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VOL 73 No1

THE NAVY

THE MAGAZINE OF THE NAVY LEAGUE OF AUSTRALIA

UK DEFENCE CUTS

THE RAJPUT CLASS DESTROYER

2010 CRESWELL ORATION

THE RAN: FOUNDATIONS FOR THE FUTURE

ORGANIC AIR DEFENCE & STRIKE CAPABILITY FOR NAVY

LE TRIOMPHANT WW II SUPER DESTROYER

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THE MAGAZINE OF THE NAVY LEAGUE OF AUSTRALIA

Front cover:
The Rajput (Kashin II) Class Destroyer INS RANVIR. (USN)

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THE UK SDSR AND JP 2048 PHASE 4C – A GOLDEN OPPORTUNITY

On 19 October the British Government tabled it's much dreaded Strategic Defence and Security Review (SDSR). Given the incredible financial debt left to the new Government by the outgoing Labour Government under Gordon Brown, deep and devastating cuts to Britain's defence forces were expected. As you will see the paper certainly delivered, but there is potential for Australia to reap benefit from the Review.

As background, both the UK's Conservative Party and the Liberal Democrats committed to undertaking a strategic defence review should they form the next Government. Both parties had openly criticised the length of time that had passed since the Strategic Defence Review in 1998, particularly the implications of that delay for the robustness of the foreign policy baseline against which the defence planning assumptions had been established; the pressure on existing force structures and equipment requirements; and the ability to keep Service personnel within established harmony guidelines. The need to address a potential shortfall in the UK Ministry of Defence's (MOD) budget of approximately £37bn over the next 10 years amid severe financial constraints on government spending, merely added fuel to Conservative and Liberal Democrat calls for a radical re-evaluation of the UK's defence and foreign policies.

For the Royal Navy the "radical re-evaluation" included the following:

1. The RN flagship aircraft carrier HMS ARK ROYAL will be decommissioned "almost immediately" rather than in 2014. The Joint Force Harrier GR9 aircraft will be withdrawn and retired during 2011. Both of these measures are designed to save money for the purchase of the Queen Elizabeth class aircraft carriers.
2. One of the Albion class landing platform dock (LPD) will be placed at extended readiness.
3. Either HMS OCEAN or HMS ILLUSTRIOUS will be decommissioned, whichever is least capable as a helicopter carrier.
4. One of the Bay class landing ship dock (LSD) would be decommissioned.
5. Replacement of the UK's nuclear deterrent based on RN Vanguard class submarines (SSBNs) will be delayed by four years, deferring £500 million in spending. Changes to the numbers of the missile tubes will save £250 million.
6. Seven Astute class SSN submarines will be built as previously planned.
7. The surface fleet of frigates and destroyers will be reduced to 19 ships comprising the current 13 Type 23 frigates, three active Type 45 destroyers and three Type 45 destroyers currently under construction with all remaining Type 22 frigates and Type 42 destroyers disposed of. "As soon as possible after 2020" the 13 Type 23 frigates will be replaced by new Type 26 frigates.
8. The strength of the RN will be reduced by 5,000 (to a total of about 30,000).
9. The RAF's future fast jet fleet will be based on the Typhoon and the F-35 Lightning II. The latter, which will also be flown by the Royal Navy, will be the more capable and cheaper Naval F-35C version. The UK had originally planned to buy the F-35B, a Short Take Off and Vertical Landing aircraft. The review said "F-35C has longer range, greater payload capability with the MOD envisaging life-cycle costs to be 25% cheaper than the STOVL F-35B".

Of note for Australia is the plan to decommission a new Bay class LSD (note 4). It just so happens that Defence's Joint Project 2048 Phase 4C is designed to acquire a ship exactly like an RN Bay class LSD. In fact, much of the study work on the requirements for a new LSD for Phase 4C to date has been based on the Bay class.

On this topic the 2009 Defence White Paper said

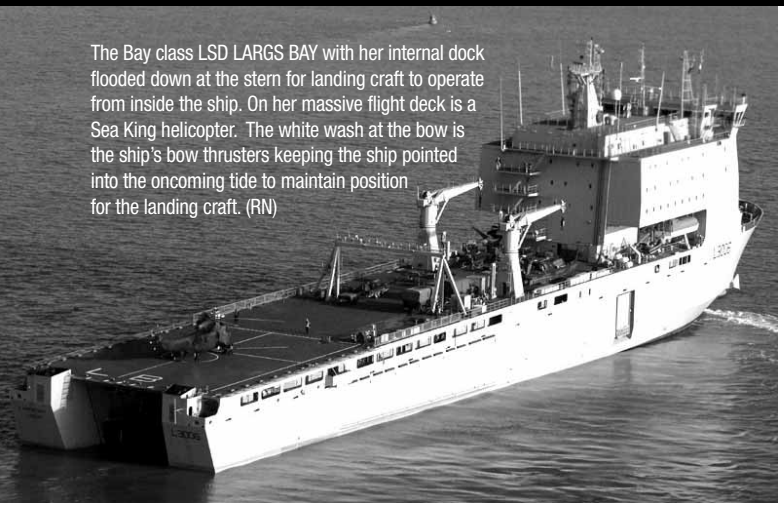
"(Para 9.24) The Government has decided to ...acquire a large strategic sealift ship to move stores, equipment and personnel. Based on a proven design, the new ship will have a displacement of 10,000 - 15,000 tonnes, with landing spots for a number of helicopters and an ability to land vehicles and other cargo without requiring port infrastructure. The new ship will provide ongoing sustainment support for deployed forces, allowing the LHD ships to remain in areas of operations in direct support of the land force ashore."

The Bay class are based on the Royal Schelde Enforcer design, similar to Dutch HNLMS ROTTERDAM (L800) and Spanish SPS GALICIA (L51) LPDs. They were at first classified as Alternative Landing Ship Logistics (ALSL), to replace the Round Table class Landing Ship (Logistics). However, they have been reclassified as Landing Ship Dock (Auxiliary) (LSD(A)), as they developed into a form very much more like a USN LSD, with a large flight deck aft and a floodable docking well in the stern capable of operating a British LCU Mk 10, or Spanish LCM-1E that is being acquired for the Canberra class LHDs. The large flight deck can accommodate two Sea King or Chinook helicopters. The military lift includes the capacity to load and transport up to 32 main battle tanks like the Army's M-1A1 Abrams tanks, or 150 light trucks. The Bay class can carry a normal load of 356 troops, or 500 in overload mode. They are designed to operate over the horizon using helicopters and landing craft, to get men and equipment ashore.

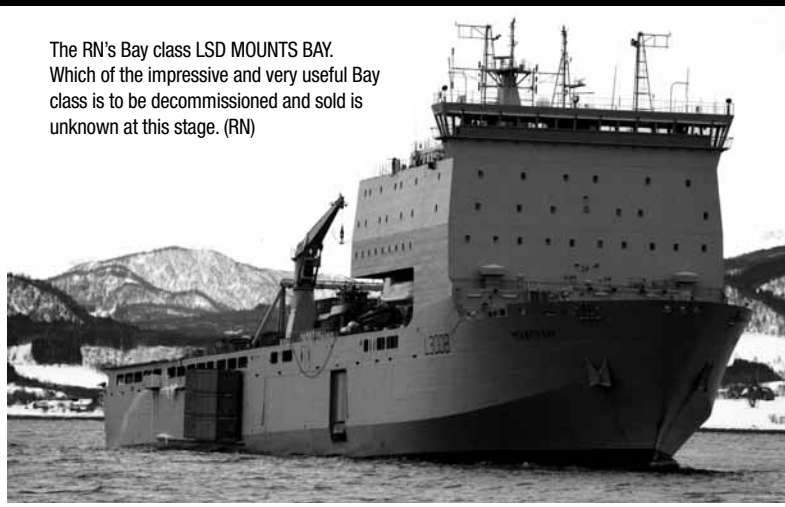
THE BAY CLASS

RN BAY CLASS GENERAL CHARACTERISTICS

LARGS BAY	28 Nov 2006
LYME BAY	26 Nov 2007
MOUNTS BAY	13 Jul 2006
CARDIGAN BAY	18 Dec 2006
Displacement	16,160 t (15,905 long tons) full load
Length	176 m (577 ft 5 in)
Beam	26.4 m (86 ft 7 in)
Draught	5.8 m (19 ft 0 in)
Propulsion:	Diesel-Electric propulsion systems with 2 azimuthing thrusters and bow thruster. 4 main diesel generating sets: 2 × Wärtsilä 8L26 engines (2,240 kW each), 2 × Wärtsilä 12V26 engines (3,360 kW each). 1 auxiliary Wärtsilä standby diesel generating set. Dynamic positioning system
Speed	18 knots (33 km/h)
Range:	8,000 nm (15,000 km) at 15 kts (17 mph; 28 km/h)
Boats and landing craft carried:	2 × LCVP or 1 × LCU Mk-10/LCM-1E; 2 × Mexeflote powered rafts
Capacity:	1,200 Linear metres of vehicles (e.g. 32 M1-A1 Abrams tanks or 150 light trucks); 12 × 40 FEU or 24 × 20 TEU containers
Troops:	356
Armament	Machine gun mounts and fitted for Phalanx CIWS.
Aviation facilities:	Chinook-capable flight deck, hangar could be fitted if required



The Bay class LSD LARGS BAY with her internal dock flooded down at the stern for landing craft to operate from inside the ship. On her massive flight deck is a Sea King helicopter. The white wash at the bow is the ship's bow thrusters keeping the ship pointed into the oncoming tide to maintain position for the landing craft. (RN)



The RN's Bay class LSD MOUNTS BAY. Which of the impressive and very useful Bay class is to be decommissioned and sold is unknown at this stage. (RN)

With HMAS TOBRUK becoming increasingly unsustainable from costly obsolescence maintenance and the LPAs KANIMBLA and MANOORA currently tied up unexpectedly for long overdue and urgent maintenance of their ageing systems, now may be the time for a rethink and rationalisation of the RAN's current amphibious capability.

Decommissioning TOBRUK and/or one of the LPAs now to purchase the UK's decommissioning Bay class would provide considerable savings in operating costs and maintenance and will free up personnel for transition training to the LHDs. All of which would enable a far timelier realisation of the Government's 2009 White Paper's strategy for the ADF's amphibious deployment and sustainment project, as well as a capability increase.

Of note too are the relative crew sizes. TOBRUK 144; LPA 180, Bay class 60. The crew facilities and habitability on the Bay class are also significantly better than the 1970's designed TOBRUK and LPAs, providing Navy with a personnel retention benefit.

However, a cynic may well say that this opportunity will be 'unappreciated', just as the Kidd class destroyer offer was in 1998 in favour of the FFG upgrade project (which many in Navy now openly call the FFG downgrade project). The senior military bureaucracy's strict adherence to the Defence Capability Plan (DCP) will mean this golden opportunity is unlikely to be considered as it will be deemed 'outside the scope of the of the current DCP'. An inability to adapt and be flexible can only be seen to fly in the face of the Government's Strategic Reform Program's intention to improve capability while saving money. Hopefully this may prove to be wrong.

FROM OUR READERS

Dear Editor,

BZ on you recent special edition. It is a topic navy needs to lead on. Why the need cannot be seen by Defence's upper echelons and government is baffling. As one of your writers put it 'troops die without close air support'. Which is what we are hearing about from our troops in Afghanistan through leaked e-mails. What price does government put on the lives of our service people? Is one life or 20 lives worth a STOVL JSF?

Keep up the good work, and keep fighting the good fight.

Stanley Bower Via e-mail

Dear Editor,

I wonder what the Army is going to do with its new LHDs if it has to go somewhere without Uncle Sam? I get the impression these ships are 're-doing Timor' lessons learnt. Which is great if you can go back in time and do it again, and if you can chose a military operation that doesn't require close air support?

Sam McCord (via e-mail)

Dear Navy Magazine,

I've just read your last edition from cover to cover. Couldn't put it down. A very good argument for close air support from our new FAT ships. I wonder when/if it's going to be enacted on?

Ethan Edwards, Noosa, Queensland

Dear Editor Navy Magazine,

I fail to see the point of your last issue. With Air Force the air power adviser to government do you really think logic can be used to lure them out of their land based Battle of Britain fantasy to support real Aussie diggers in combat from ships at sea? Not forgetting the distances that they will require support from.

A special edition devoted to how we can do the whole expeditionary warfare thing without the parochial and juvenile air force is what's needed here. You're preaching to the converted.

Good luck to you anyway.

Fred Manson, WA (via e-mail)

Dear Editor,

Thank you for a very interesting edition of The Navy' (Vol. 72 No 4.) all food for thought regarding the Canberra Class LHDs and close air support. Cheers.

Kim Dunstan (via e-mail)

Dear Editor,

As a former artillery officer I can say your "From the Crow's Nest" is spot on. One 5-inch gun from an Anzac, or even two, isn't anywhere near enough fire support for troops in contact. The normal ratio is one battery (six guns) per battalion. As the LHDs are going to be carrying nearly two battalions worth of grunts alone (not to mention all the other supporting arms and logistics types) serious fire power is needed to keep the guys alive and get them off the beach.

I sometimes wonder why we are getting these "LHDs", for without real firepower they seem only good for humanitarian missions. Which is pretty expensive way of providing disaster relief help for our neighbours.

David Barrow (via e-mail)


Navy League executive members at HMAS HARMAN on Saturday morning attending the AGM.

2010 AGM

The Annual Meeting of the Navy League and of the Federal Council of the League was held in Canberra over the weekend of 29 and 30 October.

Everyone present agreed that it was a really worthwhile, productive weekend. All State Divisions were present, most in greater strength than for a number of years. It was pleasing to again have New Zealand represented at our conference.

Our meetings, discussions and briefings were held at Brassey Hotel, Navy Headquarters and at HMAS HARMAN. The fact that our conference was able to move smoothly from venue to venue was a tribute to our Secretary and his organisation of the buses.

On Friday afternoon we gathered at Navy Headquarters to receive a briefing from Commodore Vince Di Pietro. This briefing was thoroughly enjoyed by all present. Indeed, the questions arising from the briefing led to the session running way over time. Were it not for a timely reminder that the bus was waiting to take us back to Brassey Hotel some members of Federal Council might well still be there.

On Saturday morning we were joined by Rear Admiral Trevor Jones, Head of Navy Personnel and Reputation and soon to be Deputy Chief of Navy. The Saturday morning session at our annual conference is an opportunity for members of Federal Council to conduct, under Chatham House rules, a wide-ranging discussion with a senior officer of the RAN Members of Federal Council very much appreciated Rear Admiral Jones participation.

The Policy Statement of the League, which appears in *THE NAVY* magazine, is reviewed each year by Federal Council. This year Council was greatly assisted by the work of our Advisory Council. There was a good debate about the changes that ought be made to ensure that the policy of the League remains appropriate and relevant. This is an ongoing process and will no doubt be repeated at next year`s conference.

Federal Council considered the progress made in League website. The meeting freely acknowledged the importance of an organisation like the League having a top-line site. The meeting agreed to changes aimed at achieving such an outcome. It is intended that in time the League will have two equally effective means of communication; *THE NAVY* magazine and our website.

The Navy League in Australia is now 110 years old. No history of the League has yet been written. A good deal of exploratory work has been done. The meeting agreed that if a formal history was to be undertaken it would need professional input and guidance. The New South Wales and Victorian Divisions have been asked to carry out an initial investigation of the options. All Divisions have been asked to conduct a survey of what material they have available. If any reader has any material that they think might be useful it would be appreciated if they would let the League know. Contact details for the League are on page 1 of this magazine.

THE CLASS PHOTO OF THE 2010 NAVY LEAGUE AGM EXECUTIVE.

(From left to right) **RADM David Holthouse** (Federal Vice-President); **Mr Tudor Hardy** (Tas); **Mr Malcolm Longstaff** (NSW); Peter Jarvis (WA); **Mr Robert 'Otto' Albert** (NSW); **Mr David Rattray** (SA); **Mrs Mary Lacy** (QLD); **Mr Harvey Greenfield** (QLD); **Mr John Jeremy** (NSW); **Mr Dean Watson** (SA); **Mr Graham Harris** (Fed President); **Mr Bill Dobbie** (NZ), **RADM Andrew Robertson** (Federal Vice-President); **Mr Matt Rowe** ((Federal Vice-President); **Mr Bill Gale** (WA); **Mr Greg Cottrell** (Tas); **Mr Trevor Vincent** (WA); **CMDR John Wilkins** (Vic).

In 2011 the Royal Australian Navy will celebrate its centenary. The Federal Council discussed how the League might best give support to Navy`s RAN 100. The League both at the Federal level and through the State Divisions will fully participate in the celebrations. Our Queensland Division has made an early start. To celebrate the centenary of the Royal Australian Navy 1911-2011 they have produced a "Celebration Cabernet Merlot". I understand that it is selling well.

Each year the League awards the Navy League Perpetual Trophy – Community Award to the ship or establishment which it judges to have made the best contribution to the community in which it serves. The aim of the award is to both encourage and to recognise the outstanding community support provided by the ships and establishments of the RAN. Unfortunately this year the nominations for the Award were not available for consideration by Federal Council. I hope to be able to announce the winner of the award in the next edition of *THE NAVY.*

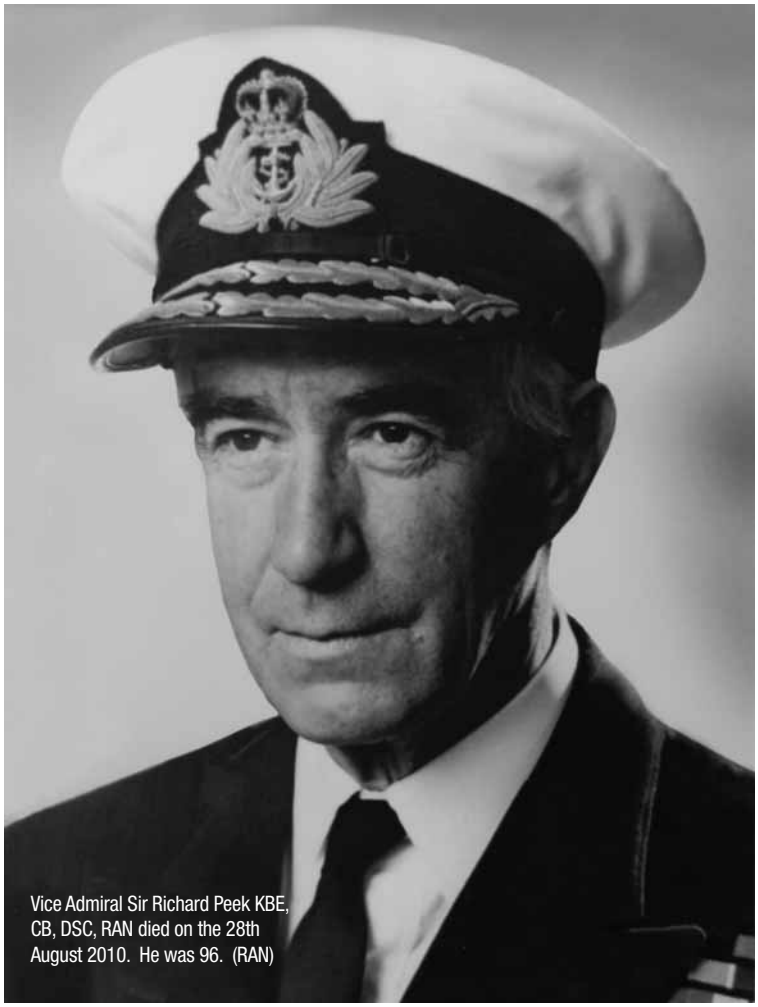
The Annual Maritime Affairs Essay competition drew a number of interesting entries. It was not easy for the judges to decide between first or second in both the professional and the non-professional categories.

The first prize ($1000) in the professional category was awarded to LEUT Andrew McNeil for his essay on Organic Air Defence. Coming in close behind in second place ($500) was an essay by PO Peter Cannon. PO Cannon has twice won our award. His essay on pre-war cruisers was another excellent contribution. Third place ($250) went to a professional dissertation on the Defence Science and Technology Organisation.

The first prize ($500) in the non-professional category was won by Peter Ingram for his essay on the French destroyer LE TRIOMPHANT. Second prize ($200) went to Nigel Beeke for an essay on the cruiser ADELAIDE. Third prize ($100) was for an essay on the employment of wooden luggers during WWII.

Each State Division gave a report of their activities to Federal Council. Many worthwhile activities were undertaken by the Divisions through the year, all in support of the League objective "The maintenance of the maritime well-being of the nation". The State Divisions are to be congratulated for their efforts.

The next Annual Meeting of the League will be held in Canberra on 28 and 29 October 2011.



Vice Admiral Sir Richard Peek KBE, CB, DSC, RAN died on the 28th August 2010. He was 96. (RAN)

VICE ADMIRAL SIR RICHARD PEEK KBE, CB, DSC, RAN

Vice Admiral Sir Richard Peek KBE, CB, DSC, RAN died on the 28th August 2010. He was 96. The Admiral had a long and distinguished Navy career, in due course becoming CNS from 1970 to 1973.

Sir Richard Peek began his career as a Cadet Midshipman in 1928 and rose quickly through the ranks to become one of the RANs most respected and forward thinking commanding officers. During World War II, Sir Richard took part in several critical battles with the Japanese Navy. One onslaught during the Lingayen Gulf landings in January 1945 saw his ship HMAS AUSTRALIA suffer four direct hits from Kamikazes and one near miss. Once the smoke had cleared, forty four members of Sir Richard's crew lay dead and another sixty nine were wounded. In 1946, Sir Peter's wife died while he was in the UK on the Royal Staff Course. The RAN refused him permission to return home to be with his baby son. Sir Richard spent the rest of his career caring for the rights of Navy members. After returning to sea during the Korean conflict and commands of the RAN's two Aircraft Carriers HMA Ships SYDNEY and MELBOURNE, Sir Richard served as Chief of Navy.

Sir Richard was also for many years a great supporter of the Navy League. He made many valuable contributions to the League both as a member of our Advisory Council and as a participant at our yearly meetings. At our meetings he expressed his views about the RAN with clarity and strength. He frequently raised issues concerning naval veterans.

When, a few years ago, Sir Richard was proposed as a Life Member of the League, the proposer's words were drowned out by the immediate, spontaneous applause of Federal Council.

Sir Richard continued to attend Navy League meetings up to a year or two ago. His presence was always warmly welcomed.

NAVY LEAGUE EFFICIENCY TROPHY

The League has had a long association with Cadets. It continues to support the Australian Navy Cadets in a variety of ways.

Perhaps the most important manifestation of the League interest in Cadets is the Navy League Efficiency Trophy. The Trophy is awarded each year to the best Cadet Unit in Australia.

The Unit judged the best in Australia for 2010 was **TS BUNDABERG.**

DANGEROUS RN CUTS TODAY FOR BIG CARRIERS TOMORROW

By Iain Ballantyne

In the short term, the UK's Strategic Defence and Security Review (SDSR) has delivered some shocks, while also taking gambles with the Royal Navy and Britain's ability to project power or safeguard its citizens and interests around the world. By immediately getting rid of the Fleet Flagship (and on-call aircraft carrier) HMS ARK ROYAL together with the Naval Strike Wing (NSW) of Harrier GR-9 strike jets, the UK government has wrecked the carefully calibrated transition from the current Invincible class carriers to the new Queen Elizabeths. Hard-won fixed-wing strike carrier skills are being discarded at a time when many other nations are busy acquiring strike jets and carriers, both for fixed-wing combat aircraft and as helicopter assault platforms. With this one ill-advised, and deeply flawed, decision the UK's fleet has slipped down the rankings from being Europe's pre-eminent projector of power to lagging behind France, Italy and Spain, all of which are operating strike carriers today rather than cutting them with a promise of something for tomorrow. In announcing details of the SDSR in the House of Commons, Prime Minister David Cameron said that both of the new British super-carriers – QUEEN ELIZABETH and PRINCE OF WALES – would be completed, with the first configured with catapults and arrestor gear, pushing the In-Service Date (ISD) back from 2016 to 2020. This is to ensure both F-35 strike jets and the new ship are ready for operations at the same time, rather than use Harriers aboard QUEEN ELIZABETH for four years. However, for the next decade the Fleet Air Arm (FAA), which will carry on as a purely rotary-wing force, will not have any organic means of training future fast jet pilots in carrier ops, other than to send them to join the US Navy's Super Hornet squadrons. Most leading European nations also have effective Maritime Patrol Aircraft (MPA) capabilities, but the UK will now slump from being a leader in that field to the bottom of the heap, due to a decision to cut the RAF's Nimrod MRA4 programme. Losing the new Nimrods is a serious blow that will place even greater strain on a Royal Navy required to earmark a frigate and Merlin helicopters to protect nuclear deterrent submarines as they leave or return to their base at HM Naval Base Clyde. While committing the UK to building the Type 26 future frigate, in his statement the Prime Minister also revealed that force levels in destroyers and frigates - the workhorses of any modern fleet – will be reduced to just 19 vessels. Four frigates out of today's 17 will be decommissioned – most likely the Type 22s, with HMS CORNWALL (said to be the least well preserved materially) leaving the fleet immediately and the three others early in 2011. There is deep concern in naval circles about the prospect of not beginning the Type 26 programme until 2019, as it risks a damaging skill-fade in the UK's already much reduced warship construction industry.

The surviving Type 23 frigates will also be increasingly costly to

The LHA HMS OCEAN. An assessment of the strike carrier HMS ILLUSTRIOUS and helicopter assault ship HMS OCEAN will be made to ascertain which is the more useful helicopter carrier. The 'least useful' will be decommissioned. (USN)

maintain on front line deployments as some of them will (by 2020) be near the end of their third decade in service. A recent UK-Brazil naval agreement may, however, provide impetus to get the Type 26 programme underway earlier. Analysis of how such a reduced force would cope with Britain's global commitments, and also potentially protect a carrier and/or amphibious warfare task group was not encouraging, for as a few as five ships might actually be available. The RN's mission portfolio embraces deployments to cover: counter-terrorism, counter-narcotics, counter-piracy, protection of the South Atlantic and Caribbean dependencies, security patrols in the Gulf, Anti-Submarine Warfare (ASW) overwatch of the Trident boats, defence presence in Asia-Pacific and contingency operations (war, humanitarian aid and disaster relief, non-combatant evacuations,

Seen here recently is the last RAF/RN GR-9 attack/strike Harrier to take off from the deck of HMS ARK ROYAL. Under the SDSR the entire GR-9 Harrier force will be retired this year, as too will HMS ARK ROYAL. (RN)

limited interventions ashore, security in home waters). Any simple calculation shows that something will have to give. The Royal Navy also now looks an extremely imbalanced force, with plenty of current, and future, large ships to protect against severe sub-surface, surface ship and air missile threat, not forgetting asymmetric attack. The UK fleet, though, has a diminishing number of 'enablers' as defence experts term them (frigates, destroyers, patrol vessels and strike aircraft) that enable the bigger ships to operate safely, with proper screening from potential enemy action. On the positive side, the feared loss of the Royal Navy's amphibious warfare capability in its entirety - with 3 Commando Brigade Royal Marines made part of the army and ships declared surplus to requirement - has not transpired. However, the amphibious assault carrier OCEAN is possibly going to be mothballed

An early production MRA-4 test Nimrod. The Nimrod fleet of maritime patrol aircraft will now not be receiving and upgrade to the MRA-4 standard. Plus, all the RAF's Nimrods are to be retired imediatly. Leaving the UK without a dedicated maritime patrol/ASW aircraft. (RAF)

or sold to a foreign fleet. One of the Landing Platform Dock/command ships (probably ALBION as BULWARK has just been refitted) will be put into reserve, while one of the four supremely useful - and only recently introduced into service - Bay class auxiliary landing ships is to be decommissioned, and probably sold to a friendly power. Brazil is the most likely customer. With ARK ROYAL gone immediately, the sole surviving Invincible class carrier HMS ILLUSTRIOUS, which is currently under-going a major £40 million up-grade at Rosyth Dockyard, may in fact not see any further service, at least not in the British fleet. The SDSR report revealed: 'Either HMS OCEAN or HMS ILLUSTRIOUS will be decommissioned following a short study of which provides the most effective helicopter platform capability.' This is an extraordinary move at a time when the Italians are about to order up to three new amphibious assault carriers to complement their new strike carrier, the Spanish have two strike/assault carriers now in service, and France is about to order a third amphibious assault carrier to supplement its nuclear-powered strike carrier. ILLUSTRIOUS is more manpower intensive, older than OCEAN and not blessed with the same purpose-designed broad corridors, weapons magazines and amphibious assault or embarked force accommodation as the latter.

OCEAN also has landing craft on davits, something ILLUSTRIOUS could not manage without major modification. The ILLUSTRIOUS also cannot go alongside and take on vehicles, so while OCEAN has been troublesome for the 'blue suit' navy to run - needing major rectification and modification during her 11-year career - it is likely that OCEAN will soon be the sole surviving carrier in RN service. Reinforcing this possibility is that a major refit of OCEAN refit will go ahead next year.

A computer generated image of the two Queen Elizabeth class aircraft carriers. The first carrier is already under construction. They were to have ski jumps for STOVL JSF however, the decision has been made to buy the US Navy carrier version in an attempt to save money on acquisition and support cost of the more expensive STOVL variant. The US Navy version also has greater range and payload than the STVOL version. (BAE)

THE RAJPUT CLASS DESTROYERS FEARED AND RESPECTED

By Ian Johnson

The five Soviet destroyers of the Indian Navy's Rajput (Kashin II) class were once formidable warships. However, age appears to have caught up with three of them, the other two being modernised. Long time contributor to *THE NAVY* Ian Johnson was recently able to board one of the un-modernised Rajputs visiting Fremantle for this special report.

A cloudy morning on 4 June 2010 saw the Rajput class destroyer INS RANA (D-52) arrive in Fremantle. RANA was part of a four ship task force taking part in the Indian Navy's 2010 Eastern Fleet Overseas Deployment. The warships RANA and her sister ship INS RANJIT (D-53), along with the Kora (Type 25A) class corvette INS KULISH (P-63) and replenishment ship INS JYOTI (A-58), were under the command of Flag Officer Commanding Eastern Fleet Rear Admiral P. N. Murugesan. By the end of this two-month deployment the task force had conducted visits to Haiphong, Vietnam; Manila, Philippines; Muara, Brunei; Bangkok, Thailand; Singapore and Port Kelang, Malaysia before returning to their homeport at Vishakhapatnam.

Escorted into Fremantle by HMAS ANZAC (FFH-150) INS RANA was the only Indian warship from the task force to visit Australia as part of the deployment.

Commanded by Captain K G Vishwanathan IN, RANA is manned by 48 officers and 343 sailors. The ship's name refers to the feared and respected Rana clan of Rajput Warriors of Medieval India.

THE CLASS

The Rajput class are based on the Soviet Navy Project 61 design, later named the Kashin Class. Project 61 began planning in August 1956, with the first of the class KOMSOMOLETS UKRAINYY having her keel laid in September 1959 at 61 Kommunara Zavod 445, Nikolayev Shipyards in the former Soviet State of Ukraine. KOMSOMOLETS UKRAINYY was commissioned over three years later on 31 December 1962. The last of the Soviet Kashin class was in service in 1973.

The five units ordered by the Indian Navy in the mid 1970's were new hulls and were named RAJPUT (D-51), RANA (D-52), RANJIT (D-53), RANVIR (D-54), and RANVIJAY (D-55). Built in the same shipyard as the Kashin class, the design for these ships, known as Project 61ME (or Kashin II), were heavily modified for Indian requirements. The latter ships, RANVIR and RANVIJAY, underwent an improvement programme in the early 90s. RANJIT and RANA are the least modernised of the Rajput class.

The Rajput (Kashin II) class destroyer INS RANA (D-52) entering Fremantle. (Ian Johnson)

Fitting of SA-N-1 GOA anti-aircraft missiles onto the aft launcher for loading into the magazine below. The SA-N-1 is quite an old missile that's usefulness would be questionable against anything more manoeuvrable than a large maritime patrol aircraft.

DESIGN

The differences between the Kashin and Rajput class were noticeable. The Rajput class has their four surface-to-surface cruise missile launchers pointed forward, positioned forward of the bridge, the Kashin class have them located aft. An enlarged flight deck and a helicopter lift from the flight deck replaced the aft 76mm twin mount gun in the Kashin class. These and other modifications have increased the size and the displacement of each ship by over 460 tons to 4,974 tons full loaded compared to 4,510 tons for a Kashin class ship.

The M-3E propulsion system consists of four gas turbines and two shafts developing 60,000-shp which gives a top speed of 35 knots and a range of 4,000 miles at 18 knots for the units of the Rajput class.

RANA's 48 officers and 343 sailors had living conditions similar to those on the RAN's Perth class destroyers, but it has been improved during refits.

WEAPONS

The Rajput class is armed with four single-tube launchers that contain one P-20M (Rubezh) (NATO: SS-N-2D Styx) surface-to-surface cruise missile each. The P-20M (Rubezh) is an export version of the Russian P-15M Termit-M SSM, with a radar homing 500 kg armour-piercing warhead. With a speed of Mach 1.3 the P-20M (Rubezh) has a range of 45 nautical miles.

The Rajput class also is equipped with two twin-rail Volna-P (NATO: SA-N-1 Goa) launchers (one located forward of the bridge, one located aft, forward of the flight deck) with B-601 (4K-91) surface to air/ surface-to-surface Goa missiles, with 22 missiles per magazine (44 missiles in total). The old SA-N-1 Goa system has a reaction time of up to 18 seconds. The B-601 missile carries a 72 kg warhead at a speed of Mach 2+ with a range of 24kms against aircraft, and 17kms against surface targets.

The main gun of the Rajput class is one twin 76.2-mm 59-cal. AK-726 dual purpose gun located forward of the bridge. It can fire 90 rounds a minute against air and surface targets 15kms away.

For Close In Weapons Systems (CIWS) most of the Rajput class is armed with four twin 30-mm AK-230 gun mounts with a rate of fire of 1,000 rounds a minute to a range of 4kms.

For anti-submarine warfare the class has two 12-round RBU-6000 ASW rocket launchers that can fire either Splav-90R rockets or RGB-60 depth charges to a range of 6kms.

One 533-mm PTA-53 quintuple torpedo launcher is located midships. Both can launch either SET-65E anti-sub torpedo with a 205kg warhead with a range of 15kms, or the 53-65KE antiship torpedo with a 305kg warhead and a range of 19kms.

SENSORS

For its duties the Rajput class is fitted with multiple radar systems providing control for the Volna-P (NATO: SA-N-1 Goa). For RAJPUT, RANA and RANJIT there are two Yatagan (NATO: Peel Group) fire control radars with a 73km range, the rest have one. There is a Bharat/Signaal RAWL-02 (LW04) air search radar (although INS RAJPUT)

INS RANJIT (D-53). RANA and RANJIT and the least modernised of all five Rajput class destroyers. Given their age it is doubtful they will go through the same update as sister ships RANVIR (D-54), and RANVIJAY(D-55).

INS RANA on exercise in the Indian Ocean. Clearly visible are both SA-N-1 Goa launchers and embarked helicopter. The Soviet Kashin class that the Rajputs are designed from had no aviation facilities.

retains her original MP-500 Kliver (Big Net-A) air search radar).

A MR-310U Angara-M (NATO: Head Net-C) radar provides surface/air detection up to 128kms away. For the fire control of the AK-726 dual purpose gun one MR-105 (NATO: Owl Screech) radar is employed, while two MR-104 Rys'(NATO: Drum Tilt) radar gun directors operate the AK-230 (CIWS) gun mounts. Two 'Don Kay' navigational radars are also fitted.

The Rajput class is equipped with the MGK-335 Platina sonar system and consists of a MG-335 Titan-2 sonar in the hull radome and the MG-325 Vega towed array sonar.

For Electronic Warfare the class was fitted with two Nakhat-M (Watch Dog) intercept systems, two Krab-11 (Top Hat-A) and two 2 Krab-12 (Top Hat-B) jamming systems, as well as four 16-round PK-16 decoy launchers capable of firing either/or TSP-60U (chaff) and TSP-60U (infrared) rounds. However, three of the ships are fitted with the Italian TQN-2BB H- through J-band (6 to 18/20 GHz) shipboard radar jammer. The Rajput class's TQN-2BB antenna unit comprises two high gain, parabolic Electronic Counter Measures (ECM) transmission antennas, together with four direction-finding arrays that provide target azimuth and elevation data to the jammer. The whole assembly is mounted on a two axis (azimuth and elevation), electromechanically aimed pedestals either side of the main mast. The system is said to be capable of countering up to four threats coming from two separate directions by targeting the area with its movable beam, thus avoiding the issue of blind spots.

INS RAJPUT's BrahMos twin tube launcher forward of the larger SS-N-2 Styx launch tube

AIR OPERATIONS

For her deployment RANA embarked a HAL CHETAK (Indian copy of a French Alouette III) helicopter from Indian Naval Air Squadron 321 'ANGELS' based at Mumbai. The CHETAK has a speed of 210km/h with a range of 540kms and can be armed with two Whitehead A244S ASW torpedoes, although the aircraft has no means to locate a submarine.

MODERNISATION

Since 2003 three of the Rajput ships have been modernised; IN Ships RAJPUT, RANVIR and RANVIJAY. The modernisation included the fitting of BrahMos anti-ship missiles, the Israeli Barak short range air defence missile system (RANVIR and RANVIJAY only at this stage), a new missile waring search radar and an electronic surveillance system.

The BrahMos is a supersonic anti-ship missile that can be launched vertically (as in RANVIR and RANVIJAY in place of the aft SA-N-1 launcher) or through tubes mounted at 45°(as in RAJPUT in place of her SS-N-2 missiles). The missile is a joint venture between India's Defence Research and Development Organisation (DRDO) and Russia's NPO Mashinostroeyenia who have together formed BrahMos Aerospace Private Limited.

BrahMos travels at speeds of Mach 2.5 to 2.8, has a maximum range of 290km with a 200 kg warhead. It has a two-stage propulsion system, with a solid-propellant rocket for initial acceleration and a liquid-fuelled ramjet responsible for sustained supersonic cruise.

The Israeli Barak is a relatively low-cost point defence missile system. It is designed to protect ships against both manned aircraft and anti-ship missiles and consequently has

A vertical launched BrahMos from INS RANVIR. An eight cell VLS has been placed in the deleted aft SA-N-1 Goa launcher/magazine.

a quick reaction time, typically three seconds, which includes 0.6 seconds for the missile to turn over and face the target.

Internally the nose contains a seeker and guidance system. Behind it is a 22 kg HE fragmentation warhead with a proximity fuze behind it. This fuze is a dual-sensor unit featuring electronic and infra-red sensors, the latter also acting as an altimeter. RANVIR and RANVIJAY have two above-deck Vertical Launch Units (VLUs) with eight missiles each in place of two of the four 30mm CIWS guns. The units all have their own tracking/illumination radar as part of a bolt to the deck module. Barak has a range of 12kms.

For the Barak system to work effectively and quickly an EL/M-2238 Surveillance and Threat Alert Radar (STAR) is fitted high on the main mast. This radar is an S-band (2 to 4 GHz) fully coherent, pulse-Doppler, 3-D multibeam/multimode designed to provide 3-D volume air surveillance, surface surveillance and automatic air threat alerts. The maker, Elta, claims that the STAR system offers fast detection rates, 'high' spatial resolution and accuracy and what it terms as an 'extremely' low false alarm rate. It can detect a missile at 28km and an aircraft at 150km. Its antenna is stabilised through 20° (roll and pitch).

For Electronic Surveillance (ES) the Barak armed ships are fitted with an Israeli C-PEARL system. C-PEARL is a digital naval ES system that is capable of automatic emitter detection, data measurement and threat identification. C-PEARL-comprises a single long antenna mounted atop the main mast, a single line replaceable unit digital receiver and an operator console. Of these, the architecture's antenna assembly facilitates instantaneous frequency measurement and direction-finding and serves the architecture's common, multi-channel, digital receiver. Frequency coverage includes 0.5-40 GHz while sensitivity is said to be better than -65 dBm with a dynamic range 60 dB.

As mentioned before, for radar jamming the ships are fitted with an Italian TQN-2BB two parabolic antenna system either side of the main mast. However, in the Barak armed ships this has been removed. What is being used for jamming is unknown at this stage.

CONCLUSION

After 30 years of service with the Indian Navy, the Rajput class destroyers are potentially reaching the end of their operational lives. The class will either be replaced by units of the Project 15A Kolkata class destroyer or the next generation of India's multi-role stealth surface combatants in the planning stage, Project 17A.

Yet for their age the Rajput class destroyers have served the Indian Navy well. From providing air defence for India's aircraft carrier to its surface/anti-submarine duties, the five Rajput class destroyers are formidable weapons platforms even now, and will be till their retirement.

INS RANVIR with her new Elta 3-D STAR radar and C-PEARL ES system on the main mast. To the right amidships is the fire control radar for the Barak point defence missile system, which is positioned atop the vertical launch unit for the eight Barak missiles. RANVIR and RANVIJAY are fitted with two Barak VLUs on both sides.

INS RANVIR with USS BLUE RIDGE in the background. Of note is the deleted aft missile fire control radar and associated SA-N-1 Goa launcher, which has been replaced with an eight cell VLS for BrahMos anti-ship missiles. The ship also seems to have retained its Styx anti-ship missile launch tubes forward of the bridge.

CRESWELL ORATION
AUSTRALIAN NAVY FOUNDATION DAY
"THE RAN: FOUNDATIONS TO FUTURE"

Chief of Navy - VADM Russ Crane AO CSM

The Victorian Division of the Navy League of Australia had its annual Creswell Oration on 1 MARCH 2010. Guest speaker for the day was none other than the Chief of Navy himself. The following is a copy of his speech.

Last year, the RAN hosted the 2010 Sea Power Conference in Sydney, focussing on 'Combined and Joint Operations from the Sea,' with a view to our new and expansive amphibious capability which will arrive in 2013 with our first LHD.

Although the Sea Power Conference was firmly fixed on the future and how best to prepare for it, Australia's naval future cannot be understood or developed in isolation from our history and foundations.

The LHDs, and the maritime future outlined in the 2009 Defence White Paper, are but the next stage in development for our Australian fleet.

To understand the future of joint amphibious operations, let's turn our minds back to the very first combat experiences of the emerging RAN, as the First World War rapidly spread from Europe across the globe.

After unsuccessful attempts to locate and engage the German cruiser squadron among the Pacific Islands, Australia and New Zealand combined to create a Naval and Military Expeditionary Force, of whom 500 (one third) were Naval reserves.

They set out on 19 August 1914, just weeks after the declaration of war, and landed on 11 September in Rabaul.

In taking the wireless station at Bitapaka, it was an Australian Naval Officer, Lieutenant Thomas Bond, DSO, who was first decorated in the

Chief of Navy, Vice Admiral Russ Crane, AO, CSM. (RAN)

Great War, and two Australian sailors with an Army Medical Officer who were the first to fall.

Among the many points of significance about the Rabaul engagement is the emphasis, from our very beginning, on a joint expeditionary capability.

The Australian Naval and Military Expeditionary Force (ANMEF) was a joint force and the concept of their operation was the projection of force from the sea in an essentially maritime environment, using the capabilities of our cruiser HMAS AUSTRALIA and the destroyer squadron.

This early approach was consolidated as the war progressed, including through the exploits of AE2 as 'first in' in support of the Australian landings at Gallipoli.

She was lost in the Sea of Marmara, but her efforts were continued by the RAN Bridging Train, a shore engineering force working in conjunction with British and Commonwealth troops who were the last Australians out of the ill-fated campaign.

In the Second World War, less well-known events saw VOYAGER grounded, then bombed, landing troops in Betano Bay, Timor in 1942, and HOBART leading amphibious operations in Borneo as the Japanese were swept back in 1945, memorialising names such as Tarakan, Brunei and Balikpapan which we recall now through our LCHs.

In the Korean War, which passed its 60th anniversary this year, WARRAMUNGA supported the Inchon landings.

We should not underestimate the role of jointery during these early years. At the time, and as late as 1945 and the Korean War, the set-piece naval battle between capital ships at sea continued to be seen as the decisive means of both victory and the securing of sea power.

EMDEN as seen from HMAS SYDNEY.

The enduring public fascination with the SYDNEY-EMDEN clash and the devastating encounter between SYDNEY II and the German raider KORMORAN a generation later demonstrates this clearly.

However, ignoring the historical role of joint operations from the sea belies an emerging trend now recognised, which is that Vice Admiral Creswell's vision, which is usually seen as a Naval strategy for Australia's defence, is properly understood as a maritime strategy.

This means that the security he envisaged at sea is a joint product of Naval and other military and civilian forces.

The 2009 White Paper makes this point explicitly. It states that the ADF's primary obligation is to "deter and defeat attacks on Australia. This entails a fundamentally maritime strategy, for which Australia requires forces that can operate with decisive effect throughout the northern maritime and littoral approaches to Australia and the ADF's primary operational environment more generally" (paras 8.6-7).

The future force envisaged in the White Paper is one which relies on joint capability and joint operations. This is not an innovation.

We have seen that, over nearly 100 years, the RAN can and has succeeded in the amphibious theatre and in joint forces.

As recently as last September, following the devastating earthquake, HMAS KANIMBLA landed an amphibious relief force in the Indonesian region of Padang.

What has changed is the strategic acknowledgement of the need for jointery in the maritime sphere. A quick glance over the DCP and Force 2030 projections makes this clear.

I have mentioned the LHDs, which are part of a major push towards amphibious deployment and sustainment.

The two ships are able to embark a battle group, along with their headquarters and vehicles, as well as conduct multi-spot helicopter operations.

The Hobart class AWDs, and the future frigates, are being designed with an eye firmly fixed on their maritime effect interacting with the capabilities of air and land forces.

The future submarines, about which there has rightly been much public discussion, will be long range vessels with a marked land attack capability and broad scope to combine with special forces.

Structurally, we are already operating under the single aegis of HQJOC (Head Quarters Joint Operations Command). As single services, we train and sustain our forces, but assign them to JOC to achieve the operational results required of us.

The challenges of this re-alignment of focus are many. Chief among them are the personnel challenges, and it is that which I would like to spend some time discussing.

"The LHDs are part of a major push towards amphibious deployment and sustainment. The two ships are able to embark a battle group, along with their headquarters and vehicles, as well as conduct multi-spot helicopter operations."

NEW GENERATION NAVY

Recognising that we are moving overtly in a joint direction for Force 2030, as well as acknowledging that we need, as an organisation, to respond to society as it is now and not as it has been in the past, Navy has embarked on a five year program of cultural reform, called New Generation Navy.

New Generation Navy, or NGN in common Navy parlance, is our vehicle to achieve the strategic goals in the White Paper.

Importantly, it is an internal force for change and is driven by the desire of our own members for deep and meaningful cultural change

"NGN changes will ensure that we remain an employer of choice into the future, rather than an employer of necessity." (RAN)

in the way we achieve our missions.

As Chief, I am not surprised by the desire for change. Personnel management is complex and needs to readjust at intervals to reflect shifts in knowledge, training and social expectations.

We must recognise that the resilience of our people is an element of capability as much as the resilience of our platforms.

NGN has three pillars for reform: culture, leadership and structure. From your own experience, I have no doubt that you will agree with me when I say that, of those three, structural change is the easiest and certainly the fastest to achieve.

In its first six months, NGN restructured Navy's internal organisation to reflect our new Group role as a 'raise, train and sustain' organisation since HQJOC was established.

In cultural terms, we have advanced considerably in the last eighteen months in identifying and describing how we want Navy people at all levels to behave.

This takes the form of ten signature behaviours, which complement our traditional Navy values of Honour, Honesty, Courage, Loyalty and Integrity.

What underlies them is a strong sense of loyalty to, and concern for the welfare of, our Navy people. The signature behaviours include: respecting the contribution of every individual, promoting their well-being and development, communication, cost consciousness, driving decision-making down (which involves trust in our people to get their jobs done) and making Australia proud.

Implementing these behaviours at all levels is our next challenge. Every Navy member from the Flag team to our newest recruits has had an opportunity to discuss cultural change through the signature behaviours in 'Leading the Change' seminars and divisional workshops.

However, implementation is imperative. The LHDs arrive in three years; the next posting cycles must begin to assign people to their initial crews. AWDs will not be far behind them.

Recruiting and retention has been at problematic levels for some time, with flow on effects for the speed with which we are able to train and develop new personnel to perform the difficult roles we ask of them.

In its first eighteen months, NGN cultural change has seen some inroads into these seemingly intractable problems.

Separation rates are at their lowest level since 1992. While there are some statistical correlations with the GFC, links are also evident to new retention measures, including the Defence Home Owners Assistance Scheme and a fundamental restructure of our remuneration approach for our people known as the Graded Pay Structure.

NGN changes will ensure that we remain an employer of choice into the future, rather than an employer of necessity.

Other emerging successes are changes to recruitment processes for former members wanting to return to service, so that they can come back in quickly, without fuss and without having to repeat training unnecessarily. In its first year, over 40 highly qualified and experienced sailors came back to Navy.

Through a program called Plan Train, which designated two frigates as training platforms, we have been able to give our newer technical sailors the opportunities they need to finish their training and get experience in their fields, so we can deploy them quickly as confident, competent crew members.

We are actively looking for the ways in which we can make our ships and workplaces more family friendly, including looking at the way we post our people and manage the sea shore roster. We are keeping options like remote work as available as we can, when our people need respite.

Changing the way we think about things, and putting aside old policies and practices which no longer have practical benefit, is the means by which we can move into a new generation of Naval service.

LEADERSHIP

The same approach applies to leadership, NGN's third pillar for reform.

But it is a more complex field, because when we look to examples of Naval leaders to emulate, we look straight to our history, where men like LCDR Rankin, who led his crew in their sloop HMAS YARRA against the might of the Japanese cruiser squadron; CAPT Waller in PERTH, lost on this day in 1942; and LCDR Max Shean, DSO and bar (who died last year) stand tall.

How do we reform our leadership ideal for the future and remain true to the traditions of our past? This is particularly pertinent as we remember the foundation of the Australian Navy today.

As we speak of our proud history and the many campaigns in which the RAN has been involved, I would take this opportunity to highlight that the RAN's official battle honours have been revised and approved by Her Excellency the Governor-General of Australia.

Each ship, squadron and establishment displays their Battle Honours boards with immense pride and a sense of solidarity and the continuing of the unit traditions set by those who went before them.

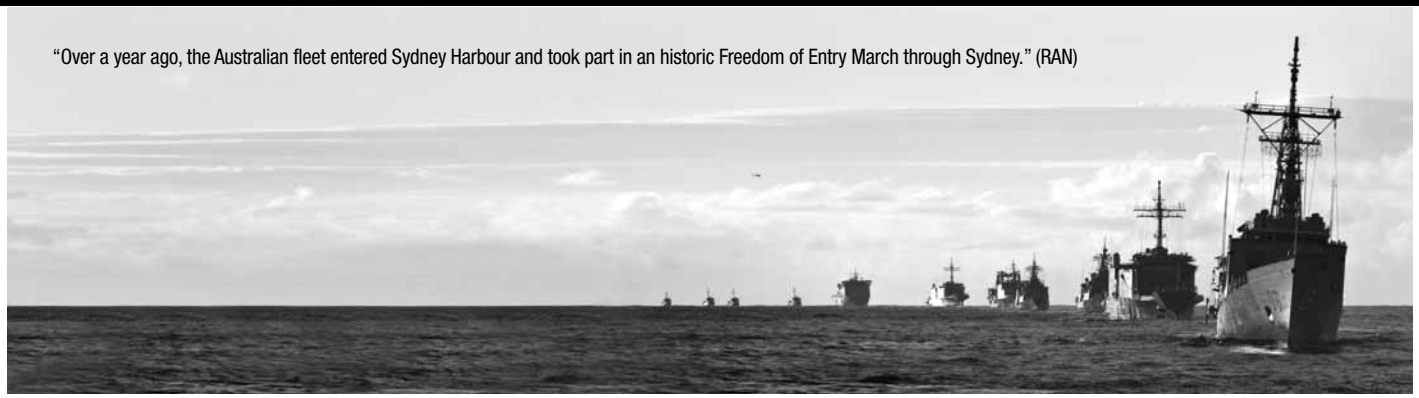
Our earliest award, New Zealand 1860-1, includes the deployment of Victorian HMVS VICTORIA on colonial service as part of the RAN's history.

A review of our previous honours proposed that several new awards be recognised to reflect our most recent operations and to correct earlier cases where the service of some ships was not adequately recognised.

In particular, the awards Malaya 1955-60, Malaysia 1956-7 and recognition of our long period of service in the Persian Gulf, in East Timor and as part of the effort to rebuild Iraq have been revised and approved.

The deployment of our ships to the Far East Strategic Reserve was a key part of our defence strategy at the time, but their sheer success in their mission, without loss of personnel in action, means that sometimes it is too easy for their achievements to fall into the background of other battlefield losses, and these new honours should go some way to rectifying that perception.

The significance of today in announcing our new honours arises not only from our birthday as a Navy, but also the 68th anniversary this very morning of the loss of our World War II cruiser HMAS PERTH during the battle of Sunda Strait, with her captain Hec Waller and 362 of her crew. Another 105 died as prisoners of war later.



"Over a year ago, the Australian fleet entered Sydney Harbour and took part in an historic Freedom of Entry March through Sydney." (RAN)

The memory of PERTH and her crew is immortalised on the honour board proudly carried by our current HMAS PERTH III, which can be seen by all every time they use the main passageway.

They know, each time they pass that board, that they follow in the footsteps of great people and share in a common purpose of defending our home.

The continuation of battle honours for all subsequent ships bearing the same name is one way that our current men and women can place themselves as part of the RAN history and tradition.

We are looking at options for a unique Battle Honours board representing the history of the entire RAN, perhaps for display in our central headquarters in Canberra. You can see on the slide one possible design.

The announcement of our new battle honours is a reminder that NGN is not about discarding our traditions, or dismissing the sense of duty and service to our country which has seen our shipmates through a century of war and peace – it is about strengthening and celebrating our Australian heritage.

NGN calls on us to take the best of our traditions and to build on them. The world has changed, and we must change with it.

For the first time, the NGN team has developed a Navy-specific doctrine on leadership and the ethics of leadership, complemented by a comprehensive Leadership Framework.

What this Framework recognises is that leadership is not the preserve of command or position. We need, and expect, leadership from all our men and women based on their role.

And we need not abandon our history to do this, because our history is replete with models on whom we can draw. Ordinary Seaman Teddy Sheean, and Leading Seaman Ronald Taylor who acted similarly in YARRA, are remembered rightly for their heroism and sacrifice, but they also inspire us as leaders.

Our new doctrine demands that we recognise and aspire to strength of character in leadership - the capacity to recognise the task and the moral courage to do what is right to achieve it.

Our target is aspirational leadership and we need to refocus away from the transactional or results-based approach, into which it is easy to slip.

To that end, all ranks are now trained in the theory of leadership and encouraged to think about and discuss ethics.

As you can see, NGN is not a program that can be ticked and closed through a series of KPIs. It will take at least five years to cement the culture of Naval service that we are seeking, and it will involve the entire Naval community, including the permanent force, reserves, former members, and families.

SRP (STRATEGIC REFORM PROGRAM)

NGN is an imperative in more than one. It is the future for our people, and it is also the future for the fleet.

I am sure you have heard that Force 2030 is to be funded in part by internal financial reform in the Department of Defence. NGN ensures that in the drive to save money through efficiency and reform, we don't lose sight of people as our most important factor. Their willingness to contribute to our Navy has not changed.

The assessment phase for SRP has been conducted over the past year and the reform streams and savings targets will be implemented soon. We are looking at reform streams in every field of our organisation.

For example, logistics is a key stream. Rationalising departmental warehouse sites from 24 to 7 and improving communications and IT links between them is expected to generate 330 million in savings over 5 years alone.

Consolidating over 200 ICT data centres into less than 10 and standardising Defence's information and communications technology environment is expected to save $1.9 billion in five years.

In the maintenance area, it currently costs $4.9 billion each year to maintain over 100 weapons systems and capabilities in the ADF, ranging from ships and aircraft down to individual weapons.

We have already started going through these systems, looking at how to eliminate the inefficient parts of our maintenance and support systems, without reducing the quality and safety of our systems.

SRP also includes non-savings streams, by which I mean efficiency reforms to increase transparency and accountability in our processes across the department, including procurement, estate, science and technology and intelligence.

NGN gives Navy a values-based decision-making process in implementing the changes SRP requires of us. It ensures that SRP is about sustainable reform for the future force, and not a simple exercise in budget-cutting.

For this reason, SRP incorporates provision for us to invest some savings back into reform streams to produce better long term results.

OPERATIONS

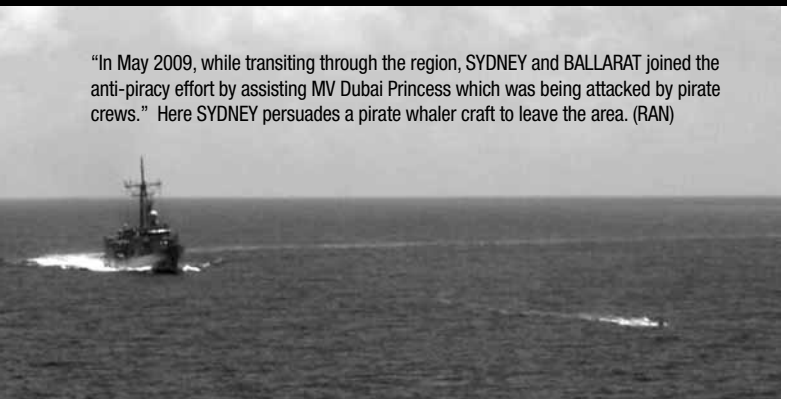
The tempo of our operations today gives us ample means to see why cultural, as well as financial, reform is critical. We have considered our past and our future in joint operations from the sea, and I would like to finish with a reminder of where we are today.

Over a year ago, the Australian fleet entered Sydney harbour and took part in an historic Freedom of Entry March through Sydney.

The moment they sailed into Sydney recalled that other Fleet entry in 1913, when the fleet, led by HMAS AUSTRALIA, first arrived as the Royal Australian Navy.

In the time since then, our ships and our people have deployed around the world.

We have provided humanitarian assistance to Indonesia (Padang), Samoa, Tonga, and Papua New Guinea. We contribute to operations ashore in East Timor, Sudan, Afghanistan and the Middle East.



"In May 2009, while transiting through the region, SYDNEY and BALLARAT joined the anti-piracy effort by assisting MV Dubai Princess which was being attacked by pirate crews." Here SYDNEY persuades a pirate whaler craft to leave the area. (RAN)

Our contribution to Op Slipper is in a flexible maritime security and anti-piracy mandate

Indeed in May 2009, while transiting through the region, SYDNEY and BALLARAT joined the anti-piracy effort by assisting MV *Dubai Princess* which was being attacked by pirate crews.

GASCOYNE and YARRA cleared WW2 era UXO from the Solomon Islands, including a moored mine, 3 bombs of 100kg or more and a range of small projectiles. MELVILLE had surveyed these earlier.

I want to make special mention of all our people who have served on OP Resolute in the last year, particularly since I have been speaking of leadership and moral character in difficult circumstances.

We must recognise that constabulary operations can be as difficult and dangerous as any overseas tasking, and I have every faith in the men and women of our Navy and our commitment to the preservation of life at sea.

Their dedication to Navy, our country, and to the safety of life at sea is worthy of great admiration.

CONCLUSION

I have moved over several topics in the course of this oration. The common thread, I think, is the challenge to the men and women of the RAN as we face a future dominated by joint operations, and in the short term, a demanding but achievable program for internal cultural and financial reform.

These are challenges that have been faced by the RAN since Vice Admiral Creswell laboured for its foundation. Questions such as who we are, and where our strategic focus should lie are ones of great import from our foundations and long into our future.

On the anniversary of the foundation of Australia's Navy, I'm reminded of a line from Shakespeare - "Thou knowest that all my fortunes are at sea." Like Antonio in the Merchant of Venice, Australia's fortunes and her future are bound up in the maritime environment.

We have an overtly maritime defence strategy, and a plan for our future fleet, but above all, we have a fleet crewed by the men and women of the RAN, who, like all their predecessors, deserve the best of Naval leadership and culture and the firm support of the Australian people.

And it is at events such as the Navy League's Creswell Oration that the truly maritime spirit of Australia, supporting the RAN, is most evident.

PRODUCT REVIEW

The Sydney Sailors Home (1859-2009)

By Jan Bowen

Published by The Australian Mariners' Welfare Society, Sydney 2009.

Hardback, colour jacket.

96 pages illustrated and indexed.

ISBN: 9780646513614.

$30.00 plus $ 12.00 P/H.

Download order form from
www.marinerswelfare.com.au or
e-mail pmc@swiftdsl.com.au or
telephone Sydney (02) 9605-1344.

The Sydney Sailors' Home (1859-2009) by Sydney journalist and author Jan Bowen has recently been published by the Australian Mariners' Welfare Society, formerly the Sydney Sailors' home.

The Sydney Sailors' Home no longer accommodates seafarers but the building - in The Rocks area just behind the Overseas Passenger Terminal has survived - is now a heritage-listed property managed by the Sydney Harbour Foreshore Authority. It is currently occupied by a commercial art gallery and a restaurant.

In 1859 a committee was formed to build a Sailors' Home in Sydney "... in which seamen, while on shore, could have comfortable accommodation, be brought under moral and religious influence and be encouraged in sober and thrifty habits". Land at 106 George Street North in The Rocks area of Sydney, adjacent to Cadmans Cottage, was gazetted and The Sydney Sailors' Home opened its doors in 1865. At that time, around 1,000 ships with crews totalling some 20,000 were coming to the port each year.

Many naval personnel also lodged at the Home up until 1891 when accommodation at Royal Naval House in nearby Grosvenor Street became available to them.

After operating continuously for 114 years, having survived the impact of two world wars, the great depression and occasional periods of low occupancy, the Sydney Sailors' Home was closed in 1979 following compulsory resumption of the property by the Sydney Cove Redevelopment Authority. The Council managing the Home, recognising generational changes then occurring in the shipping industry along would a declining demand for accommodation of the kind it offered, identified and implemented other opportunities to continue serving seafarers.

Jan Bowen's entertaining story of the Sydney Sailors' Home, the people who drove its formation and the sometimes colourful characters who rested there will be a welcome addition to the maritime history of Sydney.

The book also records the many challenges the Sailors' Home faced and, importantly, how it successfully responded to change over its lifetime. And it tells of how the Home recast its role and changed its name to The Australian Mariners' Welfare Society. Nowadays it is a generous provider of ongoing financial assistance to organisations such as the Mission to Seafarers and the Stella Maris Clubs that open their doors to the hundreds of mariners whose work brings them to Australia's seaports every year. Also, scholarships to the Australian Maritime College in Tasmania are awarded to promising young Australians planning a seagoing career.

Illustrated with historic and contemporary photographs, this book will be of interest to historians, librarians, seamen's charities, and indeed anyone interested in shipping, our early architecture and the stories of the seamen who have visited our shores.

01 HMAS SUCCESS CONVERTING TO DOUBLE HULL

The Department of Defence has selected ST Marine as the preferred tenderer to convert the RAN tanker HMAS SUCCESS to be double hulled.

ST Marine represented the best value for money and the shortest time out of service.

The work will be carried out in Singapore, where the ship has a scheduled visit while on deployment in Asia and involves the double hulling of HMAS SUCCESS to meet International Maritime Organisation standards for environmental protection against oil spills.

ST Marine's tender came in under budget. As a result, funds saved on this project will be re-directed towards the priority repair and maintenance work required on HMAS KANIMBLA and HMAS MANOORA, for which a precautionary Operational Pause was recently initiated by the Chief of Navy. This work will occur concurrently at Garden Island, Sydney.

Overseas companies were allowed to bid for the work on HMAS SUCCESS as:

- this is a one-off project - work of this type will never again be carried out in Australia; and
- no Australian company had ever undertaken work of this type

The on-going repair and maintenance of Navy ships happens in Australia and will stay in Australia. This includes the regular and on-going repair and maintenance of HMAS SUCCESS.

In 2010 Defence spent approximately $79m on ship repair and maintenance in the Sydney region.

This year Defence has budgeted to spend $81m on ship repair and maintenance in the Sydney region.

Next year Defence will also issue tenders for five year contracts for the repair and maintenance of Navy ships at Garden Island. This work will all occur in Australia and is worth about half a billion dollars over the five years.

These long term contracts will provide more security for Australian businesses and more job security for their workforce.

RADIOS FOR AWDS

Rohde & Schwarz (Australia) Pty Ltd has been selected by Raytheon Australia, on behalf of the AWD Alliance, as the supplier for the suite of HF, VHF and UHF radio equipment to equip Australia's Hobart class Air Warfare Destroyers (AWDs).

The radio equipment fit will comprise R&S M3SR Series 4100 and R&S M3SR Series 4400 software defined radios with associated filters/combiners and antennas. This approximately $30 million programme is the largest system integration project so far undertaken by Rohde & Schwarz Australia.

HMAS HOBART will be the first of three AWDs to be built – blocks are currently under construction. Completion of the first ship is scheduled for 2014. The Hobart class AWD is based on the F-100 class frigate built by Navantia for the Spanish Navy. Rohde & Schwarz Australia will deliver all equipment fitted into racks to the ASC shipyard in the Techport Australia precinct at Osborne in South Australia for installation in the ships' hulls. All system integration activities will be conducted at the Rohde & Schwarz Australia plant in Sydney.

INDIA BUILDING REACTORS FOR NUCLEAR SUBMARINES

Work is in progress on India's nuclear steam reactors for its first nuclear powered submarine, said Srikumar Banerjee head of the country's Atomic Energy Commission.

In 2009 India floated out its nuclear-powered submarine, ARIHANT, to be powered by light water reactor (LWR) using enriched uranium as fuel.

In an interview with *The Hindu* published during September, Banerjee said the "nuclear steam supply system was 100% ready".

"We are only waiting for other systems to become operational so that we can start the commissioning activity of the reactor."

The Indian Navy believes it needs three or four nuclear-powered submarines to be a viable force.

Enriched uranium for these submarines will come from the Rare Materials Plant at Ratnahalli, near Mysore, Banerjee said.

TOMAHAWK BLOCK IV WARHEAD SUCCESS

The US Navy completed the first live test of the Joint Multi-Effects Warhead System (JMEWS), meeting all performance objectives for the new warhead for the Tomahawk Block IV tactical cruise missile.

The JMEWS programme is designed to deliver a warhead that will give the Tactical Tomahawk Land-Attack Missile all of the same blast-fragmentation capabilities while introducing enhanced penetration capabilities into a single warhead.

"This static test of the JMEWS programme brings this powerful capability one step closer to potential integration into the Tactical Tomahawk Block IV missile, delivering

01 The RAN tanker HMAS SUCCESS will be converted to be double hulled to meet International Maritime Organisation standards for environmental protection against oil spills. (RAN)

enhanced capabilities to the operationally proven system," said Captain Dave Davison, the US Navy's programme manager for the Tomahawk Weapon System.

During the test, the warhead detonated, creating a hole large enough for the follow-through element to completely penetrate the concrete target and pass through two witness plates.

"The future of the Tomahawk Block IV missile includes a series of affordable enhancements to make the system more capable for the warfighter," said Gary Hagedon, Raytheon's Tomahawk programme director. "JMEWS is the first of the planned system enhancements, and this test demonstrates that we have the right team in place to deliver these capabilities."

Tomahawk is currently on the Navy's wish list for use from the Hobart class destroyers and the Anzac replacement vessel to be acquired under project SEA 5000.

02 'PROJECTS OF CONCERN'

During October 2010 Minister for Defence Stephen Smith and Minister for Defence Materiel, Jason Clare released the updated and complete 'Projects of Concern' list.

The 'Projects of Concern' list was established in 2008 to focus the attention of Defence and industry senior management on solving the issues required to remediate listed projects.

This process has been successful in remediating a number of key complex and challenging projects.

Projects are placed on the list by the Minister for Defence Materiel on the recommendation of the Chief Executive Officer of the Defence Materiel Organisation (DMO).

Projects are put on the list when, for example, there are significant challenges with scheduling, cost or capability delivery.

Following the advice of the DMO, Mr Clare has added Project AIR 5276 Phase 8B – replacing the AP-3C Orion aircraft's Electronic Support Measures system.

"The advice to me from the DMO is that BAE Systems, awarded the Prime Contract in 2007, is currently 18 months behind the delivery schedule for the upgraded Electronic Support Measures equipment," Mr Clare said.

"I look forward to the DMO and contractor demonstrating a renewed effort toward delivering this important capability to the Australian Defence Force as soon as possible."

Mr Clare also confirmed Project AIR 5402, the Air-to-Air Refuelling aircraft and Joint Project 2048 Phase 1A, the landing watercraft for HMA Ships MANOORA and KANIMBLA are on the current list of Projects of Concern.

Project AIR 5402 is late with an expected delay of more than 18 months. The main focus is now on addressing further schedule risk, and to keep working constructively with the contractor, Airbus Military, to ensure delivery and acceptance of two first-of-type tanker aircraft by the end of 2010.

"I toured the aircraft conversion centre in Brisbane and was briefed on progress. Our focus is now on working with Airbus Military in Spain on developmental activities to support timely completion of testing and supporting activities," Mr Clare said.

The Joint Project 2048 Phase 1A landing watercraft was originally approved in 1997. The six Australian built watercraft have not been able to prove they meet the needs for their operational roles on HMA Ships MANOORA and KANIMBLA and for support of land forces. They will not be accepted by the capability manager, in this case Army.

"Over the past two years Defence has invested time and resources on resolving issues with these landing watercraft including detailed assessments of other roles they could perform," Mr Clare said. "I am expecting advice from Defence in the near future recommending what action needs to be taken on the project."

This brings the total number of projects placed on the list since 2008 to 17, with six removed – five due to remediation and one due to cancellation.

From next year, the DMO Annual Report will also provide an update on the projects of concern list, including work being undertaken to remediate these projects.

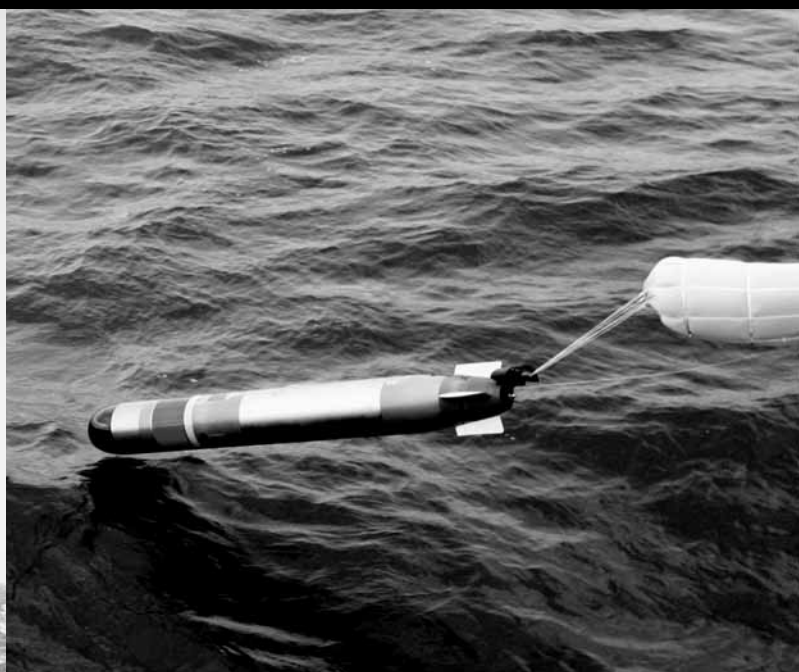
The current complete list of projects is below.

Project and Description

- CN10: Collins Class Submarine Sustainment and Projects
- AIR 5077 Phase 3: 'Wedgetail' Airborne Early Warning and Control aircraft
- SEA 1448 Phase 2B: Anti-Ship Missile Defence radar upgrades for ANZAC class frigates
- JOINT 2043 Phase 3A High Frequency Modernization (HFMOD) – communications and data exchange capability for sea, air and land forces
- AIR 5333 'Vigilare' – Aerospace surveillance and command and control system
- JOINT 129 Phase 2: Tactical Unmanned Aerial Vehicles – airborne surveillance for land forces
- LAND 121 Phase 3: 'Overlander' replacement field vehicles, trailers and

02A HMAS PERTH on acceptance trials with her new radar mast. The ASMD project has been listed as a 'Project of Concern' due to the delay in its schedule. (RAN)

02B A MU-90 ASW torpedo launched from an Anzac class frigate during initial acceptance trials. The project delivering the torpedo has been listed as a 'Project of Concern' due to slippages in schedule and poor performance. (RAN)



modules for land forces ('Medium Heavy' class of vehicles only)

- JOINT 2070: Lightweight torpedo replacement for ANZAC and ADELAIDE class frigates
- AIR 5402: Multi-Role Tanker Transport aircraft – Air to Air Refuelling Capability
- JOINT 2048 Phase 1A: LCM2000 Watercraft for Landing Platform Amphibious ships
- AIR 5276 Phase 8B: Electronic Support Measures upgrade for AP-3C Orion aircraft

03 SURPLUS SH-60F FOR SPAIN

The US Defense Security Cooperation Agency notified the US Congress on September 29 of a possible Foreign Military Sale to Spain of six SH-60F Multi-Mission Utility Helicopters and associated parts, equipment and logistical support for a complete package worth approximately US$155 million.

The sale and the refurbishment of the six SH-60F Multi-Mission Utility Helicopters is being offered as Excess Defence Articles.

The proposed sale includes 13 T700-GE-401C engines (12 installed and 1 spare), inspection and modifications, spare and repairs parts, support equipment, personnel training and training equipment, publications and technical documentation, U.S. Government and contractor engineering, technical, and logistics support services, and other related logistics and programme support.

The RAN tried to acquire six surplus F model Seahawks four years ago to supplement its own Seahawks and free them up for operations, and at the same time increasing the service life of the fleet by taking the training and utility work off them. However, the RAN approach to the USN was for some unknown reason unsuccessful. Instead, a contract was placed with Raytheon Australia for the lease of some Augusta A-109 helicopters for general duties and pilot prophecy continuation training.

RAM BLOCK 2 COMPLETES KEY FLIGHT TEST

The Rolling Airframe Missile (RAM) Block 2 from US Company Raytheon has completed the fourth of four controlled test vehicle flights designed to demonstrate the system's upgraded kinematic performance and stable airframe control capability.

The test focused on RAM's rocket motor, airframe, control section and autopilot software, which will be used to evolve and improve the accuracy and fidelity of future simulations. Raytheon will build 25 Block 2 missiles during the design and development test period. The company expects a low rate initial production contract to follow.

"RAM Block 2 will redefine ship self-defence against sea-skimming, diving and manoeuvring anti-ship missiles," said Alan Fabos, Raytheon's RAM Block 2 programme manager. "With its rapid fire-and-forget performance, RAM Block 2 will be equally deadly against rotary- and fixed-wing aircraft and surface threats."

RAM is a supersonic, lightweight, quick reaction, fire-and-forget missile providing defence against anti-ship cruise missiles, helicopter and airborne threats, and hostile surface craft. The missile's autonomous dual-mode, passive radar/radio frequency seeker and infrared guidance design provides a high-firepower capability for engaging multiple threats simultaneously. Produced in partnership by Raytheon and RAMSYS of Germany, RAM is in the fleets of seven nations serving as an integral self-defence weapon.

The Block 2 upgrade includes a four-axis independent control actuator system and a redesigned rocket motor. These upgrades are said to increase the RAM's effective range and deliver a significant improvement in manoeuvrability. The improved missile also incorporates an upgraded passive radio frequency seeker, a digital autopilot and engineering changes in selected infrared seeker components.

NAVANTIA LAUNCHES FIFTH F-100 FRIGATE

Navantia has launched the F-105 frigate CRISTÓBAL COLÓN, fifth of the F-100 series, that Navantia has built for the Spanish Navy since 2000.

The construction of the frigate started in June 2007, the keel was laid in February 2009 and it is expected to be commissioned to the Spanish Navy around the Northern Hemisphere summer 2012.

The F-105 incorporates modifications beyond those found in other Spanish Armada F-100 units, derived from the improvements achieved in the production process and from the experience gained in the operation of the ships of the series. The ship incorporates improvements in habitability and Command and Control System, and has installed the new Lockheed Martin radar, AEGIS 1-D (V). As well, it will incorporate other measures to reduce the crew and maintenance costs.

04 AH-1Z CLEARED FOR OPERATIONS

Bell Helicopter, a Textron Inc. company, announced during October that the US

03 Two USN SH-60F Seahawks. Six surplus to requirements F model Seahawks have been requested by Spain through the FMS programme for US$155m. (USN)

04 A new USMC AH-1Z Viper attack helicopter. The AH-1Z Cobra has successfully completed its Operational Evaluation (OPEVAL), clearing the way for its full introduction into service.

Marine Corps' newest attack helicopter, the AH-1Z Cobra successfully completed its Operational Evaluation (OPEVAL).

On Sept. 24, the US Navy's Aviation programme office (NAVAIR) for H-1 Upgrades received official notification from the Navy's Commander Operational Test and Evaluation Force that its AH-1Z helicopters were found to be "operationally effective and suitable" and were recommended for fleet introduction.

"We are pleased and proud that the AH-1Z has completed its operational evaluation," said John Garrison, president of Bell Helicopter. "The AH-1Z is a remarkable aircraft that is only made stronger by the Marine aviators that fly them. We are excited that our warfighters will receive the full benefit of this awesome machine."

The US Marine Corps is replacing the two-bladed AH-1W with the AH-1Z, which features a new, four-bladed folding composite rotor system, performance-matched transmission, four-bladed tail rotor, upgraded landing gear and a fully integrated glass cockpit.

A total of 189 new and remanufactured AH-1Z helicopters are anticipated, with deliveries expected to be complete by the end of 2019.

The AH-1Z Cobra helicopters are part of the US Marine Corps H-1 Upgrade Programme. The programme's goal is to replace AH-1W helicopters with new and remanufactured AH-1Zs which provide significantly greater performance, supportability and growth potential over their predecessors.

The H-1 Upgrade Programme offers 84 percent commonality of parts between the AH-1Z and UH-1Y utility helicopters. This commonality reduces lifecycle and training costs and decreases the expeditionary logistics footprint for both aircraft.

The AH-1Z incorporates new rotor technology with upgraded military avionics, weapons systems, and electro-optical sensors in an integrated weapons platform. It has improved survivability and can find targets at longer ranges and attack them with precision weapons.

The AH-1Z's new bearingless, hingeless rotor system has 75% fewer parts than that of four-bladed articulated systems. The blades are made of composites, which have an increased ballistic survivability, and there is a semiautomatic folding system for stowage aboard Amphibious assault ships. Its two redesigned wing stubs are longer, with each adding a wing-tip station for a missile such as the AIM-9 Sidewinder. Each wing has two other stations for 2.75-inch (70 mm) Hydra 70 rocket pods, or AGM-114 Hellfire quad missile launchers. The Longbow radar can also be mounted on a wing tip station.

The Z-model's integrated avionics system (IAS) has been developed by Northrop Grumman. The system include two mission computers and an automatic flight control system. Each crew station has two 8x6-inch multifunction liquid crystal displays (LCD) and one 4.2x4.2-inch dual function LCD display. The communications suite combines a US Navy RT-1824 integrated radio, UHF/VHF, COMSEC and modem in a single unit. The navigation suite includes an embedded GPS inertial navigation system (INS), a digital map system and a low-airspeed air data subsystem, which allows weapons delivery when hovering.

The crew are equipped with the Thales "Top Owl" helmet-mounted sight and display system. The Top Owl has a 24-hour day/night capability and a binocular display with a 40° field of view. Its visor projection provides forward looking infrared (FLIR) or video imagery. The AH-1Z has survivability equipment including the Hover Infrared Suppression System (HIRSS) to cover engine exhausts, countermeasure dispensers, radar warning, incoming/on-way missile warning and on-fuselage laserspot warning systems.

The Lockheed Martin target sight system (TSS) incorporates a third-generation FLIR sensor. The TSS provides target sighting in day, night or adverse weather conditions. The system has various view modes and can track with FLIR or by TV.

05 DUNCAN AWAY

DUNCAN, the sixth and final Type 45 Anti-Air Warfare Destroyer built for the Royal Navy, was successfully launched from BAE Systems' shipyard at Govan on 11 October 2010.

Launched by Lady Sponsor Mrs Marie Ibbotson, wife of RN Vice Admiral Richard Ibbotson CB, DSC, Deputy Commander in Chief Fleet, DUNCAN slid down the slipway into the Clyde, marking a pivotal moment in British shipbuilding heritage. The crowd of over 14,000 gathered to watch the iconic scene highlighting the enormous sense of pride in shipbuilding on the Clyde that remains at the heart of the local community.

UK Minister for Defence Equipment, Support and Technology Minister, Peter Luff, said: "The launch of DUNCAN is the result of a huge effort by workers here on the Clyde, across the country throughout the supply chain, and in the MOD, completing this class of potent warfighters of which everyone involved can be very proud.

"Following on from HMS DARING being declared in service and the successful first firing of the Sea Viper missile system, this is

05 DUNCAN, the sixth and final Type 45 Anti-Air Warfare Destroyer built for the Royal Navy being launched from BAE Systems' shipyard at Govan on 11 October 2010. (BAE)

06 The Japanese Kongo class destroyer JS KIRISHIMA. KIRISHIMA recently proved her BMD abilities by shooting down a separating ballistic missile target. (USN)

another significant milestone in the delivery of a truly world-class air defence capability to the Royal Navy."

Commander-in-Chief Fleet, Admiral Sir Trevor Soar, said: "The Type 45 is world-class; these ships are as versatile as they are powerful. Providing flexible global reach they will deliver broad utility, common to maritime forces, and give the UK military, diplomatic and political options, with their ability to exert effect on land from the sea. This ranges from deterrence and conflict prevention right up to high intensity war fighting and all points between.

"Naturally her war-fighting capability includes the ability to engage hostile forces using the Sea Viper missile system, her gun or other onboard weapon systems, while her ship's company provides anything from boarding parties that deter and disrupt pirates, to landing ashore for the provision of humanitarian disaster relief. HMS DUNCAN can also deploy up to 60 Royal Marines Commandos and their equipment and operate a range of helicopters from her flight deck. These are fantastic ships and I look forward to HMS DUNCAN joining the Fleet."

Named after Admiral Lord Viscount Adam Duncan who defeated the Dutch fleet in the Battle of Camperdown on 11 October 1797, it is fitting that DUNCAN the sixth Royal Navy ship to carry the name, is launched exactly 213 years after this historic battle.

At 60 per cent complete, DUNCAN, is the heaviest and most advanced of all the Type 45s at launch. She will now proceed to the company's Scotstoun yard where she will enter the next phase of outfit and commissioning.

DUNCAN 's launch comes only weeks after the third ship in the class, DIAMOND, was accepted off contract, joining her sister ships HMS DARING and HMS DAUNTLESS at their home port of Portsmouth. With the first three vessels in the class handed over, BAE Systems is more than half way through the programme to deliver all six ships to the Royal Navy by the end of 2013.

The first of class, HMS DARING, entered service on 31 July 2010 and is currently on her first operational deployment, while HMS DAUNTLESS, the second of class, was handed over to the Royal Navy in December 2009 and commissioned into service in June 2010. The fourth ship, DRAGON, undertook her first sea trials in November 2010, while the final stages of outfit are underway on DEFENDER, the fifth ship in the class.

06 JAPANESE SHOOT DOWN BALLISTIC MISSILE

JS KIRISHIMA, Japan's fourth destroyer equipped with Lockheed Martin's Aegis Ballistic Missile Defense (BMD) system, successfully intercepted and destroyed a ballistic missile target above the atmosphere during an international test event.

"This test completes the planned upgrade of the Japanese Navy's destroyers with the Aegis ballistic missile defence capability," said Jeff Bantle, Lockheed Martin's vice president of Surface-Sea Based Missile Defence Systems. "The Aegis system interoperated seamlessly with multiple international systems during this test, proving that the system's capabilities and architecture have evolved over its 40-year history."

Two US Navy Aegis BMD ships, the USS LAKE ERIE (CG-70) and USS RUSSELL (DDG-59) also participated in the test. RUSSELL, a BMD equipped destroyer, tracked the target and performed a simulated engagement. LAKE ERIE, equipped with the second-generation Aegis BMD Weapon System -- which provides greater on-board discrimination capability -- tracked the missile target and post-intercept debris using its advanced signal processor.

The Aegis BMD-equipped KIRISHIMA detected and tracked the separating medium-range ballistic missile target. It then developed a fire control solution and launched and guided a Standard Missile (SM)-3 Block IA missile to intercept outside the Earth's atmosphere.

In another test earlier this month, KIRISHIMA demonstrated her ability to interoperate with the US Navy for BMD operations. In a test event, KIRISHIMA acquired a separating target passed from the US destroyer with her own sensors and performed a simulated engagement against the target.

RUSSIAN, FRENCH SHIPBUILDERS FORM CONSORTIUM

Russia's United Shipbuilding Corporation (USC) and France's shipbuilder DCNS have signed an agreement to form a consortium, in a move that may bring a pending helicopter carrier deal closer to completion.

Russia and France are currently in talks on a 2+2 scheme, whereby Russia will buy one or two French-built Mistral LHDs and build another two at home. The contract is expected to be signed shortly.

07 FIRST NAVY F-35 ARRIVES AT PAX RIVER

The first F-35C Lightning II carrier variant, the US Navy's first stealth fighter, arrived at Naval Air Station (NAS) Patuxent River, Md., on Saturday, Nov. 6 at 2:37 p.m. The aircraft, piloted by David "Doc" Nelson, departed NAS Fort Worth Joint Reserve Base at 11:31 a.m. (Eastern) and achieved successful air refuels

07 The first F-35C Lightning II carrier variant flying over Naval Air Station (NAS) Patuxent River, Md., on Saturday, Nov. 6 at 2:37 p.m. (USN)

at a maximum load of 19,800 pounds during the flight. At Patuxent River, the F-35C will conduct air-to-air refuelling and performance testing.

NUCLEAR POWER FOR COMMERCIAL TANKERS

A consortium of British, American and Greek interests have agreed to investigate the practical maritime applications for small modular reactors as commercial tanker-owners search for new designs that could deliver safer, cleaner and commercially viable forms of propulsion for the global fleet.

The Strategic Research Group at Lloyd's Register, Hyperion Power Generation Inc, British designer BMT Nigel Gee and Greek ship operator Enterprises Shipping and Trading SA are to lead the research into nuclear propulsion, which they believe is technically feasible and has the potential to drastically reduce the CO2 emissions caused by commercial shipping.

"This a very exciting project," said Lloyd's Register CEO, Richard Sadler. "We believe that as society recognises the limited choices available in the low-carbon, oil-scarce economy -- and as land-based nuclear plants become common place -- we will see nuclear ships on specific trade routes sooner than many people currently anticipate."

The agreement for the joint industry project was signed during November 2010 at the offices of Enterprises Shipping and Trading in Athens, Greece.

Enterprises' Victor Restis said: "Despite the fact that shipping contributes much less to the world's atmospheric pollution than other shore-based industries, we believe that no effort is too great when it comes to safeguarding a better world for future generations. We are extremely honoured and proud to be part of this consortium at this historic event, as we strongly believe that alternative power generation is the answer for shipping transportation."

The consortium believes that SMRs, with a thermal power output of more than 68 megawatts, have the potential to be used as a plug-in nuclear 'battery'.

The research is intended to produce a concept tanker-ship design based on conventional and 'modular' concepts. Special attention will be paid to analysis of a vessel's lifecycle cost as well as to hull-form designs and structural layout, including grounding and collision protection.

"We are enthusiastic about participating in the historic opportunity presented by this truly groundbreaking consortium," said John R. 'Grizz' Deal, the CEO of Hyperion Power. "In addition to fitting the basic requirements as the model for studying the application of SMRs in commercial naval propulsion, the Hyperion Power Module [HPM] can also help to set new nuclear maritime standards. The HPM's design includes a non-pressurized vessel, and non-reactive coolant. These features, among others in the HPM, should encourage the industry to strive for even higher levels of inherent safety in their models."

International shipping has been identified as a significant global contributor to greenhouse gas emissions, and it is under mounting pressure to contribute to overall emission reductions. There is an ongoing debate about how much the sector will be able to reduce those emissions, while continuing to support the forecast expansion in world trade that it enables.

"Nuclear propulsion offers the opportunity for an emissions-free alternative to fossil fuel, whist delivering ancillary benefits and security to the maritime industry," said Dr Phil Thompson, Sector Director -- Transport, for the BMT Group. "We look forward to using our wide range of maritime skills and expertise to identify the through-life implications, risks and potential for developing and using SMRs in the civilian maritime environment and to provide a framework for its safe and reliable introduction and utilization."

08 RHEINMETALL AND SIKORSKY PRESENT CYCLONE FOR GERMANY

Rheinmetall and Sikorsky recently presented the Cyclone Naval Helicopter at a joint press conference in Bonn. With a view to the German Navy's planned procurement of 30 multi-role naval helicopters to replace its current Sea King systems, the companies have joined forces with additional partners in a pioneering alliance.

With spare parts for the Sea King increasingly hard to come by and levels of operational readiness for remaining aircraft no longer adequate, the Germany Navy's requirement for new systems is deemed to be urgent.

The Cyclone helicopter from Sikorsky offered by the German Multi-Role Helicopter Team, in which Rheinmetall plays a decisive role, is viewed as a promising candidate for procurement.

Within the Sikorsky consortium, Rheinmetall is in charge (among other things) of future system logistics and in-service support (ISS), and will also be responsible for the full range of instruction and flight crew training operations.

Recently selected by the Canadian Navy, the aircraft (dubbed the CH-148) is currently undergoing trials. In terms of technology, the Cyclone derives from the extensively used civilian S-92 helicopter. This aircraft is particularly popular with oil and gas companies, which use it for servicing

08 A Sikorsky CH-148 Cyclone Naval Helicopter of the Royal Canadian Air Force.

offshore platforms worldwide, e.g. in the Gulf of Mexico, the North Sea and the waters off Newfoundland, Brazil, Australia, Malaysia and China.

PAKISTAN COMMISSIONS EX-USN FRIGATE

The Oliver Hazard Perry-class frigate USS MCINERNEY has been paid off by the US Navy (USN) and immediately recommissioned into the Pakistan Navy (PN).

The 4,100-ton vessel was renamed PNS ALAMGIR (F-260) during the 'hot transfer' ceremony at the Mayport naval base in Florida during last year, which followed an agreement between the United States and Pakistan under the former's Foreign Military Sales (FMS) programme.

ALAMGIR is likely to be followed into Pakistani service by several other members of its class. In 2009, the government in Islamabad was pressing Washington to agree to transfer a further five or six Oliver Hazard Perrys as they become surplus to USN requirements.

Originally commissioned in December 1979, the lead ship will be refurbished in the US while its crew completes a training package under USN instruction. The engineering work may include the addition of a surface-to-air missile system; the original Mk-13 launchers (for SM-1 missiles) were removed in US service.

The FMS deal - which included the ship, associated equipment, spare parts, logistics support and refurbishment work - was worth about US$78 million.

The PN surface combatant force currently comprises six 1970s-vintage ex-UK Royal Navy Tariq-class (Type 21) frigates, which were transferred in 1993 and 1994, and the first two of four new Sword-class (F-22P) frigates on order from China.

09 GRIFFITHS HOUSE UNVEILED

The first new building in the HMAS CRESWELL redevelopment, Griffiths House, has been opened by namesake Rear Admiral Guy Griffiths, AO, DSO, DSC, RAN (Retd). The House named after Rear Admiral Griffiths is a three storey officers transit accommodation block comprising 32 cabins with ensuite bathrooms shared between two cabins. It has been built in keeping with the 1913 historical weatherboard style predominate at HMAS CRESWELL.

RADM Guy Griffiths spent 43 years in naval service joining the RAN College in 1937 at the ripe old age of 13.

On the occasion of the opening RADM Griffiths said "It is very humbling to have one's name placed alongside historical figures such as ADMs Collins and Dowling at this prestigious establishment."

10 CB90 ATTRACTS MORE CUSTOMERS

Two Combat Boat 90s (StridsBåt 90, CB 90) have been loaned to the UK and Netherlands for a six month trial. HNLMS JOHAN DE WITT is currently testing operation of the craft from existing davits; Royal Navy trial plans are not known at this time.

The Combat Boat 90 (CB90) is a fast military assault craft originally developed for the Swedish Navy by Dockstavarvet. In addition to the many variants in service with the Swedish Navy under the Strb 90 H designation, the CB 90 has been adopted by the navies of several countries, including Brazil, Norway (as the S90N), Greece, Mexico (as the CB 90 HMN), and Malaysia. Also the German Navy plans to equip the Berlin-class replenishment ships with the CB90. The US Navy amphibious warfare school is also trialing the craft with great success.

The CB 90 is an exceptionally fast and agile boat. Its light weight, shallow draught, and twin water jets allow it to operate at speeds of up to 40 knots (74 km/h) in shallow coastal waters. The water jets are partially ducted, which, along with underwater control surfaces similar to a submarine's diving planes, allows the CB 90 to execute extremely sharp turns at high speed, decelerate from top speed to a full stop in 2.5 boat lengths, and adjust its pitch and roll angle while under way. The boat can carry 20 fully equipped troops and has a bow ramp for disembarking over beaches and river banks. There is some armour protection and the boat can be fitted with a full battle management system, radios, radar, crew operated machine guns, remotely operated .50-cal machine guns, 120mm mortars or Hellfire missiles.

With Australia about to embark on a serious amphibious force, a capability such as the CB90 for Special Forces insertion, intelligence gathering, flank protection and riverine warfare would seem to be appropriate.

09 Rear Admiral Guy Griffiths, AO, DSO, DSC, RAN (Retd) unveils the Griffiths House plaque with Chief of Navy Vice Admiral Russ Crane, AO, CSM, RAN

10 Combat Boat 90 of the USN's Amphibious Warfare School in Norfolk Virginia. (USN).

1ST PLACE

ORGANIC AIR DEFENCE & STRIKE CAPABILITY FOR NAVY

LEUT Andrew McMeil RANR

The first place essay in the 2010 Navy League of Australia Essay Competition, Professional Category, was by LEUT Andrew McMeil RANR, who examined the merits of organic air support for the RAN.

On 21 July 1921, in the United States, a test was conducted to demonstrate the vulnerability of ships to air attack. The test was conducted by William "Billy" Mitchell (1879–1936) in which U.S. Marine, Navy and Army aircraft, dropped bombs on the ex-German WWI battleship, OSTFRIESLAND. The bombing caused the OSTFRIESLAND to settle by the stern, with a five degree port list. Further bombing the next day caused serious damage to hull plating (no actual hits were recorded on the hull) with the vessel eventually sinking at 12:31 p.m. While unrepresentative of a warship target (i.e anchored, known position, not manoeuvring, not firing back and no damage control) the test proved influential, with budgets being allocated for further air development and forcing the U.S. Navy and other navies to closely examine the possibilities of naval airpower.

This demonstration of airpower became the catalyst during the interwar years for several of the world's navies – the Royal Navy, the US Navy and the Imperial Japanese Navy - to design and construct dedicated aircraft carriers and/or convert former battlecruisers and merchant ships into aircraft carriers.

The Royal Navy was the first navy to demonstrate the use of airpower against large fleet units during WWII. On the night of 11-12th November 1940, 21 Fairey Swordfish bi-planes armed with modified torpedoes attacked the Italian fleet at Taranto. Five torpedoes struck three battleships, VITTORIO VENETO, CAIO DUILIO and CONTE DI CAVOUR. The first two were recommissioned by May 1941, but CAVOUR was never repaired. The remaining ships took refuge in Naples, further away from the area of operations. The Italian fleet had effectively been cowed for the loss of two aircraft, a remarkable victory for such a small force.

The attack at Taranto was carefully studied by the Japanese, prior to planning and executing their devastating attack on the US Pacific Fleet at Pearl Harbor on 7 December 1941. Three days later, on 10 December 1941, Force Z, comprising the battleship PRINCE OF WALES and the battlecruiser REPULSE were sunk in the South China Sea by Japanese land-based torpedo bombers. The loss of Force Z demonstrated the vulnerability of ships operating at sea without air support.

This lesson was relearned at considerable cost in 1982 during the Falklands Conflict, when the British task force lost four warships (ANTELOPE, ARDENT, COVENTRY and SHEFFIELD) and two auxiliaries (ATLANTIC CONVEYOR and SIR GALAHAD) to air attack. The Falklands conflict also demonstrated that unsophisticated aircraft dropping unsophisticated bombs could still inflict varying degrees of damage upon modern warships.

AIRCRAFT CARRIERS

The Second World War witnessed the 'Eclipse of the Big Gun,' and the passing of the term 'capital ship' from battleship to aircraft carrier. Aircraft carriers are still regarded by many of the world's navies as capital ships and, in recent times, an increasing number of navies have acquired small aircraft carriers, capable of operating VSTOL aircraft and troop carrying/ASW helicopters. This has been influenced by the inherent flexibility of the aircraft carrier and the prohibitive cost of constructing, maintaining and manning large aircraft carriers. Currently France, Russia, UK, Brazil, Thailand, Italy, Spain, India and US navies operate fixed wing aircraft carriers, while additional construction projects are currently underway in China, India, Spain, UK and the US.

A Fairly Swordfish with torpedo. This type of aircraft was responsible for the attack on the Italian Fleet in Taranto and proved how vulnerable ships are from the air when tied up in harbour.

Irrespective of size, aircraft carriers perform the following primary roles:

- 'Showing the Flag' – important in peacetime for contributing to good relations with foreign governments and also demonstrating to allies the readiness to come to their aid as/when required;
- 'Gunboat Diplomacy' – the presence of a carrier capable of quickly landing a battalion of armed troops on shore or the application of mobile air power encourages a would-be aggressor to pause;
- In limited (brushfire) conflicts acting as mobile air bases capable of providing offensive strikes on enemy targets on land or at sea and defensive anti-aircraft/anti-submarine airpower, especially at long range; and
- The defence of sea trade routes, particularly the areas out of range of land based aircraft. This is particularly significant for Australia, since 99% of Australian trade by volume travels by sea.

In the words of Admiral of the Fleet Lord Hill-Norton, GCB RN:

'The Fleet Carrier – the most impressive fighting machine the world has ever seen. This one ship can unleash a greater variety of lethal weapons with a greater destructive power, at longer range, than any man 'o war in history.'

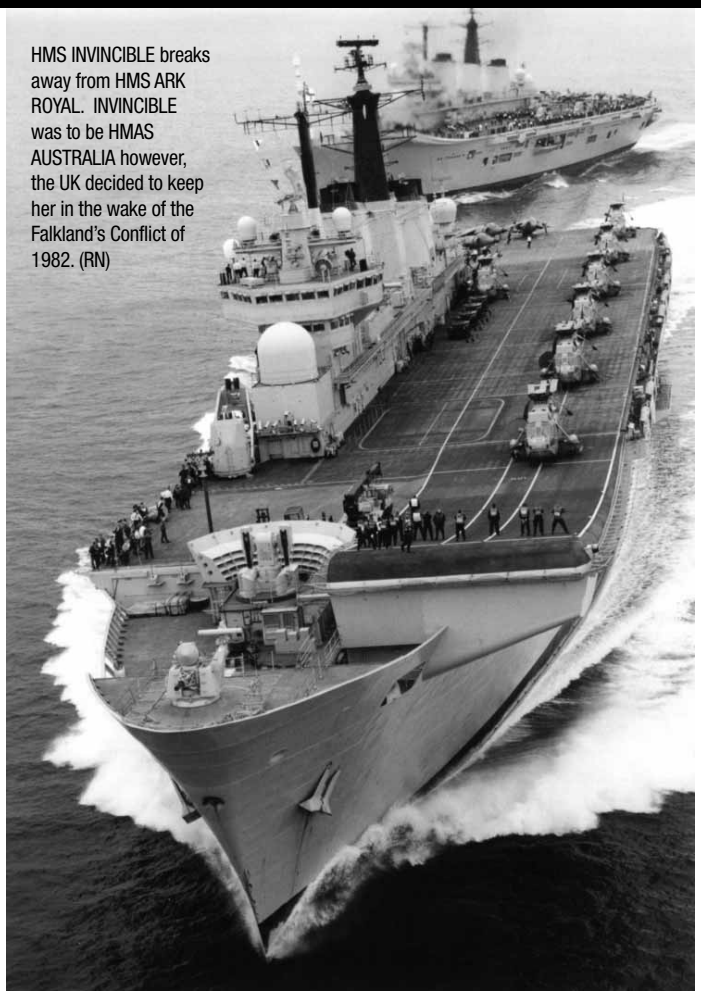
The former Australian aircraft carrier HMAS MELBOURNE in Sydney Harbour. (RAN)

THE AUSTRALIAN CONTEXT

The outstanding success of the carrier-based air power in the Pacific War (1941-45) ensured the RAN never questioned the utility of the aircraft carrier. For nearly 40 years, the aircraft carrier remained the RAN's most important force structure element. The aircraft carrier offered flexibility and a means by which Australia could contribute to collective defence whilst maintaining a credible independent naval capability.

On the 3 June 1947 the Australian Government approved the purchase of two light fleet carriers from the Royal Navy; SYDNEY (ex-HMS TERRIBLE) in 1949 and the MELBOURNE (ex–HMS MAJESTIC) in 1956.

SYDNEY served with distinction in the Korean War, but was relegated to training duties in 1954 and paid off into reserve in 1958, when



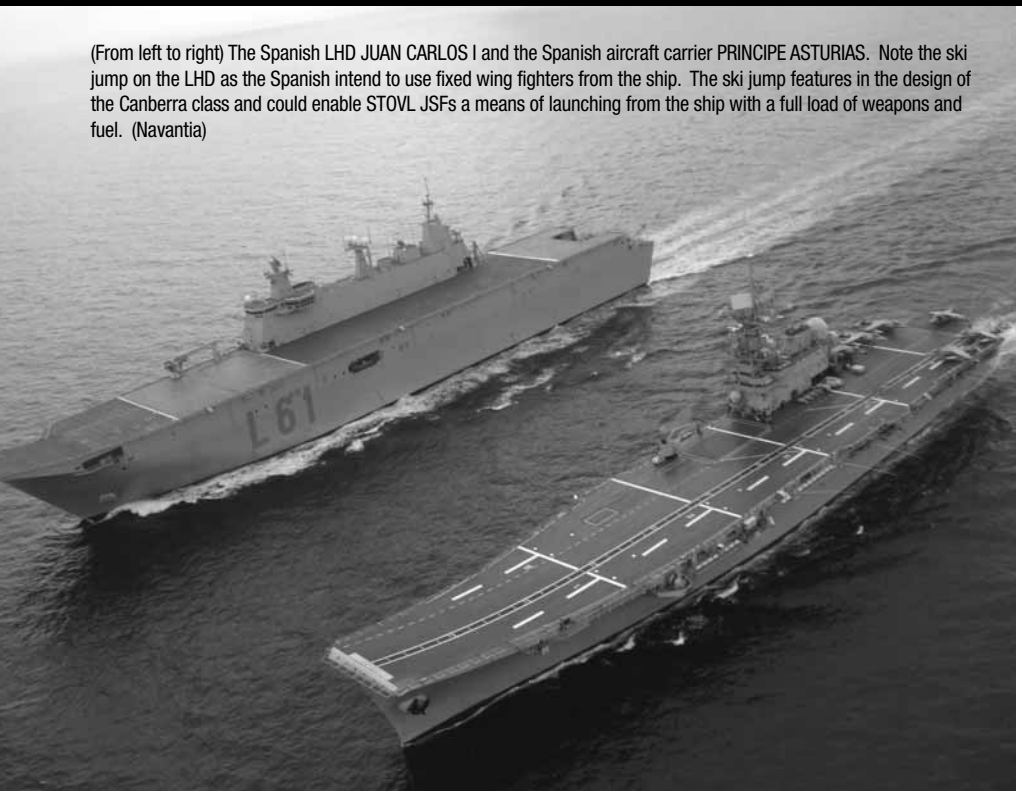
HMS INVINCIBLE breaks away from HMS ARK ROYAL. INVINCIBLE was to be HMAS AUSTRALIA however, the UK decided to keep her in the wake of the Falkland's Conflict of 1982. (RN)

funding for modernisation was not forthcoming. She recommissioned in 1962, after a refit to equip her as a fast troop transport. She saw service during the Vietnam War and between 1965-72, made 23 runs to the port of Vung Tau in South Vietnam, and thereby earned the epithet 'The Vung Tau Ferry.' She was decommissioned in 1973 and broken up in 1975.

MELBOURNE arrived in Australian waters in 1956, complete with the latest in carrier developments. Her aircraft complement initially included Fairey Gannet ASW aircraft and Sea Venom, all-weather jet fighters. Westland Wessex ASW helicopters were acquired in 1963, with Grumman S-2 Trackers and McDonnell Douglas A-4 Skyhawks in 1967. In 1969 she underwent an extensive refit to optimise the flight deck operations of her outfit of new aircraft. In 1975 she was equipped with Sea King ASW helicopters to bolster her ASW capability. As the RAN flagship she participated in the Silver Jubilee Fleet review at Spithead in 1977, where her clean lines and immaculate paintwork did little to betray her age.

In September 1980 the Minister for Defence announced that the Australian Government had decided to replace the aircraft carrier MELBOURNE. In 1981 the UK proposed the sale of HMS INVINCIBLE to the RAN. The Minister for Defence, Jim Killen, announced on 25 February 1982, that the Government had decided to acquire INVINCIBLE. The proposed acquisition of INVINCIBLE was, however, overtaken by events in the South Atlantic, when on 2 April 1982 Argentinean forces invaded the Falkland Islands. This prompted the Australian Prime Minister Malcolm. Fraser to write to the British Prime Minister Margaret Thatcher, on 1 June 1982, to state that should her Government wish to re-examine the sale of INVINCIBLE, Australia would not hold her Government to the earlier obligation. Thus it was announced on 13 July 1982 that the UK Government would retain INVINCIBLE in Royal Navy service.

On the 30 June 1982 MELBOURNE decommissioned and was placed



(From left to right) The Spanish LHD JUAN CARLOS I and the Spanish aircraft carrier PRINCIPE ASTURIAS. Note the ski jump on the LHD as the Spanish intend to use fixed wing fighters from the ship. The ski jump features in the design of the Canberra class and could enable STOVL JSFs a means of launching from the ship with a full load of weapons and fuel. (Navantia)

into contingent reserve, her Skyhawk and Tracker squadrons being disbanded on 2 July 1982. On 14 March 1983 the new Minister for Defence Gordon Scholes, announced that the MELBOURNE would not be replaced. On the 3 May 1983, Scholes announced that 'Flying by fixed wing aircraft of the Royal Australian Navy will be phased out.' It being 'obvious that fixed wing aircraft, especially those which require a carrier base for their operations, are not able to be usefully maintained in service.'

So ended the RAN's ability to conduct offensive air strikes on enemy targets on land or at sea as well as its ability to undertake long-range, defensive anti-aircraft/anti-submarine operations.

A FUTURE OPPORTUNITY

On 20 June 2007, the Australian government announced plans for the RAN to acquire two large amphibious assault ships based upon the Spanish Navantia 'Strategic Projection Ship.' The ships are designated as Landing Helicopter Dock (LHD) and are being constructed in Ferrol, Spain. The ships will be transported to Williamstown, Victoria (via heavy lift ship) where the superstructure will be constructed and consolidated onboard and the ships outfitted. The ships will be named CANBERRA and ADELAIDE and are expected to enter service in 2014 and 2016 respectively. The LHDs are to replace the Landing Platforms Amphibious (LPAs) KANIMBLA and MANOORA and will be the largest warships ever to have served in the RAN.

With their ability to carry out amphibious assault, humanitarian assistance and disaster relief operations at long range, LHDs have become valuable assets in a number on navies including those of France, Italy, South Korea, as well as the UK and the US.

The RAN's LHDs could be equipped for the operation and maintenance of VSTOL aircraft and large troop carrying/ASW helicopters. These vessels could also provide tri-service centralised command and control and support facilities. In essence, it would be possible to equip the LHDs so that they could be utilised as aircraft carriers and to operate as part of a task force, exploiting the principle of concentration of force, and comprising an integrated and mutually supportive range of offensive and defensive weapons.

This would require minor modifications to accommodate the aircraft, their weapons and to provide the navigation and approach aids essential for the operation of VSTOL aircraft. The VSTOL equipped LHDs would then become the 'sword and shield' of a task force, by providing strike capability at the time and place of choosing of the task force commander as well as close air support.

AIR SUPPORT FOR A TASK FORCE

The Defence White Paper 2009 requires the RAAF to provide, inter alia, air superiority, maritime strike, maritime surveillance and response and close air support.

In terms of close air support, it would be naïve to believe the RAAF can and will be able provide close air support for a RAN task force operating at sea. The RAAF's current and future aircraft (the F-35 JSF/Lighting II) do not possess the necessary range to provide continuous close air support without refuelling. Even with refuelling, combat aircraft (F-35 included) can only remain on station over a task force for short periods (minutes). In any event, the RAAF currently does not possess sufficient numbers of refuellers to perform this task – a task which is both expensive and which would expose the engaged aircraft to considerable risk.

Equally, the RAN's air-warfare destroyers (AWDs) may not be able to provide complete area air defence for a naval task force in all situations. It is plausible that only two of the three AWD's would be available at any given time and, although fitted with the AEGIS system, even the AWD's would be hard-pressed to negate a strong, multi-pronged air and missile attack.

A STOVL F-35 JSF during testing. If the ADF ordered 32 aircraft it would enable each LHD to embark a naval squadron of eight aircraft, a training squadron of eight aircraft at Naval Air Station HMAS ALBATROSS and a RAAF ground attack squadron Operational Conversion Unit (OCU) at RAAF Williamtown. (Lockheed Maritn)

SOLUTION

The solution to this dilemma may lie in the procurement of F-35B aircraft for the Australian Defence Force (ADF) for use by the RAN and RAAF. A total of 32 aircraft would enable each LHD to embark a naval squadron of eight aircraft, a training squadron of eight aircraft at HMAS ALBATROSS Naval Air Station (NAS Nowra) and a RAAF ground attack squadron Operational Conversion Unit (OCU) at RAAF Williamtown. This approach would also provide additional or replacement aircraft for deployment on LHD missions.

The RAN training squadron at HMAS ALBATROSS and the OCU at RAAF Williamtown could provide integrated dual service training for aircrew and maintenance staff for deployment as part of an LHD air group. A typical LHD air group would consist of a mix of RAN/RAAF aircraft, aircrew and maintenance staff fully trained and integrated. This would enable the LHDs to conduct strike missions, provide close air support for a task force and air defence, totally independent of shore based aircraft.

This concept is similar in operation to the UK's successful 'Joint Force Harrier' initiative, which was later renamed 'Joint Strike Wing,' which controls the STOVL Harrier aircraft of the Royal Air Force and Fleet Air Arm. It is subordinate to RAF Air Command. There are two operational Joint Strike Wing squadrons, one Fleet Air Arm and one Royal Air Force, plus an RAF Operational Conversion Unit. Joint Force Harrier was established on 1 April 2000 in response to the proposal brought by the British Government as part of the then Strategic Defence Review.

The perception of the inadequacies of VSTOL aircraft are without foundation, as the British demonstrated during the Falklands conflict in 1982. The Sea Harrier's performance was on paper inferior to that of the Argentinean Dassault Mirage. However, in air-air engagements the British destroyed 20 Argentinean aircraft for no loss. A superior anti-aircraft missile, in the form of the AIM-9L, more than compensated for poorer performance characteristics. A further 20 Argentinean aircraft were destroyed by task force missiles and gun-fire.

CONCLUSION

The emergence of China as an economic and military power and the withdrawal of elements of the US Navy from the western Pacific, may be the catalyst for the RAN to realign its fleet capabilities. China intends to construct two 50-60,000 tonne aircraft carriers and additional submarines and thereby increase her ability to influence events in the South East Asian region. Her first training carrier, the ex-Russian VARYAG, is due for sea trials next year.

CANBERRA and ADELAIDE have the potential to provide the ADF with a highly capable, versatile and cost effective means of power projection - offensive air strikes on land or at sea, defensive anti-aircraft/anti-submarine operations and effective defence of sea trade routes (F-35B aircraft) and the deployment of Joint Expeditionary Forces whenever and wherever required. To ensure these goals are realised the following must be remembered:

- Fixed wing aircraft on the LHDs are a Joint ADF asset and therefore must have a Joint Services approach, however, the RAN must take the lead, in particular in the provision of effective flight safety;
- The LHDs will introduce significant logistical challenges which must be thoroughly understood before successful operations can take place; and
- Carrier aviation is a precision art, not just deck landings and take-offs. It requires regular and sustained practice by all personnel dedicated to its advancement in order to be safe.

Without air power - there is no sea power.

The ex-Russian aircraft carrier VARYAG, now known as SHI LANG, nearing completion in a Chinese navy shipyard as China's first super carrier.

1ST PLACE

LE TRIOMPHANT

WHY WAS A SUPER-DESTROYER IN AUSTRALIA DURING 1941-1943?

By Peter Ingram

Peter Ingram, in this his 1st place 2010 Navy League of Australia Non-Professional Essay Competition entry, examines the effectiveness of the Free French super Destroyer LE TRIOMPHANT in Australian waters during 1941-43, as well as her torturous journey home.

By 1943 the naval scene in Australian waters was becoming arguably homogenous. Ubiquitous Bathurst-class corvettes patrolled local harbours amid the comings and goings of identical factory-fresh "Liberty Ships". But in the starkest contrast to this picture was the presence of the French contre-torpilleur ("super destroyer") LE TRIOMPHANT. Indeed, here was a stunning looking vessel which represented the very antithesis of rationalist planning and efficiency. LE TRIOMPHANT was among the most potent warships in her class, and boasted an extraordinary speed.[1] However she was an expensive mistress, chewing up vast amounts of fuel and dockyard resources. She was also one of the least-suitable ships for Pacific service. Why then did she spend two years in Australia at the height of the Pacific War? [2]

LE TRIOMPHANT and her sister-ships were designed to undertake fast "hit and run" missions in the Mediterranean, launching massed torpedo attacks against the enemy fleet (most likely Italian). To overcome counter-attacking enemy destroyers the ships had a powerful main armament of five 5.5-inch guns, directed by an advanced and effective (pre-radar) fire-control system. This approached a cruiser-type armament, and displacing over 3,000 tons fully loaded LE TRIOMPHANT compared favourably to certain cruisers (e.g. the British "C" class light cruisers armed with five older 6-inch guns). Indeed, Admiralty messages from the period refer to the "light cruiser LE TRIOMPHANT".

Arguably, the super-destroyer concept was proven when LE TRIOMPHANT and two sister-ships crossed the North Sea in April 1940 in a daring search and destroy operation. They ventured far beyond where any other friendly surface vessels had dared, penetrating as far east as Hamburg. Surprisingly encountering nothing on the outwards journey, they reversed course and soon were battling enemy patrol vessels, torpedo boats and submarines. During daylight they endured several hours of Luftwaffe attacks. Although LE TRIOMPHANT was damaged by a near miss, by maintaining 34 knots all of the ships returned safely to Britain.

This near-miss left LE TRIOMPHANT with a mis-aligned port propeller shaft. She was in a French dockyard when the Germans invaded France in May 1940. Subsequently she was towed to a British port with much of her dis-assembled machinery hurriedly embarked. She then became the leading warship in the embryonic Free French Naval Forces (FNFL - Les Forces Navales Françaises Libres - Free French Naval Forces). There was considerable prestige attached to returning her to service. However, few of her original crew remained and British shipyards were unfamilar with the complex machinery driving her massively powerful engines. Spare parts had to be manufactured from scratch without drawings, an expensive and time-consuming task. Thus LE TRIOMPHANT spent most of the following year under repair, a barely efficient use of dockyard resources at that critical time of the war.

However Churchill in particular had invested much political capital in the Free French movement, so the driving rationale behind LE TRIOMPHANT was never a simple military one. One benefit of this long period in dock was the receipt of a first-class armament and sensor upgrade. Alongside improved Anti-Air and Anti-Submarine Warfare weapons were being fitted plus ASDIC and an early surface-

LE TRIOMPHANT in Sydney Harbour during WW II. (RAN Seapower Centre)

The long sleek and fast French Super destroyer LE TRIOMPHANT.

search radar.

When she finally emerged for service in mid-1941 LE TRIOMPHANT represented a modern, balanced warship with a heavy punch and an extraordinary turn of speed. Unfortunately, being the sole member of her class to transfer to FNFL service, LE TRIOMPHANT's offensive potential was vastly diminished. To complicate matters, the publicity-conscious Free French insisted on a frontline role for their star ship. Thus it was decided to send LE TRIOMPHANT to the Eastern Mediterranean where she could form a "division" with the only other FNFL contre-torpilleur, the comparable, but much older, LÉOPARD.

Meanwhile, a show of force was needed to keep the French Pacific colonies committed to the Free French movement. The two other vessels assigned to the mission were the ex-merchantman CAP DES PALMES and the sloop CHEVREUIL. However, amid criticism that the Free French were a "band of adventurers", would the colonial citizens "rally" to otherwise unknown metropolitan officers stepping off these modest vessels? [4] A real warship would help to present the Free French as a legitimate government. Thus, briefly, LE TRIOMPHANT would be part of the "Pacific Mission", before continuing through to the Mediterranean.

LE TRIOMPHANT made fast passage across the Atlantic and through the Panama Canal, arriving in Tahiti on 23rd September 1941. The ship docked amid a huge welcoming crowd yelling "Vive de Gaulle". In due course the French Pacific remained faithful to the Free French. The powerful image of LE TRIOMPHANT was a major contributor to this outcome, and arguably this was the ship's most important contribution to the war effort.

The arrival of this ship in the weakly-defended South Pacific did not go un-noticed, and the New Zealand Naval Board requested (unsuccessfully) that the "light cruiser" remain in the region. However LE TRIOMPHANT was showing some very un-cruiserlike attributes in the vast Pacific. Her massively powerful engines burned through fuel at an alarming rate. Indeed, she was unable to sail directly from Panama to Tahiti, instead taking a long circular route via San Diego and Hawaii. After topping up with 580 tons of the highest grade fuel oil in Hawaii, she then made a "maximum range voyage" of 2,400 miles to Tahiti, barely reaching her destination. Then, after taking on low-grade fuel in Tahiti (LE TRIOMPHANT exhausted the fuel reserves of this small territory – and for this reason would never return), the ship barely made the 2,000 mile voyage to Fiji.

Now very conscious of her range limitations, LE TRIOMPHANT also needed some time in dock after her long voyage. She arrived in Sydney, and was there when the war with Japan began. While in Australian waters LE TRIOMPHANT was controlled by the Australian Naval Board. No doubt the presence of this seemingly powerful vessel was initially seen as a windfall. In mid-December LE TRIOMPHANT escorted a troopship to New Caledonia, a mission that doubled as a Free French flag-waving exercise. After spending Christmas there, LE TRIOMPHANT learned that its Mediterranean itinerary was cancelled, and she was to remain in Eastern Australian waters. [5]

LE TRIOMPHANT's next task was to escort a tanker in the South Pacific supporting Australian and New Zealand cruisers. After departing Suva, the French destroyer narrowly missed contact with a Japanese submarine which attacked the New Zealand ship *Monowai*. Otherwise, the mission was mundane and the French crew grew to dislike escort duty, with their super-fast vessel limited to a plodding 10 knots alongside the slow tanker. Also, the destroyer was hot and uncomfortable in the tropics – designed for more temperate climes. To make matters worse, LE TRIOMPHANT rolled especially badly at low speed. After arriving in Brisbane and gladly ridding herself of the encumbrance of the tanker, LE TRIOMPHANT sailed the 500 miles to Sydney in less than 19 hours – at an impressive average speed of over 27 knots.

In February 1942, LE TRIOMPHANT's captain volunteered the ship for a relief mission to Nauru and Ocean Islands. This would rescue hundreds of phosphate industry workers as well as small military detachments. From a forward base in the New Hebrides, LE TRIOMPHANT completed voyages each to Nauru and Ocean Islands, both about 1,000 miles away on the equator. The second half of each trip was inside the Japanese "zone", with speed increased to 25 knots. These voyages were extremely tense, with the enemy half-expected at any moment. Amazingly some 600 evacuees came aboard from Nauru, and some 400 from Ocean Island, most of whom were somehow crammed onto LE TRIOMPHANT's decks.[6]

Sadly, the proud ship did not follow-up on this successful mission, instead going into dock in Sydney for a major refit focused on the engines. In retrospect this was an extremely challenging job for local industry at a time when they were fully occupied with countless other war projects. It is unlikely that any of those signing off on the work had a full understanding of the difficulties involved. Without going into detail, the work dragged on endlessly, giving the vessel a bad reputation. Worse, the FNFL sailor's morale sagged amid accusations they "didn't want to go to sea" and were somehow intentionally prolonging the dockyard work. Every time other warships went into Sydney Harbour they would see the inactive LE TRIOMPHANT and hence the "reputation" grew (she was known in the RAN as 'The Reluctant Dragon'). The French sailors were especially sensitive after coming into contact with survivors from HMAS CANBERRA after the early naval disasters off Guadalcanal.

The ship finally commenced sea-trials in November 1942, but a frustrating series of mechanical faults occurred. There were even suspicions that a pro-Vichy member of the crew had sabotaged the ship. A dry-dock examination revealed a residual fault connected to the propeller shaft mis-alignment suffered in 1940. Propeller shaft assemblies were difficult and exacting parts to work on, and a further period in dock seemed inevitable.

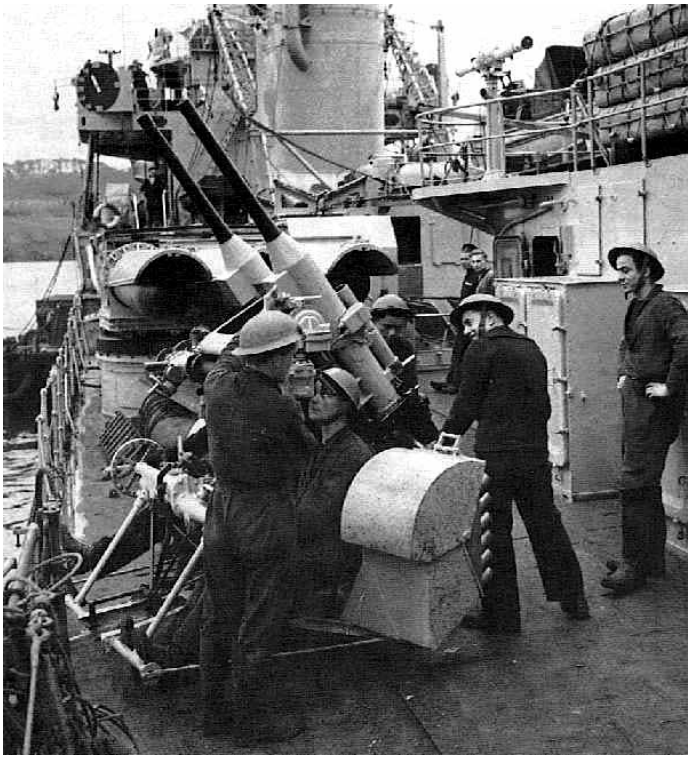
However, LE TRIOMPHANT was desperate to get to sea.[7] While a new propeller shaft was made, LE TRIOMPHANT would operate on one propeller only, despite the severe limitation in both speed and manouverability. The Naval Board found a useful niche for the ship. From January 1943 she began escort service along the busy Melbourne - Sydney shipping lane, a task easily suited even to LE TRIOMPHANT's limited range. With Japanese submarines active, this was a busy time. Even on one propeller, LE TRIOMPHANT could maintain 27 knots, which was double the speed of most other RAN escorts. She often served as an emergency anti-submarine response ship, including, for example, when the *Iron Knight* was sunk. Within hours LE TRIOMPHANT had arrived and rescued the survivors.

After a few months of successful service, in June 1943 LE

LE TRIOMPHANT in Sydney Harbour sporting her new camouflage before heading back to the European Theatre. Her time laid up in Sydney under repair earned her the nickname of 'The Reluctant Dragon'.

TRIOMPHANT went back into dock to have the new propeller assembly fitted. Meanwhile the ship's officers in particular were growing restless with duty that had little relevance for them. After having rebelled from the French Navy, all of the FNFL crew were desperate to see action before returning home. For this reason LE TRIOMPHANT's captain requested fleet duty, preferably as part of a "striking force". The Naval Board interpreted this as a desire for inclusion in Task Force 74, which offered about the only alternative to escort duty in the SWPA. [8] However, no doubt referring to the French ship's poor endurance (and possibly also political factors), the Naval Board noted internally that "TF 74 would probably not want" LE TRIOMPHANT.

In July 1943 LE TRIOMPHANT returned to service with both propellers. Evidently the Naval Board had some sympathy with the French requests to see action, and for the first time a series of escort missions took the ship beyond Brisbane to Townsville. From this port LE TRIOMPHANT escorted convoys to and from New Guinea for six weeks. This was more busy work, often in company with US destroyers, and there was a threat of air attack during the quick turn-arounds in Port Moresby. However, LE TRIOMPHANT's 'luck' held and the ship had no contact with the enemy.



A 37mm anti-aircraft gun as fitted to LE TRIOMPHANT.

With the ship now fully operational again, FNFL headquarters ordered LE TRIOMPHANT to North Africa. Not wanting to leave without being "blooded", her captain requested an unusual exit routing via northern Australia where air attack was likely. The Naval Board refused, reasoning that other vessels would be exposed to needless risk if they had to assist LE TRIOMPHANT.

Instead, LE TRIOMPHANT took the southern route and departed Fremantle on 25th November 1943. During her two-year stay Australia had became a second home for many of her crew. Close ties were formed locally and a number of marriages resulted. The crew often participated in public ceremonies and marches, as they were the only free French military representatives in Australia. This helped "sell" the United Nations aspect of the global struggle to the public.

In retrospect LE TRIOMPHANT was chronicly miscast for Pacific service. Possibly her unique qualities could have been valuable if converted to a fast escort or transport (as per HMAS STUART). But as the FNFL "flagship" she was a sacred cow. LE TRIOMPHANT had to remain in "striking force" configuration even though her duties were much more banal. While she did give some useful service locally, on balance she consumed a disproportionate amount of resources. Overall Australia did well to maintain this complex foreign ship amidst so many other conflicting priorities.

BACK FROM THE DEAD IN THE INDIAN OCEAN

On leaving Fremantle in November 1943, although disappointed not to have seen action, LE TRIOMPHANT's crew were thankful that their 'lucky' ship had got them this far. But none of them could have guessed the terrible ordeal that awaited them in the Indian Ocean.

LE TRIOMPHANT was bound for Madagascar via Diego Garcia. Because of her limited endurance, LE TRIOMPHANT was to refuel at sea from the tanker she was escorting *(Cedar Mills)*. When this was first attempted a heavy swell was running and the ships collided. The refuelling pipe was flattened and destroyed, and several hull plates were dented. With just enough fuel onboard to react in case of a submarine scare, LE TRIOMPHANT was put in tow by *Cedar Mills* at a pedestrian 8½ knots. Two days later the weather cleared slightly and another fuelling attempt was made using a fire hose. This time over 300 tons of oil was passed before the hose parted. This was enough for LE TRIOMPHANT to sail on one boiler only to conserve fuel. The two ships continued together at 15 knots towards their destination 1,300 miles away.

But the weather took a turn for the worse. The ships were approaching a cyclone, and in such a remote part of the globe there was no warning of any kind. Towards the evening of 2nd December, LE TRIOMPHANT lost contact with *Cedar Mills* in extremely heavy seas. Soon the destroyer was rolling violently and battling to stay afloat. That evening the ship took a terrific roll to starboard and she was reduced to just 6 knots. An hour later there was another severe roll, this time with sea water entering the air vents of the boiler room. Engine power was reduced still further. Shortly afterwards the ship rolled to port and did not recover. There was a loud explosion and all of the lights went out, leaving the ship in total darkness. Eventually emergency lighting came on but the ship was stuck at a 15° angle. With all the rolling about the interior of the ship was a shambles, with all kinds of stores including ammunition rolling about after their lockers had been torn off their mountings.

The situation continued to deteriorate, with the wind howling outside in the darkness as the savage seas pounded against the stricken ship. Just before midnight the wind reached Force 7 and the list increased to 25° as tons of seawater were taken aboard. Inside the terrified crew threw as much debris overboard as they could. Soon

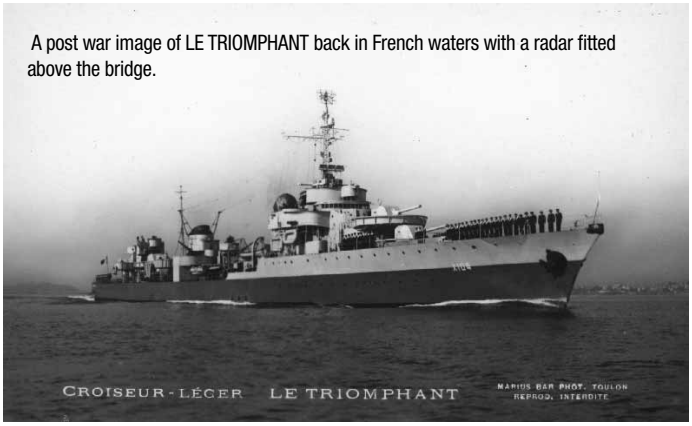
they heard a huge explosion, then more to follow. It was realised these were depth charges that had been washed off the deck and were exploding in the murky depths below. By this time the engine rooms were flooded waist deep and the stokers fought to extinguish the boiler fires lest they explode.

The ship continued rolling amid the ever-growing seas. The night was truly terrifying. At 5am the wind peaked at Force 10-12, and the ship listed at a frightening 50°. Inside the men simply hung on wherever possible, unable to move and not knowing what was going on in adjacent sections of the ship. Each roll brought fear that it would be the last and the ship would break up. Worst of all it seemed all hope was lost. The ship was in a remote part of the Indian Ocean. An SOS was being tapped out but the radio batteries were running low and there was been no response. During the night the ships doctor and second officer simply disappeared – presumably washed off the deck.

Dawn revealed a ship with it's port side and some of the forecastle underwater. The starboard side was exposed to fierce winds and seas that made any human exposure impossible. Parts of the engine room were flooded. Here and there groups of men sheltered and clung to whatever dry space they could find. They were ordered to take up "abandon ship" stations near the wooden life rafts – although few believed they would survive more than a few minutes in the flimsy craft. They were sodden and frozen until dawn, which brought renewed hope: *Cedar Mills* had answerd the SOS from 100 miles away. To re-gain a few degrees of list various items were jettisoned: torpedoes, depth charges and a motor boat. To endure the waiting the men sang. One man found an accordion and the Marseilles was sung with great gusto. They were inspired by the sight of their captain alone on the bridge wing, wrapped in the Free French flag.

Some hours later the ship began firing it's weapons at regular intervals to attract the attention of the *Cedar Mills*. There was considerable nervousness that the tanker would miss them in the stormy conditions, but like a miracle the tanker emerged out of the gloom around 1400. Unfortunately it was still too rough for the tanker to do anything but remain nearby. The French crew spent another horrible night without food, water or sleep. But with renewed viogour they worked to keep their ship seaworthy.

The next day conditions eased slightly but were still very poor, with the huge tanker often disappearing from sight. With some difficulty *Cedar Mills* got a motorboat into the water, but with LE TRIOMPHANT still rolling it was too dangerous to come alongside. Instead, in groups of four, crewmen jumped off the bow. It was impossible to swim in the conditions, and they were quickly swept away from the ship with the motorboat going after them. This was a very time consuming



A post war image of LE TRIOMPHANT back in French waters with a radar fitted above the bridge.

and risky method of transferrring men, especially as some were non swimmers. Only about three dozen made it into the boat in this way, which then fought its way back to the tanker where the men had to jump into the water again and swim to rope ladders hanging off the tankers' hull. However, these men were lucky as they are soon into dry clothes and enjoying hot food.

Meanwhile the remainder of the crew had to endure yet another night aboard the stricken destroyer. But the following day was much better. By the afternoon almost 150 men had been transferred and LE TRIOMPHANT put under tow at a gentle 3 knots. The next day two important cracks in the hull were repaired after superhuman efforts. Pumping began and the list was brought back to 20°. Over the next few days half of the crew is left onboard and working frantically. On 9 December the ship returns to an even keel and to celebrate the Cross-of-Lorraine flag is unfurled from the masthead. Then a British cruiser took over from the tanker, and the tow increased to 13 knots. A few days later the cruiser is relieved by the Tug HMS PRUDENT, and a French sloop commences escort duty. On 19 December LE TRIOMPHANT enterd the port of Diego Suarez, Madagascar. It was in a sorry state, with its superstructure having taken a real pounding. But none of the crew had any qualms about "not seeing action". They had fought and won against the toughest opponent of all.

Meanwhile in Australia, despite wartime secrecy, word had got out that LE TRIOMPHANT was overdue. The Naval Board subsequently advised interested parties that certain crewmembers were OK. This underlines the strong local links that the ship had been built up during its time in Australia.

Main Source: Lassaque, J. Les CT de 2800 tonnes du type Le Fantasque. Marines édition: Nantes, France, 1998.

1 Each of the six Le Fantasque-class contre-torpilleurs recorded maximum sustainable speeds of 42-45 knots, making them the fastest destroyer-type vessels in the world. Some sources claim they are the fastest warships of this size ever built.

2 Le Triomphant is mentioned in both volumes of G. Hermon Gills' Official History of the RAN during WWII, but her presence in Australian waters is not explained.

3 To illustrate, Le Triomphant (2,800 tons) could generate more engine power (up to 96,000 shp) than the vastly larger heavy cruiser HMAS Australia (10,000 tons; 80,000 shp). She was effectively a naval "hot rod".

4 Cap des Palmes, after all, was an ex- "banana boat", from the West African fruit trade, supposedly an Armed Merchant Cruiser but her two guns dated from the 1890s.

5 The lack of fuel storage in Noumea precluded Le Triomphant being based there. With the route via Singapore soon severed, the ship was literally stranded in Australia.

6 Interestingly, while many evacuations at this time were limited to Europeans, most of the evacuees were Chinese.

7 In 1941, Le Trimophant had been the unofficial "flagship" of the FNFL. However, after the invasion of North Africa late in 1942, the significant French forces there came over to the Allies. Thus while in Australia, Le Triomphant was leap-frogged in Free French status by the modern battleship Richelieu amid various cruisers and other modern destroyers present in French North Africa. The politics of these amalgamations were complex, but imagine the hypothetical scenario of an institution as strong as the RN breaking into various factions for political reasons and then attempting to reform. In short, Le Trimophant 's crew would have dreaded the thought of reporting to the new "Fighting French" HQ in Algeria without firing a shot at the enemy.

8 The SWPA, commanded by the US Army General MacArthur, was always weak in warships.

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

The Navy League:

- Believes Australia can be defended against attack by other than a super or major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication to our allies.
- Supports the ANZUS Treaty and future reintegration of New Zealand as a full partner.
- Urges close relationships with regional powers and particularly with the nearer ASEAN countries, PNG and South Pacific Island States.
- Advocates the acquisition of the most modern armaments, surveillance systems and sensors to ensure that the Australian Defence Force (ADF) maintains some technological advantages over forces in our general area.
- Advocates a significant deterrent element in the ADF capable of powerful retaliation at considerable distances from Australia.
- Believes the ADF must be capable of protecting essential shipping both coastally and at considerable distances from Australia.
- Endorses the control of Coastal Surveillance by 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 support the ADF and to ensure the carriage of essential cargoes to and from Australia in time of conflict.

As to the RAN, the League, while noting the important peacetime naval tasks including border protection, flag-showing/diplomacy, disaster relief, maritime rescue, hydrography and aid to the civil power:

- Supports the concept of a Navy capable of effective action in war off both East and West coasts simultaneously and advocates a gradual build up of the Fleet and its afloat support ships to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.
- Believes that the level of both the offensive and defensive capability of the RAN should be increased and welcomes the Government's decisions to acquire 12 new Future Submarines; to continue building the 3 Air Warfare Destroyers (AWDs) and the two landing ships (LHDs); and to acquire 8 new Future Frigates, a large Strategic Sealift Ship, 20 Offshore Combatant Vessels, 24 Naval Combatant Helicopters, and 6 Heavy Landing Craft.
- Noting the deterrent value and the huge operational advantages of nuclear-powered submarines in most threat situations, recommends that the future force include nuclear-powered vessels.
- Noting the considerable increase in foreign maritime power now taking place in our general area, advocates increasing the order for Air Warfare Destroyers to at least 4 vessels.
- Welcomes the decisions to increase the strength and capabilities of the Army and Air Force and to greatly improve the weaponry, and the intelligence, surveillance, reconnaissance, cyberspace, and electronic warfare capabilities of the ADF.
- Advocates that a proportion of the projected new F35 fighters for the ADF be of the short-takeoff and vertical-landing (STOVL) version to enable operation from small airfields and suitable ships in order to support overseas deployments where access to secure major airfields may not be available.
- Advocates that all warships be equipped with some form of defence against missiles.
- Supports the development of Australia's defence industry, including strong research and design organisations capable of constructing and maintaining all needed types of warships and support vessels and advocates a continuous naval ship-building programme.
- Advocates the retention in a Reserve Fleet of Naval vessels of potential value in defence emergency.
- Supports a strong Naval Reserve to help crew vessels and aircraft and for specialised tasks in time of defence emergency.
- Supports a strong Australian Navy Cadets organisation.
- Advocates improving conditions of service to overcome the repeating problem of recruiting and retaining naval personnel.

The League:

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

The Invincible class aircraft carrier HMS ARK ROYAL arriving in the US during 2010. During the life of this edition of *THE NAVY* ARK ROYAL would have been decommissioned as part of the UK's SDSR. (USN)

An RN/RAF GR-9 Harrier. The UK's Harrier fleet is to be retired by April 2011 as a cost saving measure. This leaves the RN without a fixed wing aviation capability for at least 10 years when the new Queen Elizabeth class aircraft carriers are brought into service. (RAAF)

Two RAN Sikorsky S70B-2 Seahawk helicopters flying in formation whilst preparing to conduct a weapons firing serial off the coast of Western Australia as part of an ASW exercise. The city of Perth can be seen in the background. Each helicopter is carrying a Mk-46 torpedo. (RAN)

A Port view of the Japanese Maritime Self Defense Force (JMSDF) Shirane class helicopter destroyer KURAMA (DDH 144) on exercise in the Pacific Ocean during August 2009. Towards the end of last year the ship collided with a large South Korean merchant ship suffering a badly damaged bow. It is reported that the ship's repair is nearly complete and is about to be returned to service. (USN)