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THE NAVY

The Magazine of the Navy League of Australia

The Anzac Upgrade Programme

The International Maritime Organisation

The Loss of HMAS YARRA (II)

Pacific 2006 Conference Proceedings and Exhibition

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Australia's Leading Naval Magazine Since 1938

A unique image showing three generations of RAN patrol boat. From largest to smallest, HMAS ARMIDALE, HMAS TOWNSVILLE and the former HMAS ADVANCE, now part of the Australian National Maritime Museum's collection. (Andy McKinnon)

The Arleigh Burke Flight IIA class destroyer USS PICKNEY. PICKNEY was in Sydney for the Pacific 2006 Maritime Congress. She has much the same anti-air system as the RAN's proposed air warfare destroyer, namely her SPY-1 D radar and Aegis Baseline 7.1 software. (USN)

THE NAVY

Volume 68 No. 2

Contents

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Front cover: HMAS MELBOURNE in Captain Cook dry dock at Sydney's Garden Island. MELBOURNE is the next FFG to undergo the upgrade programme by ADI Limited. (ADI)

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FROM THE CROW'S NEST

Recently the former Minister for Defence, Senator Robert Hill, announced the new names for the air warfare destroyers (AWDs) and the amphibious assault ships (LHDs). He did this at the same time as his resignation announcement, thus leaving nothing for the new Minister, Dr Brendan Nelson, to announce at his first engagement as the new Minister, which happened to be the Sea Power conference in Sydney.

The AWDs will be known as the Hobart class and named HOBART, BRISBANE and SYDNEY respectively. The new LHDs will be known by the names CANBERRA and ADELAIDE.

While the names of the AWDs were expected, many naval enthusiasts and historians were hoping for something different for the LHDs. Although Navy's policy is to name capital ships after capital cities, the LHDs represented a new chapter for the ADF, and thus a new policy could have been proposed. Incidentally, what constitutes as a capital ship is also rather subjective as the last Anzac frigate is called PERTH. Some were hoping for names like AUSTRALIA or even SHROPSHIRE for the LHDs. There are of course other names that could have been used that would more accurately define the new capability's joint role with the Army. Names like HMAS GALLIPOLI and/or HMAS KOKODA might have been appropriate and more representative with a real historical flavour.

We hope that many of our readers were able to watch the fascinating documentary on the Australian SBS television network recently entitled *'Submariners – Beneath Southern Seas'*. This documentary looked at life onboard and operations of the RAN Collins class submarine HMAS RANKIN.

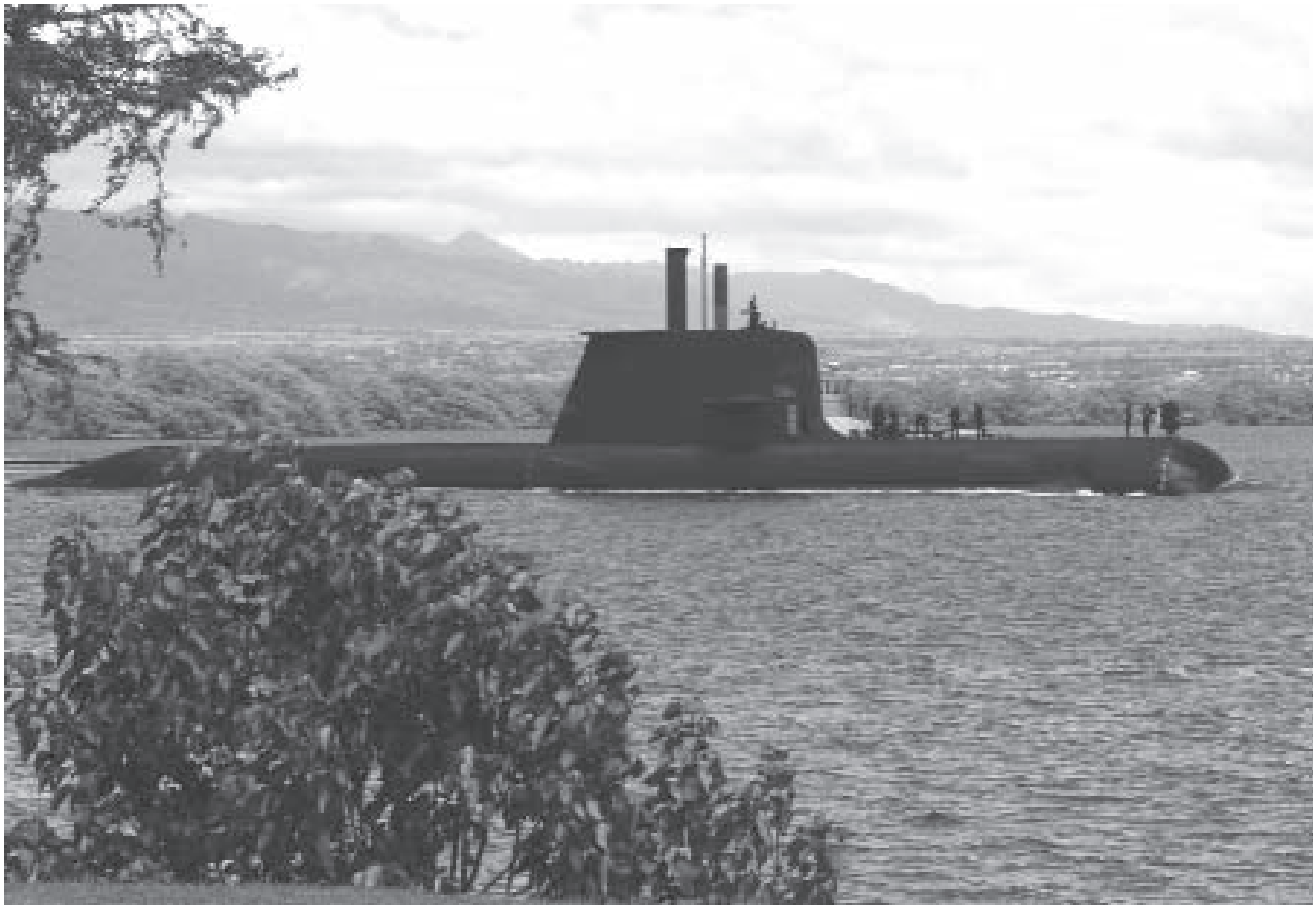
The documentary was without a doubt one of the most interesting and enlightening pieces of television on submarine operations ever seen in Australia. The view of life onboard the submarine while on training missions, transits to South Korea, Japan, Hawaii and then her participation in RIMPAC 04 was fascinating.

With the creation of Defence's Public Affairs group in Canberra many people thought that Australian documentaries such as these were now a thing of the past. It was jokingly thought that some in Defence's Public Affairs group believed they were part of the Defence Security organisation and that their job was to restrict information and access rather than disseminate and promote it.

Well done to Navy, the Submarine Force Element Group and to the crew of RANKIN! BZ.

On a sad note, the League regrets to annouce the passing of its South Australian President, Alan Preskett. Alan was a tireless worker for the Navy League and strong supporter of the naval cadet movement. He will be sorely missed.

By Themistocles



The Collins class submarine HMAS RANKIN, the star of the SBS TV documentary, entering Pearl Harbor for RIMPAC 04. RANKIN had been to South Korea and Japan before transiting to Hawaii for the naval exercise and then back to Perth. (RAN)

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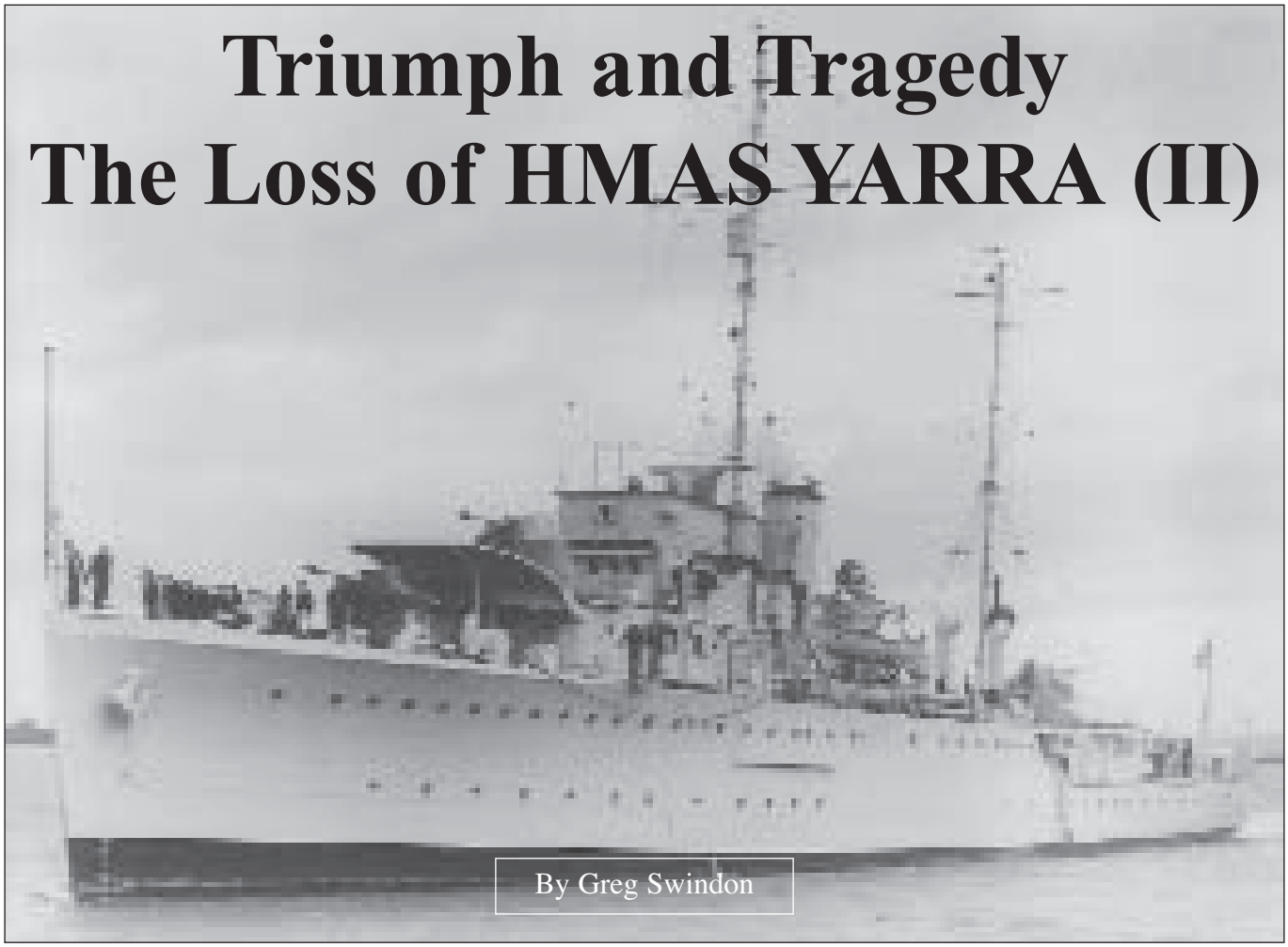
Triumph and Tragedy
The Loss of HMAS YARRA (II)



By Greg Swindon

The RAN sloop HMAS YARRA. YARRA was a Grimsby class sloop built at Cockatoo Dockyard in Sydney and commissioned on 21 January, 1937.

Australia was less then four days steaming away on the morning of 4 March, 1942, and no doubt the hopes of all were rising with the sun, when at 6.30 am the alarm bells sounded. From the NNE appeared five warships which soon opened fire with eight inch guns. They were the Japanese Admiral Kondo's force of three cruisers, ATAGO, TAKAO and MAYA and two destroyers, ARISHI and NOWAKI. The convoy was trapped by an overwhelming force. There was to be no escape.
K.A Austin – YARRA in Battle (1974).

We were taken on deck and shown, as they tried to impress us, the might of the Japanese Navy. The YARRA was the only ship left and we could see flames and a great deal of smoke. The two destroyers were circling YARRA which appeared stationary and were pouring fire into her. She was still firing back as we could see the odd gun flashes. The three cruisers then formed a line ahead and steamed away from the scene. The last we saw of YARRA was a high column of smoke, but we were all vividly impressed by her fight.
Unknown British Sailor from the destroyer HMS STRONGHOLD held prisoner onboard one of the Japanese cruisers (1942).

With the tattered fragments of the white ensign still flying, YARRA slid beneath the waves at 8 am. Rankin's defiant gesture, which cost the lives of 117 of the ships personnel, did not save the other vessels in the allied convoy; all three were sunk even before YARRA met its end. Another 21 of the 34 survivors of the unequal battle were to die on rafts before a Dutch submarine came to their rescue five days later, so that ultimately just thirteen men lived to recall what many regard as the finest action in Australian naval history.
Chris Coulthard-Clark, White Ensign 1939-1945 – The Navy goes to War (1993).

The history of the Royal Australian Navy (RAN) in World War II is one of triumph and tragedy. The destruction of the Italian cruiser BARTOLOMEO COLLEONI by HMAS SYDNEY in July, 1940, the Tobruk Ferry Run by destroyers of the Scrap Iron Flotilla, the as yet not fully explained loss of SYDNEY in her action with KORMORAN in November 1941, the loss only a few months later of HMAS PERTH in the battle of Sunda Strait and the Kamikaze attacks on HMAS AUSTRALIA at Leyte Gulf in 1944 all resonate with the sound of the action alarm, tales of bravery and sacrifice, the fluttering of the battle ensigns and the whiff of cordite and salt spray.

Yet amongst all these victories and defeats, both great and small, one action alone stands out above all others. It is a minor action fought by one RAN warship against an overwhelmingly superior force. An action that perhaps should not have been fought but could not be avoided. An action which resulted in a tactical defeat for the RAN and the loss of the ship and many lives. Yet this action continues to capture the imagination and admiration of all who read about it. It is

an action which many, be they historians, naval personnel or just interested readers consider as the finest action ever fought by the RAN.

The action is the loss of HMAS YARRA, and the convoy she was protecting, on 4 March, 1942. This is the story of YARRA and the men who served in her.

TRIUMPH IN THE WEST

YARRA was a Grimsby class sloop built at Cockatoo Dockyard in Sydney and commissioned on 21 January, 1937. When war broke out in 1939 she was under the command of Lieutenant Commander W.H. Harrington, RAN. Harrington, known to his crew as the 'Black Prince' was later to reach the rank of Vice Admiral (as Chief of Naval Staff from 1962-65). YARRA undertook convoy escort duties in Australian waters until deployed to the Middle East in August, 1940.

She arrived in Aden in September and for the next seven months operated in the Red Sea and in the vicinity of the Horn of Africa conducting a multitude of tasks, mainly convoy escort duties, in support of the British forces fighting against the Italians in Somaliland (now Somalia). On a number of occasions YARRA was attacked by Italian aircraft and on 21 October, YARRA, in company with three British warships, successfully beat off an attack by Italian destroyers on a convoy they were escorting to Suez. In March, 1941, YARRA proceeded to Bombay (now Mumbai) for a short refit and the crew was to enjoy their first real leave in many months. Unknown to them was that in less than 12 months most would be dead.

In April, 1941, YARRA returned to the Middle East and was allocated to the British forces in the Persian Gulf then preparing to take over the pro-German nation of Iraq (in order to secure the valuable oil resources of the region). On 2 May British forces invaded Iraq and YARRA provided naval gunfire support to the advancing troops, acted as a convoy escort and also patrolled the wide Shatt-el-Arab River.

Following the successful capture of Iraq, and the German invasion of Russia, the British forces turned their attention to neighbouring Iran and also invaded this neutral nation to secure the vital oil resources at Abadan before they, potentially, fell into German hands. At 0400, on 25 August, 1941, YARRA cruised silently off the Iranian naval base of Khorramshahr (some 40 miles upstream from the head of the Persian Gulf). A few moments later the darkness was pierced by YARRA's searchlight as it picked out the Iranian sloop BABR alongside the wharf.

Number 2 gun, controlled by Leading Seaman Ron 'Buck' Taylor (a pre-war regular sailor from Port Melbourne), was the first to open fire and within a few minutes BABR was on fire and sinking. Her after magazine then exploded and the ship sank with the loss of many lives. Initially the plan had been to capture BABR, but Lieutenant Commander Harrington decided this was too risky when the allied attacking force was reduced to only YARRA when HMS FALMOUTH ran aground near Basra and Harrington was confronted with several armed Iranian vessels at Khorramshahr.

Once BABR had been sunk Harrington dispatched assault parties under the command of Lieutenant Commander Francis Edward Smith RANR (YARRA's First Lieutenant) and Lieutenant George Lytton Wright RANVR (who before the war had been a barrister and lecturer in Admiralty Law at the University of Sydney), to capture the two Iranian gunboats alongside. This was done without loss to the attackers.

Within three days all of Iran had been brought under British control and YARRA had the honour of sinking or capturing half the Iranian Navy in less than a day and with only one casualty (Lieutenant Noel Anderson, RANVR from Vaucluse had been wounded in the arm by one of the many stray shots during the action).

YARRA remained in the Persian Gulf for the next month and then towed a captured German vessel to Karachi before proceeding to Bombay for a short refit. Once this was completed she returned briefly to the Persian Gulf, but in late October YARRA proceeded to the Mediterranean and commenced re-supply runs into Tobruk (the 'Tobruk Ferry Run'). The sloop arrived at Alexandria on 15 November and three days later, accompanied by her sister ship HMAS PARRAMATTA, commenced her first run to Tobruk. During the next month YARRA made four runs into Tobruk and came under attack several times from German Stuka (JU 87) dive-bombers.

Following her third run to Tobruk, YARRA was at Alexandria when on 27 November, 1941, news was received that PARRAMATTA had been sunk off Tobruk by a U-Boat. There were only 24 survivors and amongst those killed was Lieutenant Commander Harrington's brother (Lieutenant C.F. Harrington RANR) who had been PARRAMATTA's Medical Officer.

The bad news continued when on 7 – 8 December, 1941, Japan entered the war with combined attacks on Pearl Harbor, the Philippines, Hong Kong, Malaya and Singapore. On 10 December the two British capital ships HMS PRINCE OF WALES an HMS REPULSE were sunk off the east coast of Malaya. The following day the Australian Government requested the return of YARRA (and the cruiser HOBART) to Australian waters. YARRA departed Alexandria on 16 December. The last Christmas Day for many onboard was spent quietly at sea before the ship arrived at Colombo (Ceylon) where it remained for four days.

YARRA's Commanding Officer LCDR Robert Rankin.

The 1060 ton lightly armed sloop HMAS YARRA. YARRA was sunk on 4 March, 1942 fighting against insurmountable odds of three Japanese heavy cruisers and two destroyers. At the time YARRA was escorting a small convoy of three ships to Fremantle.

Several men from YARRA wrote home expressing how tired and battle weary they were after 16 months away and knowing that they were heading into another fight; and one that the Allies appeared to be losing. Leading Seaman Taylor was one of those who stated that they felt like the 'forgotten warriors' and that other ships were getting more attention for doing less time away from home.

TRAGEDY IN THE EAST

YARRA arrived at Tanjong Priok (the port of Jakarta) on 11 January, 1942 and was immediately put to work escorting convoys into Singapore. It was not long before she was in the thick of the action again. On 5 February, 1942, YARRA was escorting a convoy into Singapore when Japanese dive bombers attacked and set the troopship EMPRESS OF ASIA on fire. Harrington took the sloop alongside the stern of the burning troopship and rescued over 1800 British troops. Ordinary Seaman Jack Archibald recalled that as they approached the ship Commander Harrington yelled through the loud hailer – 'Stand by anchors and fenders: I don't want my paintwork scratched!'.

The ship was repeatedly attacked by Japanese aircraft during this evolution and shot down one enemy aircraft with two probable 'kills'. Harrington later reported the following concerning his gun crews – 'No. 3 Gun shot down one aircraft in barrage fire… Lieutenant Commander F.E. Smith, RANR, Able Seaman G.J.F. Lloyd, Able Seaman J.R.Oliver and Able Seaman G.G. Kimmers are thought to have shown merit in bringing down this aircraft and it is submitted that consideration might be given to their receiving some recognition of their conduct'. Harrington also reported – 'Acting Leading Seaman Ronald Taylor, the Captain of No. 2 Gun deserves commendation in that, on this occasion, as on many others, he controlled the Gun with judgment and determination. This ratings keenness and courage are a good example to all those in his vicinity'.

It was about this time that the new Commanding Officer of YARRA joined the ship for handover. The Navy had decided that Harrington was to return to Australia to take up a posting onboard HMAS AUSTRALIA (later Harrington was given command of the destroyer HMAS QUIBERON in 1944 and also awarded the Distinguished Service Order for 'courage, enterprise and devotion to duty in operations in the Persian Gulf'). YARRA's new Commanding Officer was to be Lieutenant Commander Robert William Rankin, RAN.

Rankin was a career naval officer who had joined the RAN in 1921, as a 13-year-old Cadet Midshipman and specialised as a Hydrographer. While serving in the survey ship HMAS MORESBY in northern Australian waters, in the early 1930s, he met a young nurse, Mary 'Molly' Broughton, at Thursday Island. They were married in late 1937 and shortly after they left for the United Kingdom where Rankin served on exchange with the Royal Navy.

When World War II broke out Rankin was posted as the First Lieutenant of the fleet repair ship HMS RESOURCE which operated in the Atlantic Ocean and Mediterranean. Their only child, a daughter who they named Patricia, was born in London in 1940 and in late 1941 the family returned to Australia where Lieutenant Commander Rankin was employed in a detailed survey of Pittwater before joining YARRA.

YARRA returned to Tanjong Priok and on 11 February, 1942, Lieutenant Commander Rankin officially assumed command of YARRA. Commander Harrington and seven other sailors (whose replacements had also just joined the ship) were embarked in a near empty troopship for return to Australia. In one of the grim ironies of war these men safely reached Australia while their reliefs were killed only a few weeks later. One of the men who left YARRA at this time was Able Seaman Arthur Parry who later wrote a history of YARRA

which was published in 1944 (reprinted in 1980). Another one of the men was Able Seaman Ken Avery who at the time of writing is one of only two men, who served overseas in YARRA, still alive (the other being Able Seaman Reg Matthews who stayed in the Navy after the war and retired in January, 1970 with the rank of Lieutenant Commander).

The Japanese advance pushed on relentlessly and a few days later, on 15 February, 1942, news was received that Singapore had fallen to the Japanese. Unbeknown to the men onboard YARRA one of their mates had already been killed. Able Seaman Robert 'Specs' Mason had been put ashore at Singapore in late January suffering from acute appendicitis and was recovering in the Alexandra Hospital when Japanese troops rampaged through the hospital slaughtering medical staff and patients alike. The ultimate fate of Able Seaman Mason was never determined and he may have escaped the carnage at the hospital and tried to escape (and subsequently been killed elsewhere) but he was later presumed dead as of 16 February and his body may still lie in the undisturbed mass grave located within the grounds of the hospital.

THE FINAL BATTLE

After Rankin took command, YARRA escorted a troop convoy from Sumatra to Tanjong Priok and then escorted the Australian destroyer HMAS VENDETTA, which was being towed south to Australia by the ferry *PING WO*, to a position south of Christmas Island where she handed over the escort to the cruiser HMAS ADELAIDE. Rankin took the opportunity to pass the ships mail across to VENDETTA for delivery when that ship reached Australia little knowing that by the time the mail arrived most of the senders would be dead. YARRA then returned to Tanjong Priok, arriving on 24 February.

The Japanese advance continued to push southwards and by late February, Java was threatened with invasion. As a result all warships and merchant vessels were directed to escape and head for Australia or Ceylon. On 27 February, YARRA was ordered to escort a small convoy of three ships (the tanker *FRANCOL*, the depot ship HMS ANKING which had a number of RAN personnel onboard and the minesweeper MMS.51) to Fremantle. On 2 March, the convoy reached Tjilatjap on the southern coast of Java where Rankin received orders to proceed directly to Fremantle with his convoy. Unknown to Rankin was the fact that Admiral Kondo's raiding force of five ships was south of Java and between him and Australia.

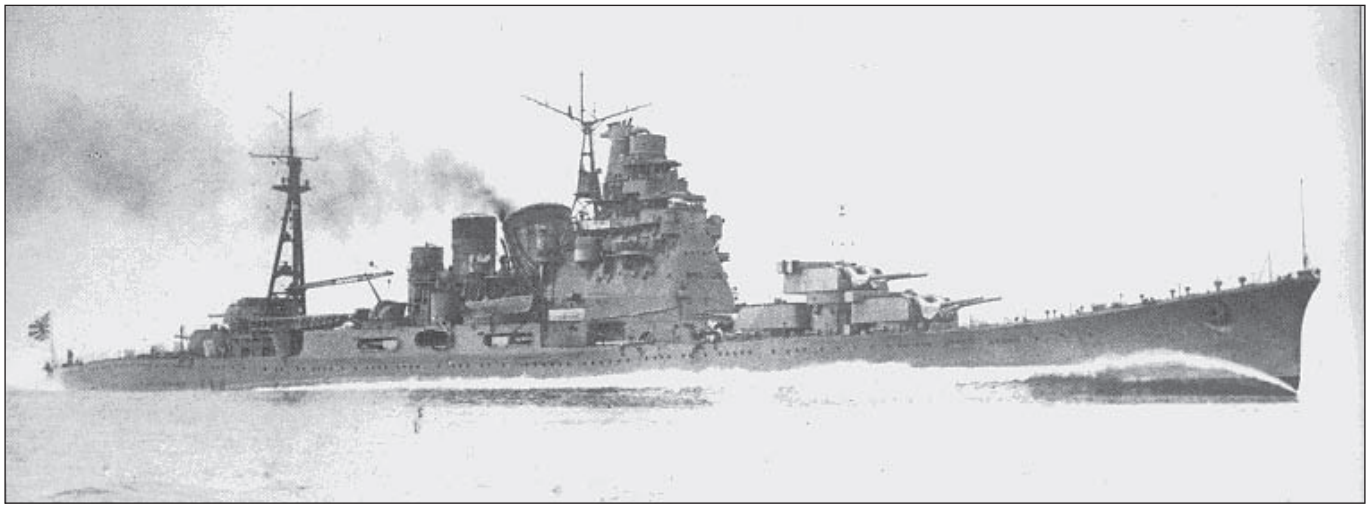
On 3 March YARRA sighted two life-boats under sail and stopped to pick up 35 survivors from the Dutch merchant ship *PARIGI* which had been sunk a few days before. Australia was now less then four days steaming away and the hopes of all were high, however, at 0630 on the morning of 4 March, 1942, just as the crew were about to go to breakfast, the dreaded sound of the action alarm called YARRA's men to action stations for what was to be the last time. Gun flashes had been seen on the horizon and a few moments later shells began to roar overhead.

Rankin ordered the convoy to scatter, sent an enemy report and altered YARRA's course towards the enemy vessels. YARRA commenced to lay a smoke screen between the convoy and the enemy warships in a vain attempt to help the ships to escape. There was unfortunately to be no escape for any of the four Allied ships as it was bright daylight and the enemy warships had the advantage in speed and armament. YARRA's three 4-inch guns were hopelessly outmatched but this did not stop them from opening fire on the Japanese warships.

Within a few minutes the depot ship ANKING sank under heavy gunfire, taking with her many of her crew and passengers (including 26 RAN personnel). MMS.51 followed soon after and the tanker *FRANCOL* was set ablaze and sank at 0730. By 0700 YARRA was still afloat but was drifting without power. The sickbay (where most of the survivors from *PARIGI* had been placed) and the engine room had been destroyed. Two of her three guns were out of action with their crews dead except Able Seaman Alfred Orton (from No.3 Gun) who had been blown 40 feet away from his gun. Lieutenant Commander Rankin realised the situation was hopeless and gave the order to abandon ship. A minute or so later a Japanese shell struck the bridge killing all on duty there. Leading Signalman Geoffrey Bromilow, who later confirmed that it was Rankin who had given the order to abandon ship, was on the bridge ladder when the salvo hit and was blown to the deck and badly wounded.

Lieutenant Commander Smith began to pass the order to abandon ship verbally around the upper deck and at 0715, 34 survivors from YARRA (and three survivors from *PARIGI*) began to leave the ship. Leading Seaman Ron Taylor had heard the order to abandon ship but refused despite the calls from his mates to leave and he remained onboard.

The Japanese destroyers then closed in on YARRA to administer the '*coup de grace*'. The survivors (and also some



The 15,000 ton Japanese heavy cruiser TAKAO. TAKAO and two of her sister heavy cruisers were part of Admiral Kondo's raiding force of five ships south of Java when they happened upon HMAS YARRA and her convoy to Australia.

The current HMAS YARRA. The current YARRA is the fourth ship to bear the name and is a Huon class mine hunter.

British sailors from the destroyer HMS STRONGHOLD which had been sunk a few days before and who were held captive in MAYA) later described how the destroyers circled YARRA firing shells into the blackened hulk while from YARRA came flashes from a lone gun that slowly but defiantly continued to fire back. It was the indomitable Leading Seaman Taylor, whose gun had fired the first shot at Khorramshahr. Alone at No.2 gun he continued firing at the enemy from an inferno of noise, smoke and flame until death silenced him shortly before YARRA went down. Some time after 0800, YARRA rolled over and sank

For the next five days the survivors from YARRA and *PARIGI* floated on two small rafts through scorching days and chilling nights. Wounds, exposure and sharks began to take their toll and by the morning of 9 March only 13 men were left alive when the Dutch submarine K11 surfaced to recharge her batteries and, by chance, sighted the men in the water. Those rescued by K11 were:
Ordinary Seaman J.R. Archibald
Stoker Petty Officer V. Brazier
Leading Signalman G.G. Bromilow
Ordinary Seaman K.P. Buckley
Leading Stoker F.J. Cairncross
Ordinary Seaman W.G. Clark
Leading Supply Assistant E.A.W. Latham
Ordinary Seaman R.L. Manthey
Able Seaman A.G. Orton
Engine Room Artificer E.L. Ramsden
Leading Stoker D.L. Stevenson
Leading Cook H.G. Wagland
Ordinary Seaman W.D. Witheriff

None of YARRA's officers, or survivors from *PARIGI*, were amongst those rescued thus from a ships company of 151 a total of 138 including all officers had perished. 57 survivors from ANKING were rescued by the Dutch ship *TAWALI* late on the evening of 4 March and three days later 14 survivors from MMS.51 were picked up by the Dutch steamer *TJIMANOEK*. A boat-load of survivors from *FRANCOL* was rescued by the Japanese on the 4th but another large boat-load of survivors was never seen again.

K11 arrived at Colombo on 22 March, 1942 and disembarked the YARRA survivors and it was here that the story of YARRA would normally have ended, but just like the ship herself the story of her last fight and the courage of her crew would not die.

EPITAPH FOR A SHIP

In 1944 Parry's history of YARRA was published and over the next 60 years other books and articles began to appear. Many of these drew the analogy between YARRA's action and that of HMS JERVIS BAY which had been sunk defending a convoy, in the Atlantic in November, 1940, against an attack by the German warship ADMIRAL SCHEER. The commanding officer of JERVIS BAY, Captain E.S.F. Fegen, RN had been awarded a posthumous Victoria Cross for his gallantry in which JERVIS BAY was sunk but most of the convoy had been saved. As a result, calls for recognition of YARRA and her crew were made but these took many years to achieve any sort of success.

In 1958 the RAN named one of its new River Class destroyer escorts HMAS YARRA (commissioned in July 1961). This ship served until November, 1985. Then in 1999 the latest YARRA (a mine hunter coastal) was laid down (she

was commissioned in 2002). Direct recognition of YARRA's fight was gained in the mid 1990s when the RAN decided to name one of the six new Collins Class submarines in honour of Lieutenant Commander Rankin. The submarine RANKIN was laid down on 12 May, 1995, with Rankin's widow (Mrs Mary 'Molly' McLean) in attendance. When the submarine was launched in November, 2001, Rankin's daughter (Ms Patricia Rankin) named the vessel and she was also the guest of honour at the submarines commissioning in March, 2003. The submarines motto of 'Defend the Weak' is in direct recognition of YARRA's final action.

Recognition for others such as Ron Taylor and Lieutenant Commander F.E. Smith has, however, not yet fully occurred and it was not until the 1990s that Taylor's service medals were presented to his family. In 2002 the Australian Dictionary of Biography chose to include Ron Taylor in their latest history of notable Australians. Campaigning for retrospective awards to Rankin and Taylor increased during the 1990s but has to date received little support within Government circles.

The fight for recognition for YARRA and her men goes on. Memorial services were regularly held at the Cenotaph in Sydney and the 50th Anniversary in 1992 was attended by several of the survivors. Also in 1992 Ms Trish Rankin donated her father's medals to the RAN College where Robert Rankin had commenced his naval career. In 1994 the poem 'Victory for YARRA' was published and the following year a painting of the final battle was done by noted maritime artist, retired Commodore D.H.D. Smyth, and presented to the museum at HMAS CERBERUS (Commodore Smyth also designed the memorial stained glass window for YARRA and PARRAMATTA that was installed in the Chapel at CERBERUS). In 1996 a memorial tree was planted at CERBERUS by two YARRA survivors and a crewman from the Dutch submarine K11 who had rescued them (Mr Andre Bruinhout). Finally on 4 March, 2000, the RAN Sloops Memorial was dedicated on the banks of the Yarra River.

In 2004-2005 the direct links with HMAS YARRA began to be severed with the deaths of the last of the survivors (Bill Witheriff, Reg Manthey and Jack Archibald) who had all served on board as young Ordinary Seaman. Then on 23 July, 2005, Mrs 'Molly' McLean (Rankin's widow) also died. Her daughter requested that her mother's ashes be scattered at Jervis Bay and the Navy staff at HMAS CRESWELL arranged for this to occur.

Yet as those who served in the ship and their widows pass away the story of YARRA grows in strength. There are those who consider Rankin's actions as quixotic, yet the situation dictated there was little he could do other than to attack the superior Japanese force. Any attempt to abandon the convoy and outrun the enemy ships was both tactically flawed and not in keeping with the traditions of the Service. As the British Admiral A.B. Cunningham stated in 1941 – 'It takes two years to build a warship but it takes 200 years to build a tradition'. Steel is cheap but fighting spirit cannot be created overnight.

At the end of the day the following words written by K.A. Austin are YARRA's epitaph:

'In defeat as in victory the men of YARRA had kept faith with their country and her allies. Their devotion shines through the horror and obscenity of war like sunlight between dark clouds, in silent reproof of the greed, ignorance and stupidity from which wars spring'.

The Collins class submarine HMAS RANKIN. RANKIN was named after the heroic action of LCDR Robert Rankin in 1942, when he commanded the convoy he was escorting to scatter while he charged towards a Japanese naval force of three 15,000 ton heavy cruisers and two destroyers in the lightly armed 1060 ton sloop HMAS YARRA. (RAN)

The International Maritime Organisation

By Paul Pelczar

The Australian Government, media and other 'interested fora' (including the 2004 Boulton Lecture) has raised the awareness of the introduction and implications of the International Ship and Port Facility Code (ISPF), however, less may be known about the institution that sponsors the ISPF. Initially drafted in November, 2003, the intent of this paper is to outline the objectives of the International Maritime Organisation, provide an overview of its history and to reveal its relevance to the world's maritime fraternity.

Australia is responsible for one of the world's largest sea areas. Under the United Nation's Convention on the Law of the Sea (UNCLOS),[1] it has either sovereignty or sovereignty rights over 16.1 million square kilometres of ocean. The Nation is heavily reliant on the free and unrestricted movement of international trade with more than 70 per cent of exports and imports transported by sea in terms of value and well over 95 per cent by bulk. Australia depends upon her sea territory deposits for much of its domestic petroleum production and the fishing industry constitutes an important part of the national economic effort. Tourism is reliant on a number of unique elements of the world's marine environment; most notably the Great Barrier Reef.

Maritime incidents such as the *TAMPA* and *PONG SU* have increased the awareness of the Australian population that the surrounding seas and oceans are vulnerable to exploitation and more akin to a highway rather than a barrier. During the last few decades, rapid industrial development, coupled with the expansion of maritime trade, have placed the waters north of Australia under severe environmental stress. Accidents on the scale of *EXON VALDEZ* [2] would have dire consequences for Australia's primary industries, trade and tourism.

The International Maritime Organisation (IMO) is the specialised agency established by the United Nations (UN) to deal with maritime affairs. Their main concern is to improve safety of life at sea and pollution prevention. In order to achieve its objectives, the IMO has adopted a number of conventions covering a wide range of maritime issues.

EXON VALDEZ in Price William Sound, Alaska, with a smaller tanker being used to off load remaining oil. An accident on the scale of the *EXON VALDEZ* disaster on the Great Barrier Reef would spell the end of the reef and any tourist potential.

HISTORY

The establishment of an Organisation to deal with increasingly complex maritime issues was first raised in the late 19th century. It was not until the establishment of the UN, that such an Organisation became a reality. Australia was one of twelve states that were involved in the preparation of a permanent inter-governmental maritime agency in 1947.

The Inter-Governmental Maritime Consultative Organisation (IMCO) was established in 1958. Though several important international conventions had already been developed through the UN,[3] the IMCO's primary purpose was to develop international regulations to promote maritime safety more effectively. In 1982, the name was changed to the International Maritime Organisation.

STRUCTURE

The IMO's headquarters are located in London, United Kingdom. The Organisation has 162 member states and consists of an Assembly, a Council and four main committees. The Assembly is the governing body. It consists of all member states and convenes every two years. In between these sessions, the Council, consisting of 40 member states, is elected by the Assembly and acts as the governing body.[4] Australia is a member of the Council, and except for a nine-year gap from 1976 to 1984, has served continually since its inception.[5] The technical work is carried out by a number of committees.

Membership to the Organisation is open to all states and though encouraged, they do not have to be members of the United Nations. The budget of the Organisation is financed by contributions from member states, voluntary donations and sale of publications. The official languages are Chinese, Russian, Spanish, French and English, however, working documents are issued in the latter two only.

SAFETY

The Maritime Safety Committee has the duty of considering any matter outside the scope of the IMO and concerns itself with issues dealing with navigation, ship construction and all matters affecting maritime safety including the effect of the human element on casualties.

PONG SU in Sydney Harbour. The ship originally belonged to the North Korean Government but was seized at sea in a joint effort by the RAN, Australian Federal Police, Customs and the NSW Police after it was thought she was delivering drugs to the Australian mainland.

The Safety of Life at Sea (SOLAS) Convention in its successive forms is generally regarded as the most important of all international treaties concerning the safety of merchant ships. The first version was adopted in 1914, prompted by the loss of *RMS TITANIC*. It established international standards for safety, preventing collisions, lifesaving equipment and included regulations on the use of radio.[6] Further improvements were made in 1929 and 1948.

The 1960 Convention was the first major task of the IMO after its creation. It reviewed the previous protocols and updated regulations resulting from the progress of technical developments in the shipping industry. One of the main objectives of the SOLAS Convention was to specify the minimum standards for the construction, equipment and operations of ships, compatible with their safety and placing responsibility of adherence on flag states.[7]

In response to increasing incidents of collisions at sea post-World War Two, the IMO improved regulations, regulating ship traffic at sea by introducing general standards for safe traffic separation schemes and establishing standard lighting and signals. In 1972, it approved a worldwide navigational warning service. This facilitated the timely dissemination of navigation area warnings[8] and notices to mariners,[9] notifying ships of areas that may pose a threat to safe navigation.

Another main cause of shipping accidents was overloading. The IMO built on earlier conventions that had dealt with unifying regulations of load lines,[10] by identifying the height of freeboard of seagoing ships.

In the early 1970s, the Assembly met with the objective of creating an international plan for the search and rescue of people in distress at sea. It recognised that establishing a reliable radio network, for transmitting distress calls and safety was of great importance. This resulted in the creation of the International Maritime Satellite Organisation in 1979.[11]

The carriage of passengers and safe operation of fishing vessels has been addressed routinely throughout the life of the IMO. The practices associated with the trafficking or transport of illegal migrants by sea violate the SOLAS Convention. One of the problems in dealing with the international regime of refugee protection is that it is clearly prescribed that a ship has a duty to rescue anyone in distress, including refugees, however, there is no clear international rule governing how they should be treated thereafter. While the IMO deliberates with the issues raised by such incidents as the *TAMPA*, it has encouraged member states to ratify the UN's protocol against the smuggling of migrants by land, sea and air.

Initially tabled in the 1974 SOLAS Convention, the measures preventing acts of terrorism threatening the security of personnel and the safety of ships were reviewed after the *ACHILLE LAURO*.[12] In recent years, as the increased terrorist threat now includes fears that ships could be used as a means of mass destruction, the IMO has proposed extensive amendments to the statutory instruments for the prevention and suppression of acts of terrorism against shipping.

The new maritime regulations known as the International Ship and Port Facility Code (ISPF) were promulgated in December, 2002. It applies to commercial shipping of 500 or greater gross tonnage[13] and is principally a risk management strategy with authorities implementing security procedures to meet the level of threat. The IMO is encouraging member states to adopt new regulations enhancing ship and port security and to prevent shipping from becoming a target for international terrorism.

Concomitant with the threat of terrorism has been the issue of piracy. With the trends of the last decade – targeting vessels in busy crowded ports or tying up the bridge crews leaving the ship not under command – the IMO has issued official warnings and urged governments to intensify their efforts against piracy. Reported acts are most prevalent in Southeast Asia[14] and due to the geography and prevailing economics of the region will continue to challenge the integrity of international trade.

Super Tankers like this are larger than the USN's biggest aircraft carriers, and less manoeuvrable. Having an Organisation like the IMO can help with navigation and safety at sea issues for these new leviathans.

ENVIRONMENT PROTECTION

The Marine Environment Protection Committee deals in the field of marine pollution. In consultation with other UN organs, international organisations and expert bodies, it adopts or proposes amendments and regulations to prevent pollution from ships.

In 1973, a significant step was taken with the introduction of the Maritime Pollution Convention (MARPOL). It identified and standardised measures to prevent pollution of the seas by ships. This specifically addressed accidental and operational oil pollution as well as pollution by chemicals, goods in packaged form, sewage and garbage.

The International Maritime Dangerous Goods Code (IMDG) was established to provide a unified code of transportation of dangerous goods by sea and later, the storing and movement of them within ports and terminals.[15]

A legal committee was temporarily established in 1967, in response to problems that had arisen in connection with the wreckage of *TORREY CANYON*.[16] It was later made a permanent body. It deals with liability issues and maritime salvage such as rights of a coastal state to undertake measures to prevent pollution of its coast and, compensation issues for damage caused to a marine environment.

TECHNICAL COOPERATION

A committee dealing specifically with rendering technical assistance to member states in adhering to conventions and improving standards was established in 1972. The increased complexity of skills required in the profession of seafarers has been supported by the IMO through a worldwide network of advisory services. These advisors provide assistance in matters of safety, training and legislation.[17]

CONCLUSION

The IMO remains the principal custodian of a large number of technical conventions to which its member nations subscribe and which they implement by translating into their own national maritime law. Devoted to maritime safety and pollution prevention, the Organisation attempts to provide uniformly high standards on a range of maritime issues throughout the world. Its success depends heavily on nations to comply with these standards through competent domestic maritime administrations.

The IMO, particularly in recent years, has not only adopted new conventions but also made substantial and numerous amendments to the existing ones. These have been in response to the very rapid change in technology and the increased threat to safety at sea by piracy and terrorism.

Shipping is safer and the seas cleaner because of its existence.

Notes

1. An international agreement regulating the use and exploitation of the world's oceans. UNCLOS of 1982 calls for limited and controlled mining of the seabed; establishes, in general, the twelve-mile limit for territorial waters; gives all nations' ships the 'right of innocent passage' through crucial straits; and sets up international anti-pollution regulations.
2. A very large crude carrying vessel built in 1986. In 1989, the 987-foot supertanker, carrying over 12 million barrels of oil, grounded on Bligh Reef in Prince William Sound, Alaska. The reef ripped opened ten of the fifteen cargo compartments in the ship. In less than eight hours, some

A oil tanker on fire after being attacked by terrorists. The IMO provides a forum for all maritime users to warn of incidents through instruments such as the 'Notice to Mariners'.

215 000 barrels of crude had leaked. The spill, driven by heavy winds, contaminated over 3 190 miles of shoreline and drifted as far as 470 miles from the site of the wreck, making it the worst spill in American waters.

3. These included the International Convention for Safety of Life at Sea of 1948, the International Convention for the Prevention of Pollution of the Sea by Oil of 1954 and treaties dealing with load lines and the prevention of collisions at sea.
4. Except the function of making recommendations to governments on maritime safety and pollution which, is reserved for the Assembly by Article 15 of the Convention.
5. The Convention details that in electing the members of the Council, the Assembly shall observe that ten members shall be states with the largest interest in providing international shipping service, ten shall be other states with the largest interest in international seaborne trade and twenty shall be states who have a special interest in maritime transport or navigation and whose election to the Council will ensure the representation of all major geographic areas of the world. The 22nd Assembly elected Australia for 2002 and 2003 from 07 November 2002 under the latter criteria.
6. It also initially established the International Ice Patrol and recommended the use of established sea routes on the North Atlantic.
7. Flag states are responsible for ensuring that ships under their flag comply with its requirements. A number of certificates are prescribed in the Convention as proof that this has been done. There is also provision to allow contracting governments to inspect ships of other contracting states if there are clear grounds for believing that the ship and its equipment do not substantially comply with the requirements of the Convention. By 1974, details were included to deal with the requirement of watertight compartments to enable a ship's hull to remain afloat after damage. In addition bilge pumping arrangements and stability requirements for both passenger and cargo ships were both included. There are other amendments that detail fire safety provisions for tankers and combination carriers, life saving appliance and radio telegraphy requirements.
8. Abbreviated to NAVAREA. Information detailing temporary hazards for safe navigation.
9. Abbreviated to NOTAM. Information detailing alterations to navigational charts.
10. Also known as Plimsol lines, are marks on a vessel indicating the maximum depth to which that vessel is permitted to settle down into the water when loaded with cargo. Different lines correspond to different seasons and sea routes throughout the world. The International Load Line Convention was established in the 1930s.
11. Abbreviated to INMARSAT.
12. A well-known cruise ship. After leaving Alexandria, Egypt, in 1985, the ship was boarded and hijacked by four Arab terrorists. While holding the ship, her crew, and her passengers hostage, the terrorists murdered one American passenger, Leon Klinghoffer, and threw his body overboard. After three days, the terrorists surrendered and the liner was returned to her owners.
13. Including high-speed craft and mobile off shore units.
14. Statistics recorded by the IMO and International Maritime Bureau in 2004 identify Indonesian waters to experience the largest amount of attacks.
15. All dangerous goods are classified as one of nine classes. They are explosives, gases, easily inflammable liquids, inflammable solid material, oxidised substances, poisonous substances, radioactive matter, corrosive matter and other dangerous goods.
16. A Liberian flagged tanker that ran aground off the southwest coast of England in March, 1967, spilling more than 17 340 barrels of oil into the English Channel and polluting the shores of Cornwall, Channel Islands and Brittany. The vessel was enroute from the Persian Gulf to Wales when it grounded, causing the world's first major oil spill. Attempts by the RAF to bomb the wreck and set the huge oil slick on fire proved only moderately successful. The tanker broke up and sank nine days later.
17. This includes training for those involved in search and rescue.

The logo of the United Nation's International Maritime Organisation.

Flash Traffic

Aegis purchased for AWD

Key components of the Aegis combat system for Australia's Hobart class Air Warfare Destroyers (AWDs) are about to be purchased at a cost of $1 billion to reduced project risks and capital costs.

The Government has approved the purchase of three Aegis weapon systems from the USN that will form part of the Aegis combat system – the core capability of the AWDs. The procurement of the three systems is included as part of the $6 billion shipbuilding project.

Placing the order for the systems now allows the United States to continue manufacturing the systems for Australia without halting its production line, bringing about greater efficiency and achieving considerable savings.

Working closely with the USN on combat system integration and risk reduction studies is hoped to minimise the risk of any delay in the 2013 delivery date for the first Hobart class destroyer.

This decision maintains the Government's option in mid-2007 at Second Pass to choose either the Evolved Design being developed by Gibbs & Cox or the F-100 off the shelf frigate design provided by Navantia of Spain.

Tenix, Navantia team for LHD contract

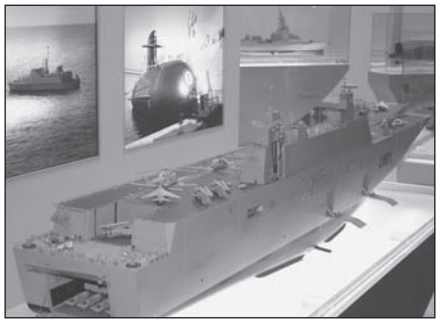
Spanish shipbuilder Navantia and Australian defence prime contractor Tenix Defence will team to compete for the $2 billon contract to construct two Amphibious Ships for the RAN.

In a joint statement, the two companies said their team would submit a strong, comprehensive and very competitive bid for the important contract.

"We believe a Tenix/Navantia team will provide the greatest capability to the RAN at the lowest risk, and we look forward to working closely together on this exciting project," the companies said.

Australia is seeking two ships, each able to transport up to 1,000 personnel, which have six helicopter landing spots and provision for a mix of troop lift and armed reconnaissance helicopters.

They will also be able to transport



A model of the Spanish 'power projection' LHD from the Spanish shipbuilder Navantia being displayed at the recent Sea Power 2006 exhibition in Sydney. (Mark Schweikert)

up to 150 vehicles, including the new M-1A1 Abrams tanks and armoured vehicles, and will also be equipped with medical facilities, including two operating theatres.

Navantia is one of Europe's leading naval and commercial shipbuilders, and is constructing a 27,000 tonne Amphibious Ship for the Spanish Navy which offers similar capabilities to those required by Australia.

The Tenix/Navantia bid for the Australian Amphibious Ships contract will be based on this design.

ADI teams with Armaris and DCN for LHD contract

ADI Limited has announced it will team with Europe's Thales-DCN joint venture company, Armaris, to offer the DCN Mistral design for the Commonwealth Government's amphibious ships project.

The first of class of the DCN designed projection and command ship, MISTRAL, is set to enter service with the French Navy after an extensive sea trials programme thoroughly tested the 21,500 tonne ship's capabilities. Her sister ship, TONNERRE, is also undergoing sea trials and is due to enter service in late 2006.

The teaming agreement, which will see ADI bid as prime contractor, brings together complementary strengths for this crucial defence program to build and support two landing ship helicopter/dock (LHD) amphibious ships for the Royal Australian Navy.

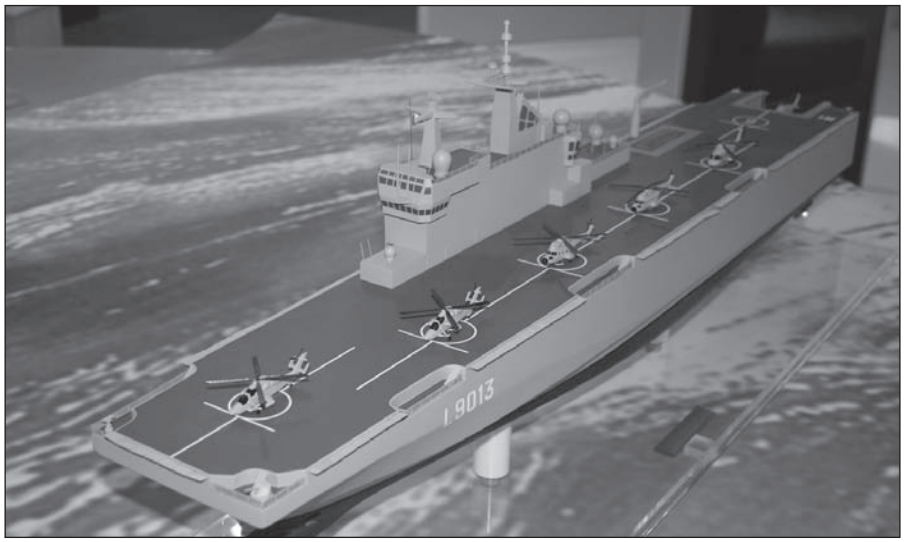
ADI will add to its proven Australian prime contracting experience, Armaris' international expertise in complex project management, including the construction of 17 multi-mission frigates for the French Navy, and DCN's knowledge as design authority for the Mistral Class.

ADI and Armaris are currently finalizing plans for a low risk, value for money ship construction programme that meets the Australian Defence Force's operational requirements and maximizes economic benefits to Australia.

The LHDs are expected to enter service by 2012.

Night vision for Seahawks

Navy's 816 Seahawk helicopter squadron will be provided with night vision capabilities to increase crew safety and the ability to carry out search



A model of the ADI Limited and Armaris/DCN, Mistral design for the RAN amphibious ship project. (Mark Schweikert)

and rescue operations more effectively at night.

The $5.45 million project will run over two years and will provide night vision goggles to all Navy Seahawk aircrew as well as external lighting to the entire fleet of 16 Seahawk helicopters.

The night vision capability is the first phase of Project 1809 and will contribute to the overall upgrade of the Seahawk helicopters, which will boost the Navy's aviation capability, particularly during joint operations.

The project will provide training for aircrew, spares and test equipment. Opportunities for Australian industry exist with the integration and installation of the equipment, and through life support.

This capability is expected to be in Service from financial year 2007/08.

SHEEAN awarded Duke of Gloucester Cup

HMAS SHEEAN has been awarded the Duke of Gloucester Cup in a ceremony held at Fleet Base West, Rockingham, Western Australia. The Cup is awarded annually to the RAN ship or submarine judged as the most proficient in all aspects of operations, safety, seamanship, reliability and training. RAN ships and submarines have vied for the Duke of Gloucester Cup since it was first presented 49 years ago.

"Winning the Duke of Gloucester Cup is a great achievement," said the Governor-General, Major General Michael Jeffery after presenting the award. "For two submarines to win the Cup in as many years is proof of the high level capability of our submarines and the professionalism and dedication of the men and women working in them."

"2005 was a big year for us," said Commander Andrew Keough, the former Commanding Officer of HMAS SHEEAN. "Our five-month deployment took us to ports including Japan, Thailand and Singapore. We also achieved 55 days at sea which is the longest period ever undertaken by a Collins class submarine. The crew and the boat performed magnificently and I feel extremely proud of what we achieved."

In 2005, SHEEAN also won the Voyager Trophy, awarded annually to the ship or submarine that displays the best overall fleet efficiency in Anti Submarine Warfare operations and, the Electronic Warfare Proficiency Shield which is awarded annually to the ship or submarine judged to be the most efficient in Electronic Warfare. SHEEAN was also the runner up for Submarine Fighting Efficiency Award, for demonstrating proficiency in all aspects of warfare, training, safety and weapons handling.

$100 million for navy communications

The RAN will receive new capabilities through two new communications upgrade projects for major surface ships announced on 23 Feb 06.

ADI Limited has been selected as the preferred tenderer for Phase 3 of Project SEA 1442. The $45 million project, approved by Government in May 2004, will modernise the Australian Navy's on-board communication and information systems.

The Government has also approved the $55 million acquisition of further broadband Satellite Communication terminals for the remaining five ANZAC-class frigates and an additional FFG, being in addition to those currently being fitted under JP2008 Phase 3E.

The Australian Defence Force's ability to successfully conduct maritime operations is highly dependant on the exchange of operational information between ships, aircraft and land units.

Additional JP 2008 Satellite terminals combined with the SEA 1442 integrated communications architecture will significantly increase the ability of the Navy to successfully collect, organise, store, process and distribute information.

Capabilities introduced by the projects will allow deployed ships to establish computer-based wide area networks at sea via broadband satellite communication bearers and other communication mediums, allowing Navy to rapidly move information around its ships, share tactical information, communicate with headquarters and allies, and is a response to the increased tempo of modern military operations.

These projects will also improve quality of life provisions for sailors serving on board ships by enabling them to have increased contact with their families and loved ones through improved email and internet access capabilities.

New sonar for RN

The RN has taken delivery of a world class new naval sonar system five months ahead of schedule, UK Defence Procurement Minister Lord Drayson announced on 24 Feb 06.

The high tech underwater detection system, known as Sonar 2087, is capable of detecting the new generation of increasingly stealthy submarines which often operate close to shore – making them very hard to detect.

Ordered in 2001, as part of a program worth over £300m, the system, which is one of the most advanced and capable sonar in the world, was due to enter service in May 2006 but excellent teamwork between the UK MoD and contractor Thales UK meant the RN accepted the initial system into service early.

Defence Procurement Minister Lord Drayson said: "The Royal Navy needs world class equipment to do its job and that is exactly what it has got with Sonar 2087. A state of the art underwater detection system it is being fitted to eight of the Royal Navy's Type 23 frigates – making them some of the most potent vessels of their type anywhere in the world today. I am also delighted to announce that despite the technical challenges involved with such cutting edge equipment the Royal Navy has received this system almost half a year early which is a huge credit to the hard work put in by the MoD and Thales teams."

Though Sonar 2087 is not more 'powerful' than existing sonar systems, it operates at a lower frequency (longer wavelength) to enable the detection of a hostile submarine at longer range – enabling the ship's captain to take action before the enemy submarine gets within torpedo range.

The new system consists of a towed array and variable depth sonar.

RNZN to dispose of CANTERBURY

The RNZN is getting set to invite public submissions on the disposal of the decommissioned frigate HMNZS CANTERBURY.

Based on experience from the previous disposal of warships, the Navy anticipates that responses will range from buying the ship for scrap metal to proposals for sinking it as a dive wreck.

It is anticipated that most responses will come from New Zealand, although some interest from overseas is also likely.

50 nuke boats to go

A senior official at the Russian nuclear atomic energy agency, Rosatom, says Russia still has to unload nuclear fuel from 50 decommissioned submarines.

Sergei Antipov, Rosatom deputy director, said Russia has so far decommissioned 195 nuclear submarines of its Northern and Pacific Fleets and that nuclear fuel has been unloaded from 145 of them.

Antipov, speaking on a visit to Tokyo, said Russia and Japan agreed that Japan will help Russia dismantle five nuclear submarines decommissioned from the Pacific Fleet at the cost of US$5 to US$15 million per submarine. He said Japan was ready to allocate US$100 million for dismantling submarines and another US$100 million for dismantling the Russian weapon-grade plutonium.

Antipov said Russia has invited Japan to join the construction of a long-term storage facility for nuclear reactors from dismantled Russian submarines in the seaport of Vladivostok.

Harpoon for Indonesian

The Indonesian Navy plans to buy Harpoon missiles from the United States, following the US decision to lift its military embargo on Indonesia, said Navy chief of staff, Admiral Slamet Soebijanto.

"The number of the missiles and when it will be bought would still have to be discussed further," Slamet said.

The Indonesian Navy would also discuss Indonesia's need for other military hardware after the US government lifts the military embargo, Antara news agency quoted the navy chief as saying.

The Indonesian Navy also plans to buy Russian Yakhount missiles in 2006, which can hit targets 300 kilometres away.

An Akula class Russian submarine on the surface. India will get two Akula I nuclear submarines from Russia on lease.

Akula SSNs for India

India will get two Shchuka-B-class (Akula I) nuclear submarines from Russia on lease. An Indian crew has already arrived in Russia for training as part of the aircraft carrier ADMIRAL GORSHKOV deal, an Indian media report said on 6 Dec, 05.

The two Akula are at different stages of construction since the collapse of Soviet Union and could be leased to India for ten years in estimated US$1.8 billion deal after their simultaneous completion, the Russian daily newspaper *Kommersant* reported.

Due to slippage in the indigenous Advanced Technology Vessel (ATV) project for the development of S-2 nuclear submarine, India is leasing the two submarines as part of the package deal on the acquisition of ADMIRAL GORSHKOV aircraft carrier, the daily said.

It said that about 200 Indian naval officers have arrived in Russia in October for a course at the Russian nuclear submarine fleet's North-West training centre at Sosnovy Bor near St. Petersburg, the paper wrote.

India earlier had received a Charlie-class nuclear submarine from the ex-Soviet Union, which was known as INS CHAKRA, on lease.

Kommersant wrote that at that time the Indian crew did not have access to the reactor of INS CHAKRA, which was manned by Soviet naval personnel.

The daily also said that Moscow is helping India in designing the nuclear reactor for the ATV, which resembles the Russian submarine of the Project 09710 Samara-class (NATO code name Akula-II).

Spruance class to live on

Despite the last Spruance class destroyer decommissioning last year (see *THE NAVY*, Vol 68, No.1 pp 21-25) and with the US Navy using the class as target practice, the United States House of Representatives has given final approval to the 'Naval Vessels Transfer Act of 2005' giving life back to three of the class.

The act grants the former Spruance class destroyers USS FLETCHER to Pakistan and USS CUSHING to Turkey. Turkey is also permitted to purchase the former Spruance class destroyer USS OBANNON.

In the same Act, India can purchase the Austin class amphibious warfare

The former Spruance class destroyers USS FLETCHER (above) and USS CUSHING (below). (US Navy)

ship TRENTON. USS TRENTON was ordered by the US Navy on 17 May, 1965 and is set to be decommissioned by 2007-08.

RSN launches fifth frigate

The Republic of Singapore Navy's (RSN) fifth frigate, RSS STALWART, was launched on 9 Dec, 2005.

The launch of RSS STALWART marks another milestone for Singapore's frigate programme. In the next phase, RSS STALWART will undergo harbour and sea trials.

With the commissioning of the frigates over the next few years, the RSN will have enhanced capabilities to undertake their increased spectrum of operations. The advanced capabilities and greater sustainability of the frigates will also give the RSN increased flexibility and added options in meeting the range of operational requirements and scenarios that may arise in their new security climate.

The first of the Formidable-class frigates, RSS FORMIDABLE, was launched in France in January 2004. She has since returned from France in July 2005 and is currently undergoing system integration trials in Singapore.

Block-B Osprey arrives

Representatives from the United States Marine Corps accepted the first production Block-B MV-22 Osprey for the US Government in a ceremony at Bell Helicopter in Amarillo, Texas, on 8 Dec 2005.

"With the progression from Block A into Block B, we see for the first time the baseline configuration that the warfighter will take into combat after we reach IOC – our initial operational capability – in 2007," said Col. Bill Taylor, programme manager for the V-22 Joint Program Office.

The USMC plans to purchase 360 MV-22s for missions including amphibious assault, ship-to-objective manoeuvres and sustained operations ashore. Combining the operational flexibility of a helicopter with the speed and range of a fixed-wing aircraft, the tiltrotor MV-22 will allow the Marine Corps to achieve previously unobtainable strategic objectives.

The US Navy is also slated to get 48 MV-22s, which could be used for fleet logistic support and search and rescue. The US Air Force Special Operations Command will acquire 50 CV-22 variants, with enhanced capabilities tailored for their unique mission requirements. The CV-22 will reach IOC in 2009.

The V-22 successfully passed operational evaluation last winter, achieving all the key performance parameters identified by the Marine Corps as essential to the Osprey's role in its fighting forces. Recommendations from that OPEVAL validated the programme's roadmap for follow-on test and evaluation to add capabilities as the aircraft progresses toward its deployment date.

Leading the way for those future operators is VMM-263, which stood up as the first operational MV-22 squadron in March 2006 under the command of Lt. Col. Paul Rock. Rock accepted the keys for the first Block-B aircraft at the Dec. 8 ceremony.

The first production Block-B MV-22 Osprey for the USMC squadron VMM-263. (Bell Helicopters)

A Umkhonto (Spear) missile fired from the VLS of the patrol corvette SAS AMATOLA.

SAN tests new SAM

The South African Navy (SAN) has announced that it joined the handful of nations to have fielded an operational naval anti-missile air defence system.

During Nov 05 the SAN fired two Umkhonto (Spear) missiles to certify the ability of the patrol corvette SAS AMATOLA to defend itself against missile attack.

"The tests went off exceptionally well," said Project leader Rear Admiral Johnny Kamerman.

The AMATOLA fired a missile at a high-speed Skua target drone on November 23 off Cape Aghulas and a second a week later.

Both were fired with telemetry warheads to tell developers at Denel's nearby Overberg test range how the missiles were performing.

Had real warheads been fitted, both targets would have been destroyed according to the data readouts.

"Both hits were within the specifications. The ranges achieved were even better than those specified," Kamerman added.

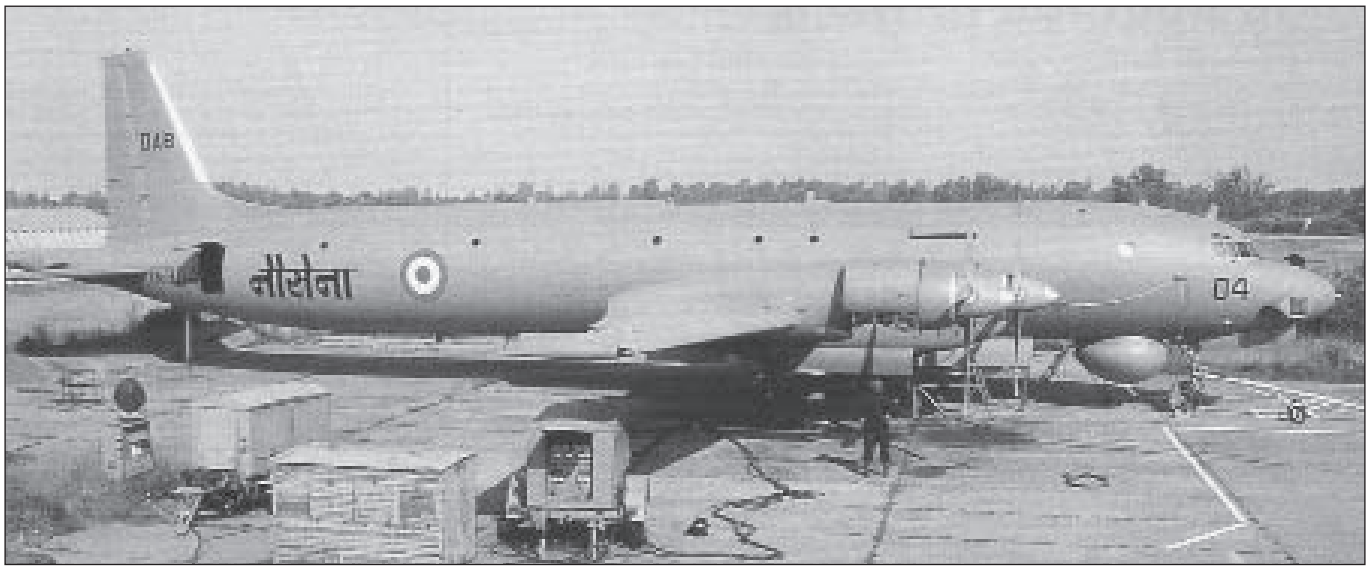
Kamerman said the development of the system began in 1993.

The next phase was to do sea acceptance trials on the AMATOLA in what Kamerman called "live configuration."

Both Umkhonto missiles were vertically launched, giving the ship the ability to defend against threats in any direction at any azimuth – including zenith attacks.

Update on Indian Scorpene programme

Contracts for the indigenous



An Indian Navy IL-38 'May' Maritime Patrol Aircraft.

construction of six French Scorpene class submarines at Mazagon Dock Limited (MDL), Mumbai, were signed towards the end of last year. The project includes Torpedos, a portable Deep Water Noise Range, Base and Depot spares and MDL infrastructure.

The Indian Government approved a long term plan for construction of 24 submarines and acquisition of a national competence for submarine building in 1999.

More IL-38 for India

During Dec 05 a contract was signed for the supply of two IL-38 'May' Maritime Patrol Aircraft from the Russian Navy's Fleet Air Arm to India.

Both of the aircraft, which are being delivered to India, will be upgraded according to the same model as the Indian Navy's three IL-38SD aircraft, which are currently being upgraded in Russia with advanced computer targeting and communication networking equipment.

The first aircraft will be delivered before the end of 2006, with the second due in 2007.

India is planning to use these two IL-38 aircraft to replace two aircraft of the same kind that were lost in a mid-air collision in 2002.

Pakistan Navy decommissions four submarines

The Pakistan Navy has decommissioned its four Hangor (Daphne) class submarines.

Vice Admiral Mohammad Haroon, the vice chief of the navy, was the most senior serving submariner attending the event to mark the decommissioning of the French-made submarines.

Haroon said despite the phasing out of the vessels, the submarine arm was capable of generating a forceful deterrence during wartime. With the induction of three Khalid (Agosta 90B) class submarines, and with its existing two Hashmat (Agosta) submarines, the Pakistan Navy had entered a new era of dealing with sophisticated technology.

He said the government was determined to make the navy a strong maritime force equipped with modern platforms and weapons.

The four submarines were decommissioned after 35 years of service.

It is understood the navy is looking for more submarines and is in discussions with the European shipbuilding firm DCN for the Scorpene class boat.

USS SAN ANTONIO LPD commissions

The 41st President of the United States, former President George H.W. Bush, delivered the principal address as the US Navy/Marine Corps team's newest ship, USS SAN ANTONIO (LPD-17), was commissioned at Naval Station Ingleside on Jan 16 2006. More than 7,000 guests were on hand for the traditional naval ceremony in which the Northrop Grumman Corporation-built

The US Navy/Marine Corps team's newest ship, USS SAN ANTONIO (LPD-17). (USN)

amphibious transport dock ship formally joined the US Atlantic Fleet. USS SAN ANTONIO will be homeported in Norfolk, VA.

USS SAN ANTONIO is a new LPD-17 class ship. The LPD-17 class, 208m long and 32m wide, will replace the functions of the LPD-4, LSD-36, LKA-113 and LDT-1179 classes of amphibious ships. This new class of ship affords the US Navy's Expeditionary Strike Group the technology and flexibility to launch and recover two amphibious Landing Craft Air Cushion (LCAC), operate an array of rotary-wing aircraft, as well as the ability to carry and launch 14 Marine Corp's Expeditionary Fighting Vehicles.

Technological and design advances in the LPD-17 class provide benefits such as enhanced survivability, state-of-the-art command-and-control capability, modernized weapons stations and enhanced ergonomics, which greatly improves quality of life at sea for the sailors and Marines. This includes 'sit-up' berths that allow occupants to sleep horizontally or sit up vertically to read or write. Each berth also has 40 percent more storage space than other type berths. The ship is capable of embarking a landing force of up to 800 Marines.

The LPD-17 class have a navigational draft of 7.6m and displaces approximately 25,000 tons. Four turbo-charged diesels power the ship class to sustained speeds of 24 knots.

Northrop Grumman will build at least nine ships in the class with the first five already under contract. NEW ORLEANS (LPD 18), MESA VERDE (LPD-19), GREEN BAY (LPD-20) and NEW YORK (LPD-21) are each in various stages of construction at all three locations of Northrop Grumman Ship Systems in New Orleans, and Pascagoula and Gulfport, Miss.

REAGAN sailors help DIAMANTINA

USS RONALD REAGAN Strike Group sailors shared their passion for naval history with members of the Queensland Maritime Museum by participating in a community relations project on 24 Jan 06, during the Fleet's five-day port visit to Brisbane.

The project focused on HMAS DIAMANTINA (K377), a World War II frigate that had been restored for display at the museum. HMAS DIAMANTINA was one of nine World War II era frigates built in 1944, and is named after the Diamantina River.

The frigate served in World War II from 1944 until the end of hostilities in 1945. The ship was decommissioned in 1946, and then re-commissioned in 1959 where it served as an oceanographic research ship in the RAN until 1977.

Projects aboard the ship included removing debris, hoisting several fixtures from below decks and cleaning most of the spaces aboard the ship.

Thirty-six American sailors from USS RONALD REAGAN participated in the all-day event.

Type 45 launched

HMS DARING, the first of the RN's new Type 45 destroyers, was officially launched on 1 Feb 06 by the Countess of Wessex at BAE Systems' Scotstoun shipyard in Glasgow.

Over 150m long, weighing over 7,000 tonnes with a crew of 190 and a range of 7000 nautical miles, she, and the rest of the Type 45 destroyers, are designed to be flexible multi-role vessels able to carry out a variety of tasks across the globe.

UK Secretary of State for Defence John Reid said, "HMS DARING is the most powerful destroyer the UK has ever built. The launch of this first Type 45 is a milestone in the development of the Royal Navy of the future."

The cost of the first six ships is

The RN Type 45 destroyer DARING, launching at BAE Systems' Scotstoun shipyard in Glasgow. (BAE)

expected to be about £6 billion and their construction is expected to sustain over 2,000 jobs on the Clyde and around 650

Two RN Sea Harriers. The RN is about to retire its entire Sea Harrier fleet leaving India the only Sea Harrier operator. (RN)

at Vosper Thornycroft in Portsmouth. In addition, many other UK companies are benefiting from work on the programme. The in service date for the first Type 45 is 2009 with the others coming into service progressively throughout the next decade.

More Sea Harriers for Indian Navy?

The Indian Navy (IN) is seriously considering a UK offer of eight second-hand RN Sea Harrier FA.2 fighters. The eight aircraft – the last Sea Harriers remaining in RN service – would operate as training aircraft to support the existing IN Sea Harrier FRS.51 fleet.

An IN team has visited the UK to inspect the Sea Harriers, which were being retired by 801 Naval Air Squadron, based at RNAS Yeovilton in southwest England, by the end of March 2006.

Official sources said that the fighters' AIM-120 AMRAAM (Advanced Medium-Range Air-to-Air Missile) capability would be removed before the aircraft are handed over to the IN. The aircraft, however, would retain their Ferranti Blue Vixen radars, albeit in an unsupported capacity.

The IN's 16 Sea Harrier Mk 51s are currently receiving their first upgrade since the type entered Indian service in 1983. Under the upgrade, the aircraft are being retrofitted with the Israeli Elta EL/M-2032 multi-mode fire-control radar; this matches up with the Rafael Derby beyond visual range radar guided fire and forget air-to-air missile (20 of which the navy bought in 2005 along with six practice rounds) and a helmet-mounted sighting system. Hindustan Aeronautics Limited (HAL), based in Bangalore, southern India, is prime contractor for the upgrade and is offering the helmet-mounted sight.

Rear Adm Damle said the upgrade would be completed over the next 18 months and would keep the fighters in service for the next decade, enabling them to operate on the ADMIRAL GORSHKOV, the second-hand 44,500-tonne Kiev-class carrier that is being retrofitted in Russia and is expected to enter Indian service in 2008.

The new Israeli radars will replace the original Blue Fox radars, which equipped the aircraft as delivered from 1983 onwards. The Falklands War proved that the Blue Fox radar offers poor look down performance. It was replaced in the RN Sea Harrier FA.2 upgrade by the more capable Blue Vixen radar.

USS OHIO rejoins US Fleet

The first of four Ohio-class Trident missile submarines converted to carry guided missiles and Special Operations Forces (SOF) has rejoined the US Fleet in a return to service ceremony at Naval Base Kitsap-Bangor 7 Feb 06.

In December 2005, USS OHIO (SSGN-726) completed conversion to a guided-missile submarine capable of carrying more than 150 Tomahawk cruise missiles and more than 60 SOF members for extended periods. This conversion is seen as a major step forward in the US Navy's ability to fight the global war on terrorism.

USS MICHIGAN (SSGN-727), USS FLORIDA (SSGN-728), and USS GEORGIA (SSGN-729) are also undergoing conversion to SSGN and are scheduled to return to service over the next two years.

The first SSGN conversion, USS OHIO (SSGN-726), heads for sea to conduct trials of her new capabilities. (USN)

The RNZN's new Multi Role Vessel (MRV) having the bridge fitted after her launch. (www.bendijkstra.nl)

RNZN MRV launched

The RNZN's new Multi Role Vessel (MRV) was launched on Saturday 11 Feb 2006 at Merwede shipyard in Rotterdam, Holland.

The 9000-tonne MRV is the first of seven ships being built under the NZ Ministry of Defence's $500 million Project Protector. Two offshore patrol vessels are being built in Melbourne, and four inshore patrol vessels are being built in Whangarei.

Defence Minister Phil Goff, who visited the shipyards prior to the launch, said the speed with which the MRV was being built was impressive, with work having been contracted to four other shipyards in Rotterdam.

"As result, the MRV is being built at an average of 20 tonnes per day and five months later it is ready for launch – on schedule and within budget."

The MRV's superstructure was fitted as one complete block the day after the launch. Once the fit-out and sea trials are complete in late July, it will sail for Melbourne to be fitted with armaments and military communications systems. Final trials will then be conducted before NZ accepts the ship in December 2006.

The MRV has a maximum speed of 19 knots, and is capable of transporting the NZ Army's Light Armoured Vehicles and Light Operational Vehicles, as well as 250 troops, one Seasprite and four NH-90 helicopters. It has two 60-tonne landing craft for situations where port facilities are not available.

The principal roles for the two MRVs include tactical sealift, patrol and at-sea training for the Navy. It is designed, constructed and fitted out to enable operations in NZ's EEZ, the Pacific and Indian oceans, including waters of the deep southern latitudes, East and South East Asia, the Tasman Sea and, during the months of December to March, in the Ross sea and surrounding areas.

Tactical sealift means the ship must be able to disembark its cargo (up to a Company Group of troops and equipment) without access to port facilities. A typical company group load might consist of 16 Light Armoured Vehicles, 14 Light Operational Vehicles (Pinzgauers), 7 Unimogs, 2 ambulances, 2 flat bed trucks, 7 LOV trailers, 2 Rough Terrain Fork Lifts and 4 four-wheel drive vehicles) in addition to up to 33 containers.

Vehicles and equipment are embarked by either the stern or side ramp or can be craned onboard using two 60 tonne cranes through large hatches in the flight deck. Disembarkation is either by the ramps or crane or, if there are no suitable port facilities, onto a beach using two

One of the six LCM 8 watercraft replacement boats built by ADI Limited. All six have been delivered to the Army in Townsville, where they have undergone a rigorous trials and evaluation program before being accepted into service. The new watercraft will operate from the LPAs - KANIMBLA and MANOORA.
Built in Newcastle NSW, the lightweight aluminium watercraft deliver a substantial capability improvement over the ageing LCM 8 vessels they replace, thanks to their water jet propulsion, shallow draught and greater carrying capacity.
The innovative design, with dual vehicle lanes, bow and stern doors and crew accommodation make it able to more quickly load and discharge the full range of army vehicles in either independent operations or as part of an integrated system to transfer a battalion between ship and shore. (ADI)

Observations

By Geoff Evans OBE VRD

Planning a Defence Force in a Troubled World

From time to time the writer has commented in *THE NAVY* on the difficulties facing defence planners in Australia and other countries trying to plan the kind of defence force their country may need in the foreseeable future, carrying out their task in an atmosphere of uncertainty, "uncertain" being the word generally used by advisers to describe the course of future events. Today, it is wellnigh impossible to foretell what lies ahead with any degree of confidence.

It is well known that defence forces do not come into being overnight and once formed cannot be quickly restructured. Australia is now embarked on projects involving the acquisition of ships, aircraft and materiel much of which will still be in service in perhaps thirty or more years time. Given the speed at which circumstances can change at the present time, who knows what changes will take place between now and then? Who knows what will be needed?

Defence planners receive advice and guidance from a variety of sources and in countries such as Australia, instruction and funds from governments subject to periodical change. Since World War II Australian foreign and defence policies have for much of the time been politically bi-partisan, structurally an advantage for the defence force even if political unity becomes a matter for regret when the government-of-the-day decides to withhold funds for projects considered necessary by Service Chiefs. Recent media reports and publications however cause one to wonder if political bi-partisanship will continue indefinitely, while future forecasts are so diverse as to be confusing for defence planners and the public alike.

The writer was reminded of planning difficulties by several articles which appeared in successive editions of *THE AGE* newspaper in January this year. In the first, Professor Robert O'Neil, former Council chairman of the International Institute for Strategic Studies in London, wrote of the challenges to peace and security that would follow in addition of a nuclear-armed North Korea and Iran to he present list of eight nuclear powers. Iran's strategic position on the Gulf, its oil and natural gas reserves (and consequent relations with Russia as the largest supplier in the international gas market) and the country's boarder with Iraq make it possible to encourage Shiite leaders and to obstruct United States attempts to establish "a functioning, recognisable democracy that can govern the whole of Iraq effectively", are among the factors Professor O'Neill believes would make Iran "…a stronger and more assertive power in the Gulf with great local leverage there, and a more dominant player in a tightening world energy market".

The Professor sees North Korea, while making no secret of its nuclear ambitions, as weaker that Iran "politically, demographically, economically and militarily" but a cohesive country with a leadership wiling to endure long confrontations. He states "A North Korean strike against a local power just before succumbing to external pressures is a very thinkable possibility". He goes on to name Japan as the most likely target and China as the only country able to influence North Korea's leaders. Professor O'Neill had noted that the United States has approached the North Korean problem diplomatically rather than with force and expresses the hope that this (diplomatic) approach will continue when dealing with Iran as well as North Korea; also that the American President…"will recognise the potentially vital roles of Russian, China and America's old allies in Europe and the Pacific in preventing two difficult situations from becoming much worse".

Professor O'Neill refers to the dangers of weakening the international regime against proliferation and the credibility of the Nuclear Non-Proliferation Treaty, already under stress by other things among the current US Administration's maintenance of its nuclear arsenal and the development of new weapons. He concluded his article by pointing out the difficulty, should diplomacy fail, of trying to keep under control a world of 20 to 30 nuclear weapon States.

In the second article, Sir Max Hastings, former editor-in-chief of London's *DAILY TELEGRAPH*, expressed concern about potentially dangerous situation on the Middle East – the continuing friction between Israelis and Palestinians with no sign of a solution to the border issue. Reference is made to other border and land disputes – between India and Pakistan over Kashmir, between Russia and Ukraine over control of the latter, China's "obsession" with recovering Taiwan "…the greatest threat to peace in Asia", Japan's desire to regaining the Kurlie Islands, conflict between South American States over border issues – the list goes on.

It is suggested that against this background the Israel-Palestine dispute may not be seen as unique, but while most disputes revolve around minorities that have become separated from their own people, Israel's actions are more akin to colonisation. The author did not see an early resolution to this problem.

The third article, by Professor Andrew Mack, a former ANU professor who directs the Human Security Centre at the University of British Columbia and who is a former director of the strategic planning unit in the office of the UN Secretary-General, is more optimistic in that he stated "despite the grim exceptions of Iraq and Afghanistan, war is waning across the world": Professor Mack supported the claim by referring to a study of global security indicating that armed conflict commenced to decline in the early 1990's and has continued to do so, attributable principally to the end of the Cold War. Genocide has also declined around the world, again with some notable exceptions, such as Rwanda. International terrorism has increased but it is pointed out that deaths from this cause are but a fraction of those who die in wars.

Professor Mack outlined the part played by the United Nations and UN-led organisations in peacemaking and conflict prevention around the world and concludes that the UN is "an organisation that, despite its failures and creaking bureaucracy, has played a critical role in improving global security".

The foregoing and other expressions of opinion by commentators on world affairs leave the writer of this column in no doubt that fear of nuclear disaster, brought about by design or by accident, despite the efforts of the United Nations and enlightened leaders, will never be far from the minds of defence and security planners for many years hence- just as it has been for the last sixty years.

Hope for the best, prepare for the worst.

The Anzac Frigate Upgrade Programme

By Conrad Wagner

A computer generated image of the new CEA Technologies radar upgrade to the Anzac class. The upgrade will see six volume search phased array radar panels placed on top of the main mast with four passed array illuminator panels below. (CEA Technologies)

The Royal Australian Navy's fleet of eight Anzac class ships have up until now led a relatively peaceful operational existence. However, the operational usage of these ships has changed greatly from their intended "Tier 2" patrol duties envisaged in the 1986 Dibb Review. Despite the fact that the last is yet to be commissioned, all eight Anzac class frigates will undergo a comprehensive modernisation upgrade of their combat systems, transforming them into amongst the world's most capable frigates.

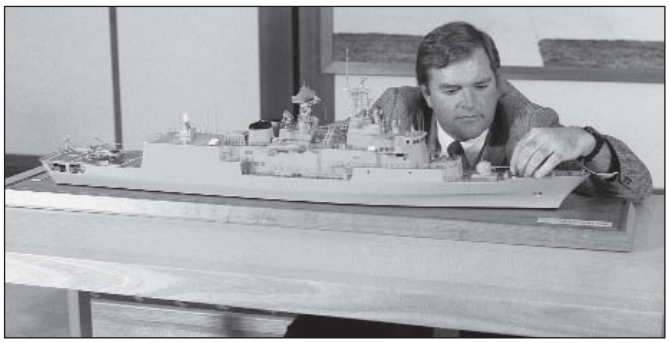
The upgrade project, SEA 1348, primarily focuses on the vessels ability to detect, engage and destroy most modern anti-ship cruise missiles (ASCM), aircraft, surface and subsurface threats such as mines and submarines. The government has employed the services of ADI, Tenix, Saab Australia and CEA Technologies to conduct research and carry out development to the ships.

The need for the upgrade programme is important to Australia's interests since the decommissioning of the Navy's three DDG destroyers; PERTH, HOBART, and BRISBANE in the late nineties. The retirement of these destroyers left a capability gap in the Navy's ability to conduct high intensity operations in the region. The role of the Anzac upgrade programme is to transform the fleet to meet the demands of the future maritime battlespace environment until the arrival of the highly anticipated Air Warfare Destroyers (AWD) in 2013.

SEA 1348

Since the Anzac class entered service much has changed in Australia's strategic posture, policy guidance and the RAN's own concept of operations. Project SEA 1348 was originally conceived to deliver a so-called "Tier 2" light patrol frigate for low to medium intensity missions (the Adelaide class guided missile frigates and now-retired Perth class guided missile destroyers being classified as Tier 1 ships) around the RAAF air bases of Australia's 'Top End'. SEA 1348 covers improvements to the Anzac's Anti Surface Warfare and Anti Submarine capabilities.

Under SEA 1348 Phase 3A the Anzac class are being fitted with eight Boeing Block-II Harpoon anti-ship missiles (ASM). HMAS WARRAMUNGA is the first of the Anzac class to be fitted with two Mk-141 quad canisters, which house eight RGM-84L Harpoon ASMs. What makes the fitting of the Harpoons unique to the Anzac class frigates is that they are the first ships of her class to have the ASMs installed forward of the bridge on the chaff deck. Traditionally most MEKO 200 designed ships such as those used by the Greek, Portuguese and Turkish Navies install their ASMs between the main mast and funnel. The RAN chose this option so that the system would not interfere with sensitive electronic equipment and for top weight restrictions on sea keeping.



A rather younger Kim Beasley as Defence Minister in the Hawke Labor Government looking over a model of the winning MEKO 200 design for the RAN in the late 1980s. The MEKO model is quite well armed compared to the fitted for and not with ship the RAN eventually acquired. The SEA 1348 upgrade to the ships currently in motion will see them far more capable than originally conceived to be. (Department of Defence)

The sea trials test ship for the CEA-FAR radar was HMAS ARUNTA. A temporary fit of two of the passed array panels for the first at-sea trials can be seen in this image. The radars and their integration into the 9LV combat system performed well. (RAN)

This installation of the Block II Harpoon means the RAN is the second Navy in the world to use the new Advance Harpoon Weapon Control System (AHWCS). The AHWCS permits conventional 'blue water' anti-ship operations, but in littoral waters allows for over-the-horizon targeting by helicopter to select targets concealed among merchant shipping or close to land, to attack ships in port or even to strike land targets. For ships in the littoral close to land the missile would receive shoreline map and GPS data from the control system before launch. During the mid-course flight the missile would use its GPS system while in the terminal phase the radar seeker would 'blank' land returns to acquire the target. It does this by correlating its position with the on-board map and the position of radar returns from land masses. For attacks upon targets in port or on land the missile would be launched and make the usual low-level approach but would place greater reliance on the GPS/inertial navigation system to avoid land or ships in a course which can incorporate up to eight waypoints. As it approaches the coast it climbs to a pre-selected vertical waypoint, selects the fuse delay and impact angle then approaches the target area using inertial guidance to avoid enemy GPS jamming. In the terminal phase it climbs and then dives with a GPS accuracy of 10/13 m.

HMAS WARRAMUNGA was the test bed for the new Block II Harpoons. The positioning of the Harpoons in front of the bridge provided serious challenges to designers and naval personnel. There were concerns that the system would take up too much space so that there was no room for chaff dispensers, or that replenishment at sea would be hampered, or that there would be a detrimental impact on the bridge. However, these concerns were dismissed when the system out performed all expectations. In 2004, HMAS WARRAMUNGA conducted a test fire using a Harpoon test blast vehicle off the coast of Western Australia. The test was so successful that the green light has been given for all Anzac class frigates to be upgraded with the new system.

Most of the Anzac class are fitted, or being fitted, with the Evolved Sea Sparrow Missile (ESSM). Given the small size of the missile four can be packed into the launch canister of a Mk-41 Vertical Launch System (VLS). As each Anzac has eight launch cells the Anzacs are capable of carrying 32 ESSM.

Other missile defence systems that are currently being considered by the RAN under the VSRAD (Very Short Range Air Defence) programme include the installation of two French made SADRAL launchers to engage supersonic cruise missiles as a secondary defence layer to the ESSM.

For ASW the Anzac's are fitted with two triple 324mm Mk-32 torpedo tubes for Mk-46 anti-submarine torpedos. The Mk-46 is an active torpedo with a range of or excess of 11 kilometres. However, the Mk-46 is being phased out of service for the new Eurotorp MU 90 advance lightweight torpedo under project Joint 2070. The MU-90 will also be used by the RAN's Seahawks, Sea Sprites and the RAAF's AP-3C Orion aircraft.

SEA 1428

The provision of ESSM capability, and integration into ANZAC frigates, is managed under Project SEA 1428; its scope includes design changes to combat system hardware and software elements, and design and modification of ship platform and weapons systems, shore facilities and logistic support. Tenix has taken responsibility for the overall system design, system performance, integration and test and firing trial support, with Saab Systems, BAE Systems Australia and CSC Australia the major subcontractors for the project.

The ESSM is regarded as one of the world's most capable anti-ship missile defence missiles. It also has a very good short range anti-aircraft capability. Under project SEA 1428, the programme to acquire the ESSM will cost the Australian government well over $600 million dollars to inventory, which includes missiles for the new upgraded FFGs (see *THE NAVY* Vol 68 No.1, p4-6).

The ESSM (RIM-162) bears a strong resemblance to the Standard Missile with the forward part essentially a modified RIM-7P Sea Sparrow, and a fairing leading to a new 25.4 cm (10 in) diameter 168 kg booster-sustainer with steel-cased dual concentric Hydroxy-Terminated PolythEther (HTPE) propellant. Along this run four narrow dorsal fins, to allow low angle-of-attack interception, while at the rear there is a 20.3 cm diameter new control section with four clipped-delta fins. A thrust-vector control unit with separable vanes will be

added to vertically launched missiles. No power will be required before launch, which eliminates the four-minute warm-up, required for existing Sea Sparrows. The ESSM has a 40-kilogram annular blast fragmentation warhead with proximity fused, and has a lethality radius of 9 metres.

In the nose will be a semi-active radar homing seeker with low-noise amplifiers to improve the probability of intercepting stealthy targets. The guidance section is based on that of the RIM-7P but will include mid-course guidance. The addition of mid course guidance allows 'cold launching' of the missile towards a target without illumination until the last few seconds of the interception. In theory this should allow each radar illuminator on the ship to have three ESSM in the air at one time.

The range of the ESSM exceeds 10 nautical miles (18 km), has a minimum range of 1.6 kms, and is able to maintain a top speed of mach 2.5.

The new missile is specifically designed to engage low-level sea skimming ASCM's. The missiles Low Altitude guidance (LAG) system has the capability to engage modern Russian made SS-N-27 Sizzler, SS-N-22 Sunburn, and air launched Kh-41 Moskit, Kh-59, Kh-31, Kh-22 and Kh-35U ASM's. Another benefit of the ESSM is that the missile has proven numerous times to be highly effective in electronic countermeasures environments.

VSRAD

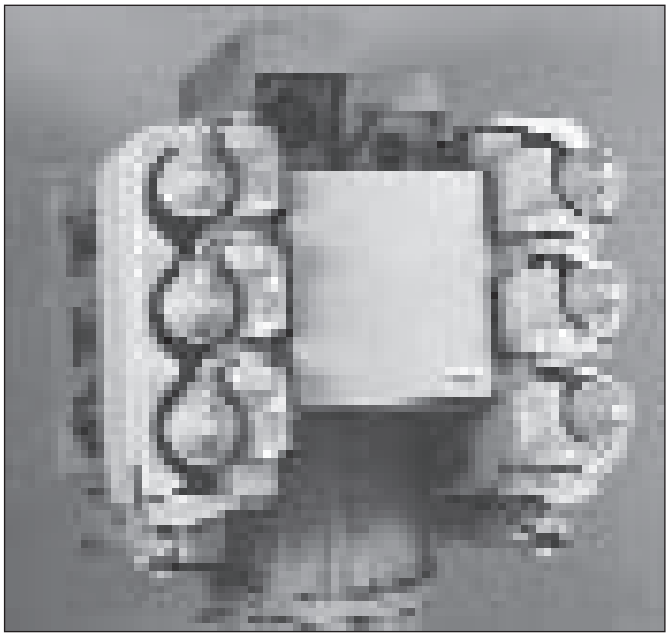
Although the ESSM is regarded as a capable ASMD system, there are concerns that new ASM's may be able to penetrate the ESSM layer, especially if the enemy launches multiple waves of missiles with a simultaneous time on target.

To counteract this the RAN has envisioned fitting the French made SADRAL anti-missile system to the superstructure. It is believed that the Anzacs will receive two launchers each.

The SADRAL was initially developed from the MISTRAL man portable SAM system for the French Army. The missile comprises a two-way seeker, behind which is a gyro and the actuation system for a 2.9 kg high-explosive warhead with an impact and laser proximity fuse. The warhead consists of 1kg of explosive and nearly 2 kg of tungsten balls.

The primary role of the SADRAL is to engage both high performance fix wing aircraft, and UAVs, with priority to engage low flying ASMs. However, there has been limited confirmation by the Defence Department on the procurement or testing of this system.

HMAS WARRAMUNGA from above. Note the position of the Mk-141 Harpoon launchers before the bridge and their proximity to the chaff launchers. (RAN)



The naval version of the French MISTRAL anti-aircraft missile system, The SADRAL. SADRAL comes with six ready to fire missiles on a trainable launcher. It is thought the Anzacs may get two each to act as a secondary anti-missile defence layer.

SEA 1448

Recently the federal government, under project SEA 1448, selected CEA Technologies CEA-FAR search and tracking radar and CEA-MOUNT phased array missile illuminator to be installed on all Anzac frigates (see *THE NAVY* Vol 68 No.1 p14).

Sea trials of the new system involved four CEA-FAR passed array panels installed around the base of HMAS ARUNTA's forward main mast. The design of the CEA-FAR module was performed by AMT under contract with the Anzac Ship Alliance. Saab Systems developed a special package that integrated the CEA-FAR with the 9LV 453 combat management system, which allowed the tracking of targets to be displayed on multi-function display consoles in the combat room during the evaluation period.

Traditional radars rely upon a constantly rotating antenna for beam steering, the CEA-FAR is a fixed faced array that is flexible in size using electronic beam steering providing software variable search patterns. CEA has also developed one of the most sophisticated illuminators in the world today, one that far surpasses the majority currently under development. The CEA-MOUNT illuminator is integrated into the vessel's combat systems, and enhances its capabilities to detect, track, lock and engage low level targets. The illuminator provides continuous wave illumination (CWI) for guidance of semi active homing missiles such as ESSM, and SM-2.

Traditionally most illuminators (classic reflectors) track targets by using a high maintenance mechanical device that focuses the radar beam directly onto the target. CEA Technologies have in turn developed a system where the target is illuminated by simply electronic beam steering in the direction of the target. The CEA-MOUNT illuminator is a revolutionary system developed to replace older technologies. CEA commenced its work in missile guidance by providing a

An ESSM in flight. The new ESSM has the same guidance section as the older Sea Sparrow but with a new propulsion unit, flight control surfaces and mid course guidance. (Raytheon)

solid-state continuous wave illuminator (SSCWI) alternative to the Mk-73 transmitter. The CEA SSCWI is currently being used aboard the Anzac class frigates.

Another incentive sought by the RAN is the size, weight, and maintenance of such systems. Currently most illuminators are large and bulky, and have a tendency to consume large amounts of space. In addition, there is the problem with ship maintenance due to the vast amount of energy the system consumes. CEA Technologies has developed a system that needs little maintenance, takes up less space and consumes little energy.

SEA 1448 calls for the removal of the Anzacs' existing target indication radar and lattice mast structure, and have it replaced with a closed mast, which will accommodate a newly designed six-face CEA-FAR system and a new four face CEA-MOUNT illuminator.

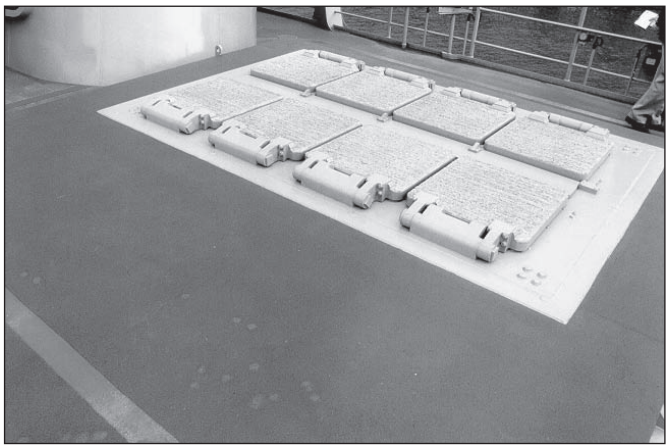
CEA Technologies argues that the design of the six arrays for the CEA-FAR system will enable the combat system to scan an area of 360 degrees with minimal effort; this limits the degradation of the beam. The four illuminator panels of the CEA-MOUNT system will provide missile illumination in all four quadrants that surround the vessel, and provide more than 10 simultaneous fire-control channels per radar panel.

SEA 1229

Under Project SEA 1229 Phase 2/3, all RAN FFG and ANZAC frigates have received the Nulka active missile decoy system to provide enhanced soft-kill defence against ASCM threats. Nulka is a hovering rocket decoy (incorporating an I/J-band repeater payload) developed by BAE Systems Australia under a joint Australian/US programme established in 1986. Each Anzac class ship has received four four-cell Nulka launchers, of which two are fitted amidships on either beam and a further pair are mounted back-to-back on the hangar roof. Nulka fire control is exercised from a firing panel in the operations room (this receives ship's positional and navigation data but is not fully integrated into the combat system).

CONCLUSION

SEA 1348 is considered one of the most modern and radical upgrades ever undertaken for the Meko class designed frigate. In all, the cost to the upgrade programme will reach $500 million. The Federal Government has selected Tenix and Saab systems to initiate and complete the upgrade system. Industry insiders have praised the government's commitment to the upgrade programme, in that it was sorely overdue. There is no doubt that the programme will enhance the RAN's capabilities to operate in any environment whether singularly or as part of a larger coalition task force.



The 8-cell Mk-41 launcher of the Anzac class. With the new ESSM each cell can house and launch four missiles increasing the Anzacs load out from eight to 32 missiles. Not on the list of new equipment in the upgrade programme is another 8-cell launcher, which space and weight have been allocated for in the original design. (Mark Schweikert)

The Pacific 2006 Maritime Congress

By Rear Admiral Andrew Robertson, AO, DSC, RAN (Rtd)
Federal Vice President Navy League of Australia

'Going from strength to strength' might be an appropriate description of the biennial Pacific 2006 Maritime Congress and Exposition held this year from 31 January to 2 February at the Sydney Convention and Exhibition Centres.

The Congress consisted of three interrelated events :

- The RAN Sea Power Conference hosted by the Royal Australian Navy and organized by the Sea Power Centre Australia,
- The International Maritime Conference hosted by Engineers Australia, the Royal Institution of Naval Architects and the Institute of Marine Engineering, Science and Technology, and,
- The International Maritime Exposition conducted by Maritime Australia Limited

The Congress is now a major maritime event on the international calendar, and is considered to be the premier conference of its kind in the Asia/Pacific region.

This year there were over 350 delegates from 15 countries who were treated to many thought-provoking lectures. The RAN arranged a colourful beat retreat sunset ceremony against the background of one of the new Armidale class patrol boats, a Fremantle class patrol boat, and a new Minehunter, all alongside the wharf by the Convention Centre.

SEA POWER CONFERENCE 2006 – CHALLENGES OLD AND NEW

The RAN Sea Power Conference involved some 50 speakers including distinguished naval officers, authors, academics, historians and scientists from many countries including the USA, Britain, Indonesia, China, Singapore, Canada, India, Malaysia and Spain. Also present were three serving Chiefs of Defence and eight heads of navies.

Following an impressive and colourful display by the RAN band in the main auditorium, the Chief of Navy, Vice Admiral Russ Shalders AO, CSC, together with Rear Admiral

Display models of the US Navy's anti-ballistic missile SM-3 Block 1 (right) and the new Block 1A (left).

VADM Russ Shalders opening the Pacific 2006 Sea Power Conference entitled 'Old Challenges and New'.

David Holthouse AO, Chairman of Maritime Australia Ltd, and Mr John Jeremy, Chairman International Maritime Conference Organising Committee, opened the Congress.

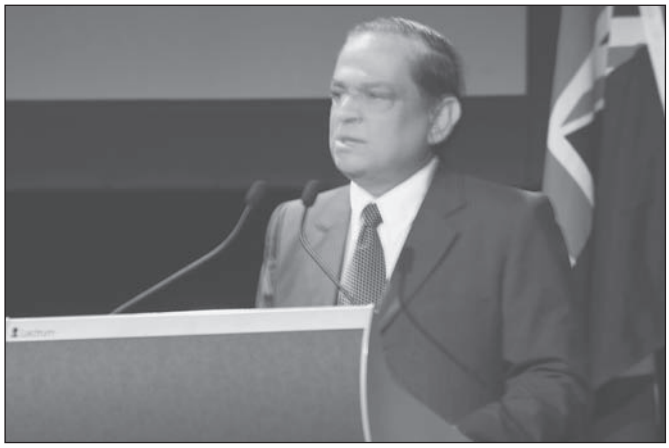
Admiral Shalders spoke of the perceived challenges facing the RAN including overseas deployments, regional peace and the need to attract train and educate personnel, and the need to exploit the advantages of technology.

He outlined the future naval programme including the three Air Warfare Destroyers and the two LHDs (landing ship helicopter dock) to be named CANBERRA and ADELAIDE. The LHDs will be able to support a landing force of 1200 and carry Abrams tanks and many helicopters at 20 knots over a range of 6,000 nautical miles.

The keynote address was given by **Admiral Chris Barrie** AC, a former Chief of the Defence Force, his subject being *"Reflections on the Future"*. He spoke of significant lessons he had drawn from his 41 years service, focusing on Australia's maritime positioning in the current climate of substantial change, and casting forward perhaps 50 years.

Maritime activities were now more regulated than ever before due to the 1982 Convention on the Law of the Sea and would probably become more so. There were now new threats including terrorism, suicide craft, environmental aspects, and the prospect of nuclear attack involving cargoes in ports.

He felt that Australia was becoming less significant in the region noting its comparatively minor forecast population of 28 million in 50 years' time. The change in demographics indicated that it would soon be impossible to man the ADF by volunteers. National Service may have to be introduced and should be discussed now.



Vice Admiral Premvir Das (Rtd) of the Indian Navy.

Relations with China will be hugely important. He felt Australians may feel resentful and untrusting of alliances such as ANZUS.

There was great inefficiency in the use of oil, which must be addressed. Coastal and international shipping must be reviewed. New technology, high-speed, fuel-efficient shipping will be needed for our economic sustainment.

He felt that a Coastguard would create duplication and involve overheads and that the navy should take on more coastguard roles. A balanced fleet was critical as adversaries would exploit any area of weakness. It was now time to think of future submarine requirements.

Warships should be built in Australia, overseas buys being contemplated only if greatly cheaper.

The navy must reduce the extended costly processes now involved before decisions on ships are made and should demand no more than eight years from proposal to delivery. The Defence Materiel Organisation should be separated from the Department of Defence.

He considered that there was a real need to promote the activities and the needs of navy to the community. Navy must connect more with the people.

Mr Allan Gyngall, the Executive Director of the Lowy Institute, spoke on Australia's New Security environment, outlining the significant shift of global power to Asia, the rise in the economic and cultural power of India and China, and the unpredictability of Japan's position as it re-assessed its future. He covered globalisation in communications and transport; terrorism and 9/11; the spread of nuclear weapons; and the spread of democracy sometimes, as in the case of the election of HAMAS in Palestine, posing problems. We should be alert to the possibility of an arms race between China and India, but not alarmed.

Major General Peter Abigail, the Director of The Australian Strategic Policy Institute (ASPI), spoke on challenges facing the Australian Defence Force, including the need to provide the widest possible range of options for the Government in facing crises; recruiting and retention; handling technological change; escalating costs; the need for reserves, not mobilization to bolster the ADF; training problems particularly as the army is modernized and hardened. He believed that naval shipbuilding in Australia was a strategic necessity and that a premium for local building could be afforded.

A change in conference atmosphere was provided by **Dr Andrew Gordon** of the UK Joint Services Command and Staff College who spoke historically on "the best laid staff work: Jellicoe's naval mission in the Dominions in 1919". Admiral Jellicoe's staff-commander for the visit to Australia, Canada and New Zealand was Commander Bertram Ramsay, famous later for his planning for the D-Day invasion of France. He fell in love in Melbourne but his amour tragically died while he was there.

Jellicoe's mission was to make recommendations on imperial naval defence. His report concluded that Australia should create a fleet of two battle cruisers, two aircraft carriers, eight cruisers, eight submarines and destroyers, minesweepers and other vessels. He considered that it was almost inevitable that the future enemy against whom Australia must prepare was Japan, and the Britain/Japan alliance could not be trusted. Britain would send a fleet only after war had been declared. Japan had the naval strength to land 100,000 men at Singapore and to take the islands north-east of Australia with the final aim of Australia itself.

This remarkable forecast was soon papered-over by the multilateralism and parsimony of the 'Washington' era.

Professor Hagany, Professor of Strategy and Policy at the US Naval War College, spoke on the US Navy since Ronald Reagan, the demise of 'the maritime strategy' and the search for a replacement. He outlined the historic development of the US Navy and its reduction from the era of Secretary of the Navy John Lehman. In 1986 the USN had 594 ships and 15 carrier battle groups but now only about 295 ships and 12 carrier strike groups. Attack submarines had been reduced from 101 then to about 55 today.

Since the cold war ended in 1991 the USN had changed its doctrinal focus from a battle of annihilation at sea to concepts such as littoral warfare and manoeuvre from the sea, without reference to a blue-water antagonist. The secondary missions of Lehman's era have become the primary ones of today's navy. Radar systems have now been modified for overland performance; land-attack missiles have replaced anti-ship weapons; netted sensors facilitate time-sensitive strikes; and carrier wings have been reduced in aircraft types, increased in aircraft numbers, and can now attack hundreds of targets every flight day.

There then followed presentations by **Dr D Nandagopal** of the Defence Science and Technology organization on the roles science and technology can play, and by **Dr Norman Friedman**, a consultant to the US Secretary of the Navy, on network-centric warfare covering how netting works, what it requires, and its limitations. He cited Australian WW2 anti-raider operations as an example.

Mr George Galdorisi of the US Space and Naval Warfare Systems Centre and **Dr Darren Sutton**, the Australian Navy Scientific Adviser, spoke on coalition interoperability, its

Commander of the US Pacific Fleet, Admiral Gary Roughhead, spoke on the challenges and responses facing the US Navy.

Models of Raytheon's Close In Weapon System solution. (From L to R) The Phalanx Block 1B with larger magazine, higher rate of fire, longer range, more accurate aiming systems and with TV/IR back up. The RAM launcher for the fire and forget short range missile for defence against anti-ship missiles. Finally, the combination for the Phalanx Block 1B and the RAM launcher to form the Sea RAM, a bolt to the deck fully autonomous ship self defence weapon system.

problems and limitations, noting that, at one stage in the Gulf, of the 91 ships present 31 were USN and six were of the Coalition. On the other hand, today's friends may not be so tomorrow, and one problem was how much to share.

Professor Dr Hasjim Djalal, the Senior Advisor to the Indonesian Minister for Maritime Affairs and the Indonesian Chief of Naval Staff, addressed the questions of challenges of maritime resource and shipping security that face Archipelagic States. Challenges had increased, particularly illegal fishing and logging, smuggling of arms, fuels and other items, piracy and armed robbery at sea, illegal trafficking of persons and drugs, and potential maritime terrorism. Indonesia's geography and strategic position posed many problems, with growing international shipping and warships passage through the archipelago together with difficulties as democracy develops and power was increasingly being devolved locally.

A most interesting presentation was given by **Professor Dr Wu Shicun**, President of the National Institute for South China Sea Studies in Hainan Province, China, entitled "Joint Development; an ad hoc solution to the South China Sea dispute". Seven countries have claims in this general area – China, Vietnam, the Philippines, Malaysia, Indonesia, Brunei and Taiwan. Foreign oil companies have been contracted by Vietnam in the search for oil and gas and Malaysia already has 18 oil wells in the area. China has proposed joint development over the disputed areas but there are many problems before agreement can be reached.

There were many other presentations covering the Proliferation Security Initiative to control international shipments of materials for weapons of mass destruction; project risk management in procurement and support of ships; maritime support; maritime coalitions; the strategic significance of the littoral; and future strategic challenges.

Papers were presented on the Armidale Class Patrol Boats, the replacement for the tanker HMAS WESTRALIA (HMAS SIRIUS) to be operational later this year, and the Air Warfare Destroyer. The Armidale class patrol boat project was discussed; designed and built by Austal Ships in WA, the Armidales are fitted with zodiac sea boats, a Rafael typhoon 25mm weapons system, MTU diesel engines and an Australian CEA communications suite. They are very capable vessels for their coastguard-type roles.

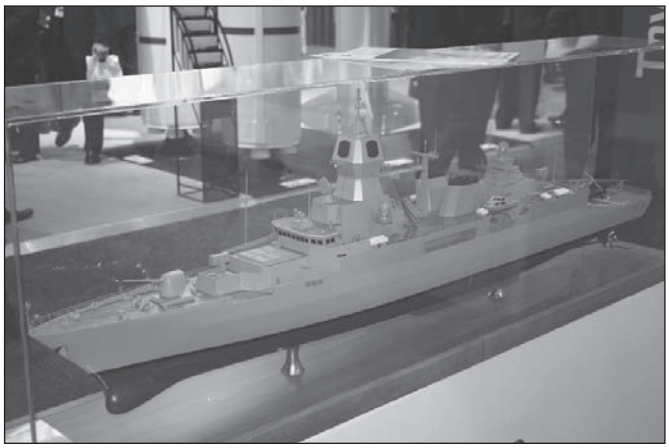
The Air Warfare Destroyer programme continues steadily under a somewhat slow and expensive decision making process. While the ship-builder (ASC Pty Ltd of SA), the combat system engineer (Raytheon Australia) and the preferred ship designer (Gibbs and Cox of the US) have been selected, the actual ship to be built will not be decided until 2007 and the first ship does not commission until 2013. The AWDs are to be named HMAS HOBART, BRISBANE and SYDNEY.

The development of South East Asian navies, which have expanded and improved their capabilities in recent years, was covered by **Dr Tim Huxley** of the Institute for Strategic Studies in London.

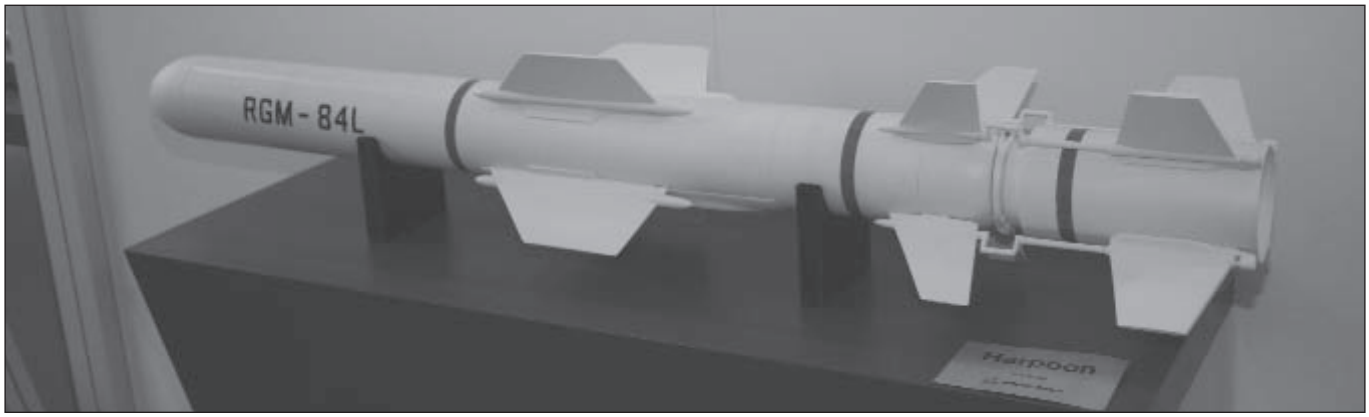
Mr Peter Haydon of Dalhousie University spoke on Canada's new naval Policy. This includes enhanced sea lift with larger vessels to transport and disembark a new task force capable of intervening in failed and failing states, and replacement or modernization of present ships. He was somewhat sceptical on the chances of this programme coming to fruition.

First Rear Admiral (Ret'd) Dr Hj Sutarji bin Hj Kasmin of the Royal Malaysia Navy outlined how his navy, in addition to remaining a naval fighting force, had developed special skills, communications and equipment for dealing with small fast boats in restricted waters; for boarding suspicious vessels; and for rescue operations for any vessel hijacked by terrorists. Special emphasis was placed on the Straits of Malacca Sea Surveillance System.

India's security concerns and emerging challenges for its navy were covered in a stimulating and forthright address by **Vice Admiral (Ret'd) Premvir Das** of the Indian Navy. India faces challenges in all directions. While relations with China have improved greatly there are long festering boundary issues to be resolved. The Chinese Navy (PLAN) will have the availability of port facilities in Myanmar and Pakistan, giving it an Indian Ocean capability. Relations with Pakistan remain fluid. India sits between two major narcotics centres – Myanmar and Afghanistan – and is much concerned over the narcotics/arms trade linkage known to be a major sustainer of terrorism. Over 70% of India's oil consumption is imported and 95% of her trade moves by sea. The Straits of Hormuz to the west and Malacca to the east control vital entrances to the Indian Ocean. Some 160 ships per day pass through the Malacca Straits. The vulnerable sea routes of the northern Indian Ocean are of huge strategic importance not only to India but to many other countries. In the face of terrorism and piracy, transnational co-operation is critical. The Indian Navy has been carrying out increasingly advanced joint exercises



A model of the German contender for the RAN AWD project. This F-124 has the US SPY-1 radar system in place of the SMART-L and APAR system found on the German design.



A model of the new Harpoon Block III. The Block III is similar to the land attack Block II but has a datalink back to the firing platform. There is also speculation that a vertically launched version of the Block III may be on the drawing board.

with the USN and has positive relations with such countries as the UK, France, Australia and South Africa. India has a strong relationship in military co-operation with Russia, and maritime interaction with Japan is increasing.

When asked concerning Indian bases in the Andaman and Nicobar Islands, the Admiral stated that there were difficulties as only 20 of the 500 islands involved had fresh water. However two big air bases had been constructed.

During question time a Commodore of the Pakistan Navy sought to 'modify' some views expressed. Pakistan was a democracy and held elections. It has joined the coalition of the willing and is in the front line against terrorism on land and sea. There were no plans to provide facilities to any other navy and the new port being built in western Pakistan was not for Chinese use, he said.

The Commander of the US Pacific Fleet, **Admiral Gary Roughhead**, spoke on the challenges and responses facing the US Navy. The terrorist attack on New York and Washington has redefined the global security environment and the USN has moved from concentration on the high end of warfare to greater flexibility and readiness to face many different threats, with more joint operations and greater interoperability with friends and allies.

The USS FREEDOM, the first Littoral Combat Ship, was now under construction. A riverine combat force had been developed, and four nuclear ballistic missile submarines had been converted for special operations.

There had been much concern in the US at the average 14 years taken from conception to delivery of major warships. Faster development and production was now in place. The Sea-basing concept was now well developed.

The USN was placing more emphasis than in recent years on anti-submarine warfare, noting that there were now over 140 diesel electric submarines in the Asia-Pacific region.

There were now 50,000 merchant ships in the world, 90% of international trade went by sea, and 60% of the world's oil came from the sea. The safety of sea communications remained of huge strategic importance. In this regard a conference would be held in March in San Francisco covering collective security in the Malacca Straits. The USN was carrying out exercises and exchange of personnel with the Indian Navy and was seeking opportunities with the Chinese Navy.

Japan had agreed that the carrier USS GEORGE WASHINGTON would be based in Yokosuka after the last of the conventionally-powered carriers pays off.

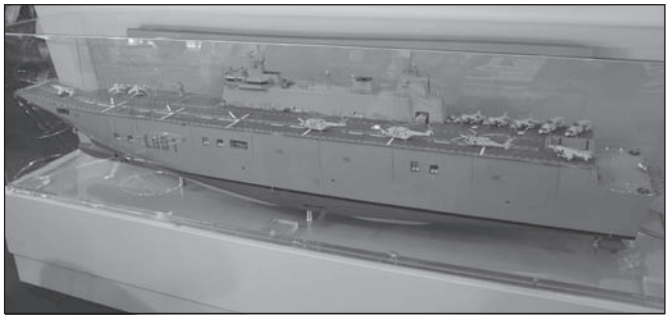
Stimulating discussions took place with a presentation by the 'young turks'. The need for greater engagement with the community, improved public relations and getting the message to the people of the need for and requirements of maritime power were covered along with other important personnel problems, and equipment needs and priorities.

An overall view of future challenges to the RAN and responses was given by five Commodores. This was set against the envisaged Australian operating environment to 2025, covering capability gaps and requirements, balancing expectations and budgetary pressures, operating future ships, and RAN personnel problems as an employer in modern society.

The need to resurrect the Australian Merchant Marine was raised by **Vice Admiral David Leach**, a former Chief of Navy. The Navy League has long been calling for a new approach by Federal Governments to this matter, by taking initiatives in such areas as taxation, flagging, crewing and infrastructure to encourage industry to expand in this transport field. With some 600 million tonnes of exports annually there is clearly much room for 'value-adding' to our exports by owning some of the transport means. While there will be some costs, there will be obvious advantages including those to our balance of payments, to employment including supporting industries; to the provision of partly-trained manpower reserve for our navy; to ensuring that Australian owned ships are available for requisitioning; and to easing of the load, and carnage, on our roads and railways.

THE INTERNATIONAL MARITIME CONFERENCE

The International Maritime Conference, held in parallel with the Sea Power Conference, covered a huge range of subjects including maritime engineering, research, safety, navigation, structures and materials, law, automation, business modelling, and habitability. Also covered were ship designs of many types, ship propulsion, high speed sea transport, combat systems, offshore oil and gas developments,



One of the big hits of the exhibition was the display from Tenix and Navantia of their proposal for the RAN's new LHD. This model represents the 27,000 tonne vessel being put forward for consideration by the RAN.

The international ESSM (Evolved Sea Sparrow Missile) on display as part of BAE Systems Australia's stand.

and environmental controls.

The introduction by the USN in 1917 of turbo-electric powered ships presaged a steady development in these systems.

In 1935 France built the huge liner *NORMANDIE* powered by steam turbines driving electric motors. In the mid 1980s the QE2 was re-engined with diesel generators and electric motors. The new cruise liner *SEVEN SEAS VOYAGER* is propelled by four diesel generators driving underhull pods housing electric engines. Electric bow thrusters are now common. There are important naval applications in development of electric ships noting the great power needed for sensor and weapon system including direct energy weapons. Electric catapults are also now being developed by the USN.

Britain's new Type 45 destroyer is powered by gas turbines and diesel generators driving podded electric motors. There are many advantages in this and similar systems including reduced fuel costs; less maintenance; less space for propulsion machinery; lower pollution emissions; increased reliability due to extra redundancy; and podding of motors can assist steering.

Other propulsion technologies include fuel cells, super conductors, air-independent engines, and advanced induction motors. Flywheels are being considered for catapults.

High speed sea transport was covered by speakers from the UK, Sweden and Australia. There have been important developments in this field in addition to the fast large ferry market (dominated by Austal Ships of WA and Incat of Tasmania). There are now moves afoot for much bigger cargo ships including pentamarans (which have less drag than trimarans) of 250m length powered at up to 40 knots by diesel engines and water jets. One plan is for a pentamaran to carry 10,000 TEU and operate in all seas. It has been estimated that on some routes these vessels can move cargo almost as fast as air freight and at one quarter of the cost. Until composites are developed for the large ships, vessels over about 150m length will have to be build using steel.

Mr Craig Clifford of Incat stated that Incat-built vessels are now operating around Britain, France, the Caribbean and Egypt. Three others were under trial by the US forces for use in special operations, troop and vehicle deployment and military sea lift. One of these 98m vessels had been converted by Incat to carry Abrams tanks, 600 tonnes of cargo, 250 troops and two helicopters. An Incat ferry still held the Blue Ribbon of the Atlantic for the fastest ever crossing.

Mr James Bennett of Austal outlined his firm's successes including one 128m ferry operating sometimes in severe weather in the Canary Islands.

Austal, teamed with General Dynamics of the US, has won the contract to build a contender for the US Navy's Littoral Control ship. Based on Austal's 128m vessel, building started at their Alabama yard in January, for completion late in 2007.

THE INTERNATIONAL MARITIME EXPOSITION

The International Maritime Exposition, held at the same time as the Conferences, attracted several thousand visitors. Some 350 firms from many countries exhibited their products, covering the whole range of naval requirements from ships and aircraft to missiles, gun and combat systems, and maritime publications.

Of interest to many were models of the two contenders for the LHD project, the French Mistral and the Spanish Navy's LHD being build by Navantia. The French ship is the smaller of the two, has the advantage of being in service and may be the cheaper. The Spanish is a more flexible design, can carry more personnel, equipment, and helicopters and, given the great time they are likely to be in commission, should be more adaptable for changing future defence needs. The decision is some way off.

Also on display was a model of the Spanish F100 – a contender for the Air Warfare Destroyer project.

CONCLUSION

Overall one was left with the impression that the RAN continues to develop as a small but very professional, efficient, and forward-thinking service, well-supported by innovative and vibrant scientific and shipbuilding organisations. The sea-power and associated conferences are valuable forums for the airing of problems, considering policies, and the fostering of relations with our friends and allies.

However, the changing international scene, with the probable rise of two super-powers to Australia's north brings many uncertainties for the future. Noting the long time inexorably involved in any significant expansion of the fleet, the current policy of merely replacing hulls as they age, albeit with more capable ships, seems less than prudent for an island nation in our geographic situation heavily dependent on sea trade.

Also relevant is the far too lengthy and costly current decision-making process for the acquisition of new ships.

A view of part of the Darling Harbour exhibition hall showing just a small fraction of the companies displaying their products. The Australian Maritime Congress is now part of the world calendar of maritime events.

HATCH, MATCH & DISPATCH

HATCH
ALBANY AND PIRIE

A dual naming ceremony for the fourth and fifth Armidale class patrol boats to be launched was held on 18 Feb 06 at the Austal shipyard in Henderson, Western Australia.

The 56 metre, all-aluminium monohull vessels were named ALBANY by Mrs Annette Knight AM JP, Former Mayor of the Town of ALBANY; and PIRIE by Mrs Margaret Humphry, Daughter of Lieutenant J Ellershaw, Gunnery Officer BATHURST class Minesweeper, HMAS PIRIE.

The ceremony was attended by approximately 150 senior figures from the Royal Australian Navy, Department of Defence, Government and industry including The Hon Christopher Ellison, Minister for Justice and Customs, as representative of the Minister for Defence and Chief of the Royal Australian Navy, Vice Admiral Russ Shalders.

Speaking at the ceremony, Austal's Executive Chairman, John Rothwell, paid tribute to the significance of the Royal Australian Navy contract to Austal's growth and future ambitions as a naval and military shipbuilder.

"With our reputation firmly established in the commercial marketplace for high speed ferries we have recently commenced construction on a large, revolutionary new combat ship for the US Navy. This, in conjunction with the fleet of patrol boats for the Royal Australian Navy is a reflection of the growing presence of Austal in the defence market and a significant credit to the design and construction skills of the Austal Team." Mr Rothwell said.

Austal teamed with Defence Maritime Services (DMS) as the Prime Contractor, to win in 2003 the A$553 million 'output specified' contract to provide and support through their service lives a fleet of patrol boats to replace the aging Fremantle class, which have patrolled Australia's maritime zones for the past quarter century. Austal is responsible for the design and construction of the Armidale class vessels. DMS is managing the overall project requirements, including establishment of a fleet management organization that will provide integrated maintenance, logistic and crew-training support to the vessels throughout their operational lives.

The patrol boat ALBANY will be the first Royal Australian Navy vessel to bear the name and has been selected by the Chief of Navy to commemorate and honour the coastal City of Albany in the south west of Western Australia. Albany is the birthplace of the Anzac Day Dawn Service and the assembly point from which many Australian and New Zealand troops departed for WW I on 1 November 1914.

The two newly named Armidale class patrol boats (from L-to R) NUSHIPS ALBANY and PIRIE. (Austal)

The original HMAS PIRIE was one of sixty Australian Minesweepers (commonly known as Corvettes) built during WW II. On April 11, 1943, whilst escorting the British vessel *SS HANYANG*, PIRIE suffered a direct hit during a heavy bombing attack off Oro Bay, New Guinea, and seven crew lost their lives.

From April to July 1944 HMAS PIRIE was mainly engaged in escorting convoys moving along Australia's north coast between Thursday Island and Darwin. The vessel also carried out duties as a minesweeper to clear the defensive minefields in the Great Barrier Reef.

After a visit to her namesake town, Port Pirie, the vessel arrived in Sydney in February 1946 where she was recommissioned in the Royal Navy as HMS PIRIE. She was transferred to the Turkish Navy in 1946 and the Turkish Government retired her from service in 1984.

MATCH
LARRAKIA AND BATHURST

The newly commissioned Armidale class patrol boats BATHURST and LARRAKIA at Darwin naval base. (RAN)

Armidale class Patrol Boats HMA Ships LARRAKIA and BATHURST are the latest Australian patrol boats to join the Royal Australian Navy following a traditional commissioning ceremony in Darwin on 10 Feb 06.

Member of the LARRAKIA Nation, Ms Donna Odegaard JP, performed the duties of Commissioning Lady for HMAS LARRAKIA. Mrs Judeth Bagley, the wife of Lieutenant Commander Ron Bagley (Rtd.), one of the commissioning crew of the first HMAS BATHURST, was the Commissioning Lady for HMAS BATHURST at the ceremony.

The first HMAS LARRAKIA was an air-sea rescue vessel based in Northern Territory waters with the additional role of patrol vessel. The name Larrakia derives from the language group name for the Aboriginal people of Darwin.

The original HMAS BATHURST was the first of sixty Australian minesweepers (commonly known as corvettes) built during World War II in Australian shipyards as part of the Commonwealth Government's wartime shipbuilding programme. HMAS BATHURST (I) was employed on escort and patrol duties during the war.

The ceremony was attended by The Hon Bruce Billson MP, Minister Assisting the Minister for Defence, the Chief of Navy Vice Admiral Russ Shalders AO, CSC, RAN and the Maritime Commander, Rear Admiral Davyd Thomas, AM,

CSC, RAN. The ship's Commissions were read by their Commanding Officers, Lieutenant Commander Anthony Powell, RAN (LARRAKIA), and Lieutenant Commander Andrew Quinn, RAN (BATHURST). Also attending the event were veterans from HMAS BATHURST (I), and members of the Larrakia Nation for which the HMAS LARRAKIA is named. The Naval ceremony was also marked by a traditional Smoke Ceremony performed by members of the Larrakia Nation.

"The formal acceptance of a warship is a proud occasion for the Navy and today is no exception," said Rear Admiral Davyd Thomas.

The two new patrol boats are the second and third state-of-the art Armidale class patrol boats built in Australia for the Navy by Austal Ships in Perth, Western Australia.

Compared to the current Fremantle class patrol boats, the Armidale class patrol boats are over 14 metres longer, with longer range and endurance, and enhanced operational capability. The Armidale class patrol boats are able to operate for longer at sea with a range of some 3,000 nautical miles more than the Fremantle class. They have significantly enhanced habitability, so crews will enjoy greater cabin comfort that in turn will allow them to perform at their optimum ability while at sea.

The Fremantle class patrol boats WOLLONGONG and BUNBURY at their dual decommission ceremony. (RAN)

DISPATCH

WARRNAMBOOL

HMAS WARRNAMBOOL concluded her proud and eventful career on 29 Nov 05 with a splendid but solemn decommissioning ceremony held on the hard stand at HMAS COONAWARRA, Darwin.

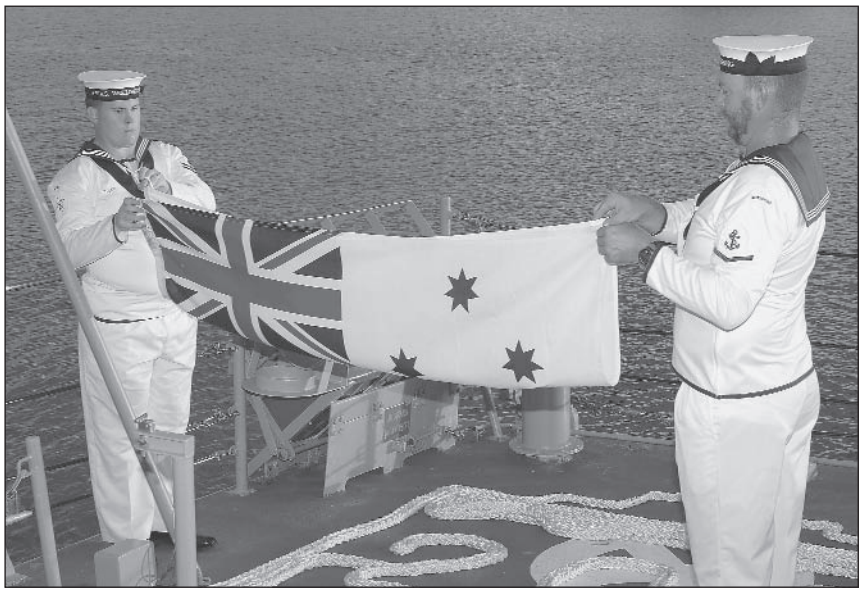
The host of the decommissioning ceremony was Maritime Commander Australia, RADM Davyd Thomas, while the guest of honour for the evening was Glynis Phillpot, Mayor of the City of WARRNAMBOOL.

Other distinguished guests included Chief of Navy, VADM Russ Shalders, AO, CSC, RAN, and former commanding officers and Ship's company of HMAS WARRNAMBOOL.

The ceremony commenced with the order of "outpipes clear lower deck" to the Ship's company, being given by the ship's navigating officer, LEUT Cam Hooper.

On being given the order, the Ship's company marched to the beat of the Royal Australian Navy Band to take their positions on the port side of the ship, where they would

HMAS WARRNAMBOOL passing Sydney's Opera House. WARRNAMBOOL was the first Australian built Fremantle class patrol boat. (RAN)



HMAS WOLLONGONG's White Ensign being folded away for the last time for presentation to the Maritime Commander for safe keeping. (RAN)

remain until given the order to leave the ship for the final time.

On arrival of the Maritime Commander, Chief of Navy and guest of honour, the Maritime Commander ordered the Commanding Officer, LCDR Micheal Gulyas, to read the decommissioning order.

Speeches were then given by the Maritime Commander, Commanding Officer and the guest of honour before the church service commenced.

The Commanding Officer was then piped onboard HMAS WARRNAMBOOL for the final time for the ceremonial lowering of the Australian White Ensign and commissioning pennant for the final time.

The Ship's colours were hauled down at sunset while the band played *Song of Australia*, an extremely moving and stirring experience for all those attending the ceremony.

The Ship's company was then ordered to march from the ship with the CO the last person to leave. LCDR Gulyas then proceeded to the dais to present the Australian White Ensign to the Maritime Commander for safekeeping.

WARRNAMBOOL was the first Australian built Fremantle class patrol boat and was commissioned on 14 March, 1981.

By LSCIS Markus Hackenberg, NAVY NEWS

WOLLONGONG AND BUNBURY

In a centuries old tradition, the Royal Australian Navy's Fremantle class patrol boats (FCPB) HMA Ships WOLLONGONG and BUNBURY lowered their Australian White Ensigns for the last time as the ships were decommissioned in a joint ceremony in their homeport of Darwin on 11 Feb, 06.

WOLLONGONG and BUNBURY have contributed 24 and 21 years of valuable service to the Navy respectively.

HMA Ships WOLLONGONG and BUNBURY are the fourth and fifth FCPBs to be decommissioned with the introduction of the Navy's 14 state-of-the-art Armidale class Patrol Boats (ACPB) being built by Western Australian ship builder Austal.

The ceremony was attended by Mr David Tollner MP, Member for Solomon; Chief of Navy, Vice Admiral Russ Shalders AO, CSC, RAN; and Maritime Commander Australia, Rear Admiral Davyd Thomas, AM, CSC, RAN. At the decommissioning ceremony the Commanding Officers, Lieutenant Commander Iain Jarvie, RAN and Lieutenant Commander Andrew Quinn, RAN, were the last to depart their ships as they simultaneously marched ashore and formally presented their Australian White Ensigns to Rear Admiral Davyd Thomas.

"Both WOLLONGONG and BUNBURY will be sadly missed by their ship's company, past and present, as well as by the Naval and Darwin communities. Both ships will also be missed by the communities of the cities for which they were named. WOLLONGONG and BUNBURY have provided outstanding service over the years and their role will be continued with the introduction of the next generation Armidale class patrol boats," said Rear Admiral Davyd Thomas.

Also attending the event were veterans from the first Royal Australian Navy ships to bear the name WOLLONGONG and BUNBURY, both Bathurst class corvettes which saw active service in World War II.

While WOLLONGONG has been decommissioned from the RAN her contribution to the Navy is not over. It has been reported on an international naval news website that she will be used for tug training as well as the set for a TV series backdrop, possibly for a remake of the ABC series *Patrol Boat*.

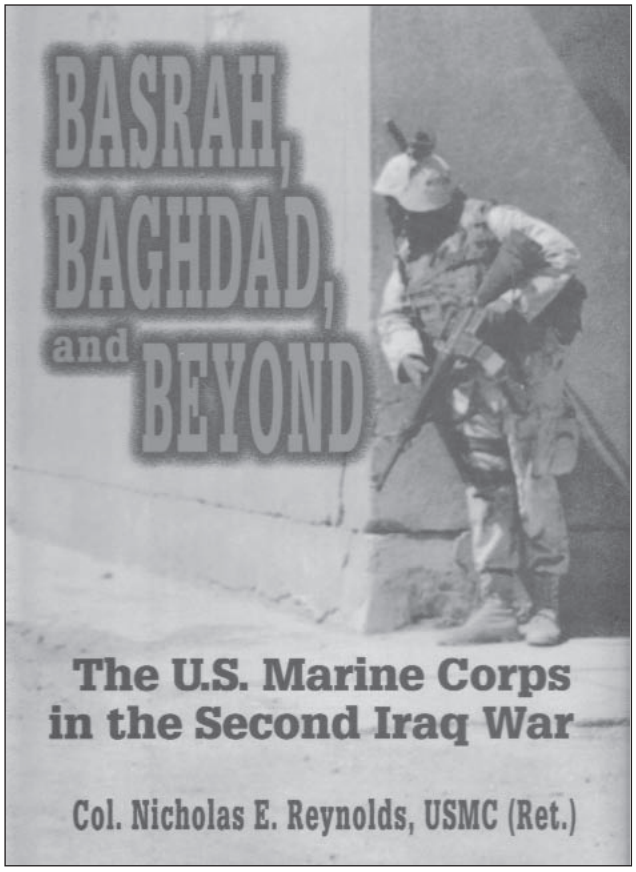
Join The Navy League of Australia.
See centre section for how.

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

PRODUCT REVIEW

BASRAH, BAGHDAD AND BEYOND: THE US MARINE CORPS IN THE SECOND IRAQ WAR

By: Col Nicholas E Reynolds, USMC (Rtd)
Publ: Naval Institute Press, Annapolis, 2005
xi, 276 pages, Appendix, Notes, Bibliography, Photographs



ON POINT: THE UNITED STATES ARMY IN OPERATION IRAQI FREEDOM

By: Col Gregory Fontenot US Army (rtd), Lt Col EJ Degen US Army, Lt Col David Tohn US Army
Publ: Naval Institute Press, Annapolis, 2005
xxiii, 539 pages, Glossary, Bibliography, Index, Photographs, Maps, Charts
Both books reviewed by Joe Straczek

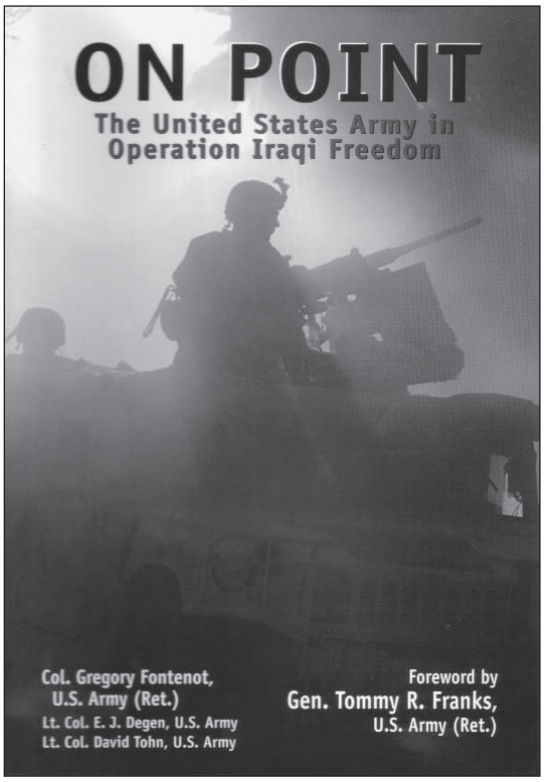
Along with the war in Vietnam, the war in Iraq may prove to be one of the most controversial conflicts the United States has been engaged in. In part the reason for this lays in the political motivation for the war. As the conflict has progressed the political reasons for being in Iraq have also changed. From weapons of mass destruction, to regime change and bring democracy to the region and finally as part of the War on Terror, the reasons for being over there have changed as the conflict itself has changed.

Given this controversy, some may question the validity of "official" histories being written so close to the events they are discussing. In part these books may be seen as an institutional justification for how the conflict was fought. The same though, could be said for many of the freelance histories that have appeared since 2003. Each author attempting make his mark as early as possible for either personal or commercial reasons. The one big advantage that these two books have over the other volumes, thus far written about the war in Iraq, is their access to official records and personnel. *Basrah, Baghdad and Beyond* and *On Point* portray the events of 2003 on a strategic and tactical level that can only be achieve through access to official records and personnel.

The two books are not about politics, they are about the military operations conducted by the United States Army and Marine Corps in Iraq during what could be described as the initial phase of the operation. That is up to the fall of the Iraqi regime. In this they show how the two services prepared for the war, engaged in operations and adapted to meet changing circumstances. Above all these are books highlight the achievements of the soldiers, and marines, on the ground. *Basrah, Baghdad and Beyond* highlights the operations of the Marines around An Nasiriyah as well as other lesser known operations in Kurdistan and Tikrit. *On Point* covers a larger and more expansive canvass and goes into much greater detail on the combat operations undertaken by the Army.

Both *Basrah, Baghdad and Beyond* and *On Point* provide invaluable background information into the US planning and preparation for Operation *Iraqi Freedom*. They both cover the operations of both services in Iraq and have concluding chapters on lessons learnt. Unfortunately, both books are let down by some poor editorial decision making. In particular the quality of the reproduction of the photographs leaves a lot to be desired. Extensive use has been made in *On Point* of what appears to be Power Point slides. Again the reproduction of these is not as crisp as would be hoped for.

Fortunately, historians and those with an interest in history don't judge books by the quality of their photographs. They judge books by the quality of their content and the merit of their argument. In these areas *Basrah, Baghdad and Beyond* and *On Point* are first rate. Historians, and those involved in the military will find much of value in these books.



STATEMENT of POLICY

Navy League of Australia

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

The Navy League:

- Believes Australia can be defended against attack by other than a super or major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication to our allies.
- Supports the ANZUS Treaty and the future reintegration of New Zealand as a full partner.
- Urges a close relationship with the nearer ASEAN countries, PNG and the Island States of the South Pacific.
- Advocates the acquisition of the most modern armaments, surveillance systems and sensors to ensure that the ADF maintains some technological advantages over forces in our general area.
- Supports the acquisition of unmanned aircraft such as the GLOBAL HAWK and UCAVs.
- Believes there must be a significant deterrent element in the ADF capable of powerful retaliation at considerable distances from Australia.
- Believes the ADF must have the capability to protect essential shipping at considerable distances from Australia, as well as in coastal waters.
- Supports the concept of a strong modern Air Force and highly mobile Army, capable of island and jungle warfare as well as the defence of Northern Australia and with the requisite skills and equipment to play its part in combating terrorism.
- Advocates that a proportion of the projected new fighters for the ADF be of the STOVL version to enable operation from suitable ships and minor airfields to support overseas deployments.
- Supports the development of amphibious forces to ensure the security of our offshore territories and to enable assistance to be provided by sea as well as by air to friendly island states in our area and to allies.
- 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 ensure the carriage of essential cargoes in war.

As to the RAN, the League:

- Supports the concept of a Navy capable of effective action off both East and West coasts simultaneously and advocates a gradual build up of the Fleet and its afloat support ships to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.
- Is concerned that the offensive and defensive capability of the RAN has decreased markedly in recent decades and that with the paying-off of the DDGs, the Fleet lacks area air defence and has a reduced capability for support of ground forces.
- Advocates the very early acquisition of the projected Air Warfare Destroyers.
- Advocates the acquisition of long-range precision weapons and the capability of applying long-range precision fire to increase the present limited power projection, support and deterrent capability of the RAN.
- Advocates the acquisition at an early date of integrated air power in the fleet to ensure that ADF deployments can be fully defended and supported from the sea.
- Advocates that all Australian warships should be equipped with some form of defence against missiles.
- Advocates the future build up of submarine strength to at least 8 vessels.
- Advocates that in any future submarine construction program all forms of propulsion be examined with a view to selecting the most advantageous operationally.
- Supports the maintenance and continuing development of a balanced fleet including a mine-countermeasures force, a hydrographic/ oceanographic element, a patrol boat force capable of operating in severe sea states, and adequate afloat support vessels.
- Supports the development of defence industry supported by strong research and design organisations capable of constructing and supporting all needed types of warships and support vessels.
- Advocates the retention in a Reserve Fleet of Naval vessels of potential value in defence emergency.
- Supports the maintenance of a strong Naval Reserve to help crew vessels and aircraft in reserve, or taken up for service, and for specialised tasks in time of defence emergency.
- Supports the maintenance of a strong Australian Navy Cadets organisation.

The League:

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

While recognising 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 Collins class submarine HMAS DECHAINEUX passing HMAS TOBRUK near the entrance to Sydney Harbour. (John Mortimer)

HMAS HUON being towed to Garden Island in Sydney for storage. Note most of her mine hunting equipment, radars, life rafts, anchor etc have been removed. Two of the Huon class minehunters are being placed into storage due to manpower shortages, cost savings and to the perceived strategic environment not requiring six RAN mine hunters. (Chris Sattler)

The Fremantle class patrol boat HMAS TOWNSVILLE sailing past the Anzac class frigate HMAS WARRAMUNGA in Jervis Bay just off HMAS CRESWELL before the annual naval exercise Ocean Protector. (RAN)

In line astern formation the HMA Ships (from front to back) WARRAMUNGA, STUART, YARRA GASCOYNE and SYDNEY off Jervis Bay for Ocean Protector. (RAN)