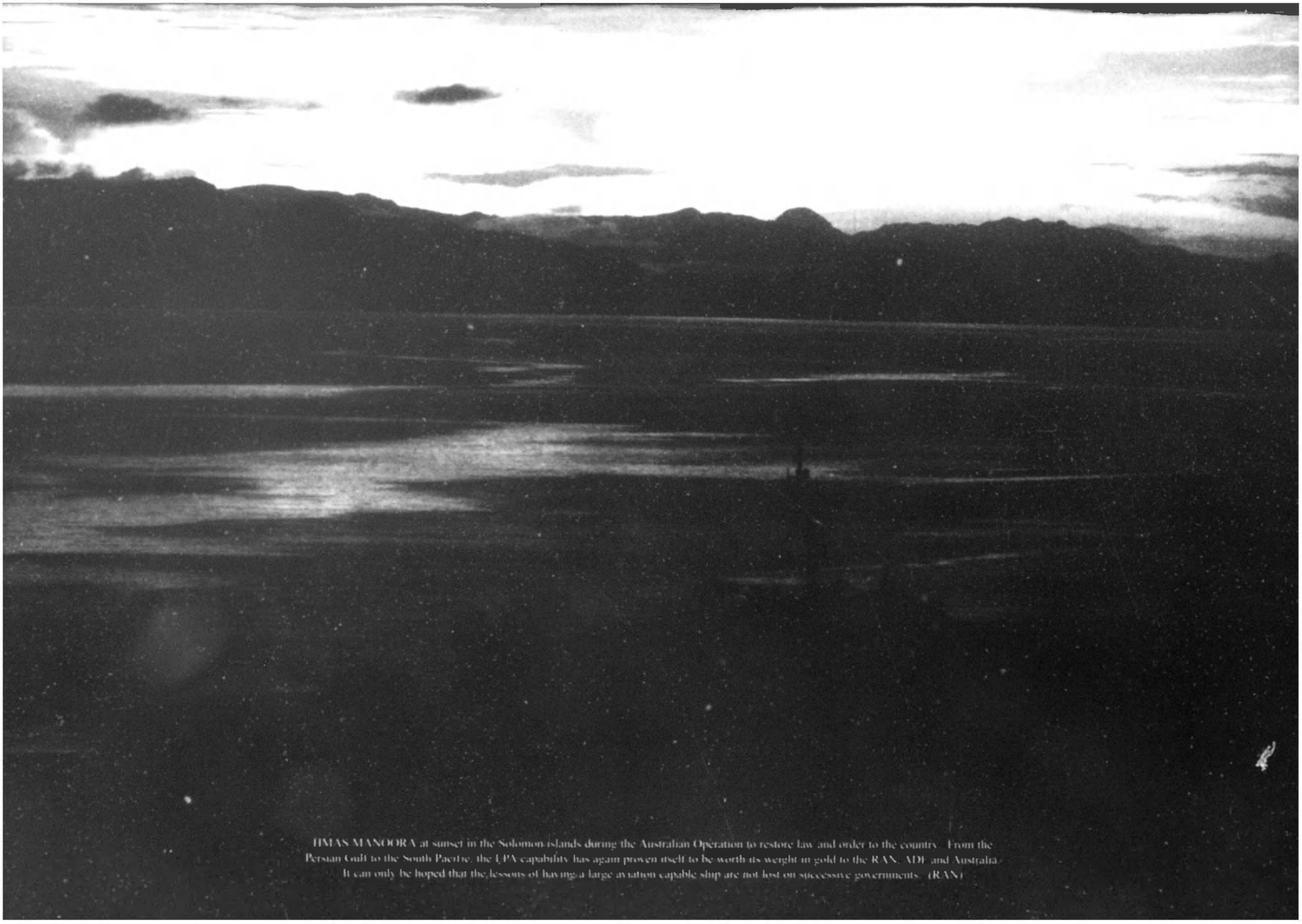
While recognising current economic problems and budgetary constraints, believes that, given leadership by successive governments, Australia can defend itself in the longer term within acceptable financial, economic and manpower parameters.



An impressive and powerful sight. The Nuclear powered Nimitz class aircraft carrier USS GEORGE WASHINGTON, with escorts, heading towards the Persian Gulf region for a scheduled deployment. The surface comtstant escort consists of tnreeTiconderonga class cruisers, three Arleigh Burke class destroyers, one FFG-07 class frigate and a support ship. Large escort flotillas such as this havan't baan saan since the height of the Cold War and are more to do with the escorts ability to fire Tomahawk cruise missiles than defending against conventional threats such as aircraft or submarines. (USN)



The RN Type 22 batch 3 frigate HMS CUMBERLAND at sea and mounting a new 114mm Mk-8 gun with stealth shielding. The batch 3 Type 22s are the only Type 22s still in service with the RN. The former batch 2 Type 22 frigate, SHEFFIELD, was recently re-commissioned in the Chilean Navy with more of the batch 2's expected to end up in Chilean hands. (see Flash Traffic section in this edition for more details). (RN)



HMAS MANOORA at sunset in the Solomon islands during the Australian Operation to restore law and order to the country. From the Persian Gulf to the South Pacific, the LPA capability has again proven itself to be worth its weight in gold to the RAN, ADF and Australia. It can only be hoped that the lessons of having a large aviation capable ship are not lost on successive governments. (RAN)

The Navy League of Australia

APPLICATION FOR MEMBERSHIP

HISTORICAL

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

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

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

MEMBERSHIP

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

OBJECTIVES

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

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

ACTIVITIES

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

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

Member participation is encouraged in all these activities.

JOINING THE LEAGUE

To become a Member of The League, simply complete the Application Form below, and post it, together with your first annual subscription of $30.00 (which includes the four quarterly editions of *The Navy*), to the Hon Secretary of the Division of the Navy League in the State in which you reside, the address of which are as follows:

NEW SOUTH WALES DIVISION: GPO Box 1719, Sydney, NSW 2001.
VICTORIAN DIVISION: PO Box 1303, Box Hill Delivery Centre, Vic 3128.
QUEENSLAND DIVISION: PO Box 13402, George Street Post Shop, Brisbane, Qld 4003.
SOUTH AUSTRALIAN DIVISION: GPO Box 1529, Adelaide, SA 5001.
TASMANIAN DIVISION: C/- 42 Amy Road, Launceston, Tas 7250.
WEST AUSTRALIAN DIVISION: C/- 3 Prosser Way, Myaree, WA 6154.

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

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

THE NAVY LEAGUE OF AUSTRALIA
Application for Membership

To: The Hon. Secretary
The Navy League of Australia

.....Division

Sir or Madam,
I wish to join the Navy League of Australia, the objectives of which I support, and I enclose a remittance for $30.00 (including $2.73 GST) being my first annual subscription to 30 June next.

Name
(Mr)
(Mrs).....
(Ms) PLEASE PRINT CLEARLY
(Rank)

Street.....Suburb.....

State.....Postcode.....

Signature.....Date.....

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

JOIN THE AUSTRALIAN NAVY CADETS

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

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

Uniforms are supplied free of charge.

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

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

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

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

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

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

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

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

WESTERN AUSTRALIA: Cadet Liaison Officer, HMAS Stirling, PO Box 228, Rockingham WA 6168. Telephone: (08) 9550 0468.

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

VICTORIA: HMAS Cerberus, Westernport VIC 3920. Telephone: (03) 5950 7863.

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

AUSTRALIAN CAPITAL TERRITORY: Commanding Officer, TS Canberra, HMAS Harman, Canberra ACT 2600. Telephone: (02) 6260 2762.

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

THE NAVY

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

The Hon. Secretary, NSW Division
NAVY LEAGUE OF AUSTRALIA
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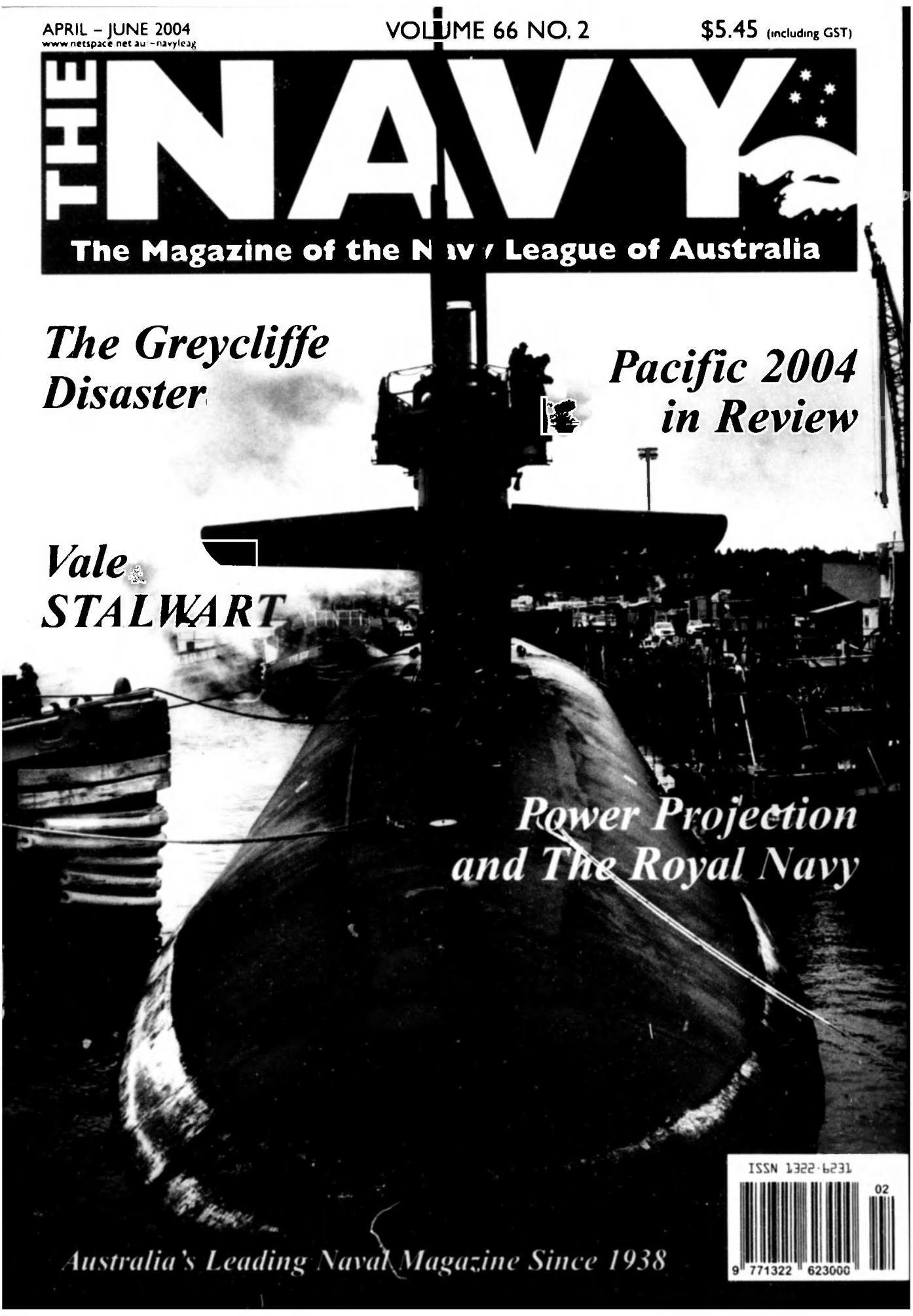
The Magazine of the Navy League of Australia

The Greycliffe Disaster

Pacific 2004 in Review

Vale STALWART

Power Projection and The Royal Navy



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Australia's Leading Naval Magazine Since 1938

HMAS SUCCESS with Heard Island in the distance during a recent operation in the Southern Ocean with the Anzac class frigate HMAS WARRAMUNGA

The Tasmanian built HSV-2 SWIFT high speed catamaran in the Atlantic Ocean heading towards the US Navy's Norfolk Naval Base. SWIFT is now armed with a medium calibre gun on the bow and has a hangar for two embarked Seahawk sized helicopters. (USN)

THE NAVY

Volume 66 No. 2

Contents

Front cover: The Ohio class fleet ballistic missile submarine USS MICHIGAN (SSBN-727) enters into the Puget Sound naval shipyard and intermediate maintenance facility to commence engineered refuelling overhaul and eventual conversion from a fleet ballistic missile submarine (SSBN) to a guided missile submarine (SSGN) employing over 100 submarine launched Tomahawk cruise missiles in place of its nuclear tipped ballistic missiles. (USN)

The Navy
All letters and contributions to:
The Office of The Editor
THE NAVY
Navy League of Australia
GPO Box 1719
Sydney, NSW 2001
E-mail to: editorthenavy@hotmail.com

All Subscription and Membership enquiries to:
The Hon Secretary,
Navy League of Australia, NSW Division
GPO Box 1719,
Sydney, NSW, 2001

Advertising enquiries only to:
Mr James Rickards
0419 731 371, e-mail: james@rickards.net

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The Navy League of Australia

FROM THE CROW'S NEST

AUSTRALIA AND THE UNITED STATES – A PERSONAL VIEW

In recent years few subjects have received more attention than the Australia - United States relationship. This could be thought curious given the fact that the friendship existing between the two nations had seldom if ever been seriously queried; it was simply taken for granted.

A national defence policy loosely linking the two countries, ANZUS, was supported politically and in the wider community and provided backing for the much closer, working relationship that had existed between the American and Australian armed forces since 1942. Even a flurry when one of the ANZUS partners – New Zealand – withdrew from the alliance resulted in inconvenience rather than lasting harm to Australia's defence arrangements.

In 1965, although involved jointly with Britain in "confrontation" in SE-Asia at the time, Australia further committed its navy, army and air force to combat alongside America in Vietnam and again in 1990, with the despatch of three RAN ships to the Middle East, to what became known as the First Gulf War. The Vietnam involvement, seen as a move against a perceived communist threat, began with public support but became controversial following mounting casualties and doubt (in both the USA and Australia) about the likelihood of achieving the aims of the engagement: The Gulf War, prompted by Iraq's invasion of Kuwait, was endorsed by the United Nations and generally supported in Australia. While Australia maintained a military presence in the Middle East after the Desert Storm campaign ended (as part of a naval force blockading Iraq) with little or no comment, the assault on Iraq in 2003 by a coalition led by the United States and including Australia, lacked United Nations support and was opposed by not-to-be-discounted minorities in Australia and in some other participating countries.

Despite the occasional hiccup Australia can claim to have had politically bipartisan foreign and defence policies for many years. The armed forces have had their ups and downs in terms of materiel requirements but even after periods of what many would regard as periods of neglect have met the demands made upon them by a succession of governments with widely recognised efficiency. It would not be in Australia's interests if in an election year competing political parties deepened the rifts that have persisted since the Iraq war by attempting to score off each other with fallacious arguments and statements.

Australia's links with the United States are close and at the present time mutually beneficial; they are well known and understood by our neighbours: To either flaunt the relationship or on the other hand to create the impression of subservience can only destroy goodwill and lead to mistrust and misunderstanding. It is to be hoped commonsense will prevail.

Geoffrey Evans

FROM OUR READERS

Dear Editor

Thank you for including the article on *The Battle of the River Plate*, that is the first time I have read a sensible reason for Langsdorff scuttling his ship.

However, there are two minor details in the ship specification that I must correct. For Diesel Engine: The Deutschland class used eight diesel engines geared to two shafts for main propulsion. Even these were quite large to be subjected to constant variation, as required in a naval vessel. They also had diesel engines for auxiliary tasks.

On another point, according to D.K. Brown: The EXETER and her sister ship (YORK) used the same 80,000shp plant, for the same top speed as their predecessor class (the Kent class). This despite being slightly smaller vessels, he attributes this to slightly lower wave making resistance at top speed in the Kent class. The sentence that best summarises Brown's work follows: "It is interesting that these two smaller ships needed the same power for the same speed as the earlier, bigger ships, mainly because of their reduced length."

Thank you *THE NAVY*, keep up the good work.

Yours Sincerely

John Paterson

By e-mail

Dear Sir

May I be permitted to make the following corrections/comments on the article *The Battle of the River Plate* (*THE NAVY*, Vol 66 No 1, Jan-Mar 2004).

The correct spelling for the raider's victim on page 13 is TAIROA, not Taiora. This ship of 7983 tons gross was built in 1920 and owned by Shaw Savill & Albion Co. Ltd.

More surprising however, is that a prestigious naval magazine as *THE NAVY* would make such an elementary error of prefixing ACHILLES with HMNZS in 1939. The use of this title for New Zealand ships of war did not come into force until October 1 1941 following approval by His Majesty King George VI and enacted by Order-in-Council from that date. Accordingly ACHILLES should have been designated HMS.

Yours faithfully

David W. Finch

NSW

POWER PROJECTION AND THE ROYAL NAVY

BEYOND IRAQ AND THE DEFENCE WHITE PAPER

A computer generated image of the RN's new Type 45 destroyer. It is expected 12 Type 45's will be built for the RN. (BAE Systems)

Dr Lee Willett, Head of the Military Capabilities Programme in the Military Sciences Department at the Royal United Services Institute for Defence and Security Studies in London, looks at the implications of recent operations and of the latest UK Defence White Paper for some of the major equipment capability decisions for the RN and its power projection capability.

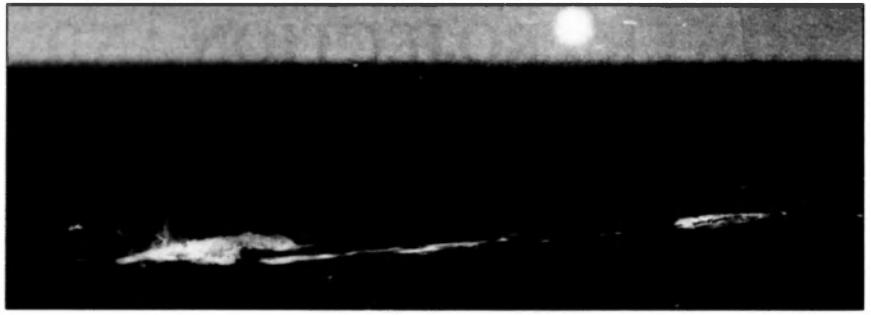
Since the 1998 Strategic Defence Review (SDR), the United Kingdom Ministry of Defence (MoD) has been undertaking an on-going review of defence policy, force structures and capability requirements, the latest stage of which is 'Delivering Security in a Changing World', a Defence White Paper published in December 2003. This review process has provided, in the view of Secretary of State for Defence Geoffrey Hoon, a revolution in the context for and content of the concepts, doctrine and strategy for the UK Armed Forces, a revolution which has been vindicated in the light of developing threats to the UK and in the way in which the Armed Forces have been able to operate in recent combat operations. All three services made a crucial contribution to such coalition operations; as noted in the MoD's recent publication 'Operations in Iraq: Lessons for the Future', the land campaign was facilitated throughout by an air campaign, involving land- and sea-based air assets, delivering 'unprecedented accuracy and lethality, based on the widespread ... use of precision munitions, and linked sensor and data streams'.

Yet the review process has significant implications for the future size and shape of the UK Armed Forces and for the Royal Navy. All assets are – in an era of reduced likelihood of major Fleet-on-Fleet and air-to-air engagements – required to be able to prosecute land targets. As a result, capability decisions on the UK future aircraft carrier, escort ship and submarine programmes will have significant implications for the Royal Navy's – and, thus, the UK's – ability to project power ashore.

The White Paper and the Precepts for Maritime Power

Beyond the policy context, in military terms the White Paper and its preceding review documents have prescribed a military capability to be transformed around flexible, rapidly deployable, networked forces able to respond swiftly to deliver a range of precise effects at the right place and time in a wide variety of expeditionary operations. As for maritime power particularly, the White Paper and the Royal Navy's own Future Maritime Operational Concept emphasize the role of interoperable, versatile and flexible maritime forces in operating at distance, in securing access, delivering and supporting forces ashore and in delivering effect from the sea onto the land. Naturally, perhaps the biggest advantage the Royal Navy possesses in delivering such influence is its ability to do so from sovereign, independent platforms.

Last summer, Mr Hoon spoke of the need to maximize the investment in the three key programmes which will form the backbone of the future Royal Navy - the future carrier, the Type 45 destroyer and the Astute-class submarine. Crucial decisions remain for each programme, as the Royal Navy looks to address its balance of investment to ensure maximum flexibility in capability and optimum contribution to land attack operations at a time of possible platform cuts, persisting increases in operational tempo and the need to deliver better value for money at a time of reduced resources. However, while cuts in force levels had been vastly debated and widely predicted in the media frenzy surrounding the first White



A computer generated image of the RN's new SSN the Astute class. The Astutes will be fitted with the new TacTom land attack missile giving them the ability to reach most of the earth's surface with precision firepower. (BAE Systems)

Paper to follow the War in Iraq, no such cuts were evident in the detail of the White Paper. Mr Hoon was left to comment only that the MoD would need to look more closely at the planning and procurement processes before any decisions could be made, and Chief of the Defence Staff General Sir Michael Walker to note that some adjustments across the services will be necessary.

Lessons Identified from Recent Combat Operations

The Royal Navy has played a critical role in the UK's significant military contributions to coalition operations in Kosovo, Afghanistan and Iraq.

In all three operations, maritime forces provided access into theatre and onto target from international waters and in circumstances where there were significant political complications with host nation support. In Kosovo and Afghanistan, US and UK Tomahawk Land Attack Missiles gave coalition forces the ability to reach in-land at distance into land-locked countries, as well as giving the coalition forces the ability to put rounds on target faster than could be done by launching land or sea-based aircraft. In Afghanistan and Iraq in particular, UK carriers were employed to significant effect delivering rotary air power and troops ashore (a role which was seen by the US as extremely useful).

In Iraq, US (surface and submarine-launched) and UK (submarine-launched) Tomahawks led the way in the shock and awe air campaign in the opening days of the campaign, shaping the battlespace and delivering significant coercive effect and providing reach in-land at the same pace as the quickly-advancing front-line and as far as Baghdad and the north of the country (where many of the high-value leadership targets were found). Certainly, the precision capabilities and effects provided by US and UK Tomahawks and by US sea-based fixed-wing air power enabled the maritime element to make a significant contribution to the scale, pace and volume of the attack and to power projection at all phases of the campaign. Furthermore, in what was regarded by many as the first networked war, maritime forces in the form of US Tomahawks were used in the intelligence-led snapshot strike, the night prior the planned start of the campaign, against a target thought to contain the senior Iraqi leadership. This highlighted the ability of maritime forces to play a critical role in the networked, sensor-to-effect kill chain, responding rapidly to information to deliver precise effect at the place and time of choice.

A Networked Navy: Networked Enabled Capability (NEC) and the Maritime Battlespace

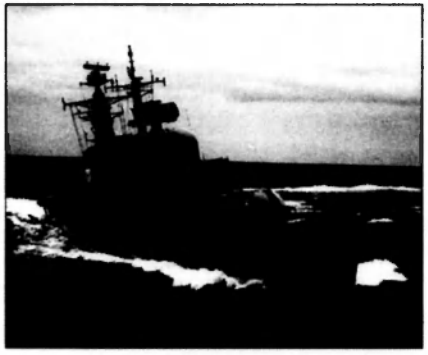
Navies have always been more networked than the other services. The White Paper, has, however, highlighted the UK's emphasis on network-enabled capability and operations. The equipment procurement strategies and capability frameworks for delivering this networked capability are based around three main precepts – information dominance, battlespace manoeuvre and precision effect. The network links the sensor to the shooter and enables the shooter to deliver the effect. With sensors, shooters and strike weapons, maritime forces themselves can deliver networked effect from manoeuvrable, sovereign assets in international waters, as well as making a critical contribution to the joint force campaign.

Yet as the UK looks to move from a platform-centric to a network- and effects-centric approach to procurement and operations, platforms are still needed and some of the major procurement decisions confronting the Royal Navy relate to specific platforms.

The Future Carrier (CVF)

SDR underscored the UK commitment to procuring a new generation of aircraft carrier. With the MoD and industry now under way with the development and production of the two new ships, the UK can look forward to the delivery early in the next decade of a new joint defence asset. CVF will be the principal platform for the Royal Navy/Royal Air Force Future Joint Combat Aircraft (FJCA), the short take off vertical landing (STOVL) version of the F-35 Joint Strike Fighter. The CVF Carrier Air Group will also include the Maritime Airborne Surveillance & Control command and control and sensor system, and will be capable of supporting joint helicopter operations (including troop delivery ashore). To maximise CVF's flexibility, the hulls are being built to an adaptable design which may allow different JSF variants to be operated in the future.

The ships are scheduled for deployment between 2012 and 2015, with the JSF STOVL variant scheduled for 2012. Although confirmation of the ship design is expected in 2004, the final dimensions have yet to be confirmed. As a result, questions have been raised about the size of the carrier and, thus, its air wing – and then, as a result, about the affordability of the programme.



The Type 42 class destroyer HMS NEWCASTLE. She, long with HMS GLASGOW and CARDIFF are to be retired early. (RN)

JSF will help to fill the gap in the Fleet's air defence cover left by the recent withdrawal from service of the FA-2 Sea Harrier. The Type 45 air defence destroyer will also play a significant role here. However, JSF predominantly is a strike aircraft. The White Paper highlighted the flexibility and multi-role capability of JSF, stating that the aircraft will offer a "step change in [the UK's] ability to project air power from the sea". JSF is a central component in the Royal Navy's power projection network. With questions raised about the size of the carrier and its air wing and, indeed, about the size of the Type 45 fleet, the Royal Navy's ability to project power ashore may remain significantly limited if the land attack potential of the carrier programme is not maximized and if the window of opportunity to fit a land attack capability to the Type 45 is allowed to close.

Escort Ships: the Type 45 Destroyer and the Future Surface Combatant

The purpose of escort ships is to accompany other major platforms and protect them from hostile aircraft, ships and submarines. Surface forces represent maritime power in its purest form – presence, and in both war and peace time. An escort ship is always likely to be forward-deployed to the place of the last or the next major crisis. Indeed, recently, the UK has had an escort ship deployed East of Suez over 70% of the time.

However the escort flotilla, traditionally distinctly 'naval' in its role, now faces the challenge of making a broader and more flexible contribution to joint operations and, particularly (and as with all assets), to operations ashore - especially since recent operations and many predicted key future scenarios have highlighted the relative lack of direct threat to the Fleet. Moreover, in the UK lessons identified from Iraq, the escort flotilla featured very rarely in any of the more positive lessons and perhaps figured most prominently only in a negative sense – in terms of the Royal Navy's lack of a long-range land attack capability from the surface.

A land attack capability for the Royal Navy's surface flotilla would maximize the utility of the platform across the spectrum of operations. It would provide for the UK another option for projection power ashore, with greater weight of fire both from more platforms deployed in international waters with a military – and political footprint – which could be pushed forward or withdrawn as circumstances required, and in circumstances when host nation support for land-based air was unavailable and when risk over target to aircraft and aircrew was too high. Escort platforms bring a variety of sensors to the fight, and the Type 45 in particular will bring a significant air defence capability and, in the future, options for the deployment of missile defence systems. Escort platforms also have the ability to deploy troops ashore, and to project power into the littorals with naval fire support. Yet, with no significant long-range land attack capability, the Type 45 can make only a limited contribution to joint operations ashore. With more platforms available, with such platforms likely to be pre-positioned and forward deployed to the place of the last or the next major crisis, and with each platform having able to deliver greater weight, volume and regularity of fire than an SSN to shape the battlespace early on and to offer greater utility in later stages of a campaign, surface platforms fitted with a long-range land attack capability would provide more options for the joint force commander, would maximize the utility of the platform and would augment the value for money of an already-existing platform.

As well as the operational and tactical value of such a capability in high intensity operations, as has been seen with Tomahawk's employment in combat operations since the first Gulf War, a stand-off land attack capability has significant political, coercive influence – what might be termed 'Tomahawk Diplomacy' - in both war and peace time. CNN footage from the second Gulf War was filled with vivid pyrotechnics of night-time Tomahawk launches from US surface warships followed by the impact of rounds on target in downtown Baghdad. At the same time, the high political visibility of a surface warship could be augmented with this capability, forcing any potential adversary to consider that a UK surface warship steaming on the horizon could deliver significant military effect at the place and time of choice.

A potent land attack capability would significantly enhance the political and military contribution of the surface flotilla to joint operations, as well as the broader status and sustainable presence of the escort flotilla in coalition operations, giving the flotilla (in the words of Mr Hoon) "greater flexibility and capability to project power on shore" at a time when surface platform numbers are under threat. As the requirement for delivering strike capability ashore increases, perhaps the need is for more – not less – surface platforms. However, if escort numbers are going to be cut, it makes sense to maximize their capability and flexibility.

They Type 23 frigate HMS NORFOLK. HMS NORFOLK and IRON DUKE, are about to be retired early and sold. (RN)

A Trafalgar class SSN with EH101 helicopter. The Trafalgar's will remain in service for sometime and are proving very useful in the small wars that have appeared since the fall of the Berlin Wall. The SSN's ability to use Tomahawk cruise missiles has made it the UK's principle arm of 'Tomahawk Diplomacy'. (RN)

The Type 45 Destroyer

According to the Royal Navy, the Type 45 provides an air defence capability that is several orders of magnitude greater than that provided by the existing Type 42 destroyers, and will, in concert with the future carrier, provide the backbone of the Royal Navy's air defence capability. According to the White Paper, the Type 45 will enhance protection of joint and maritime forces and to assist force projection. The Type 45 does have a requirement to service land targets. With a significantly reduced air defence threat to the Fleet, questions remain as to whether the Type 45 has a credible role without a significant long-range land attack capability. Yet, despite an extensive and highly politicised on-going debate in the UK, little or no public mention – let alone commitment – was made on the question of fitting a long-range land attack capability to the Type 45.

The first six of potentially twelve Type 45s have been ordered by the MoD. The first is due to enter service in 2007, with the second and third scheduled to be in service by 2009. Ships four to six, known otherwise as batch two, are scheduled to join the Fleet at intervals of about six months after this. The construction of batch one is under way already. As with the carrier, in meeting MoD equipment capability parameters for potential for design growth and flexibility, there is design provision to allow the hull to grow, and thus fitting a new, strike-length launcher in the for'ard launcher space of the fourth ship onwards is an option. However, the windows of opportunity for a decision on such a fit are tight.

If a decision is taken to fit the Type 45 with this capability, two packages of systems are the contenders. The French-made Scalp Naval missile/AS-70 strike launcher package remains a package which is still in development, with nothing stated publicly about the capabilities or costs of the systems, and with in-service dates predicted for the next decade. The other competing package, the US-made Block IV Tactical Tomahawk (TacTom) and the Mk 41 (Baseline Seven) Vertical Launch System, are both the next generation in a long line of combat-proven capability. The Baseline Seven launcher is available now, and TacTom (which has successfully completed eight test firings out of eight) will be available at the most cost-effective price (£650,000 per round) to the UK this year, as part of the US Navy's own multi-buy of TacTom rounds. Indeed, after the 2004 multibuy window closes the risk is that the unit price will increase.

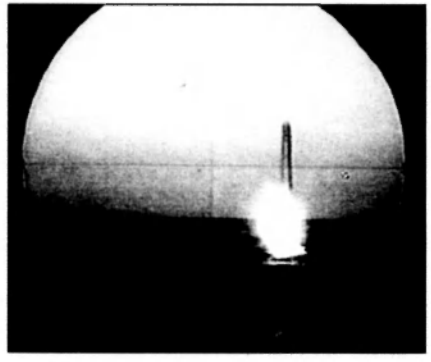
Perhaps the most critical window, however, relates to the hull. Realistically, the UK needs to make a decision in the first half of this year if sufficient space for a strike-length launcher is to be built into hull four onwards. While the UK is considering a decision on the launcher, it may look to defer the decision on the missile to a later stage as it looks to bring the capability into service at a time of decreasing budgets.

If the concern about the cost of rounds should remain an issue, perhaps one option is for the UK to seek a 'lend lease' arrangement with the US Navy, whereby it borrows missiles from US Navy stockpiles and pays only for the ones it uses. Given the UK pattern of use, it is likely that the UK will fire significant numbers in any future combat; however, this solution gives the UK an opportunity to defer payment (as money, alongside internal politics) appears to be the major factor slowing the progress of this particular decision.

Recent MoD studies have concluded that fitting TacTom to the Type 45 should be the first equipment capability priority for the MoD. Senior figures in the MoD also see the TacTom/Type 45 package as a major component in the UK's Network Enabled Capability. However, if this capability is to be brought into service quickly and most cost-effectively, the MoD needs to make its decision very soon. If it takes the decision to fit the Type 45 with a long-range land attack capability, the TacTom/Mk41 package is cost-effective, combat-proven, low risk and available.

The Submarine Flotilla: Beyond Astute and Trident

The Royal Navy's Submarine Flotilla provides the UK's long-range conventional strike capability as well as the national strategic deterrent. The best way to ensure the survivability of a military capability is to hide it beneath the surface of the sea. Nuclear-powered submarines – with their 'seven deadly virtues' of flexibility, mobility, endurance, reach, autonomy, stealth and punch – provide significant advantages in projecting power ashore, including stealth, surprise, survivability, sustainability and global reach. As Admiral Hank Chiles (formerly Commander of the US Navy's Atlantic Submarine Fleet) argued, "70% of the earth's surface is covered by submarines". Tomahawk's long range also provides coverage of the whole of the earth's surface other than one or two small mountainous regions. Four Royal Navy submarines, HMS SPLENDID, HMS TRAFALGAR, HMS TRIUMPH and HMS TURBULENT, have fired undisclosed numbers of Tomahawks in Kosovo, Afghanistan and Iraq. The UK has a proven submarine-launched Tomahawk capability.



An RN Tomahawk cruise missile being fired at a target in Iraq as seen through the periscope of RN submarine. The Tomahawk has been quite a success story for the RN with continuation of its use almost assured. (RN)

The next generation nuclear attack submarine (SSN), the Astute-class, will be a prime platform for the Royal Navy's integrated power projection capability. Astute will carry out traditional SSN roles of supporting the Vanguard-Class Trident submarines, Anti-Submarine and Anti-Surface Ship Warfare and surveillance and intelligence gathering. Its relevance to joint operations ashore also will be greatly enhanced by an array of state-of-the-art combat, communication and sensor systems. However, far more emphasis will be placed on long-range power projection with Tomahawk. The Royal Navy is developing, jointly with the United States Navy, a torpedo-tube launched TacTom (available to the UK from 2006), to be fitted from build to Astute (the first of which is scheduled for formal delivery to the MoD in 2008). Astute will have a larger weapons load-out that the current Trafalgar boats, carrying up to 38 weapons (as opposed to the T-class's 25). As far as numbers of land attack rounds are concerned, while the stated UK Tomahawk inventory remains at 65 weapons, perhaps the UK should invest in sufficient numbers of rounds to fit as many of the boats as possible with a full complement of weapons. Indeed, this issue is under discussion in the MoD, as has been the option to insert VLS tubes (either 16-cell VLS modules or four modified Trident SSBN tubes) into later hulls in the class. As far as future SSN force levels are concerned, SDR stated that levels will be trimmed to 10 hulls (at least six of these will be Astute boats). If the number of hulls is to be cut to 10 – or lower still - once again it makes sense to maximize their capabilities. Furthermore, despite a surge in availability at the time of the War in Iraq, the UK still had only two SSNs on station. And even if the two boats were carrying more than a notional load-out of weapons, the requirement for long-range land attack was such that at least one of the boats had to put into port and re-load, thus taking 50% of the available UK Tomahawk platforms away from the gun-line.

As far as the future of the UK strategic deterrent and Sub-Surface Ballistic Nuclear (SSBN) submarine programmes is concerned, the White Paper re-iterated the UK commitment to a minimum nuclear deterrent based around Trident. The UK debate over what comes after Trident will be left until the next Parliament, but perhaps two options need to be considered – both, naturally, taking in all the concept of operation, operational cycle, technological, military and politico-strategic implications – if the UK is to maximize the flexibility of its submarine capabilities.

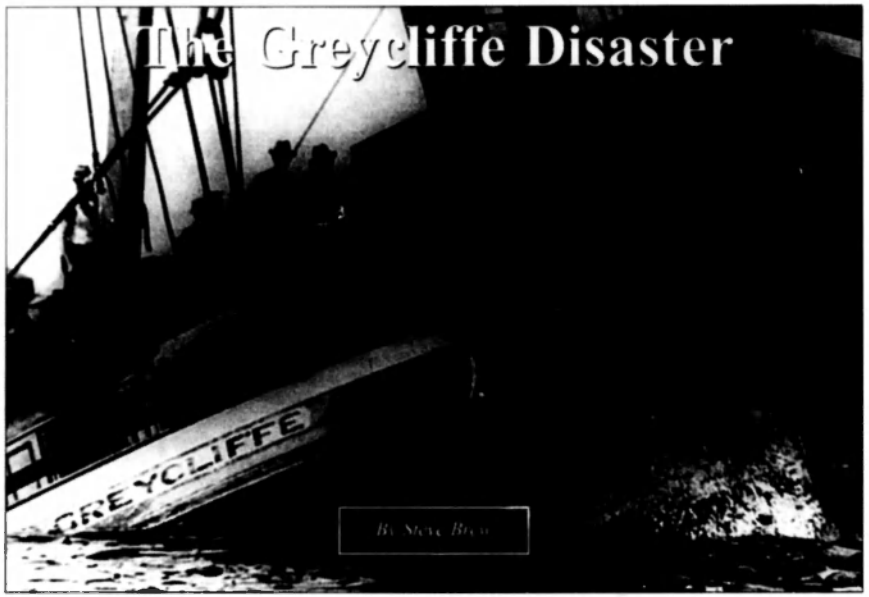
First, in the shorter term, is the option to retrofit some of the Trident tubes to carry land attack weapons. As the US Navy's 'Giant Shadow' programme has shown, each tube can carry up to seven Tomahawks in a rotary launcher, and the four US SSGNs (cruise missile submarines) in the programme will each be able to put 154 Tomahawks down-range in six minutes. Even just four tubes fitted for Tomahawks would provide a significant capability. Given that (under SDR) the number of warheads per Trident boat has been reduced, the boats' missile load-outs could be re-organized to allow some tubes to be used for other weapons such as conventional cruise missiles.

Second, and a longer term option, is the possibility of developing a generic submarine hull, which can carry modular capability packages – whether they be strategic nuclear weapons, cruise missiles or special forces. This would allow the UK to develop a generic fleet of submarines – with a pool of 14 boats being available for SSBN or SSN roles, as required – and would (perhaps most importantly) allow the UK to rationalize its nuclear submarine fleet at a time when questions will inevitably be asked about the ongoing affordability of such a fleet.

Conclusions

As Mr Hoon stated in briefing Members of Parliament on the White Paper, "it is important to emphasize that we have been successful in recent military operations because we have always looked ahead at the capabilities we need for future challenges". The Royal Navy needs to continue to show its capacity to adapt to changing threat contexts and capability concepts. However, its capacity to adapt will be affected significantly by the outcome of the Ministry of Defence's thinking on the size of the future carrier and its air wing, the capabilities of future submarines and whether the Royal Navy can get under way with a land attack programme for the Type 45 this year. In these impending decisions, the Ministry of Defence has the opportunity to invest in the capability and flexibility of these platforms and their associated systems to provide better longer term capability and, thus, value for money. Money may be tight, but so too is time.

The Greycliffe Disaster



Part of the bow of the ferry *GREYCLIFFE* after being raised from the harbour.

In keeping with *THE NAVY*'s maritime focus, as we tend to dwell too much on the military side, we present an article on Sydney Harbour's worst maritime disaster. Author Steve Brew has recently written a book on the subject (see Product Review section in this edition) which goes into detail about the tragedy, the causes and the aftermath. The following is a brief summary.

Sydney Harbour's greatest maritime disaster occurred on 3 November 1927, when the Royal Mail Steamer *TAHITI* collided with the Watsons Bay-bound ferry *GREYCLIFFE* off Bradleys Head. The tragedy shocked Sydneysiders for its unsurpassed violence and dispassionate choice of victims; in mere seconds, forty people, aged from just two to 81, were swept to their deaths, whilst dozens more were injured.

The *TAHITI-GREYCLIFFE* Disaster remains the deadliest accident ever to have occurred on Sydney Harbour. Although losses were minimal in comparison to some of the more infamous maritime disasters in history, the tragedy stunned Sydneysiders because of its swiftness and horror. There was neither storm nor swell; visibility was clear and it was a fine, sunny afternoon.

GREYCLIFFE was the regular 4.14 p.m. run from Circular Quay to Watsons Bay, the northern-most suburb of Sydney's leafy Inner South Head. This particular trip was nicknamed 'The School Boat' because of all the city schoolchildren the ferry brought home each afternoon.

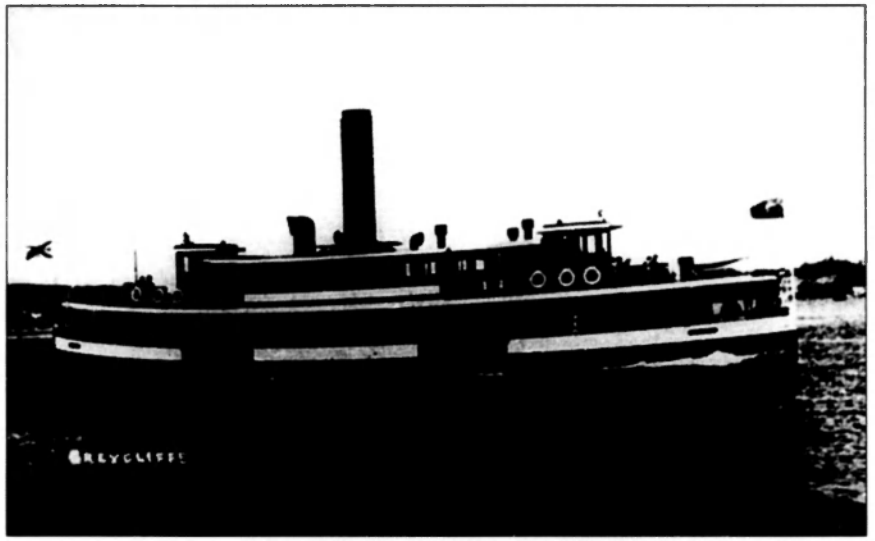
Typical of the Sydney ferries of her day, *GREYCLIFFE* was a wooden, doubled-ended vessel with a wheelhouse, rudder and propeller fitted at each end. Weathered white bulwarks ran the length of the 125-foot vessel at deck level, encircling varnished wooden outdoor seats. These in turn surrounded segregated men's and women's saloons. Above them lay an upper deck, where both inside and outside seating were also provided. At each end of the deck stood a wheelhouse, their designs identical in every detail, except for a bell that was mounted on the port side of one.

At her wheel stood 52-year-old Captain William Barnes. He had been plying the harbour some 30 years and knew Port Jackson well. Although he had skippered *GREYCLIFFE* on and off for ten years, he was not her usual Master; he only took the helm when the regular Master took his days off, and today was such a day.

GREYCLIFFE departed Circular Quay and, seven minutes later, heaved to at Garden Island ferry wharf. As she came to a stop, the gangways were run out to greet the sea of brown suits and white uniforms. At this time of day, the wharf was always overflowing with Dockyard workers awaiting ferries to take them home to different parts of the harbour.

As the ferry pulled out from the wharf again, Barnes turned the wheel two points to port and increased speed. Behind them, in the distance now, the new harbour bridge was under construction. He adjusted his course again and steered for the navigation light 100 yards north of Shark Island. Ahead of him, he could see the ferry *WOOLLAHRA* coming towards him from Nielsen Park on the return leg of the same route, whilst around Bradleys Head, a tug was also coming in his direction, towing a small barge.

To his rear, however, unbeknown to Barnes, *GREYCLIFFE* was also being approached by the Union Steamship Company's liner *RMS TAHITI*. As she moved down the harbour that afternoon, the vessel carried some 330 passengers and crew bound for Wellington and San Francisco.



The ferry *GREYCLIFFE* plying the waters of Sydney Harbour.

Measuring almost 7600 tons, the graceful liner's 460-foot olive-green hull stood in stark contrast to her shining white above-deck cabins. A neat row of lifeboats hung from davits along the length of each side the upper-most deck, whilst a single, plump red funnel with a black rim stood above them, amongst a clutter of ventilators. Buff-coloured masts stood at each end of the vessel, surrounded by derricks. A small crow's-nest was perched about a third of the way up her foremast.

On the bridge, Captain Basil Aldwell casually chatted with the pilot assigned to the vessel that afternoon, Captain Thomas Carson. They shared the bridge with the helmsman and the Third Officer.

Aldwell was a Union Steamship man who had spent almost his entire career with the company. A Master Mariner who had spent over 30 years at sea, the 57-year-old Englishman was by no means new to *TAHITI*. He first captained her in 1919 and had been her permanent master since 1922. Nine years his junior, Scottish-born Carson had been a Pilot almost twenty years and had previously circumnavigated the globe under both sail and steam.

Built in Glasgow in 1904, the 23-year-old vessel was originally named *PORT KINGSTON*. When acquired by the Union Steamship Company in 1911, she was renamed *TAHITI* and put into the trans-Pacific passenger and mail service. Most of her luxurious furnishings were removed whilst she served as a troopship during the Great War, but she was refurbished and resumed her former role as a passenger liner in early 1920.

Carson ordered the engines be put to 'half ahead' across Circular Quay and routinely sounded the horn. He ordered 'full ahead' as they passed Bennelong Point, and the ship began to increase speed as they swept past Fort Denison and approached Garden Island.

Aldwell and Carson noted the Watsons Bay-bound ferry, *GREYCLIFFE*, which had just departed Garden Island, running down the harbour ahead of them, a few points off their starboard bow. Off their port bow, the Circular Quay-bound ferry, *WOOLLAHRA*, approached from the opposite direction. The helmsman steered a roughly parallel course to take *TAHITI* safely between them.

Suddenly, *GREYCLIFFE* turned across *TAHITI*'s path. Carson cried out in alarm and pulled hard on the lanyard to the funnel's steam horn. He barked orders to slow and turn the vessel from the impending collision, but his efforts had little immediate effect. At the speed the liner was doing, she would run several hundred feet before she would begin to turn, let alone stop.

Just moments before, aboard *GREYCLIFFE*, deckhand Fred Jones was busy collecting fares inside the Men's Saloon. Navy Officers and businessmen chatted together sharing the day's events, or read the newspaper while enjoying a pipe or cigarette.

Jones looked up momentarily and glanced out the saloon's portside windows. He was startled to see a large ship, barely 100 yards away, moving at a considerable speed and heading straight towards them. Immediately recognising the danger, he ordered everyone in the cabin to get out.

At that moment, two thunderous blasts exploded from *TAHITI*'s horn. All over the ferry, passengers sprang from their seats and pandemonium broke out. Schoolgirls screamed and mothers instinctively snatched up their children. There was little time to think; people ran in every direction in a vain effort to escape the tons of steel bearing down upon them. In moments, *TAHITI*'s sharp steel bow was abreast of the ferry's funnel, and just feet from the aft gangway. She towered over the ferry, higher than the funnel.

Up in *GREYCLIFFE*'s forward wheelhouse, Captain Barnes had, until that moment, been unaware of *TAHITI*'s presence. The sudden, unexpected snarl of the two horn blasts so near made him jump. Stepping across to the port side

window, he peered out. To his shock, he saw *TAHITI's* bow just feet from the ferry's side. Although too late to avoid the inevitable, he instinctively sprang for the wheel and ported his helm with all his strength. In the next instant, the liner's bow struck the ferry by the aft gangway.

At first, it seemed *TAHITI* would simply push *GREYCLIFFE* aside, but the ferry's bow wheeled around until she lay perpendicular to *TAHITI's* course. Accompanied by the screams of her panicking passengers, the surge of liner's bow wave thrust *GREYCLIFFE* through the water ahead of her, pushing the ferry over enough to submerge her starboard rail and put several feet of water over the main deck.

Then, with the sickening creak-and-snap of splintering timber, *TAHITI's* sharp steel bow burst through the wooden ferry like an axe, and split her in two.

Terrified passengers in the saloons fought to escape, thrashing desperately against the force of seawater as it burst in towards them. Those on deck were sucked deep underwater as the ferry's broken body sank. Barely faltering, the momentum of the liner carried her on through the debris, portions of the ferry passing down each side.

The water was suddenly alive with dozens of bobbing heads, spluttering and screaming, hands groping for anything to keep them above water. Surrounded by the remnants of what moments ago was a perfectly stable Sydney ferry, shocked survivors clung firmly to anything that floated.

By sheer coincidence, the Water Police launch *CAMBRIA* rounded Bradleys Head at this moment heading for Circular Quay. Sgt. William Shakespeare, in command of the vessel, could not believe the sight before him. He hurried over and immediately ordered two constables into the water.

Passing ferries and nearby vessels rushed to the scene. The Pilot Steamer *CAPTAIN COOK II* was dispatched from Watsons Bay; the Harbour Trust's steam yacht *LADY HOPETOUN* hurried over; the ferry *KUMMULLA* turned back from near Taronga Zoo; the ferry *WOOLLAHRA* raced back from near Fort Denison; the tug *BIMBI* rushed over from near Garden Island and the Naval Launch *SAPPHIRE* diverted from its course as soon as it saw the commotion.

Many of the victims and survivors were taken to the Man o'War Steps by the Fort Macquarie Tram Depot [now the site of the Opera House], which became an emergency casualty clearing station. A relay of ambulances rushed the injured up Macquarie Street to Sydney Hospital, and immediately returned for more.

The water off Bradleys Head was littered with debris. Floating amongst the mess of seats and broken wood, broken roof racks, still containing lifebelts, gave grave testimony to the swiftness of the accident. During the evening, the Harbour Trust Fire Brigade was kept busy retrieving considerable amounts of wreckage from the water to clear the harbour's shipping lanes.

The *RMS TAHITI* sailing under a still building Sydney Harbour bridge.

The following day, every newspaper in Sydney carried the story on the front page. Each paragraph was headlined with an emotional eye-catcher: 'Appaling Harbour Disaster'; 'Caught in Wreckage'; 'Sisters Killed'; 'Piteous Scenes'; 'Missing Man'; 'Wife and Daughter Lost'; 'Heartrending Scenes'; 'Great Confusion'. Special editions during the day gave readers updated casualty lists and informed them of the latest developments.

The unenvious task of recovering the missing was undertaken by divers of the Harbour Trust. They were lowered to the wreck, lying in about sixty feet of water, and cut their way inside. It was dangerous work and only slender ropes and thin air lines attached them to a pontoon above them. The divers worked in two-hour shifts, supplied with air by men constantly employed in turning the wheels of the air pumps.

That first day, thirteen bodies were recovered. Amongst them were the RAN's Surgeon Lt.-Cdr. William Paradice, NSW Chief Quarantine Officer Dr. Charles Reid, Sydney High School Science Master Reginald Wright, and housewife Mary Corby, who was found with her young daughter held firmly in her arms.

A few days later, Sydney's Lord Mayor convened a meeting at Sydney Town Hall to open the 'Greycliffe Disaster Relief Fund' for the families of the victims. Edmund Horler, the Town Clerk of Vaucluse and father of 14-year-old accident survivor Ken Horler, was nominated honorary treasurer. Within days, donations reached £1,000.

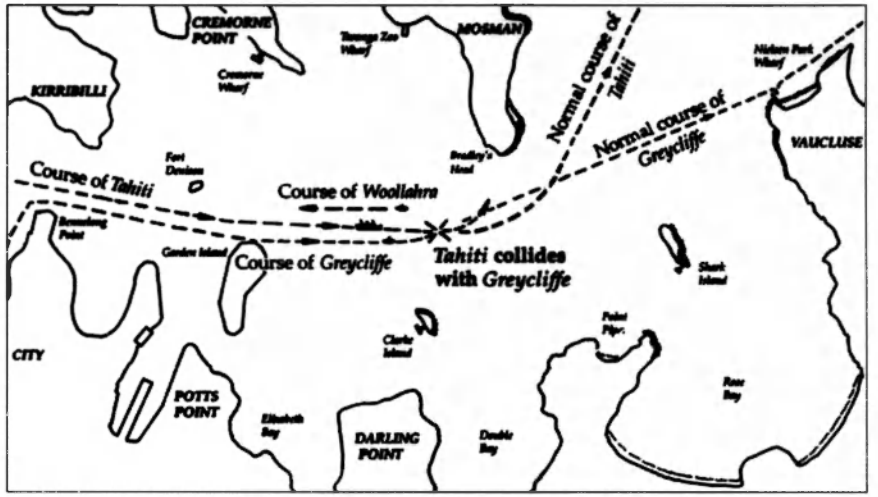
Meanwhile the recovery operation continued. Over the following weeks, many more bodies were recovered when they rose to the surface after parts of the ferry's hull were moved during salvage work. Others were found as the divers systematically searched through the wreck.

The last body was recovered on 24 November, exactly three weeks after the accident. Although one of two people still listed as missing, the extraordinary amount of gold and gem-encrusted jewellery found upon the body quickly confirmed its identity as 59-year-old German immigrant Eugen Wolff.

In an unexpected twist, the final missing person turned up alive two days later when he walked into the Water Police station and proved his identity. Arthur Hardy was believed to have been amongst *GREYCLIFFE's* victims as his attache case was found floating in the water amongst the wreckage of the ferry on 3 November.

He explained he had indeed been on board when *GREYCLIFFE* was at Circular Quay, waiting for a friend. When he failed to appear, however, he jumped off again just as the gangway was being hauled aboard. In his haste, however, he left his attache case behind and when it was found in the water after the accident, he was assumed to be amongst the victims.

That same evening he left for the countryside and was unaware he was missed. When he returned to Sydney on 26 November, he was surprised to hear divers were searching for him, and immediately reported to the Water Police to set the record straight. Police now believed all the victims of the tragedy had been found and officially set the death toll at forty.



A map showing the relative courses of the *GREYCLIFFE* and *TAHITI* on that fateful day in 1927.

GREYCLIFFE had taken a broad cross section of the community to the bottom of the harbour with her. Amongst the victims were six schoolchildren, aged eleven to fifteen, and the Science Master of Sydney Boys' High School. Three doctors went to their deaths, one in the NSW Prisons Service, another the Chief Quarantine Officer of NSW, and the third a Surgeon Lieut.-Cmdr. in the RAN. Three further Navy personnel were drowned, as well as seven tradesmen from Garden Island. Six holidaymakers from NSW and Victoria also met their deaths alongside Australia's first female pilot and a six-term Mayor of Leichhardt. An architect, a retired Master Mariner, three retired gentlemen and seven housewives completed the sad list.

The victims of the accident ranged widely in age; some were retired, some at the peak of their careers, others in the prime of their youth. The communities of Vaucluse and Watsons Bay were devastated, whilst towns further afield also grieved. Lives and perceptions changed forever and the effect on individuals, families and their communities as a whole was profound. Many a family lost their breadwinner and were forced to cope with newfound financial difficulties.

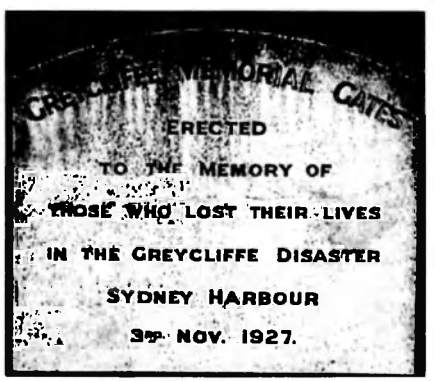
Families mourned their losses and suffered them in ensuing years. Though the physical wounds of the injured healed with time, survivors carried emotional scars and relived the nightmare of fighting for the surface as the ferry sank.

By the time 'Greycliffe Disaster Relief Fund' was wound up in March 1931, £6,281 had been raised through donations, complemented by a further £536 earned in interest. Thirty-three people received amounts of between £3 and £110 each to buy clothing or cover funeral costs, whilst ten widows received assistance ranging from £275 to £878, according to their circumstances and dependants.

In 1928 and 1929, nine bravery awards were awarded by the Royal Shipwreck Relief and Humane Society. These included two Silver Medals, three Bronze Medals and four Certificates of Merit, which were presented to four of *GREYCLIFFE's* passengers, one of *GREYCLIFFE s* crew, one of TAHITI's crew, one of *WOOLLAHRA's* passengers, and two Water Police Officers. In September 1928, Water Police Sgt. William Shakespeare, who had recently died, was also commended posthumously for his role in rescuing *GREYCLIFFE's* passengers.

In memory of the accident's victims, the 'Greycliffe Memorial Gates' to St. Peter's Church in Watsons Bay were unveiled by the Right Reverend Bishop D'Arcy Irvine on 11 May, 1929. The original gates, made of timber, no longer exist, but plaques to their memory can still be seen today on either side of the entrance.

GREYCLIFFE, Stolen Lives, © Steve Brew 2003, ISBN 0975133101, Navarine Publishing, RRP $34.95, http://brew.clients.ch/Greycliffe.htm



One of the plaques at St. Peter's Church in Watsons Bay where on 11 May, 1929 the Right Reverend Bishop D'Arcy Irvine unveiled them to the memory of the victims of the *GREYCLIFFE* disaster.

Flash Traffic

RAN's Harpoons get more teeth

The Australian Government will spend $30 million to acquire Harpoon Block II technology for its existing Harpoon missiles.

The RAN's current Harpoon Block I missiles will be retrofitted with state-of-the-art Harpoon Block II technology that will enhance the precision and lethality of the ADF's main maritime strike weapon and give it a long range precision land attack capability (130kms).

In ADF service the Harpoon is used from the Adelaide and Collins class naval platforms, and F-111, F/A-18 and AP-3C aircraft with the Anzac's to be fitted with the missile shortly.

The improved Harpoon allows ships close to shore, in congested waterways and even land targets to be attacked.

The combination of state-of-the-art navigational and initialisation information technology allows the missile's active radar seeker to better discriminate the desired ship targets from islands, other obstructions or neutral ships. In the land attack role the GPS system provides the required flight profile inputs.

The ADF has fielded the Harpoon missile continuously since 1982.

The missile upgrade kits are being purchased from Boeing and will be installed by Defence personnel at the Orchard Hills facility in Sydney. An in service date has not been announced.

Ten Aussie patrol boats for Yeman

Australian shipbuilder Austal has launched the first in a series of 10 fast patrol boats being built for the Republic of Yemen. It is the first naval vessel launched since the company announced the formation of 'Austal Defence', a new division that is focussed on exploiting the significant opportunities which exist for the company's aluminium vessel technology in the international military and law enforcement markets.

The 37.5 metre deep V monohulls are a simplified version of the Bay Class patrol boats delivered to the Australian Customs Service in 1999/2000 and have been tailored to the customer's operating and budgetary requirements. Powered by twin 1305kW Caterpillar V12 diesels they will be capable of 29 knots and have an operating range well in excess of 1000 nautical miles. Each vessel will be fitted with a 25mm twin-barrelled naval gun and two 12.7mm heavy machine guns and will carry three officers and 16 sailors.

Kim Gillis, 'Austal Defence' Vice President, said the vessels demonstrated the benefits of applying the world-best aluminium shipbuilding philosophies and practices that have made Austal an international success in the ferry building industry to the naval market.

A Subsidiary company of Austal, Image Marine has teamed with the US firm General Dynamics to try and sell the US Military Austal's high-speed trimaran hullform for its Littoral Combat Ship (LCS) project.

"By using aluminium we are able to supply patrol boats that are easily driven and thus have low operating costs. Further, the combination of commercial-off-the-shelf equipment from reputable suppliers, and best practice in design, construction and engineering makes them reliable and easy to support and maintain, which reduces through-life support costs" said Mr Gillis.

Austal is on schedule to deliver the first four vessels for Yemen in June this year, with the remaining six vessels being delivered in pairs at two monthly intervals.

Patrol and military vessels are currently generating a great deal of activity within Austal's shipyards. In addition to the ongoing work provided by the Yemen contract, Austal Ships has already begun construction of the first of the Royal Australian Navy's 12 new Armidale Class patrol boats. Meanwhile three 22 metre patrol vessels built by subsidiary Image Marine are currently on their way to Kuwait, and the company's US shipyard has a contract to build a 31.5 metre vessel that will be used to demonstrate high-speed multihull technology to the US Office of Naval Research. The General Dynamics team that includes Austal has also recently submitted its proposal for the US Navy's Littoral Combat Ship (LCS). The team's bid is based on Austal's high-speed trimaran hullform, a commercial variant of which is currently being built in Western Australia.

RAN signs Surface Warfare agreement with US

The Australian and the United States' navies have reached an agreement that will significantly assist us in the development the RAN's new air warfare destroyers.

The agreement is modelled on the highly successful 2001 Submarine Statement of Principles under which the Royal Australian Navy and the United States Navy have been helping each other to provide fully capable, sustainable and interoperable submarine forces.

The Chief of Navy, Vice Admiral Chris Ritchie, signed the Surface Warfare Statement of Principles with his US counterpart, the Chief of Naval Operations, Admiral Vern Clark, in Washington in February.

The agreement promotes cooperation between the Royal Australian Navy and the US Navy in all aspects of maritime surface warfare, including the air, surface and undersea environments.

The Statement is meant serve as the framework within which the respective Navies will communicate and transfer information, helping to ensure the RAN can better work together through compatible technologies. Whether the RAN can have access to all the information it needs from the US is open to conjecture.

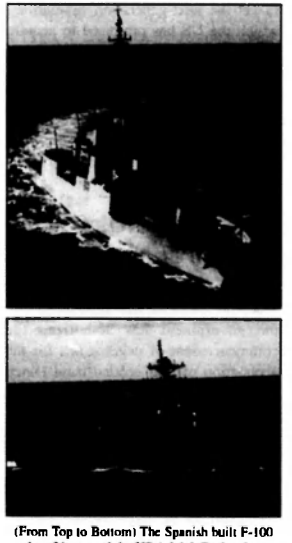
In particular, the Statement is meant to:

- Provide the RAN with support on technological development and doctrine.
- Help make the technology systems of the two navies compatible.
- Encourage more joint training exercises.
- Foster more cooperation in defence science, technology and industrial relationships to enhance the warfighting capabilities of each Navy.
- Assist with the continuing development of the Air Warfare Destroyer combat system design.
- Facilitate Australian industry involvement in USN programs such as the Littoral Combat Ship and its associated mission modules.

Three designs chosen for SEA 4000 race

Three international ship designers have been selected to develop concept ship designs based on existing ship classes to enable the selection of Australia's new air warfare destroyers. This activity will lead to the selection of a preferred designer in mid 2005.

Spanish ship builder IZAR will produce an evolved concept design based on the Alvaro De Bazan (F-100) class frigate which is currently in service with the Spanish Navy. Izar was selected because it has already designed an operational ship that has successfully integrated the United States' Aegis air warfare system.



(From Top to Bottom) The Spanish built F-100 class frigate and the US Arleigh Burke class destroyer. Both are two of the three designs short listed for the RAN's SEA 4000 project (although the Arleigh Burke being considered is a derivative). (IZAR and USN)

Blohm + Voss of Germany will produce an evolved concept design based on the Sachsen (F-124) class frigate which is currently in service with the German Navy. Blohm + Voss was selected because of its knowledge of and experience with Australian industry flowing from its design of the very successful Anzac class frigates. Whilst the F-124 utilises a European air warfare system, the concept design also offered a version of the Aegis system.

Gibbs & Cox of the United States will produce an evolved concept design based on a modified version of the Arleigh Burke Class Guided Missile Destroyer (DDG-51), which is currently in service with the United States Navy. Gibbs & Cox have been selected as it was the lead ship detail design agent for the DDG-51 class and has vast experience with integrating various evolutions of the Aegis air warfare system into the DDG-51 design.

The concept designs will be developed to meet the specific capability requirements of the Australian Defence Force. This process will occur in parallel with the design of the combat system for the new air warfare destroyers.

Consistent with the Government's announcement last year that a United States designed air warfare system - the Aegis system - will form the basis of the combat system for the new ships, the Government has requested the United States Navy assist on issues related to the integration of Aegis into the design concepts. This would be under the recently signed Statement of Principles between the Royal Australian Navy and the US Navy for collaboration on surface ships.

Tenix and the Australian Submarine Corporation will be asked separately to assist Defence in the assessment of the designs and to advise the Government on the opportunities to maximise potential for Australian industry involvement in the project. The Australian shipbuilders have been engaged as advisers because of their experience in building large warships.

The first of Australia's three new air warfare destroyers will be delivered in 2013. The new ships will be constructed at a cost of $4.5 billion - $6 billion.

These large ships will be capable of detecting and shooting down aircraft at extended ranges and protecting deployed forces from air and missile attack. This will ensure Australia's amphibious and support ships can operate with 24-hour air defence, as well as supporting land forces in coastal areas and aircraft such as the Airborne Early Warning and Control, AP-3C Orions and C-130 Hercules aircraft.

The air warfare destroyers will also have an anti-sub narine and anti-shipping capability. There is also the potential for the ships' sensors to be used to detect ballistic missiles in flight.

Collins class operational

The RAN has accepted 'Operational Release' of its six Collins class submarines.

This important milestone acknowledges the submarine's ability to achieve defined operational outcomes laid down in Defence Preparedness documentation.

While some aspects of the Class require future rectification or modification, the Operational Release rating recognises that the submarines are now providing an important national defence capability. The announcement means Navy is confident in the submarines' ability to undertake operational employment pending completion of the current set of capability upgrades.

However, the Operational Release rating does not release contractors from responsibilities to address aspects that require outstanding rectification or modification.

GORSHKOV finally sold

After a decade of protracted negotiations, rumours and conjecture, India and Russia have signed a deal for the ex-Soviet Navy's modified Kiev-class (Project 1143.4) aircraft carrier ADMIRAL GORSHKOV.

Russia originally offered to give the vessel to India for the price of the refit and a deal to acquire the associated air group from Russian sources, but protracted negotiations resulted from the two countries' failing to agree on what this should cost.

The deal is thought to be worth in the region of US$1.5 billion - has been limited to the carrier's refit and organic air group. The refit will be carried out at the Sevmashpredpriyatiye shipyards in Severodinsk - where the carrier's hulk has been mothballed since an engine fire in 1993. Following this it will go to India for final outfitting in Cochin.

Key features of the refit include a total overhaul of the engine rooms with new turbines and the removal of forward missile launchers to facilitate a 14° ski-jump to be added to the flight deck. The latter will combine with three arrestor wires to enable STOBAR (short take-off but arrested recovery) operations. Launch operations will be conducted straight off the bow, with recovery to an angled deck aft. The high thrust ratios of modern jet fighters, the wind over the deck and the 14° ski-jump enable launching operations from carriers without a catapult.

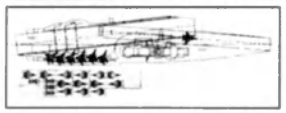
The condition the carrier is in, through years of neglect, may mean a total 'gutting' of the ships with new power and air-conditioning systems also needing to be added to ease operations in more tropical conditions than where it was originally designed for.

GORSHKOV may also receive an air defence upgrade, with an unorthodox mix of Tulamashzavod's Kashtan (Chestnut) radar-controlled 30mm cannon and 9M311 ('SA-N-11 Grison') surface-to-air missile (SAM) system and Israeli Barak vertically-launched SAM which India has had some success with.

As well as the full refit work, the deal also includes a commitment from India to buy at least 16 MiG-29K 'Fulcrums' - the navalised version of the MiG-29 strike/fighter aircraft - including four two-seat trainers, all to be delivered by 2008. It also includes a mix of up to eight Ka-28 'Helix-A' anti-submarine warfare and Ka-31 'Helix-B' airborne early warning helicopters.

GORSHKOV can actually support an air group of 24 MiG-29s with helicopters which may see the Indian's buy more MiG-29s. To help facilitate this Rosoboronexport - Russia's state arms export agency – is currently holding the price of 30 more Fulcrum for up to five years for India.

The Indian Navy currently plans have GORSHKOV homeported in Karwar on the country's southwest coast. The 45,400t vessel's estimated range of nearly 14,000nm at 18kt will provide the navy with a massive boost in reach out into the Indian Ocean and potentially the South China Sea.



(From Top to Bottom) The ex-Soviet Kiev class carrier BAKU at sea during the days of the Soviet empire. Below is a computer generated image of the flight deck after modification from ADMIRAL GORSHKOV (her post Soviet name) to the Indian navy's newest carrier. Note the removal of the missile batteries from the bow to make way for a ski jump for the MiG-29K.

China looks for helicopter carriers

It is understood from Chinese Defence sources that China is planning to buy several helicopter carriers in response to being forced to put its plans to build aircraft carriers on hold.

China is to ask a European country to build the helicopter carriers and a contract is expected to be signed in the near future.

The as yet unnamed European country in question has provided China with the design and specifications of the carrier it plans to build for the Chinese Navy.

The helicopter carriers will act as a stopgap for aircraft carriers that the Chinese navy still wants to build, despite lacking the capability to do so, and will also provide a valuable training step to a full flat deck ship

The type of helicopter carrier that China may acquire is understood to be a cheap and fast solution. It is to cost less than a destroyer and expected to greatly improve the Chinese Navy's attack and transport capabilities.

Within five years, China should be able to get its first helicopter carrier. Its next target will be to acquire aircraft carriers.

Besides helicopter carriers, China is to get an unspecified number of new submarines from another European country.

The type of submarine that China is to receive from Europe has not been decided yet. They may be of an old design with certain modifications and some modernization.

A naval official, who spoke in private, said China is eager to replace its aging submarines with new ones within the shortest time possible, since the old subs should be retired as soon as possible.

Over the next few years, military exchanges between China and Europe are expected to become increasingly stronger, which is sure to impact Taiwan.

In contrast, Taiwan is still struggling to get the next-generation submarines, which the US has promised to acquire on behalf of the nation, because of various problems.

The navy has not totally given up hope for getting the submarines. It might be willing to accept a submarine of an older design, which would be better than nothing.

Four Dutch frigates for Chilean Navy

The Chilean Defence Minister Michelle Bachelet has announced that the government has authorized the commencement of negotiations for the acquisition of four second hand Dutch frigates. At the same time the Minister declared the 'Plan Fragata'; an international bidding process for a long-term project to build new frigates in Chile, as 'deserted'.

Negotiations with the Dutch were scheduled to be over by the end of March or early April, if the cost of acquiring the four ships is below US$350 million, half the sum Chile was prepared to invest in three new frigates.

(From Top to Bottom) A Dutch L Class, or Jacob van Heemskerck class air warfare frigate, and (below) a much newer M class frigate.

Ms. Bachelet said that two of the frigates are the L Class, or Jacob van Heemskerck class (HrMs JACOB VAN HEEMSKERCK and WITTE DE WITH), commissioned in 1986, refurbished in 2000 and specifically designed for anti air combat with a Mk-29 Octuple Sea Sparrow launcher, a Mk-13 rail launcher for 40 SM-1MR, a 30mm Goalkeeper CIWS and a senor and designation suite to match the AAW nature of the ship. The other two, M Class, are multipurpose frigates commissioned in 1993 (HrMs ABRAHAM VAN DER HULST and TJERK HIDDES).

If negotiations are successful, two frigates will be delivered in June and December 2005 and the rest in July 2006 and May 2007.

When the acquisition is concluded Chile will have acquired five of the six new frigates of its original shopping list. Four Dutch and one British - being the former HMS SHEFFIELD, a Type 22 Batch 2 frigate (see *THE NAVY* Vol. 66 No. 1 p21).

Ms. Bachelet anticipated that the Chilean Navy will be on the look out in April when another batch of Royal Navy ships become available, namely three Type 42 air warfare destroyers and two Type 23 frigates.

France to cooperate on new carrier

Paris is seeking closer military cooperation with Britain in its bid to acquire a second aircraft carrier.

President Jacques Chirac's office said France would develop a new aircraft carrier that would be non nuclear-powered, unlike France's only other carrier - the CHARLES DE GAULLE. Britain has made clear that the two new aircraft carriers it plans to have in service by 2015 will be conventionally powered, and a decision by France to build a second nuclear vessel would have dashed any chance of cooperation.

"This choice is perfectly adapted to the operational needs of the decades to come and opens an improved perspective of cooperation with the United Kingdom," Chirac's office said in a statement.

Britain wants the first of its two new carriers in service by 2012, with the second on line in 2015 - the same year that France wants its second carrier in service, said a French Defence Ministry spokesman, Jean-François Bureau.

"We're exactly on the same timetable to prepare the design and definitions of these two future carriers - so we can do the research together," Bureau said.

France has long considered cooperation with Britain on a new carrier. In 2002, Defence Minister Michèle Alliot-Marie said France was considering seeking British help in building a second carrier.

In London, the Ministry of Defence said that Britain had already embarked on its carrier program and was further along in development but that the two countries had been discussing cooperation for some time.

There has been speculation that the three carriers could be built in the same shipyards, but analysts said it was more likely the cost savings would come in sharing designs and in-ship systems.

Singaporean stealth ship launched

The Republic of Singapore Navy (RSN) has launched the first of six new frigates, the RSS FORMIDABLE, on 7 Jan 2004 in Lorient, France.

The RSS FORMIDABLE was designed and built by Direction Des Constructions Navales (DCN) of France, the same shipyard that designed and built the French Navy's stealthy La Fayette-class frigates. The remaining five frigates will be built locally by Singapore Technologies (Marine).

The six frigates will replace the Missile Gunboats (MGBs) of the RSN which have been in service for more than 30 years and fast reaching the end of their operational lifespan over the next few years.

The names of the RSN's other five frigates will be INTREPID, STEADFAST, TENACIOUS, STALWART and SUPREME. These names are said to reflect the qualities of the RSN's frigates and the commitment of the Navy's men and women to ensure Singapore's seaward defence and the protection of its sea lines of communications.

The first of six new Delta class frigates, RSS FORMIDABLE, for the Royal Singapore Navy in the water for the first time on 7 Jan 2004 in Lorient, France. (DCN)

Former USS MIDWAY arrives at new home

The decommissioned aircraft carrier MIDWAY has found a new home and a new mission. Port of San Diego tugboats pushed the 74,000-ton aircraft carrier across San Diego Bay on Jan. 10, and parked it at the Navy Pier near Downtown San Diego to serve as a naval museum. Commissioned on September 10, 1945 as USS MIDWAY (CVB-41), the ship was decommissioned in 1992.

According to Pete Clayton, chief engineer for the USS MIDWAY Museum, the 1,000-foot-long aircraft carrier was towed down the California coast after being mothballed in Bremerton, Washington, to receive recently restored aircraft at Naval Base Coronado.

Port of San Diego tugboats push the 74,000-ton aircraft carrier towards the Navy Pier near Downtown San Diego to serve as a naval museum. When commissioned on September 10, 1945 as USS MIDWAY (CVB-41) she was the largest carrier ever put to sea. The ship was decommissioned in 1992. (USN)

In its 47-year career, the famed aircraft carrier saw action in numerous conflicts including World War II, Korea, Vietnam and Desert Storm. MIDWAY also travelled through every ocean on the planet and was once considered the largest warship in the world. Now, the famed carrier will serve thousands of naval enthusiasts as a floating museum and event facility.

More than 200,000 Americans have served aboard MIDWAY, now known as the San Diego Aircraft Carrier Museum.

Taiwan expects Kidds in 2006

The four Kidd-class destroyers that Taiwan purchased from the United States will be supplied with 248 Standard Missiles (SM-2 Block IIIA) after the U.S. government placed an order with Raytheon Co. in December 2003 on behalf of Taiwan.

The building of the Standard Missiles will be completed by December 2006, the same year Taiwan's navy is expected to take delivery of the four destroyers, with the 248 SM-2s as well as 32 RGM-84L Harpoon Missiles.

According to many defence insiders the Kidds are considered an interim step before acquiring an AEGIS-equipped vessel within the next 10 years. They will fulfil Taiwan's requirements for an air warfare platform because the old Gearing-class destroyers are being decommissioned due to age.

The 9,574 ton Kidd-class destroyers are based on a modified Spruance-class destroyer hull and were built by Litton Ingalls (now Northrop Grumman) Shipbuilding. The four ships were commissioned between 1981 and 1982 and decommissioned in 1998-99 after serving only half of their expected service lives.

The four ships of class were originally designed for sale to the Iranian navy. They were unique among U.S. warships as they combined the combat systems and capability of the former Virginia-class cruisers with the proven anti-submarine warfare qualities of a Spruance-class destroyer.

Submarines head to Singapore

Following a complete refit at Kockums in Karlskrona, Sweden, including modernization and conversion for operations in warmer waters, two Swedish Sjoormen class submarines were shipped to Singapore on the back of the merchant ship *DOCK EXPRESS*. A third submarine is being shipped with its sisters, as a reserve vessel. The two newly modernized submarines, CENTURION and CHALLENGER, have served as training vessels for the Singaporean Navy crews who have undergone training in Karlskrona over the past three years. The Swedish Navy has conducted the entire training program, which has been carried out in several stages.

Two modernized submarines of the same class, CONQUEROR and CHIEFTAIN have been in Singapore for some time and with the arrival of the two other boats will boost the numbers to four.

Indonesia to buy Dutch corvettes

The Royal Schelde Shipyard of Vlissingen, in the Netherlands, has won a contract to build two Sigma class corvettes for the Indonesian Navy.

Royal Schelde expects to start building the 90m long and 13m wide, 1,700 tonne ships halfway through this year. Each vessel will have a maximum speed of 28kt, a cruising speed of 18kt and a cruise endurance of more than 4,000nm (7,200km). Machinery will include two main diesel engines of 8,100kW each and four marine diesel generator sets of 350kW each. Two five-blade controllable-pitch propellers will drive the corvettes.

According to the shipbuilder's artist's impression, there will also be: a torpedo-launching capability (two triple launchers); two MBDA quadruple Mistral surface-to-air missile launchers on lightweight stabilised mounts; four MBDA MM-40 Block 2 Exocet surface-to-surface missiles; an Oto Melara 76mm gun; and two Giat Industries 15A/B 20mm gun mounts.

Building the corvettes will take over two-and-a-half years, according to Royal Schelde. The Indonesian order opens up oppurtunities for Royal Schelde on the international market and also enables it to partly bridge the period through 2011, during which no new orders from the Royal Netherlands Navy are foreseen.

Staying in Indonesia, Navy Chief of Staff Admiral Bernard Kent Sondakh recently turned down a donation of a

A computer generated image of the Royal Schelde Sigma class corvette for the Indonesian Navy.

number of warships from Libya, saying that most of them were already very old.

"Most of them are aged 25 years or more. We couldn't afford their maintenance," he said after a naval leadership meeting at its headquarters in Cilangkap, East Jakarta.

Sondakh said the Navy had learned that it was inefficient to use old ships, referring to the government's decision to import 39 warships from the former East Germany in the early 1990s.

HMNZS CANTERBURY back at sea

The RNZN's 32-year old HMNZS CANTERBURY is undergoing testing at sea to verify the safe and correct operation of a major switchboard. The switchboard in question distributes electrical power to the ship from two of the ships four generators. The switchboard, which is a critical part of the ship's electrical system, was severely damaged after a fire in October last year.

CANTERBURY's Commanding Officer, Commander Lance Cook said "the repairs to the damage caused by the fire are complete and I'm delighted with the level of teamwork and support from the Navy's Fleet Repair Group and Babcock New Zealand in getting the ship back in service as quickly as possible."

File image of HMNZS CANTERBURY. The ship is now back at sea after a switchboard fire threatened to cut her life short. (RNZN)

The repairs were undertaken by taking the switchboard out of CANTERBURY's decommissioned sister ship WELLINGTON.

Lieutenant Commander Robert Smith, the Project Officer overseeing the repairs, said the overarching considerations of the repair project team were to ensure that the ship and the crew would be safe and the ship's electrical system fully functional. The whole project received endorsement by Lloyds Register of Shipping who fulfilled the role of an independent inspector and provided certification for all the work undertaken in repairs and re-commissioning the electrical system.

CANTERBURY's switchboard fire occurred while the ship was conducting a fisheries patrol off the Chatham Rise, on Tuesday, October 14, 2003.

WR-21 gas turbines for first Type 45 pass test

A key milestone of factory acceptance testing of two Rolls-Royce gas turbines for the Royal Navy's first Type 45 destroyer has been completed. The groundbreaking WR-21 powerplants completed testing at French program partner DCN's facility at Indret.

Rolls-Royce is supplying a total of 12 WR-21s to prime contractor BAE SYSTEMS for six Type 45 destroyers.

Saul Lanyado, Rolls-Royce President – Marine, said: "This is another milestone for an engine which, through its unique combustion technology, offers navies the option of greater ship range, more time on station without refuelling and reduced fuel usage."

In 2003, Rolls-Royce and Kawasaki Heavy Industries successfully ran the WR-21 in Japan, enabling Japanese naval decision makers to see its power performance and low part-load fuel consumption at first hand, and allowing KHI to demonstrate its capability to install and run the gas turbine efficiently in record time.

The WR-21 is based on the highly successful Rolls-Royce RB211 and Trent families of commercial aircraft engines, which have amassed more than 100 million flight hours.

It is the first aero-derivative gas turbine to incorporate compressor inter-cooling and exhaust heat recuperation, technologies that deliver low specific fuel consumption across the engine's entire operating range.

The WR-21's advanced cycle recovers energy from the engine's exhaust gas to increase fuel efficiency throughout its operating profile. Low specific fuel consumption across the power range (a fuel burn reduction in excess of 25% on a typical destroyer operating profile when compared to conventional cycle gas turbines) translates into a number of key operational benefits for the user. For example, extended ship range for a given fuel capacity, more time on station without refuelling for a given fuel capacity and reduced fuel storage requirements for a given range.

Adoption of the advanced cycle gas turbine is an integral part of the Royal Navy's long-term Marine Engineering Development Strategy, which has as its ultimate goal the implementation of 'Electric Ship' architecture in all future surface ships.

Training ship *BENDIGO* wins Navy League Efficiency Award

The cadets of Training Ship *BENDIGO*, in Victoria, were recently judged the Most Efficient Navy Cadet Unit in Australia for 2003.

In a colourful ceremony held in November, at Lake Weeroona in Bendigo, the Chief of Navy, Vice-Admiral Chris Ritchie presented the Unit with the Navy League of Australia's Efficiency Award Shield.

Vice Admiral Ritchie stated "I have not been to the City of Bendigo for 40 years, and it gives me great pleasure to see such a well presented unit of navy cadets here in Bendigo" he said. "In wearing the uniform of the Australian Navy Cadets, you are an important part of the team that makes up the Royal Australian Navy."

In order to achieve this result the cadets firstly had to compete with eight other units in Victoria. After winning the State title, they were then judged against the best units from each State to win the National Title. It is the first time that Training Ship *BENDIGO* has won and seven years since a Victorian unit has held the title.

The cadets were joined by the Royal Australian Navy Band and supported by cadets from *TS HENTY* and *TS ALBURY*. Part of the ceremony included the handover of the Victorian Colours from *TS HENTY* who won the state title in 2002.

Distinguished guests included, MAJGEN Darryl Low Choy AM, MBE, RFD, (Director General, Australian Defence Force Cadets), CAPT Gavin

Reeves, (National Commander ANC), CMDR Derek Abraham-James RAN, (Director of Australian Navy Cadets), CMDR Steve Condon ANC, (Senior Officer Victoria), CAPT Bob Richards RAN, (CO of HMAS CERBERUS), Mr Frank McCarthy, Vice President Vic. Division of the Navy League of Australia and Councillor Rod Fyffe, Mayor of the City of Greater Bendigo.

Among the onlookers were many members of the RAN and ANC, proud family and friends, former *BENDIGO* cadets from throughout its fifty-one year history and representatives and supporters from local Service clubs. Following the presentation, guests were invited to afternoon tea hosted by the Mayor, at a restaurant overlooking the lake.

Training Ship *BENDIGO* has a long history in the City of Bendigo having commenced in 1952 in an old boatshed on the shores of Lake Weeroona. After several moves the cadets now parade at the new Multi-User Depot "Passchendaele Barracks" on the outskirts of the City. As an inland unit they travel long distances to participate in water activities, as Lake Weeroona is too shallow for safe boating and Lake Eppalock, some 30 kms away is in the grip of drought conditions.

There are 32 dedicated cadets in the unit and they parade each Friday evening at Passchendaele Barracks and spend many weekends away on ship visits, sailing, canoeing, power boating and surfing.

The cadets of Training Ship *BENDIGO* participate in a wide range of community activities both in Bendigo and away, including ANZAC Day ceremonies, Seafarers Services, Darwin Defenders, Battle of Australia, Vietnam Veterans Day, Bendigo Easter Fair parades, Australia Day Ceremonies and many others. They also willingly support the local Service clubs in the selling of poppies and Legacy Badges.

The Navy League Award was first presented in 1959 and each year is presented to the cadet unit judged the most Efficient by representatives of the RAN. The Chief of Navy traditionally presents the shield to the winning unit.

By Patricia Ibbotson

The 32 cadets of Training Ship BENDIGO, Victoria, posing for a photo with RAN Chief of Navy, VADM Chris Ritchie, who presented the Navy League Efficiency Award to the unit.

Observations

By Geoffrey Evans

NAURU

Until the decision to stop "boatpeople" from landing on the Australian mainland and to intern them in a number of neighbouring countries – a result of the "children overboard" claims and the TAMPA Incident towards the end of 2001 – little was known about Nauru, an island state selected as one of the detention centres: Some, particularly farmers, knew it as a source of phosphate, a material invaluable as the base of fertiliser.

It so happened Nauru was the first "foreign country" visited by the writer shortly after he joined the RAN in 1941: His ship the armed merchant cruiser MANOORA, spent a month or so drifting off the island as a Guardship after the German raiders KOMET and ORION had sunk a number of phosphate ships and shelled the island in December 1940 causing a good deal of damage. He was one of the few to land on the island – to visit a resident official known to his family.

Nauru, a mere dot of 21sq km in the Pacific Ocean, lies only 50 km from the equator and roughly 4,000 km to the north-east of Sydney – at the corner of the Navy's former Australia Station. Before the first World War one of Germany's Marshall Islands group, the phosphate-rich island surrendered to HMAS MELBOURNE in 1914 and was mandated to the British Empire in 1920. Until 1968 when it became independent, Nauru was administered by Australia on behalf of Britain and New Zealand who together with Australia owned the phosphate rights, plant etc; three commissioners, one from each country, managed the phosphate business. Prior to becoming a detention centre the island had a population of slightly more than 10,000, in the main islanders and a small number of Chinese and Europeans.

Due to the depth of the seas surrounding Nauru – 600 feet quite close to the shore – the island lacks a harbour and conventional port facilities or an anchorage. To load phosphate, ships are required to secure to deep laid moorings under cantilevers and then possible only during favourable weather conditions; ships waiting to load – as many as 17 at any one time have been reported – drift around the island, engines shut off for most of the time to save fuel but re-started occasionally to either avoid running ashore or drifting too far away.

The writer's lasting impression of Nauru is of its isolation which, together with the inhospitality if the mined area, the larger part of the island, caused him to wonder if those who made the decision knew what they were doing when they selected the island as part of their "Pacific Solution". Although Nauru now has an airstrip and improved amenities, the world's smallest State is not one in which the writer would care to reside for any length of time.

SEA BASING: THE AMERICAN WAY

The January Issue of *PROCEEDINGS*, the Journal of the United States Naval Institute, carried two interesting articles, one submitted jointly by a US Navy Lieutenant and an Army Major, the other by the Vice-President of a major European shipping company. The subject of both articles was sea-basing – the provision of floating platforms on which military forces could be assembled and readied for speedy action if required.

The concept of maritime forward staging bases is not new, indeed they already exist, albeit on a small scale (using aircraft carriers and conventional merchant ships) compared to the project now envisaged. (In some respects the concept could be said to be an extension of the World War II "Fleet Train", whereby the vastness of the Pacific Ocean and the lack of port facilities resulted in Navies putting their supply and maintenance facilities into merchant-type ships that moved forward with the combat fleets). The renewed attention to the subject was prompted largely by the reluctance of some governments to provide facilities for American forces earmarked for possible action in Iraq.

The Service officers see the floating platforms as complementary to shore bases and not necessarily replacing those in countries where they exist in harmony with the local population. Advantages would include flexibility, less liability to attack by terrorists, less visibility and therefore in some countries less likelihood of exacerbating cultural differences and not least, readiness.

In their balanced article the officers see possible harm to America's diplomatic efforts to win friends and build coalitions: Not all countries would look with favour on a further increase in the pre-eminent military power's readiness for prompt action and may well seek to check the United States, in for example the United Nations. Coalition partners on the other hand might regard forward bases as a willingness by the United States to "go it alone" and reduce their own military contributions.

The officers do not specify the size of the sea-based military force but clearly, to be worthwhile it would need to be substantial and the platform of considerable size (which would seem to pose navigational and other practicability questions – GE). The author of the second article, the Vice-President of the Maersk Line, one of the world's major shipping companies, is more specific about numbers.

The Maersk Line owns some of the largest container ships in the world and of the only commercial vessels suitable for conversion for forward basing purposes. The Line's S-Class has a capacity of more than 6,600 20-foot containers, a length of 1,140 feet, a cruising speed of 25 knots + and a range of some 15,000 nautical miles; converted the ship would draw up to 35 feet. To facilitate conversion for military purposes (or return to commercial use), modules designed for a variety of purposes would be used, ranging from accommodation for 1000 personnel and all facilities such as dining, recreation, medical, laundry, etc – to office and storage space. The ships would have a flight deck and a hangar deck and it is envisaged they would be used for a variety of purposes including, depending on the way they were configured, command and control and replenishment-at-sea. Fully manned it is envisaged the ship/base would remain on station for 45 days without support.

The RAN's new-construction plans are not nearly so ambitious as those of the USN nor does a similar requirement exist; nevertheless the way in which it is planned to increase the use of commercial shipping for naval purposes will no doubt be watched with interest.

Pacific 2004 in Review

International Maritime Exposition and RAN Sea Power Conference

By RADM Andrew Robertson A.O., D.S.C., RAN (Rtd)
Federal Vice-President, Navy League of Australia

The Biennial RAN Sea Power Conference, part of the PACIFIC 2004 International Maritime and Naval Exposition, was held at the Sydney Convention and Exhibition Centre at Darling Harbour from 3 to 5 February.

The Sea Power Conference was run in parallel with the International Maritime Conference (hosted by Engineers Australia, the Royal Institution of Naval Architects, and the Institute of Marine Engineering, Science and Technology).

At the same time some 200 firms and organisations displayed maritime exhibits in an Exposition organised by Maritime Australia Ltd in the adjacent Exhibition Centre.

Alongside the wharf outside the Convention Centre the smart new Minehunter HMAS YARRA provided a symbol of Australia's modern and efficient shipbuilding industry, and of its Navy.

The Sea Power Conference with the theme 'Positioning Navies for the Future' was attended by about 500 delegates including representatives from the USA, UK, Canada, New Zealand, Papua New Guinea, Indonesia, Saudi Arabia, India, Chile and Singapore.

The opening address was given, as in 2002, by Senator the Hon. Robert Hill, Minister for Defence, who concentrated in the main on the diversity of roles the RAN is now undertaking; on the naval aspects of the Defence Capability Plan; on the implications for industry, including shipbuilding, of the new program; and on the closer support arrangements with the USN.

The Minister stated that Australia must be able to project power in the littoral environment and transport and support our troops further afield. The Government had addressed threats as they have presented and is now building a force for the less predictable world of the future – balanced and capable of responding to the unexpected as well as the expected.

The rebalanced ten-year Defence Capability plan will give Australia the best capability it has ever had to safely deploy, lodge, and sustain forces away from Australian bases and without reliance on bases elsewhere.

The Minister stated :

"The missile upgrades for our guided missile frigates, the already agreed improvements to missile defence for our Anzac frigates, and the acquisition of state-of-the-art air warfare destroyers will allow us to provide layered protection from air and missile attack to our forces.

"This protection will enable our forces to operate throughout the littoral environment with an unprecedented level of air cover. This capability will dramatically enhance our ability to conduct joint operations from a sea base and it significantly expands the strategic options available to us. The presence in the air warfare destroyer of appropriate weapons, sensors, and systems will be a critical component of the Navy's ability to network both with the other services and with allied forces. This capability will also be the cornerstone of our commitment to providing our forces with a shield against attack by cruise and ballistic missiles."

It is anticipated that the Government will purchase a basic second-hand double-hulled tanker to replace HMAS WESTRALIA by the end of June 2004, and the primary designer for necessary modifications will be appointed by the end of September with the ship in service in 2006.

The advice to Government on the preferred design for the two new large amphibious ships should be provided by the end of June this year.

It is envisaged that the Government will consider advice on the process for selecting designs for the projected three or four Air Warfare Destroyers in the next couple of months.

The Minister stated that the Government believed that the needs of the Navy would not be sufficient to sustain the Australian industry, and that the Government was keen to support those parts of industry that are export orientated. He also announced the most welcome intention to continue the reform of the acquisition process which was part of the problem of delivering capabilities on time and on budget.

In conclusion he stated that the task of continuing to develop cutting-edge maritime capabilities is essential to Australia's security and it is a vital part of our contribution to regional and global stability.

The Sea Power and the International Maritime Conference covered a great range of subjects with many speakers, and it is not possible to cover all addresses in this article. Rather, attention has been given to a number of subjects which seemed of particular importance against the background of the changing strategic and defence scene relevant to Australia.

The keynote address for the Sea Power Conference was given by the Chief of Navy, Vice Admiral Chris Ritchie AO RAN. He outlined the Australian Navy perspective of the uncertain strategic situation including piracy, kidnapping and terrorism at sea, and the changing balance of power. The Navy faced many challenges including, as ever, to restrain costs; to monitor and adopt new technologies appropriate to needs; training; education; and the problem of how to improve the personnel structure.

There were new roles and missions and the Navy will become more involved in establishing law at sea. Constabulary tasks will be a growth area. There are 60 important ports and 300 port facilities but the Navy was present in only four. A new security regime for cargoes was being introduced and much co-ordination was required with police, customs and other authorities, with Navy likely to be asked to assist at sea.

The greatest challenge was to educate the Australian people in maritime needs.

Professor Christian Reus-Smit of the Australian National University then set the scene with an address covering the trends for conflict in the world, accepting the realities of world events, the impact of globalisation, economic issues, organised violence, terrorism, non-state issues as well as state-based factors, technology and communications.

Doctor Norman Friedman of the *HUDSON* Institute, the well known US strategist and authority on maritime affairs, then gave the US perspective on Navies and strategy.

A real question was whether countries regarded the sea as a barrier or as a highway. It was hard for Navies to get the idea across that you can move large armies over great distances by sea with little trouble.

The way to protect long coastlines was by deterrence – a policy adopted by the USN after the 1898 war with Spain, and followed ever since.

Nowadays the concentration was on Expeditionary Strike forces with the Sea Basing principle. In the war in Afghanistan no large base was required in Pakistan. The US Marines went straight from their ships. There was no question of veto by nearby States, or of sovereignty.

One problem he outlined was the need for balance between naval and coastguard forces.

A UK perspective was given by Dr Eric Grove, another well-known author, naval historian, strategist, and lecturer on maritime affairs, from Hull University.

He outlined the evolving British strategy with the re-configuration of the Royal Navy from sea control (but not entirely) to power projection from the sea with an emphasis on carriers and amphibious ships. The two new carriers (probably to be named QUEEN ELIZABETH and PRINCE OF WALES) will be of about 54,000 tonnes carrying perhaps 35 aircraft, including the short take-off and vertical landing (STOVL) version of the F-35 fighter. They will also be capable of being used as LPHs carrying troops and helicopters. There will also be two LPDs and four Dock Landing Ships. The new type 45 Destroyer represents a great leap in capability.

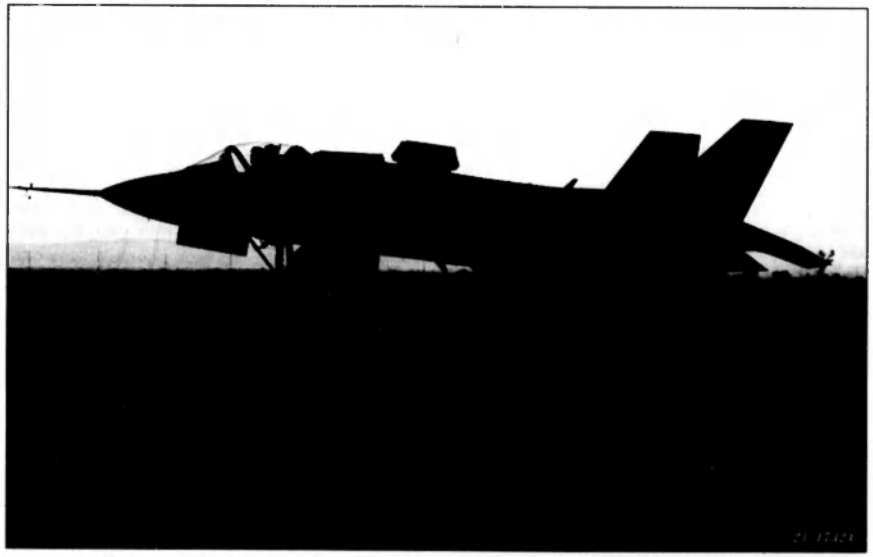
The new defence emphasis was on sea projection which was relatively invulnerable to terrorist attack, could loiter offshore thus leaving options for Governments open, and was relatively immune to host nation veto or need for local support.

Times could change and the roles of one decade may well be different in the next. Littoral warfare was much evident in the 1850s then followed many changes in maritime warfare, and now it is all the talk again. Flexibility was very important and the current emphasis on land attack systems in surface warships must not mean the loss of skills in ASW and surface warfare.

An Australian perspective was presented by Commodore Lee Corner AM RANR, the Managing Director of FDI Ltd. Against the background of this period of major change he believed that there must be a critical review and challenge to the conventional wisdom which has dominated strategic thinking in Australia.

In his view while Defence Papers stressed a Maritime Strategy, in practice there was still largely a continental approach. He posed the questions – do we have real combat power – is our reach and sustainability adequate – can we really operate independently – and can we operate everywhere including in the Southern Ocean? Strategy and policy are not yet matched and a re-think is required.

In question time Dr Friedman queried vociferously why Australia was buying a lot of the land-based version of the Joint Strike Fighter (F-35) aircraft. Independent action meant some must be sea-based.



During question time Dr Norman Friedman queried vociferously why Australia was buying the land based version of the F-35 JSF and not the more flexible STOVL version as seen here on hover trials. (Lockheed Martin)

Terrorism on the high seas is seen as one of the future challenges to all Navies.
Here the USS COLE is transported back to the US after becoming a victim of terrorism. (USN)

Australia's security depended largely on friendship with others and what Australia could bring to the table. A highly capable Navy was very useful to allies. Reliance on other Navies is a dangerous policy as they may not be there when needed, as with the Royal Navy in 1941.

Dr Kwa Chong Guan, the Co-Chairman of Singapore's National Committee of the Council for Security Co-Operation in the Asia Pacific, spoke on 'a view from South-East Asia'.

He presented a historical perspective and wondered whether in a few years time there will be a repeat of the voyages of a Chinese Admiral 600 years ago and we will see a Chinese Battle Group steam through the Malacca Straits. The Chinese have abandoned opposition to US hegemony and the Party Congress seems committed to world peace, but since the mid 1980s the Chinese Navy has changed from being a brown to a green-seas Navy with new classes of ships. Her actions in the Paracels and Sprightly Islands cause concern.

Having blue-water Navies capable of projecting power was not an option for South East Asia nations. The sea was now a resource to be managed and there were many problems of piracy, hijacking, terrorism, and how to protect sea lines of communication and fisheries. There was disagreement on the interpretation of the Law of the Sea. Singapore sought to engage with other Navies but at present he could see no way for the joint co-operation of local Navies though perhaps this could eventually develop through ASEAN.

Singapore was concerned over access to international waters as its ships now had to traverse the territorial seas of others in order to get to those waters.

The Indonesian representative, Dr Deui Rostuna Anwar, a former Assistant Minister/State Secretary for Foreign Affairs in the Habibi administration, spoke on Resource issues and ocean governance.

She outlined the tremendous difficulties facing Indonesia in the control of her vast sea areas, 3 million square miles in extent. An average of only 25 naval vessels were at sea at one time, and international assistance was needed, but there was the issue of sovereignty and Indonesia would not accept direct aid and patrol by foreign warships in her waters. Piracy on the high seas and attacks on ships in Indonesian waters was rife. Regional co-operation along with modernisation of the Navy and Air Forces was essential, but there was real political competition and co-operation was very difficult to achieve.

Dr John Reeve, the Senior Lecturer and Osborne Fellow in Naval History at the Australian Defence Force Academy spoke on the implications for an island nation of maritime operations and counter-terrorism. He concluded that Sea Power can help in the war on terror as in past wars on piracy and slavery, but it was a global problem. The unexpected, for instance the attacks by small craft on the USS COLE and a French tanker, will be the norm. The versatility of sea power was a great asset and sea control was basic. Terrorism had now moved to a different level and ports and littoral waters may be areas of danger.

The legal dimension to Maritime Military Operations was covered by Professor Martin Tsamenyi, the Professor of Law and Director of the Centre for Maritime Policy at the University of Wollongong. The Law of the Sea had been produced in six languages. However, there was much ambiguity and interpretations by different nations were not the same. This led to confusion and conflict. Few terms and concepts had been defined and there was dispute in particular over 'innocent' passage, military action in the EEZ, and passage and overflight in straits through Archipelagic States. Part of the problem was that there had not been enough input from practical mariners and too much had been left in the hands of lawyers and diplomats. Thorough training was necessary for naval officers. It was necessary to see how other countries viewed the situation (e.g. intelligence flights) and maritime authorities should take control of the problems.

Littoral Warfare was covered by Commodore Peter Jones of the RAN and Lt General Edward Hanlon of the US Marine Corps.

Most naval actions in recent years have been in the littoral and this is a time of real change with new capabilities being deployed. Sea-basing is now at the centre of maritime operations. The US Marines can be launched in 10 to 14 days in any area that has adjacent seas. If naval forces can seize ports and airfields, the deployment of ground and air forces can be sped up. The new high speed vessels have dramatically changed the deployment scene. Sea-basing greatly increases the Marine Teeth to Tail ratio as the Navy provides the 'soft tail'. There were 5 key factors required for effective allied action – a similar expeditionary ethos; similar doctrine; effective liaison; combined training and relationships; and mutual trust.

RADM Alan Hicks of the USN spoke on the transformation in technology. The three main components of Expeditionary Warfare; sea shield; sea basing; and sea strike were interlinked. The US was now creating 37 Strike Groups for expedition warfare.

RADM Connie Tay, Chief of Navy of the Republic of Singapore, outlined his littoral perspective. Singapore now faced a wide spectrum of threats from conventional to terrorism including possible terrorist attacks in the Straits of Malacca. At the same time there was exponential growth in technology. Initially the Singapore Navy had a constabulary role but in 1970s missile boats were introduced and now stealth warships and submarines were entering service. The first of six new frigates, RSS FORMIDABLE, is equipped with Harpoon anti-ship missiles, aster surface to air missiles, multi-purpose radars, the captas Sonar; a helicopter and is of stealth design. The four new Swedish SJORMEN class submarines have added a new power and dimension to the Navy. Endurance Class LSTs added a significant deployment capability. There was close co-ordination with Police, Coastguard, Maritime and Port authorities and with the Army and Air Forces, together with regional co-operation with countries such as Indonesia and Japan.

The Indian experience covering technology, integration, and self sufficiency was given by Mr Rahul Roy-Chaudhury of the International Institute for Strategic Studies in London, and a specialist on Indian naval and maritime security issues.

The Indian Navy now had 35 principal combatants with four major bases and five major shipyards. The Navy had 40 years experience with aircraft carriers and 37 with submarines. Following arms embargoes, difficulty in wars with Pakistan and the 1962 war with China, foreign exchange problems and cost, India had become wary of foreign sources of supply, and had embarked on a major programme of domestic sourcing.

The 1990s saw the building of the Delhi Class with Indian sonars, torpedoes, and ECM, but Russian missiles.

Now the Navy was moving from a 'Buyers' to a 'Builders' Navy. Joint ventures with foreign firms and countries were being developed. The BRAHMOS supersonic anti-ship cruise missile of 290 km range was being developed with Russia. The Russian aircraft carrier ADMIRAL GORSHKOV would replace the ex-British carrier VIRAAT in 2009-10. Russian frigates and Israeli surface to air missiles were being purchased.

A refreshing and innovative item in the conference was a presentation by four young junior RAN officers, both male and female, on "the challenge to the RAN". In this they attempted to look into the future covering network-centric operations, other operational and warfare issues, business management and personnel matters. In personnel matters they advocated career breaks and the possibility of some postings to industry, while canvassing the age-old problems of job stability, and the need to cater further for the needs of childbearing and families.

A paper was also delivered by a Defence representative on reshaping the Australian naval shipbuilding and repair industries to meet the demands of the next decade. The level of Defence's demand for warship construction in the next 15 years was seen as being half that of the past 15 years. Retaining skills would be essential for future naval projects.

Against the background of the changing international scene, not all attendees agreed that the future warship construction requirement should be based on current approvals.

The final two sessions of the Conference were on the themes of 'positioning the Challenge' and 'Meeting the Challenge' in which a number of overseas Naval/Defence attaches and senior officers delivered presentations.

CMDR Kevin Coles RNZN gave an outline of the current New Zealand Navy and the future. Perhaps the most important development is the plan for a multi-role vessel capable of deploying and supporting a heavy company of 250 troops for up to 30 days with helicopter support.

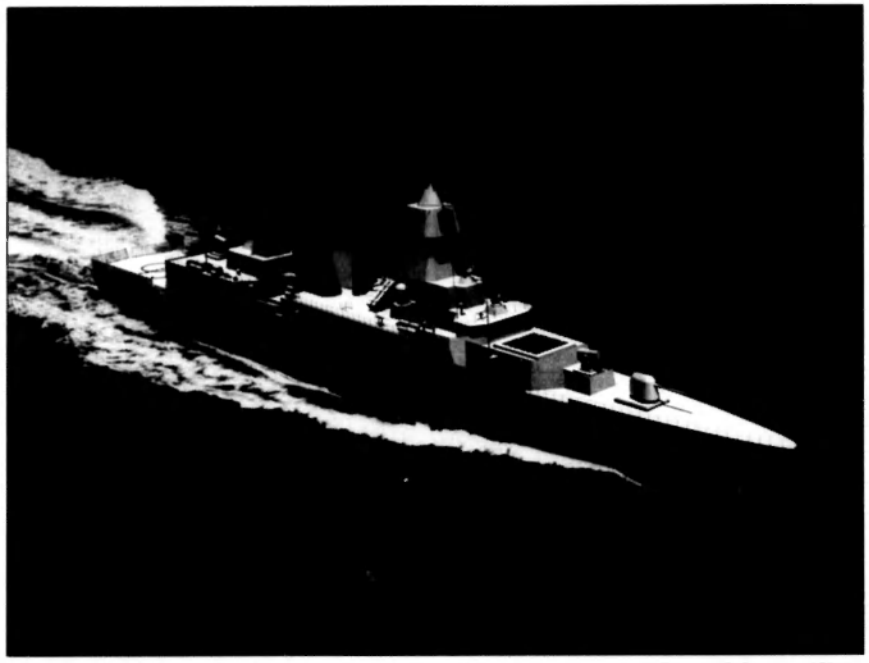
Captain Raphael Gonzalez of the Chilean Navy covered the present Chilean naval strength as it approaches its bicentenary in 2010. The Navy was developing into an 'Interoperable Oceanic Naval Force' and controlled all maritime assets and activities of the nation.

There were now 24,000 personnel including the Coastguard and 1,350 Marines and Special Forces. The 50 ships included two county class destroyers, four frigates, fourLSTs, two APs, four submarines, seven missile boats and a number of patrol boats. four frigates were being obtained from the Dutch Navy.

Colonel Gerard Latour of France spoke of the shifting defence posture from the defence of national territory and the NATO Alliance to a force projection capability outside French borders in joint operations and ad hoc coalitions. France would preserve its nuclear deterrent, which was the heart of national defence, and retain its influence in alliances. The French Navy had been reduced in personnel to 56,000 and there was much emphasis on reducing ships' crews, while multi-crewing in submarines. A second aircraft carrier, either a sister-ship to CHARLES DE GAULLE or a copy of the British designed vessel would be built. The fourth ICBM submarine with the new M51 missiles would be in service in 2010. Naval long-range cruise missiles would be fitted in frigates and submarines. CHARLES DE GAULLE had operated off Afghanistan successfully for seven months and had also done a six month deployment in the Indian Ocean.

A new amphibious group was being formed based on the LHDs TONNERE and MISTRALE. Six new nuclear attack submarines of the Barracuda Class, 17 new frigates, four Horizon Class DDGs, 24 Fast Coastal Patrol Boats and new helicopters and missile systems would be coming into service over the next eight years.

Captain Richard Town MSM CD reported that the Royal Canadian Navy had increased its tempo in recent times and had already provided 17 deployments to the Gulf. Personnel strength was now down to 8,500 men and women.



A computer generated image of an Australianised version of the German Navy's F-124 frigate. Rather than having the European APAR system and 76mm gun, this version has a SPY-1 radar and a 127mm gun. This version of the F-124 is a contender for the RAN's SEA4000 contract and was displayed in model form at the Maritime exhibition.

The Commander of the US Third Fleet Vice-Admiral Michael J McCabe USN spoke on the changing maritime scene with terrorism likely to move into the littoral areas where 70% of the world's population lived and there were 4,000 ports requiring security.

The US Defence forces faced major financial problems trying to cope with requirements on only 2.9% of GDP. Some 65% of the Navy budget went on salaries and there was an urgent need to replace aged equipment.

Deployment patterns have now changed and the USN had developed a faster response to crises with a better logistic support system. Six Carrier Battle Groups can now be deployed anywhere within 30 days, with two more Carrier Battle Groups available soon afterwards.

There was now a tighter connection between the USN, the US Coastguard, and the US Marine Corps, and interoperability with other agencies had improved.

Rear Admiral Peter McHaffie OBE RNZN, the Chief of the New Zealand Naval Staff stated that the vision of the RNZN was to be the best small Navy in the world.

There were developing roles in the Defence of New Zealand territory: control of the EEZ; Resources, and in the Southern Ocean. The RNZN had a considerable acquisition programme including a Multi-Role Vessel and offshore and inshore patrol boats.

Vice Admiral Louis Dubessy de Contenson, the French C-in-C for the Pacific stated that France now had a balanced Oceanic Navy. Two Battle Groups had recently been deployed to the Ivory Coast and in the Indian Ocean. Four new amphibious ships would be available by 2006.

Deterrence and power projection were at the heart of national defence strategy. New ballistic missiles and aircraft were coming into service.

The French Navy faced big personnel problems in the change from having 18,000 conscripts two years ago to becoming a fully professional Navy with a reduction in personnel while adapting to the requirements of the youth of today.

The Vice-Chief of the Australian Defence Force, Vice-Admiral Russ Shalders, outlined two key challenges for Australia for the future – the development of a capable Force Structure, and people. There was a balancing act between current and future capabilities. Australia was spending $16 billion this year on defence, 75% of which went to maintaining the current force. The question was 'is the balance correct?'

In the next 10 years the RAN would upgrade frigates and submarines while introducing new support and amphibious vessels. The personnel problem was improving with better recruiting and retention rates.

The Australian Chief of Navy, Vice-Admiral Chris Ritchie, summed up the Conference and announced the probable theme of the 2006 Conference as 'The emerging maritime security environment, threats old and new'.

THE INTERNATIONAL MARITIME CONFERENCE

This Conference chaired by Mr John Jeremy of the Royal Institution of Naval Architects, featured the delivery of no less than 82 papers involving a huge range of maritime subjects and delivered by speakers from many countries including the USA, UK, Australia, Russia, Chile, Japan, Korea, Finland and Poland.

Subjects covered included naval and commercial designs; high speed and wing in ground effect craft; marine propulsion systems; combat systems; shipbuilding; automation; port expansion and cargo handling and environmental matters and systems; modern navigation methods; safety and security in ships and ports; research and design problems; and ship structure matters.

Included were items on the UK aircraft carrier; the first Russian passenger *EKRANOPLAN*; a 90 Knot Zero wash ferry; the Australian Coastal Minehunters; and the Custom Service Bay Class Patrol Boats.

An interesting presentation on the High Speed Vessel WESTPAC EXPRESS (built by Austral of WA) was given by Mr G Taylor (of Taylortech) and Mr J Black. The vessel is run by the US Coastguard to the requirements of the US Marines and is based in Naha, Okinawa. Initially WESTPAC EXPRESS was Panamanian flagged but is now registered under the US flag. It has a crew of 13, the engine room being unmanned.

She carries up to 970 marines on routes of 500 to 3,000 nautical miles and apparently has been a considerable success, her speed and sea-keeping enabling avoidance of typhoons on several occasions.

Mr Kim Gillis of Austral stated that there were now many patrol boats under construction at Austral including boats for the Customs Dept; 12 Armidale Patrol Boats for the RAN; three for the Coastguard of Kuwait; and 10 for the Yemen Navy. The first of the Armidales will be delivered in 2005.

The USN had invited Austral to nominate for their Littoral Combat Ship, 60 of which are planned to be built. This vessel is required to be fast, manoeuvrable, and capable of ASW, anti small-boats, mine counter measures, intelligence and intercept tasks, logistic support, special forces operations and the screening of battle-groups. A speed of up to 50 knots for a range of 4200 nm and a loiter range of 10,000 nm was needed.

Austral is at present building a 126 metre, 50 knot cargo/passenger aluminum trimaran ferry for Fred Olson Ltd to operate in the Canary Islands and due for trials in September 2005, this creating interest as a possible basic design for the USN requirement.

Issues of converting a commercial Fast Ferry for military use was covered by Mr T Roberts and Mr G Davidson of INCAT, Tasmania.

This firm converted HMAS JERVIS BAY for fast transport duties in the East Timor operation. Subsequently it provided three vessels for the US Forces – the HSVX JOINT VENTURE; the 96 metre TSVX1 SPEARHEAD for the US Army; and the 98 metre HSV2 SWIFT for the US Navy. The JERVIS BAY and SPEARHEAD conversions took six weeks and the SWIFT six months as that vessel had been only partly built when conversion was ordered.

Conversion of the SWIFT included, to US standards, the building of a helo deck and hangar to take AH-1, UH-1, CH-46 and SH-60 helicopters, non-slip skid decks, 30 tonne crane lift on two hooks, stealth and weight minimisation, military tyre and axle loads for many types of military vehicles (including 65 Ton Abrams tanks, bulldozers etc), folding shore ramps, extra fuel tanks, guns, special requirements for RHIBs, MCM equipment, USVs, UUVs etc., accommodation, air-conditioning and extensive communications, radar, etc. These additions reduced the carrying capacity but displacement and speed were kept constant. JOINT VENTURE and SPEARHEAD operated most successful in the war in Iraq.

Clearly the extensive conversion of these vessels in such a short time span was a great achievement by INCAT

An interesting presentation on High Speed Open Ocean Hovercraft and Surface Effect Craft was given by Mr M Fane of Australian Hovercraft. The *LADY BURNIE* could carry five passengers at up to 70 knots over a maximum range of 3000 nm. The vessel gave a very calm ride with no list and no reported sea sickness. It had been tested passing over people in the water, with no danger to them! Vessels carrying up to 45 passengers were being designed and a radical new design of a 17 metre hovercraft with a wing and carrying 45 passengers at low level was also under design.

A family of fast naval ships was the subject covered by Messrs D Bricknell and A Tate of Rolls-Royce Ltd. This included interesting concepts of a 177 metre fast naval sea lift vessel, water-jet propelled, of 4,000 DWT and capable of 40 knots; a fast logistics vessel with a speed of up to 80 knots; and a fast surface combattant based on ferry designs, with a speed up to 80 knots.

THE PACIFIC INTERNATIONAL MARITIME EXPOSITION

Great was the interest in the many displays of hardware and concepts in the Exposition. The huge range included missile, gun, radar, and combat systems, aircraft and ship models, boats, electronic charging and navigation, machinery, and many maritime associated equipments and organisations.

Of some interest was the excellent display of ship models by the Spanish shipbuilder IZAR. This included one of the projected LHD now under design to enter service with the Spanish Navy about 2008. This 231 metre, 26,800 tonne displacement amphibious vessel with a crew of 243 plus 172 air personnel and 103 staff, is designed to carry 902 troops with their equipment, tanks, vehicles, etc. at a maximum speed of 20 knots. She will have a stern dock for landing craft, two lifts, and a ski-jump and carry helicopters and the STOVL version of the Joint Strike Fighter. Her range will be 9,000 nm at 15 knots, and most machinery, sensors etc. will be of US design.

While noting the great distances in our area and the ASW and general defence advantages of slow speed, a speed of 20 knots may be rather low, other characteristics may make this design a contender for Australia's projected amphibious ships.

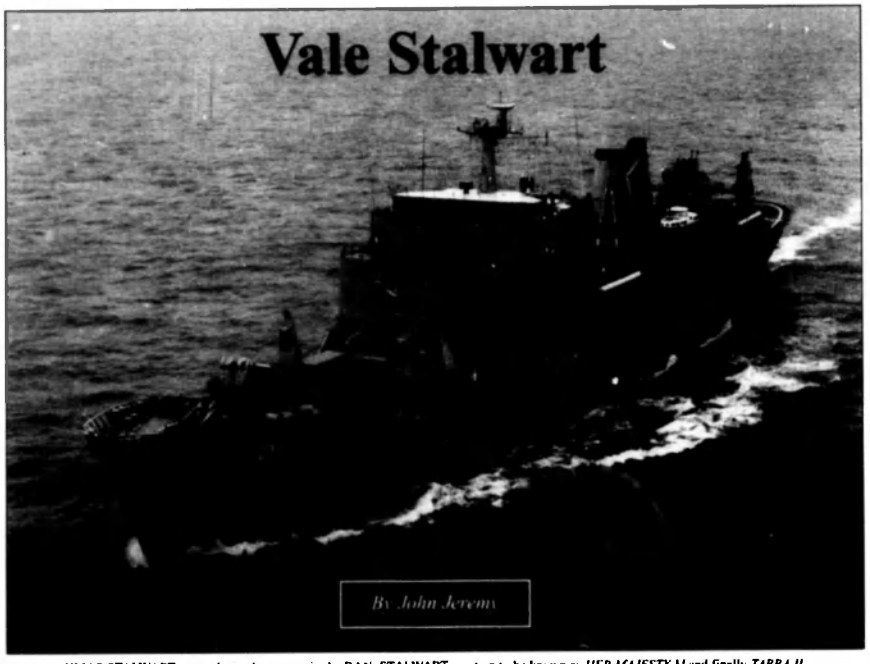
CONCLUSION

This event is now the most comprehensive and important maritime congress staged in the Southern Hemisphere.

Each of the well-run Pacific series of conferences and trade shows, initiated with far-sighted vision some years ago, draws growing international interest and projects Australia in its true maritime role at the junction of three great oceans as an innovative, friendly and advanced nation of growing stature.

Vale Stalwart

By John Jeremy



HMAS STALWART at s a during her career in the RAN. STALWART went on to be known as *HER MAJESTY M* and finally *TARRA II*. She was recently broken up in India. (RAN)

On 19 February 2003, the passenger ship *TARA II* arrived at the shipbreakers at Alang in India. This final arrival marked the end of the career of a ship that remains the largest naval vessel yet fully designed and constructed in Australia.

In September 1963, Cockatoo Dockyard in Sydney received an order to construct an Escort Maintenance Ship for the Royal Australian Navy at an estimated cost of £5.3 million. Designed in Navy Office in Australia, the new ship was intended to serve as a floating workshop and advance-base for the support and repair of the destroyers and frigates of the RAN. This support could be provided in operational areas which, in the 1960s, tended to be at considerable distances from established bases and dockyards in south-eastern Australia. The ship was also to be fitted with the capability to supply and repair the new weapons then entering service in the RAN, the Tartar and Seacat anti-aircraft missiles and the ASW Ikara missile.

In addition to construction, Cockatoo Dockyard was responsible for much of the detailed design and working drawings. The keel for Ship 221 was laid on No 1 slipway at Cockatoo Island on 23 June 1964. Built to commercial standards the ship's hull was mostly welded, although the frames were riveted to the shell. Ship 221 was named STALWART and launched by Lady Casey, the wife of the Governor General, on Friday 7 October 1966.

The new STALWART was the second ship of the name in the RAN, the first being a 1,095 tonne destroyer presented to Australia by Britain with four sister ships in 1919. Commissioned in 1920, STALWART (1) was paid off and laid up in 1925. She was sold for scrap in June 1937 and her stripped hull was subsequently sunk off the coast near Sydney, complete with a load of rotten onions that subsequently floated ashore to pollute Bondi beach.

Fitting out of the new STALWART continued during 1967 with contractor's sea trials off Sydney between 27 November and 4 December 1967. She was handed over to the RAN at sea on 8 February 1968, and commissioned the following day under the command of Captain G. V. Gladstone DSC RAN.

The building on Slipway 1 of Ship 221 in June 1966. The destroyer escort TORRENS is building alongside her on slipway 2. (Cockatoo Dockyard photo, J. C Jeremy collection)

The launch of the escort maintenance ship STALWART in October 1966. STALWART remains the largest naval vessel designed and constructed in Australia. She had an air-conditioning system, spacious cabins and a sewage treatment plant which made her attractive for sale as a cruise ship after her RAN career. (RAN)

Reclassified as a destroyer tender, STALWART had a standard displacement of 10,690 tonnes and a full load displacement of about 15,250 tonnes. She was 156.21 metres long overall, with a beam of 20.45 metres and a depth of 11.8 metres. Main propulsion comprised two Scott Sulzer 6RD68 direct-drive diesel engines with two 4.54 m fixed-pitch propellers. Her designed maximum speed was 20 knots. Air-conditioned accommodation, spacious and comfortable by the standards of the day, was provided for a ship's company of 395 officers and men. STALWART was the first ship in the RAN to be fitted with a sewage treatment plant.

The ship was fitted with a large flight deck and a hangar to accommodate a Wessex or, later, a Sea King helicopter.

As completed, STALWART had an armament of two Bofors 40/60 Mk 5 mountings, and was fitted for, but not with, two launchers for the Seacat short-range anti-aircraft guided missile on No. 04 deck forward of the bridge. During construction, fitting out of the intended facilities for the storage and maintenance of guided missiles was deferred, and later abandoned. This resulted in some large void spaces forward on No 2 and 3 decks and a significant compensating quantity of solid ballast.

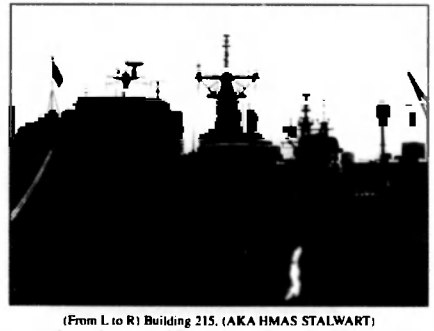
Despite these changes, the capability of the new ship was impressive. She could provide steam (provided by a boiler built during World War II and originally to be fitted in a cancelled River-class frigate), electric power, fresh water, compressed air, telephone and tank-cleaning and boiler-cleaning services. A hospital with operating theatre and dental surgery was fitted. Workshops included a smithery, plate, coppersmiths and plumbers shop; a torpedo workshop; sailmaker and life-raft repair shop; a large and capable machine shop; a weapon (power) workshop; sonar dome storage; wood-working shop and a drone target workshop. Electronic and electrical facilities included a weapon/radio electronic maintenance workshop; an electrical workshop; radar maintenance shop; RATT repair facilities and gyro and instrument repair facilities. She carried spares for attended ships and technical information and drawings for ships in her care. She even had a chapel which also served as a conference room.

Like so many ships of the RAN, STALWART carried out many tasks, not all of which were intended when she was designed. In addition to providing support to the guided missile destroyers PERTH, HOBART and BRISBANE, and the River-class destroyer escorts, STALWART mothered minesweepers and later the guided missile frigates. She became flagship of the Royal Australian Navy and participated in many exercises in Australian waters and the western Pacific. Her excellent facilities proved a major asset in the aftermath of Cyclone Tracy in Darwin in 1974, when she assisted the devastated city in company with other ships of the RAN. December 1985 saw her chartered by the Australian Antarctic Division to resupply Macquarie Island when the usual supply ship *NELLA DAN* was beset by ice in waters further south.

HMAS STALWART spent much of her time secured stern-to the eastern shore of Garden Island Dockyard as she fulfilled her role in support of the ships of the fleet. This regular presence earned her the nickname of Building 215 (after her pennant number), a sobriquet that did not do justice to her considerable capability and adaptability to the various tasks she was called upon to undertake.

By the 1980s some of the original justification for the destroyer tender no longer existed. The establishment of a major base in the west at HMAS STIRLING and improved support facilities in northern Australia, particularly in Cairns and Darwin reduced the need for such mobile facilities in Australian waters. Recent RAN deployments have shown however that a capability like that of STALWART can be immensely useful, and it is interesting to speculate how she might be used today. We can expect to see a good deal of her capability incorporated in the new ships planned to replace HMA ships TOBRUK, KANIMBLA and MANOORA.

HMAS STALWART was paid off in Sydney on 9 March 1990. On 3 May 1990 she was sold and shortly thereafter sailed to Greece to begin a new career as a Mediterranean passenger ferry. Re-named *HER MAJESTY M*, she was operated by Marlines SA in services between Greece, Italy, Turkey and France. She was renamed *TARA II* in 1999.



(From L to R) Building 215, (AKA HMAS STALWART) as she was known, providing services to HMAS CANBERRA and PARRAMATTA (J.C Jeremy)

HATCH, MATCH & DISPATCH

Hatch

NUSHIP PERTH

Australia's $7 billion (current prices) investment in the 17-year Anzac class frigate project has reached an important milestone with the launch of the 10th and final ship.

NUSHIP PERTH was launched at Tenix's Williamstown shipyard in Victoria on 20 March 2004 by Margaret Gee, daughter of the late Able Seaman First Class Allan Gee who survived the sinking of HMAS PERTH I.

Minister for Defence Senator Robert Hill who attended the launch said at a press conference after, "I want to take the opportunity to congratulate Tenix and all of the subcontractors, the employees. This has been a fantastic project and it's another great day today to see the last of the series - the Anzac series - launched. The project's been delivered on time, on budget and on capability. So it's a real credit to all who have made that ... all who are responsible for those achievements. And I think it demonstrates what Australian industry can do in this highly sophisticated area."

Senator Hill went on to say that PERTH would be equipped with the latest communication, navigation and fire control systems when it is delivered in June 2006.

PERTH will be capable of firing the ESSM (Evolved Sea Sparrow Missile) from its 8-cell MK-41 VLS (Vertical Launching System) and will be armed with a Mk-45 Mod 2 127mm (five-inch) gun. PERTH will have an upgraded Combat Management System - the first ship of its class to have this system fitted.

The idea for the Anzacs was first raised by the 1986 Dibb Review, which, in the most part, was turned into the 1987 Defence White Paper. In that document a call was made for eight Tier 2 frigates that would have long endurance but conduct most of their duties within fighter range of a friendly airbase, thus not needing an extensive weapons array. The FFGs would form the first tier in this Fortress Australia model. Two ships were short-listed, the German MEKO 200 and the Dutch M class with the MEKO being successful.

Following the formula set out in the White Paper of Tier 2 ships operating under fighter cover the philosophy of "fitted for but not with" was formed, although this was later modified to "space and weight provided for but not fitted for". This philosophy also saved money. However, since the launch of the first Anzac class frigate ships of the class have operated in the Southern Ocean on fisheries patrols, the Persian Gulf enforcing UN sanctions and even provided gunfire support to Royal Marines during 'Operation Iraqi Freedom', basically not what they were envisaged for.

The class are due to get a weapons upgrade in the near future to alleviate their lack of real combat capability. The upgrade will consist of a second fire control channel, Harpoon Block II missiles, a second anti-aircraft/missile point defence system, mine avoidance sonar, towed sonar array and the Super Seasprite helicopter with the Penguin IR guided anti-ship missile.

Ten ships in total have been built in Australia from a planned/hoped 12 as new Zealand failed to take up the offer of another two frigates. They stand as a shining example of Australian planning, construction and ingenuity. Lets hope that the skills that have been learnt building these fine ships can be harnessed and not lost so as future warships built in Australia can have a magnificent start at life.

NUSHIP PERTH slides into the water from Tenix's Williamstown shipyard for the first time. PERTH is the last of the 10 Anzacs to be built in Australia. (Kevin Dunn, FLEETLINE)

PRODUCT REVIEW

FAR HORIZON

By Tony Park
Pan Macmillan Australia
RRP: $30.00
Reviewed by James Rickards

First time author Tony Park's *Far Horizon* is an entertaining action adventure novel set in the wilds of Africa.

Featuring a soldier's quest to avenge the death of his girlfriend at the hands of ruthless poachers, Park's story opens in the heart of Mozambique, with leading man Australian Army Major Mike Williams clearing landmines for the UN and considering retirement.

Within pages, the slaughter of an African village and a violent gun battle tear Mike's world apart. The story then skips ahead two years, to find Mike has quit the Army and is driving an Overland tour bus through the sites of South Africa, entertaining backpackers and living a low-key existence after his staggering loss.

When he receives news of the return of the big-game hunters responsible for his lover's death, Mike uses his military training and Overland identity to track the killers and exact his revenge.

Using short staccato sentences to cut between characters at a rapid pace, Park handles his story's action sequences with verve, playing his scenes with effective pacing, and making the most of his chance encounters and near-miss experiences between heroes and villains.

Park also draws upon his own life and military experiences serving as an Australian Army Officer in Afghanistan during the recent War on Terror campaign, to make his hero a believable multi-dimensional character who is just as flawed as he is heroic.

The author's obvious adoration for the people and animals of Africa also adds significant authenticity to his hero's journey, instilling his novel with local knowledge acquired through years spent travelling and learning the culture, history and customs of the African continent.

Yet it is during the evenly paced hunting scenes where Park defines himself as an author to watch. His sense of timing is excellent, slowly building the tension of the hunt and bringing the reader into the violent single-shot world of the professional game hunter.

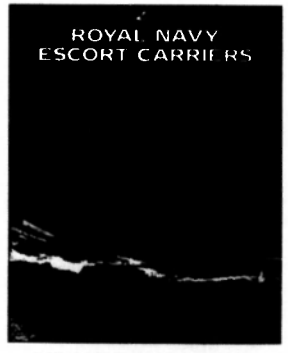
While many of his second tier characters sadly fall into the background and at times are indistinguishable from one another, Park maintains a clear understanding of his heroes' and villains' motivations, giving them credible histories and engaging back stories.

As a first time novel, *Far Horizon* has broad appeal to Africa enthusiasts, readers of the adventure genre and those demanding a story featuring a respectful representation of the Australian Army Officer.

At times simultaneously entertaining, sexy and violent, *Far Horizon* is an excellent debut. Let's see where Park can take us next.

ROYAL NAVY ESCORT CARRIERS

By CDR David Hobbs MBE RN (Rtd)
Maritime Books, UK
ISBN 090777199-8
www.navybooks.com
Also available from the Australian National Maritime Museum in Sydney
Reviewed by Lionel Hutz



ROYAL NAVY ESCORT CARRIERS by CDR David Hobbs, Navy League of Australia member, writer for ***THE NAVY*** and current Curator of the RN Fleet Air Arm Museum at Yeovilton in the UK, is a fascinating look at the most successful weapon system of WWII, those that were in RN hands.

In the autumn of 1940 Winston Churchill announced his Battle of the Atlantic directive. In this he gave top priority to the defeat of the U-Boats and a series of important decisions and announcements followed. The need to fill the mid-Atlantic gap (the area that land based aircraft could not cover due to range from airbases) was crucial. With necessity being the mother of invention the escort carrier evolved. The escort carrier was a large merchant ship modified to resemble a conventional aircraft carrier but with only rudimentary flight deck, arrestor wires and servicing facilities.

The arrival of the first escort carrier into the Battle of the Atlantic was so poignant that the German U-Boat head, Admiral Karl Donitz commented in his diary "Small fast aircraft circled the convoy continuously, so that when they were sighted, U-Boats were repeatedly forced to submerge or withdraw. The presence of the enemy aircraft prevented any protracted shadowing or homing by German aircraft. The sinking of the aircraft carrier is therefore, of particular importance in every future convoy action".

Apart from convoy escort duties these small carriers also engaged in combat operations against ships and land targets. But for the most part were relegated to ferrying aircraft (up to 90 aircraft at a time could be transported in the latter designs) as well as training platforms to relive the training burden on the larger and more important fleet carriers.

A few of the escort carriers covered in David's book actually made it to Australia with images of the ships in Australian ports contained in the book.

David's book goes into the history of each the RN's escort carriers, from build to disposal, with at least two images per carrier. While the information contained in the book is extremely valuable it is a bit short, due to the number of carriers covered, but will provide clues to further areas of research. Anyone needing a reference guide to these flexible workhorses cannot go past this 232 page hard cover book which we highly recommend.

TEARS OF THE SUN

DVD
Dist: Columbia TriStar
Reviewed by James Rickards

Starring action stalwart Bruce Willis as a hardened Navy SEAL confronted by the savagery of racial cleansing along the border of Nigeria, *Tears of the Sun* is a confronting mix of mainstream Hollywood action and damning social commentary.

While often suffering from its didactic storytelling style, the film is nonetheless a reasonably credible attempt at portraying the suffering of African villagers plagued by rebel militants.

When Willis' character finds his social conscience during a mission to extract a foreign doctor from an African village, he defies his superiors and attempts to lead the doctor and her villagers to the country's border, instead of leaving them behind to fend for themselves.

His decision has significant ramifications not only for his own SEALs team but also for the doctor, ably portrayed by Italian screen siren Monica Belluci, and the local villagers who must learn to start fighting for their freedom.

Tears of the Sun works hard to find a balance between embracing its Hollywood shine while simultaneously taking the opportunity to contribute to a growing call for world powers to take a more proactive role in assisting countries afflicted by militant rule.

Featuring an excellent transfer and successful use of surround sound, *Tears of the Sun* on DVD looks and sounds great. The DVD also provides a making of documentary, an interesting walkthrough map of the film's setting and several trailers.

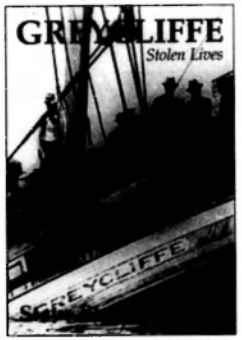
In an attempt to answer many of his critics' views on the lack of subtlety in the film's storytelling, the DVD also features an excellent commentary track from director Antoine Fuqua. Throughout the commentary Fuqua takes considerable time to explain why he chose the film and is unapologetic for its glaringly preachy moments.

While *Tears of the Sun* often struggles under its own weighty subject matter, it is extremely well made, entertaining and occasionally highly engaging. It is also good to see Bruce Willis back in the saddle and taking a significant step towards reclaiming his former glory as the all-American hero.

He's obviously taken his own character's advise and decided to "cowboy up."

GREYCLIFFE: Stolen Lives

By Steve Brew
Published by Navarine Publishing
Limited First Edition 2003
211 pages
Orders to:
PO Box 1275, Widen ACT 2606
telephone: (02) 6282-4602,
or e-mail: jgbroxam@bigpond.com
Reviewed by Mr Max Hansen



The third of November 1927 was a beautiful day to be on Sydney Harbour. A 16 year old ferry by the name of *GREYCLIFFE* was making its regular 4:14pm run from Circular Quay to Watsons Bay. Aboard were schoolchildren, naval officers, business-men, doctors, families on holiday and dockyard workers – a neat cross-section of Sydney society – all enjoying the idyllic Sydney afternoon. But it would only be a matter of minutes before "the water was alive with dozens of bobbing heads, spluttering and screaming, hands groping for anything to keep them above water...surrounded by what moments ago was a perfectly stable Sydney ferry."

Sydney was rocked by the news that the ferry *GREYCLIFFE* had been run down and sunk by the trans-Pacific Royal Mail Steamship *TAHITI*. Forty or so of *GREYCLIFFE's* passengers were dead or missing. Onlookers lined the waterfront. Vessels of all sizes rushed to the scene to assist. Whilst losses were relatively small in comparison to some of the more infamous maritime disasters in history, Sydneysiders were profoundly stunned by the tragedy. It seemed so sudden, so random, so terribly violent, and so much like it could have been any of them.

The *TAHITI-GREYCLIFFE* collision remains the deadliest shipping accident to have occurred on Sydney Harbour. Steve Brew has managed to combine his interests in modern history and genealogy to produce a book on the subject that focuses on the individuals whose lives were touched by the tragedy, from those who survived to those who did not, as well as the events surrounding the accident. In my opinion, I found that in doing so Brew manages to make the story more compelling. Far from being a cold technical analysis of a collision between two vessels, this is actually a quite moving human story. It is easy to understand the universal sadness that descended upon Sydney in the aftermath.

Brew has done a very good job indeed with this book. It is well written, thoroughly researched, and well illustrated with period photographs and drawings (many never before published). In fact I found the period photographs of Sydney fascinating. Aerial views of Circular Quay and Garden Island, the old passenger terminals in Darling Harbour, and *TAHITI* passing beneath an unfinished Harbour Bridge are but a few. Overall, the book is a very high quality production for a limited publication run.

Who would I recommend this book to? I'd say amateur historians, anyone with an interest in Australia's maritime history, or anyone with an interest in Sydney's past would find much of interest in this publication. Of course, relatives of those affected by the tragedy are also part of Brew's intended audience.

GREYCLIFFE: Stolen Lives stands as the definitive account of this sad little episode in Sydney's history and is well worth a look.

BUFFALO SOLDIERS:

DVD
Dist: Roadshow Entertainment
Reviewed by James Rickards

As an antidote to the US flag-waving, chest-beating patriotic action films of recent years, *Buffalo Soldiers* is a darkly intelligent and often highly entertaining showcase of the reckless underbelly of the US military during peacetime.

Set on a US base in Germany 1989, Australian director Gregor Jordan's subversive take on the life of bored troops surrounded by too much temptation is likely to divide its audience.

Having been delayed from theatres following the events of September 11 and the Iraq war, *Buffalo Soldiers* is not necessarily an attack on the US military, but more an examination of what life may be like for many of its less committed and easily distracted troops.

Featuring a solid cast of A-list character actors including Joaquin Phoenix, Ed Harris, Scott Glenn and Anna Paquin, the film is driven by a quirky sense of humour and walks a fine line between farce and satire.

Telling the tale of a bored Battalion Secretary's (Phoenix) fall from grace as his black market activities bring him to the attention of a vile superior officer desperate to clean up his base, we witness a battle of wills and dirty deeds from both sides as one man tries to break the other.

Aside from a wayward tank crashing through a German town and the use of a Mercedes-Benz for some entertaining target practice, there are few flashy moments throughout the film to distract our attention from the very human weaknesses of the story's characters.

Now available on DVD, this is a side of the US military we rarely have an opportunity to see and should be engaging viewing for those looking to hear the stories of the not-so-brave or true.

Boldly showing what happens when too many soldiers with too much opportunity take advantage of an inept administration, *Buffalo Soldiers* is a solidly produced black comedy with moments of real insight.

STATEMENT of POLICY

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.
- 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.
- 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 modern Air Force and highly mobile Army, capable of littoral and jungle warfare as well as the defence of Northern Australia.
- Supports 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.
- Endorses the transfer of responsibility for the co-ordination of 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 the Southern Ocean.
- 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:

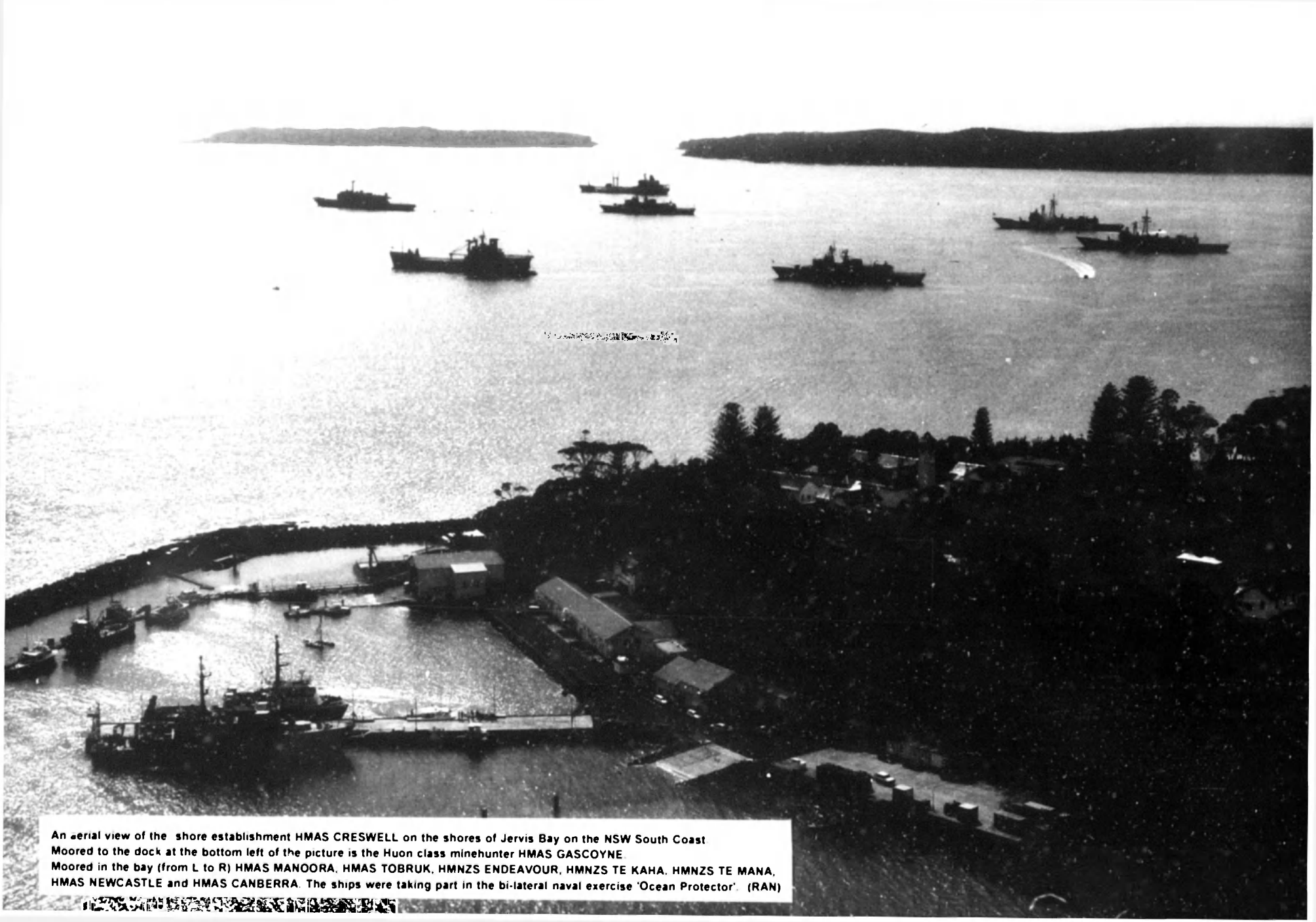
- Supports the concept of a Navy capable of effective action off both East and West coasts simultaneously and advocates a gradual build up of the Fleet to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.
- Is concerned that the offensive and defensive capability of the RAN has decreased markedly in recent decades and that with the paying-off of the DDGs, the Fleet will lack air defence and have a reduced capability for support of ground forces.
- Advocates the very early acquisition of the new destroyers as foreshadowed in the Defence White Paper 2.
- Advocates the acquisition of long-range precision weapons to increase the present limited power projection, support and deterrent capability of the RAN.
- Advocates the acquisition of unmanned surveillance aircraft such as the GLOBAL HAWK primarily for offshore surveillance.
- Advocates the acquisition of sufficient Australian-built afloat support ships to support two naval task forces with such ships having design flexibility and commonality of build.
- 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 be examined with a view to selecting the most advantageous operationally.
- Advocates the acquisition of an additional 2 or 3 updated Collins class submarines.
- Supports the maintenance and continuing development of the mine-countermeasures force and a modern hydrographic/oceanographic capability.
- Supports the maintenance of an enlarged, flexible patrol boat fleet capable of operating in severe sea states.
- 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 Australian Navy 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 amphibious assault ships of Commander, Task Force Fifty One (CTF-51) come together in an unprecedented formation during operations in the North Arabian Gulf. This marked the first time that six large deck amphibious ships from the East and West coasts of the US have deployed together in one area of operation. Led by the flag ship USS TARAWA (LHA-1), the ships are (from left to right) USS BONHOMME RICHARD (LHD-6), USS KEARSARGE (LHD-3), USS BATAAN (LHD-5), USS SAIPAN (LHA-2), and USS BOXER (LHD-4). CTF-51 led Navy amphibious forces in the Arabian Gulf region during Operation Iraqi Freedom. The 32 ships of CTF-51 composed the largest amphibious force assembled since the Inchon landing, during the Korean War. (USN)



An aerial view of the shore establishment HMAS CRESWELL on the shores of Jervis Bay on the NSW South Coast.
Moored to the dock at the bottom left of the picture is the Huon class minehunter HMAS GASCOYNE.
Moored in the bay (from L to R) HMAS MANOORA, HMAS TOBRUK, HMNZS ENDEAVOUR, HMNZS TE KAHA, HMNZS TE MANA, HMAS NEWCASTLE and HMAS CANBERRA. The ships were taking part in the bi-lateral naval exercise 'Ocean Protector'. (RAN)