

OPERATION STABILISE

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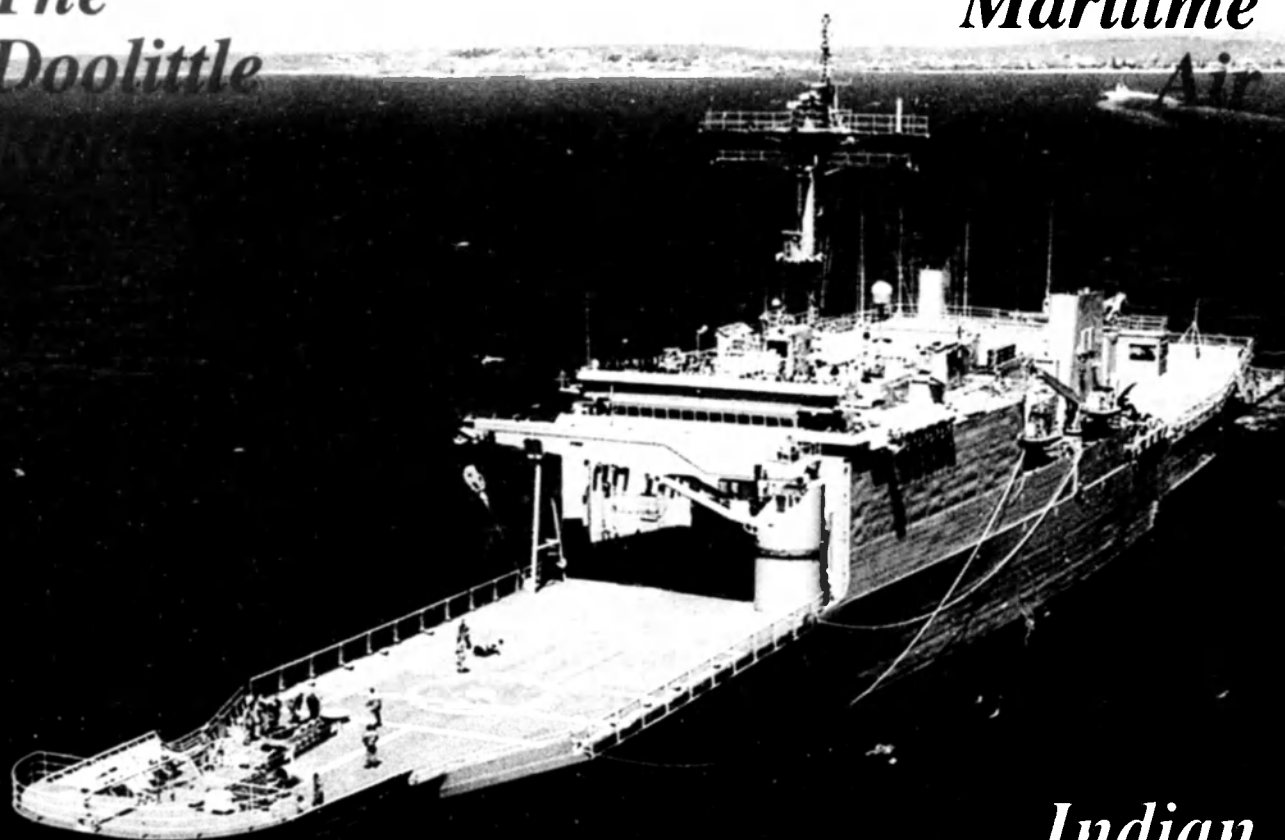
THE NAVY

The Magazine of the Navy League of Australia

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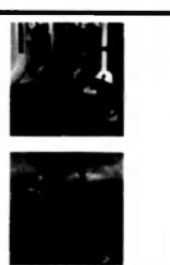
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Front Cover: HMAS MANOORA off Newcastle and at sea after completing modification from LST to LPA. (FORGACS)

The Navy

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In this edition we feature the Indian Navy and its plans for two aircraft carriers, 16 submarines, eight DDGs, 12 FFGs and 28 corvettes. We also report in our news section on the USN's need for more surface ships. We detail the RAN's need for area air defence in light of the Anzac WIP scaling back and the decommissioning of the DDGs. We look back into the past at one of the most daring raids of the war in the Pacific, 'The Doolittle Raid' and feature the naval contribution to 'Operation Stabilise'.

When historians are studying period material such as *THE NAVY* in the years ahead what will they say of the RAN at the turn of the 20th century? What would we like them to say? Will they say the RAN was at its strongest? It was certainly at one of its most professional points in history but what of capability? The word capability is a buzzword that seems to be used by many who don't understand its connotation. If one were to ask the question 'is the RAN and ADF fully capable of meeting all contingencies', the answer is sadly no. This is why Ministers tend to preface their capability statements with "we are capable of..." or "we have the capability to..." but never "we are fully capable" or "we are not capable of..." This should be on a Minister's mind as capability translates directly into military options for government, and with the military being utilised in many different and varied tasks from their intended, means that ministers may be left wanting, just like the poor service personnel at the sharp end.

One area a government may be left wanting for military options involves the Anzac WIP (Warfighting Improvement Program) being slashed to a \$500 million anti-ship missile defence package. The main WIP addition to the Anzacs was to be the provision of long range area air defence. This is another blow to the RAN's own security at sea. It was hoped that the FFG's would receive an area air defence capability but this was technically unfeasible. Thus the focus was then shifted to the Anzac WIP.

The loss of an area air defence capability is particularly important given that the first of our DDGs has already decommissioned with the remaining two not long for the RAN. In layman's terms it means that the RAN's warship fleet will only be capable of defending themselves against the arrows and not the archer. Without area air defence the RAN will be unable to carry out tasks outside the very limited range of the RAAF tactical fighter fleet. The RAN needs the ability to conduct area air defence as one of its wartime tasks will be to defend the RAAF's airbases from attack.

As misery loves company, rumours still persist that the RAN's SEA-1400 DDG/FFG replacement has been scaled back or may even be cancelled due to conflict with the RAAF's new fighter replacement program.

Stabilise

Recent ADF operations in East Timor have shown that the past practice of basing force structure on an academic review of countries and threats is flawed. The ADF needs 'capability' before operations as history proves conflict, or operations, will be short warning and unpredicted. Particularly unpredicted in the numerous Strategic

Reviews and White Papers preceding it. What would the ADF have done in Timor had the INCAT Catamaran 045, now HMAS JERVIS BAY, been unavailable for lease? Each trip conducted by JERVIS BAY is equivalent to 10 C-130 Hercules.

Another Timor example was the need for ships and sea control, currently viewed by many in Defence as unnecessary.

Australian aircraft carrier proponents must have been pulling their hair out when it was revealed that small aircraft carriers, like the USS BELLAEU WOOD and PELELIU, were vital to support the land element of the Timor operation. This support consisted of heavy lift helicopters, maintenance, C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) and no less importantly for the troops laundry services and meals. One of the attributes of an aircraft carrier platform is its unique ability to transition from war and sea control operations to peace and support missions. History already records the aircraft carrier as the most flexible and versatile weapon of the 20th century. But the fact remains that Strategic Reviews and White Papers have claimed we have no need, nor will ever have, for such a platform or capability.

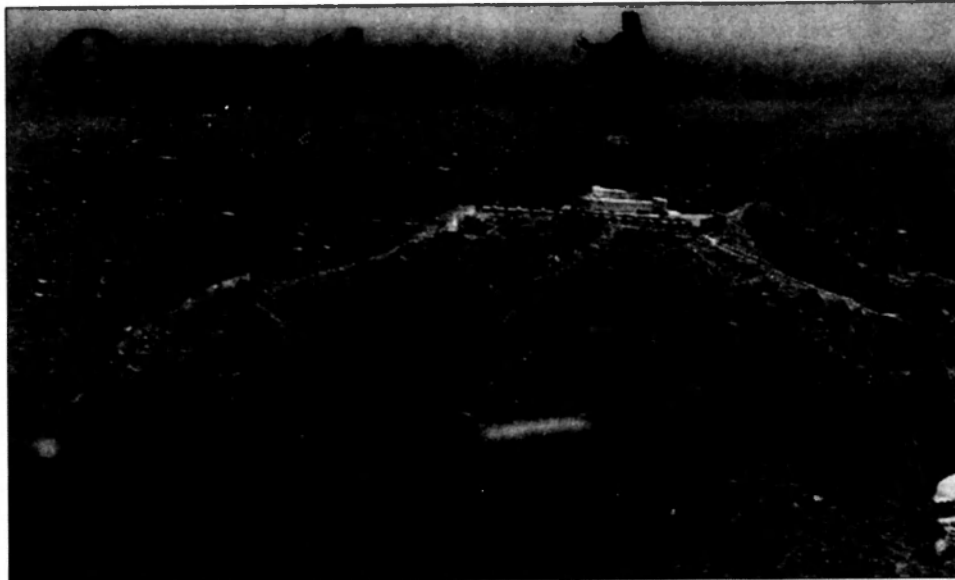
In the opening stages of the Timor operation the USN's Ticonderoga class CG, USS MOBILE BAY, was vital. Her C3 capability, something that will be lacking in the RAN with the final DDG decommissioning, automatically made her 'Joint Task Force Commander Timor Operations'. Had Australia taken the Kidd class DDG option in 1998 there would have been no need for MOBILE BAY's presence.

Despite 'Operation Stabilise' being conducted within air power's reach of the Australian mainland the need for a carrier and ships on the spot was high. The point about the RAAF being able to provide the ADF with all its air power needs is one of the reasons why a carrier, and to a lesser extent Kidds, was withheld from the RAN and is the same argument being applied today.

How different would the Timor operation had been had the Militia set up machine guns on the approaches to all of East Timor's airports? This very easy option would have forced the RAAF air bridge to be closed.

Although not wanting to be America's deputy in the region this is how we are perceived in the US. The US views Australia as the regional power, responsible for regional security matters. If we do not have a Navy with the technical capability to support this role, and the USN, then our current standing in the US may suffer. Australia's entire security strategy relies on the US military giving us intelligence and material support to continue this role. Its time to 'pay the piper'.

Mark Schweikert



An apocalyptic image of the statue of Jesus Christ on a hill overlooking Dili seen from the door gun of an ADF helicopter. (Aust Army)

With the naval element of Australia's role in Timor going unsung *THE NAVY* compiled a number of stories from across the naval side of the operation. Hopefully the value of surface ships will be realised in the wake of Timor.

The crisis which erupted in East Timor following the resounding 'Yes' vote from the East Timorese for independence from Indonesia on 30 August 1999 had been brewing for years. Developments in East Timor had been closely watched by Australia since it was first annexed by Indonesia in 1975. However, the speed with which East Timor was rushed towards this crisis, by the fast tracking of the referendum for autonomy or independence, caught Australian Defence planners not so much off guard, (the commissioning on 10 June 1999 of the 86 metre wave-piercing catamaran HMAS JERVIS BAY for fast troop deployment being testimony to their foresight), but rather not at the preferred state of material readiness for heavy military sealift and amphibious operations.

HMAS TOBRUK'S ROLE IN OPERATION STABILISE

With signs of unease in Indonesia increasing as the East Timor referendum drew nearer, TOBRUK was put on short notice to move. The ship sailed for Darwin from Sydney on 30 August 1999 on the very day that the East Timorese people cast their democratic votes overwhelmingly in favour of independence.

HMAS TOBRUK was awaiting a long overdue refit, her previous refit having been eight years ago, and the two LPAs, HMA Ships MANOORA and KANIMBLA, were still refitting in Newcastle.

The ship called into Townsville enroute Darwin to embark two LCM 8s, an Amphibious Beach Team (ABT).

and elements of 3 Brigade. TOBRUK arrived in Darwin on Wednesday 8 September, as the post referendum crisis in East Timor began to mushroom, joining the growing force of international naval units gathering in Darwin Harbour. Upon berthing at Fort Hill Wharf the embarked elements of 3 Brigade were off loaded and elements of 2 Cavalry Regiment (22 ASLAVs) were embarked.

TOBRUK departed Darwin Harbour on Saturday 18 September 1999 in company with elements of TG 627.1 for passage to Dili. On the morning of Tuesday 21 September, 24 hours after H hour, TOBRUK and HMAS JERVIS BAY, under the protection of Allied escorting destroyers and frigates and watched closely by Indonesian naval vessels at anchor in Dili Roads and alongside in Dili Harbour, commenced off loading troops and equipment ashore. TOBRUK's unloading operations at anchor with BALIKPAPAN, BRUNEI, LABUAN and two LCM 8s lasted most of the day due to difficult weather conditions arising in the late forenoon.

Despite the landing site being within the confines of Dili Harbour it was none-the-less a proper amphibious operation as troops and equipment were landed over the shore by amphibious craft at a hastily prepared beach.

This beachhead had been surveyed by the Response Force (RESFOR) and Hydrographic Support Unit (HODSU) the day prior to the Task Group's arrival at Dili and was used in favour of other intended landing sites within Dili Harbour due to their congestion by Indonesian vessels. Prior to the commencement of TOBRUK's off loading operation the ABT's engineering plant prepared the beachhead to enable vehicles being landed from



From closest to camera, HMAS ADELAIDE, HMAS TOBRUK and HMS GLASGOW make their way to Dili for the first time. (RN)



HMAS ANZAC, patrolling international waters off the coast of East Timor. (ABPH Simon Meicelle)

amphibious craft to exit the beach through a gap made in the seawall. It was pleasing to note that this first operational landing in East Timor ran smoothly, despite the difficult weather conditions. This set the trend for TOBRUK's amphibious operations in the Area of Operations (AO) over the next six weeks. The ship was able to sail later that same day for the return trip to Darwin to reload more troops and equipment bound for Dili.

TOBRUK loading in Darwin and then passing to Dili to unload cargo and troops set a pattern of operations for the next three weeks. When wharf space was available in Dili TOBRUK would berth alongside to unload and provide services to troops ashore. Whilst alongside in Dili on 25 September TOBRUK achieved its fastest offload throughout the whole Operation. Utilising five stations simultaneously, LCM 8s at the stern door and alongside, the ship's 70 ton Velle derrick, the two 8 tonne Favco cranes and the Sea King, TOBRUK managed to offload a full cargo in just over three hours. Operations whilst at anchor were a more protracted affair due to the transit distance to shore and the prevailing weather conditions of strong sea breezes and accompanying swell from late morning through to the late afternoon. The resulting ship motion made stem door marriages for LCHs and LCM 8s untenable and berthing alongside difficult. TOBRUK completed five voyages between Darwin and Dili from 18 September to 10 October during which over 3000 tonnes of cargo and 590 soldiers were transported to Dili.

On 11 October 1999 TOBRUK's familiar pattern of Darwin to Dili express runs in support of Operation Stabilise changed. Whilst alongside in Dili, TOBRUK embarked elements of 3 Brigade in preparation for an Amphibious Assault at Suai, codenamed Operation Laverack, planned for 13 October. The ship departed Dili early in the evening of 11 September, rendezvoused with ADELAIDE and CANTERBURY for escort in the afternoon of 12 October and then rendezvoused with BALIKPAPAN and BRUNEI off Suai at 0500 on 13 October 1999.

There was considerable build up to the reported importance of this day for the RAN and the ADF with it being described as the first proper beach amphibious assault conducted by the RAN, RNZN and ADF since World War II. The operation was conducted successfully, if not as excitingly as the actual historical record would suggest. In the event, the embarked forces and their

equipment were landed over the beach from TOBRUK by the LCHs BALIKPAPAN and BRUNEI, TOBRUK's two LCVs and the embarked 817 Squadron Sea King helicopter, 'Shark 07'.

After the Suai Assault TOBRUK recommenced her theatre resupply role conducting four return trips from Darwin to Suai during which almost 2000 tonnes of cargo and 642 soldiers were transported. Amphibious off loading operations with available LCHs and LCM 8s were conducted at Suai on October 13, 17-18, 22-24, 28-30 and November 1-03. The conduct of these Military Sealift/Amphibious Lodgements was definitely an Allied affair: TOBRUK transported cargo and troops from Australia, New Zealand, Canada and Ireland, whilst being escorted by, assisted by or working in concert with Australian, Canadian, French, New Zealand, United Kingdom and United States warships and aircraft.

In addition to TOBRUK's primary roles of amphibious lodgement and military sealift, the ship provided support for INTERFET forces ashore whenever the opportunity arose. Either alongside or at anchor in the AO, TOBRUK offered recuperation services: of showers, laundry facilities, fresh meals, temporary air conditioned comfort, e-mail and Interflora facilities to very grateful troops. For those unable to take advantage of the hospitality aboard, TOBRUK delivered hundreds of kilograms of fruit and rations ashore.

Prior to East Timor's wet season the conditions ashore were dry, dusty and dirty, not to mention burned, vandalised and destroyed, with little water available for the small 'niceties' (most would consider them necessities), of life. TOBRUK's arrival in harbour was often described as a "God Send" and the positive impact that the ship's support made to the morale of troops ashore was acknowledged on numerous occasions, with the camaraderie and respect for each other's Service being raised significantly.

The following figures indicate the success of TOBRUK's team in providing support for INTERFET troops:

- in excess of 1800 personnel utilised the onboard services, (including meals, showers, laundry facilities, e-mail facilities and Interflow services);
- over 500 loaves were baked by the catering crew and sent ashore;
- 1250 kg of fruit were distributed to those who were too far from the harbour to make use of the other services provided; and



An Aussie Digger provides guard to the arriving HMAS TOBRUK in Dili Harbour. (RAN)

- over 1450 snack and BBQ packs were developed and sent ashore.

As well as providing direct support to troops ashore, TOBRUK provided fuel, water and engineering repair services to Naval and Army units in the AO. Transfer of liquids ashore was achieved with the assistance of LCHs, LCM 8s and helicopters, and also road tankers whilst TOBRUK was alongside in Dili.

Operation STABILISE was an extremely busy but satisfying experience for the ship's company of HMAS TOBRUK. The whole Operation has reinforced to the RAN and the ADF the important role and many capabilities of surface ships, in particular amphibious warfare ships, which for so many years have been battling to be recognised as an essential element of the ADF's fighting and operational capability. The same can be said for the rediscovered utility of the LCHs, a craft of their size and carrying capacity being essential for the off loading of diverse cargoes from TOBRUK, combined with their ability to be self sustaining and to operate alone in an AO. The portability and versatility of the LCM 8s was also clearly demonstrated, their capabilities coming to the fore when the depth of water or restricted manoeuvring area favoured their use over the LCHs.

The Operation has also come at a time when Australian Defence planners were beginning to put feelers out to move away from the simplified notion of protecting Australia by denying the sea/air gap to any would-be adversary. The Operation has shown that Australia may be best served by a policy which enables the Defence Force to project force ashore, defend it, stabilise trouble spots before they erupt in violence disrupting the peace of our region, or, as in East Timor's case, nipping that violence in the bud before it could spread further.

TOBRUK's provision of recuperation services to INTERFET forces ashore and the corresponding boost to morale is best summarised in a poem received from 3 CER: "Never let it be said out loud, that the Anzac Spirit's dead."

The legend sailors on TOBRUK have baked the digger's bread".

THE COALITION CONTRIBUTION

In the rapidly changing pace of the ground and air operations in a modern conflict zone it is easy to forget that

the 'Silent Service' is there alongside them. Indeed, many soldiers may ruefully observe that if it weren't for the Navy they wouldn't be there at all.

The multi-national nature of the Peacekeeping mission in East Timor is as equally reflected by the coalition of naval assets as it is with the military.

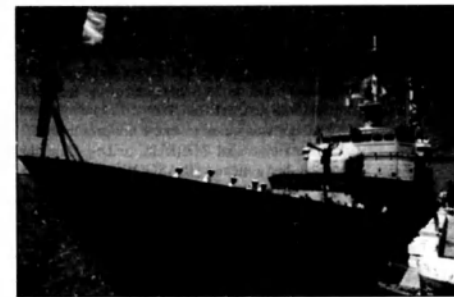
Since the start of Operation STABILISE, in addition to the RAN, eight navies have deployed ships and other assets to the area with more to come. From New Zealand came the frigates TE KAHA and CANTERBURY and the replenishment tanker ENDEAVOUR.

From Singapore came the LSTs EXCELLENCE and INTREPID.

From France the frigates VENDEMIARE and PRAIRIAL and the amphibious assault ship FNS SIROCO.

HMS GLASGOW, USS MOBILE BAY, USS BELLEAU WOOD, USNS KILAUEA and USNS SAN JOSE provided the British and American presence respectively.

The Canadians have also joined. The tanker HMCS PROTECTOR arrived in Darwin on 19th October and on 21st departed to relieve SUCCESS off Dili.



The French Naval Frigate FNS VENDEMIARE berths at Stokes Hill Wharf, Darwin, prior to deploying for INTERFET operations in East Timor. (WO2 Jeni Chinon)

These ships have played a vital role in providing long-range surveillance, protection, afloat combat support and long-haul logistic support to the forces on the ground and, with their replacements, will probably be there for several months to come. Indeed, East Timor may once again prove that old Navy adage "First In, Last out".

NEW ZEALAND

Generations of Australian and New Zealand sailors are used to working together all over the world. This relationship continues off the coast of East Timor.

When Operation STABILISE commenced the Anzac-class frigate HMNZS TE KAHA and the tanker HMNZS ENDEAVOUR were deployed to South East Asian waters. On 8th September the New Zealand Government announced that TE KAHA would be made available. A directive from New Zealand Defence Force HQ in Wellington saw TE KAHA commence a high-speed dash for Darwin where she arrived on 9th September. Shortly afterwards ENDEAVOUR was also ordered to Darwin. Both ships were part of the convoy that deployed forward from Darwin on 18th September.



The Singaporean LST RSS EXCELLENCE pulling away from Darwin's Fort Hill Wharf. (RAN)

On arrival TE KAHA assumed the duties of Dili Guardship, ENDEAVOUR, initially anchored off Dili, before beginning a shuttle service between Dili and Darwin of the fuel necessary for INTERFET forces to carry out their operations. A typical run saw her deliver 24 bags of mail, 38 pallets of stores, 150 tonnes of aviation fuel and 2,200 tonnes of diesel to INTERFET and then conducted two underway replenishments with coalition combatants.

On 24th September TE KAHA departed for the Persian Gulf, prior to the arrival on 28 September of the Leander-class frigate HMNZS CANTERBURY.

CANTERBURY was quick to make her presence felt. Her first duty was to escort TOBRUK to Dili from the Wetar Strait. She then relieved GLASGOW as Guardship, patrolling the approaches to Dili and providing close protection to the replenishment ships anchored offshore while her Seasprite helicopter was tasked with reconnaissance patrols along the shoreline and coastal waters.

Shortly afterwards CANTERBURY escorted LABUAN to a landing site close to the border with West Timor.

Other duties included monitoring Indonesian naval vessels withdrawing Indonesian troops from East Timor



The French LPD FNS SIROCO. (RAN)

and the escort of a Philippines merchant ship and the Singaporean LST RSS EXCELLENCE as they departed East Timor waters for yet another logistics mission.

The Royal New Zealand Navy is relatively small in terms of ships but its people are famous for their big hearts. It has made a significant commitment to the East Timor operation, and looks as if it is settling in for the long haul.



The RAN Catamaran HMAS JERVIS BAY. Each trip made by the big cat is equivalent to 10 C-130 Hercules transports. (RNZN)

Kiwi Amphibious Operation

Monday 19 October saw a Kiwi amphibious landing at Suai, in East Timor as New Zealand troops and equipment poured ashore, covered by the frigate CANTERBURY.

"It was a unique joint operation for the NZDF," said Major Bede Fahey, NZ media support officer in Dili. "This series of beach landings at Suai was the largest over the shore operation for New Zealand forces since WWII".

The New Zealand troops in East Timor were being established in the Suai area, where the whole of their battalion is based. Victor Company arrived in their new operational area from a landing craft, covered by an Australian frigate. But the bulk of the heavy equipment arrived in a larger scale amphibious landing. The whole operation began at midnight Sunday and has continued through to Tuesday as the array of vehicles and equipment, including 15 APCs, 25 Landrovers 14 Unimog trucks and 47 container loads of equipment, which left Wellington in the chartered merchant ship EDENGRACHT, were delivered ashore.

The equipment was 'crossdecked' from the merchant ship to HMAS TOBRUK in Darwin. That process was in itself a complex logistics operation for the military staff in Darwin, since the stores and equipment had to be checked, prioritised and made ready to be driven directly ashore from the landing craft.

Escorted by the frigate CANTERBURY, TOBRUK then sailed direct for Suai, with another 60 soldiers from the battalion onboard. Two heavy landing craft, HMA Ships BALIKPAPAN and BRUNEI were assigned to the operation, to transfer the vehicles from TOBRUK to shore. TOBRUK can also beach, but in these operations the big amphibious ship remains at anchor and transfers vehicles via her stern ramp, which forms a precarious-looking bridge to the bow ramp of the smaller landing craft.

Escorting TOBRUK, and guarding the landing area was the Kiwi frigate HMNZS CANTERBURY, whose surveillance radars and communications systems ensured that the force would remain under full control of the INTERFET commander, while also protecting the amphibious ships from the unexpected. By the end of October the whole of the New Zealand Battalion was ashore, accompanied by the first of the Canadian and Irish troops who are to be attached to the battalion in Suai.

CANTERBURY continued patrolling off shore near Suai, to maintain surveillance of the area and provide support to the New Zealand troops while they extend their operations in the Suai region.

UNITED STATES OF AMERICA

The United States forces deployed to the Coalition Naval force have conducted their operations with little fuss or publicity. When the decision was taken for INTERFET forces to deploy into East Timor the TICONDEROGA-class cruiser MOBILE BAY was en route Australian waters to participate in Exercise CROCODILE 99. As soon as the American participation was agreed the ship was ordered to Darwin where she arrived in mid-September. She sailed for Dili on 18 September and was soon involved with Guardship and patrol and surveillance duties. She departed the area on 8th October.

Shortly after the arrival of the coalition forces the KILAUEA-class ammunition ship USNS KILAUEA joined them. KILAUEA conducted logistics support operations until 5th October when she was relieved by the SIRIUS-class combat stores ship USNS SAN JOSE.



The Italian LPD SAN GIUSTO at anchor in Dili Harbour. (RAN)

On 29th September US Secretary of Defence, William Cohen advised the Australian Government that the TARAWA-class amphibious assault ship USS BELLEAU WOOD would provide heavy lift capabilities with its CH-53E Super Stallion helicopters. These would lift heavy equipment into the mountainous interior of East Timor where INTERFET was having problems with lifting such items.

BELLEAU WOOD, and later PELELIU, were good choices for humanitarian purposes as they each provided a flight deck capable of handling 10 helo movements simultaneously and a 300-bed hospital.

BELLEAU WOOD arrived on 8th October and on 12th October commenced operations. The arrival of such large ships created much enthusiasm among the local East Timorese, many of whom turned out daily to cheer their favourite helicopters as they got on with the job of resupplying the ground forces. The LHAs also landed a party of naval tradesmen to establish the US Command Post ashore.



HMAS TOBRUK's Sea King helicopter from 817 Squadron in Nowra hovers above the vehicle deck, as marshallers guide the pilot towards their cargo. (LEUT Emma Williams)

It is interesting to note that the mission is so routine to the Americans that no mention is even made of it on the US Navy web site. Truly, the Americans may call themselves "the Quiet Achievers."

First Super Stallion Helo Operations For RAN

In a number of firsts for the Royal Australian Navy, HMAS TOBRUK conducted helicopter operations with the United States Super Stallion CH-53 helicopters. On 23rd October off the coast of Suai, on East Timor's southern coast near the border, HMAS TOBRUK conducted lift operations with a Super Stallion from the 11 Marine Expeditionary Unit from USS BELLEAU WOOD.

With a lift capability of over 16 tonnes, the Super Stallion made light work of twenty-five ISO containers on the vehicle deck of HMAS TOBRUK. Within seven hours the Super Stallion had carried each of the containers ashore, the heaviest weighing 22,660 lbs or 10,300 kg.

In a total lift of 504,816 pounds, the Super Stallion has able to supply the New Zealand and Canadian forces ashore in Suai with a wide variety of items including generators, tents, catering equipment, workshop equipment, jerry cans, rations packs, sandbags, stretchers, trunks, plus defence and general stores.



HMNZS CANTERBURY passes the stern of the US LHA USS PELELIU! (RNZN)



A U.S.M.C. Super Stallion preparing to lift an ISO container from the vehicle deck of HMAS TOBRUK whilst off the coast of Suai, East Timor. (Mr Jamie Watson, DSTO).

In order to prove the record lift wasn't a once off, HMAS TOBRUK conducted a second lift operation on the 29th October, this time working with a Super Stallion helicopter from the 31 Marine Expeditionary Unit from USS PELELIU.

During this second lift operation 17 containers were flown off HMAS TOBRUK's vehicle deck and taken inshore to the ground forces in Suai.



CAPT Scott Corrigan watches as HMAS BALIKPAPAN comes in on a beach near the West Timor border. (ABPH Damian Pawlenko)

This time the containers held most of the New Zealand forces medical supplies and equipment plus vehicle parts, bottled water, radios, gasoline, ammunition, pipes, and a refrigerated container with temperature controlled stores inside.

For the second lift the Super Stallion helicopter carried a total of 200,060 lbs or 90,936 kg inshore. With the heaviest lift of the day being 22,000 lbs or 10,000 kg.

The operation provided a number of firsts, including HMAS TOBRUK's first time operating with CH-53E helicopters and the first airlift of ISO containers, measuring 20 ft high, off an Australian warships' decks.

The operation also turned out to be a first for the RAN in moving a record 505,000 lbs in one day.

With the use of the Super Stallion, HMAS TOBRUK completed an unloading operation that would normally have taken 2-3 days by craning the containers into an LCH and transporting them inshore two at a time.

As a result TOBRUK was able to offload the containers and return to Darwin to collect another load, all in all saving 4-5 days using the CH-53E helicopters.

UNITED KINGDOM

At the commencement of Operation STABILISE the Royal Navy's Type 42 destroyer HMS GLASGOW was exercising with Australian and New Zealand ships. She had commenced a Far East deployment in March and, consequently, was the obvious choice for the British maritime component of its East Timor forces.



MV LADY VALISIA and MV LADY ELAINE (outboard) alongside at Dili Port (ABPH Phillip Hunt)

GLASGOW arrived in Darwin on 14th September and sailed with the convoy on 18th September. Two days later she escorted TOBRUK back to Darwin and then returned to Dili where she relieved HMNZS TE KAHA as Dili Guardship. She was also employed in surveillance and patrol duties in the area, while her Lynx helicopter flew a number of surface search sorties.

Like their brothers and sisters in other INTERFET ships some of the ship's company were landed to provide additional medical assistance, restore electrical power, help with cleaning and reconstruction of damaged buildings and re-establish Dili's infrastructure.

On 1st October GLASGOW departed the Area of Operations and arrived in Darwin on 2nd October. She sailed for homewaters on the 4th.

FRANCE

After receiving the UN request for assistance the French Government decided its response would be humanitarian. Therefore, only assets that could support humanitarian efforts would be deployed.

The Navy acted quickly. Even though no decision was formally reached until 16th September, on 9th September Naval Headquarters in Toulon and Tahiti were ordered to have ships ready. On 10th September the FLOREAL-class frigate FNS VENDEMIAIRE sailed from Noumea and arrived in Darwin on 15th September. With the exception of HMS GLASGOW (which had been operating with Australian units) she was the first Coalition vessel to arrive. VENDEMIAIRE sailed with the Coalition Convoy on 18 September and was soon busily employed on patrol/surveillance and escort duty.

VENDEMIAIRE continued operations until 19th October when her sister ship, FNS PRAIRIAL, relieved her.

These ships are designed for this sort of operation and frequently respond to disaster relief tasks in the South Pacific. They have proven sea-keeping facilities and can operate helicopters in weather up to Sea State 5. They are

only capable of 20 knots, however, they have a range of 10,000 nm at 15 knots and endurance of 50 days. Another practical but unusual feature for a warship is a cargo hold aft which can hold up to 100 tonnes of cargo.

France's desire to be a good neighbour is exemplified by the other ship deployed to the area. FNS SIROCO is a 12,000 tonne FOUORE-class landing ship that is based at Toulon. Like the FLOREALs the ship has good range and endurance. Although her maximum speed is only 22 knots, range is 11,000 nm at 15 knots with an endurance of 30 days.

SIROCO was placed on alert on 9th September and ordered to sail six days later. She departed Toulon on 16th September and arrived in Darwin on 12th October for a four-day leave and familiarisation period.

On 16th October SIROCO sailed for Timor. After anchoring in Dili Harbour she disembarked her cargo and on 18th October she transferred cargo from RSS INTREPID and ferried it ashore in her landing craft.

For operations in East Timor the ship is particularly versatile. Its amphibious lift (four LCM, an LCU and four Puma helicopters) and docking capabilities make it an excellent logistics support vessel.

Also, its carrying capacity of 424 passengers and medical facilities (two full-size operating theatres) make it ideal for the uplift and resettlement of East Timorese refugees in West Timor. Another important consideration is the ship's ability to continue operations during the Wet Season, when aircraft and smaller amphibious assets may be forced to shelter.

SINGAPOREAN NAVY

Among the many participants supporting the Multi-National Peacekeeping force in Dili the Navy of the Republic of Singapore has demonstrated it is no slouch in carrying out its allotted tasks.

The LST-511 class RSS EXCELLENCE was the first of two Republic of Singapore Navy Landing Ships Tank deployed from Singapore to Darwin to support the uplift and deployment forward to Dili. She arrived in Darwin on 27th September and joined TOBRUK, JERVIS BAY, BALIKPAPAN, BRUNEI and LABUAN as the Amphibious Task Group.



One of the indispensable CH-53 Super Stallion helicopters about to land on the USS PELELIU. (RNZN)



The Thai LST SURIN arriving in Dili. (RAN)

On 30th September she loaded 30 vehicles, 10 pallets of defence stores and equipment from 7 Signals Regiment and 1 Joint Support Unit. Eleven personnel from the two Australian Army units also embarked.

Finally, in the early evening EXCELLENCE cast off and proceeded at a lonely nine knots for Dili. After disembarking her cargo and passengers, the LST returned to Darwin where she was joined on 6th October by her sister LST, RSS INTREPID. Over the weekend of 8th to 10th October the two Singaporean ships worked in tandem with TOBRUK to deploy to Dili personnel and armoured vehicles from the Royal Australian Regiment's 5/7 Battalion.

EXCELLENCE and INTREPID were acquired from the United States by Singapore in 1976 and have provided sterling service to that country for many years. Both ships are familiar visitors to Australian ports.

They have a complement of 72 officers and men and a range of 19,000 nm at 9 knots. Their lift capability is 1500 tonnes and they can also carry 125 troops in a long haul mode; more for short passages. Both ships were extensively modified in 1977 and can operate as Command platforms. EXCELLENCE also has a helicopter pad.

The RAN and Singaporean navies have enjoyed exercising together for many years. This mutual experience has translated well into the operational sphere and augurs well for their continued relationship.

Contributions by LCDR Andrew Stackpool, RANR, DPMO; CMDR Rex Edwards, RNZN, New Zealand High Commission; Capitaine de Vaisseau Patrick Stervinou, French Defence Attache; Major Rick Long, USMC, CINPAFLT PA Representative, Darwin; Colonel Chang, RSN, Singaporean Defence Attache; LEUT Emma Williams, RAN; LCDR John Pritchard, RAN; LCDR Peter Arnold, RAN.



The Canadian replenishment ship HMCS PROTECTOR. (RAN)

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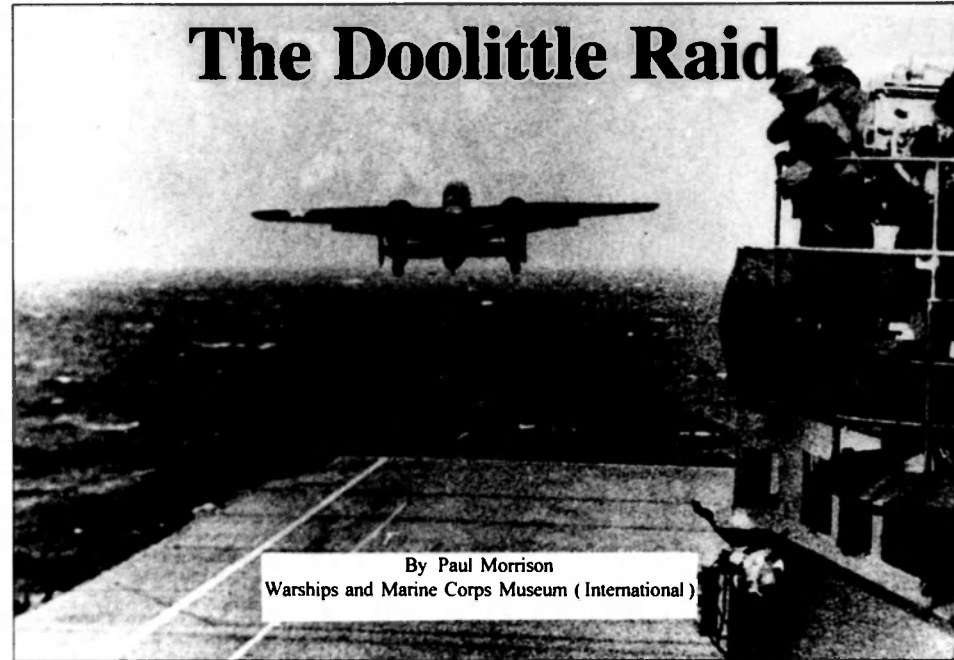
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The Doolittle Raid



By Paul Morrison
Warships and Marine Corps Museum (International)

Col James Doolittle's B-25B taking to the air for an historic feat of naval warfare. (National Air & Space Museum, Smithsonian Institution)

Following the attack on Pearl Harbor in December 1941, Japanese sea, land and air forces quickly over-ran much of South-East Asia and the Pacific. In less than six months, Japanese forces were along the borders with India and occupying northern New Guinea where they threatened to push further south to Australia. The Japanese military appeared unstoppable as the bastion of Singapore fell and American forces in the Philippines were forced back to the island of Corregidor. Under this onslaught, no worthwhile plans had been formulated by the Allies to stop the advancing Japanese.

In early 1942 a fast carrier strike force consisting of USS ENTERPRISE and YORKTOWN – two thirds of the American carrier strength in the Pacific, carried out raids on the Gilbert and Marshall Islands. The raids though were of little more than nuisance value to the Japanese and more importantly, they endangered the irreplaceable American carriers for no obvious gains to the strategic situation in the Pacific. Morale since Pearl Harbor was low and it was apparent that something had to be done quickly before the enemy could consolidate and strengthen its new gains.

The idea which Captain Francis S. Low U.S.N. came up with was a crazy one but in its favour it had the element of surprise – for what better way to strike back at the enemy than bomb the islands of Japan! And Low, who was an officer on the staff of the Chief of Naval Operations, had done his homework. He knew that the attack would have to be mounted from aircraft carriers and that these carriers would have to launch their planes from a safe distance.

Naval aircraft with extra fuel tanks would have the range but not the bomb load to do any damage. Perhaps Army bombers could do the job. The idea was taken up with interest in Washington D.C.

Lieutenant Colonel James H. Doolittle U.S.A.A.F. was enthusiastic about the idea and volunteered to lead a project to study its feasibility. Doolittle closely studied data on the medium bombers that could be used for such a mission – the DOUGLAS B-23 had a wingspan which was too wide to be flown from a carrier, the MARTIN B-26 needed too much distance for takeoff, but the MITCHELL B-25 with extra fuel tanks was a possibility.

On 2nd February 1942, off the east coast of the United States two lightly loaded B-25s were successfully launched from the aircraft-carrier HORNET. The aircraft had now been decided on but the crews to carry out the secret mission would have to be picked and trained. Colonel Doolittle decided he would do this personally on an individual basis in order to preserve secrecy, and also to ensure that the best personnel were chosen for the difficult and dangerous mission.

The personnel who volunteered were selected from the 34th, 37th and 39th Squadrons of 17th Bombardment Group and also the 89th Reconnaissance Squadron. At all times they were told only that they had volunteered for a "dangerous mission". Intense training was carried out in short take-offs and other procedures including day and night navigation, bombing and formation flying. When the training was completed and the final crews picked, the bombers were flown to the West Coast.



While the bomber crews look on, Lt Col James Doolittle (Left) accepts from Admiral William (Bull) Halsey (Right) medals, given to USN officers by their Japanese counterparts before Pearl Harbor, to be used to the bombs to be used against Japan on the raid and 'returned with interest' (National Air & Space Museum, Smithsonian Institution)

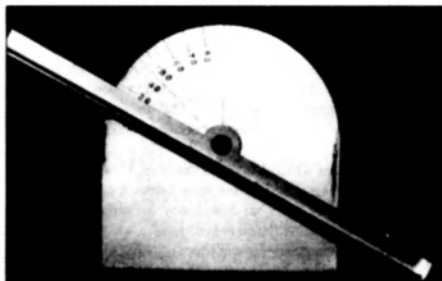
At San Francisco, sixteen of the B-25Bs were loaded onboard HORNET which was to be accompanied as part of Task Force 16.2 by the heavy cruisers USS NASHVILLE and VINCENNES, the destroyers GRAYSON, GWIN, MEREDITH and MONSSEN, and the oiler CIMARRON. On 2nd April, the ships sailed from harbour to rendezvous with Task Force 16.1 which included the aircraft-carrier USS ENTERPRISE (to provide fighter cover for the Task Force), the heavy cruisers USS NORTHAMPTON and SALT LAKE CITY, the destroyers BALCH, BENHAM, ELLET and FANNING, and the oiler SABINE. Admiral William F. Halsey was in overall command of the operation. When HORNET had cleared port, the ship's commanding officer, Captain Marc Mitscher announced the mission to the ship's crew - "This force is bound for Tokyo!"

The plan for the raid was to bomb military and industrial targets in the cities of Tokyo, Yokosuka, Nagoya and Kobe. These targets included power plants, steel works, oil refineries, munitions factories and docks. The only strategic target not to be attacked would be the Imperial Palace in Tokyo. Once the B-25Bs had dropped their bombs and incendiaries they were to fly on for 1200 miles until they reached the safety of territory in China under the control of the Chinese Nationalist Army. The margin for error was a narrow one. The bombers were to be launched from HORNET within 400 miles of the Japanese coast and this would be just enough to allow them to reach safety in China.

One of the sixteen Army bombers on HORNET's flight deck was Plane No. 40-2249, known affectionately by its crew as HARI KARIER. The crew of HARI KARIER consisted of Captain C. Ross Greening (pilot), Lieutenant

Kenneth E. Reddy (co-pilot), Lieutenant Frank A. Kappeler (navigator), S/Sergeant William L. Birch (bombardier), and Sergeant Melvin J. Gardner (engineer-gunner).

The B-25Bs had all been modified for the mission and these modifications included the removal of the ventral (bottom) turret and the installation of a 60 gallon fuel tank. A 160 gallon tank was located in the crawlway above the bomb bay and interior compartments of the plane were stocked with additional 5 gallon fuel cans. The Norden bombsight was removed for security reasons and also because it was designed for high altitude precision bombing and not for the low altitude bombing required for the mission. Many of the radio sets were removed to reduce weight and broomsticks were inserted in the tailcones to look like machine-guns.

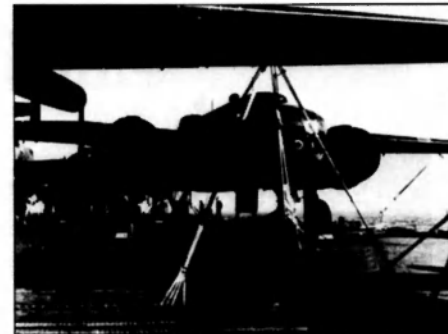


The crude bombsight made up especially for the raid. (National Air & Space Museum, Smithsonian Institution)

Bill Birch. HARI KARIER's bombardier described the replacement bombsight used on the mission. "We substituted a manual sight reminiscent to those used during World War I. The sight was the brain child of Captain Greening and consisted of a moveable arm fitted with a vee notch in back and a rifle sight in front. This arm was attached to a quadrant marked off in degrees and in turn mounted to the Norden stabiliser. The bombardier preset the dropping angle on the sight depending on the projected bombing altitude. The pilot was directed to the target by the bombardier, who upon seeing the target in the open gun sight, dropped the bombs by means of a toggle switch connected to the bomb racks. The bomb loads of all sixteen B-25Bs consisted of two 500lb bombs and two 500lb incendiary clusters."

On the morning of 18th April, fearing the Task Force had been spotted by enemy fishing boats on picket duty, it was decided to launch the bombers immediately even though the Task Force was still many miles from its designated launch area and some 600 miles from the Japanese coast. Colonel Doolittle's plane was the first to lift off from the carrier's deck. A rain squall and gusty winds added to the hazards but the B-25B was launched safely. The other aircraft followed, each circling to the left before heading in the direction of Japan. HARI KARIER was the eleventh aircraft on the deck. Frank Kappeler, the navigating officer recalled the events following their departure from HORNET.

"Our navigation after take-off for land fall on the Japanese coast consisted primarily of drift readings when possible. We flew at 100 feet or less altitude. Shortly after take-off I discovered a potentially serious problem. My normally used navigation tables (celestial) were missing. A spare crew member had volunteered to help me carry a



A B-25B revs up its engines during the transit. Notice how tightly packed the aircraft are. (National Air & Space Museum, Smithsonian Institution)

portion of my navigation equipment to the plane sometime before take-off. We had gone up the flight deck together and cautiously made our way to the tied down B-25s. Crossing the deck and walking to the planes was hazardous. Spray was breaking over the deck which was pitching and rolling and the stacked together B-25s were revving up their engines and the props were spinning wildly. I made my way to our aircraft and put my equipment on board. My friend was kneeling down about fifteen feet away, waiting for me to clear the plane. I then went to HORNET's Navigation Section for a last position report and time check. For some unknown reason, my primary navigation tables never got into our plane.

"Enroute to the coast, I spent three hours or more working out practice celestial problems... I was then ready for celestial navigation if necessary.



16 USAAF B-25B bombers were loaded onto the carrier USS HORNET for the historic attack on Japan. Here two of the HORNET's escorts follow the carrier and protect its precious cargo. (National Air & Space Museum, Smithsonian Institution)



A B-25B takes to the air from the pitching deck of the USS HORNET. None of the aircraft launched could be recovered on deck by the carrier if trouble struck. (National Air & Space Museum, Smithsonian Institution)

"When we made landfall, we were about ninety miles off course to the north. We entered Japan at deck level and flew over hilltops and down into valleys, going in the general direction of Tokyo and Yokohama. We flew over many cultivated fields and some farmers stood and waved at us while others ran for cover. Several Japanese training aircraft tried to fly formation with us. After about twenty minutes we had four fighter aircraft come up close to look us over. They came close enough so that I could see their faces. We had been cruising at 160 m.p.h. in order to conserve fuel, but then boosted the airspeed to 180 m.p.h. and then to 200 m.p.h.

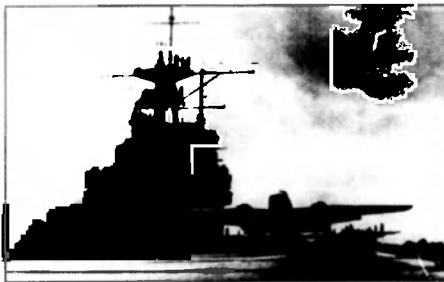
"About this time a possible alternate target appeared in front of us. The pilot and co-pilot thought the building could be a refinery and we dropped our incendiaries on it. The building area was long and narrow. It appeared to explode and large billows of dark smoke rose into the sky.

"We now flew thirty miles out to sea and then turned and paralleled the coastline to the southern tip of Japan. We flew into cloud banks when possible and navigated by visual means and map reading. At dusk we were about 300 miles away from the China coast and ran into fog and clouds. From that point to bail-out time we were flying instruments. We encountered a tailwind on our last leg and at our destination, Chuchow, we flew on for another fifteen or twenty minutes. We all bailed-out and landed safely some fifty miles past Chuchow."

Though little military damage was done by the sixteen bombers, the Raid was still a great success. The B-25Bs encountered only light anti-aircraft and fighter resistance, and targets were hit in northern, central and southern Tokyo



A B-25B on its way to Japan and history. (National Air & Space Museum, Smithsonian Institution)

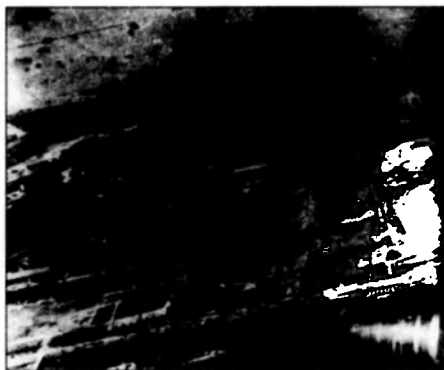


With many of the 16 B-25Bs already launched, another B-25B runs down the flight deck of the USS HORNET almost airborne. These land based bombers were found to have good short take off properties, making them ideal for this raid. (National Air & Space Museum, Smithsonian Institution)

and the Tokyo Bay area, Yokohama and the Yokosuka Naval Base (where a partially completed aircraft-carrier was believed hit), Nagoya and Kobe. Only one of the bombers was forced to jettison its bombs, while eleven B-25Bs hit their primary targets and four hit secondary targets. The B-25Bs also shot down several enemy fighters!

The Raid boosted Allied morale and forced the Japanese to strengthen their home defences. Japan's aggressive military policy now began to show signs of a more defensive thinking and there were those in both the government and military who realised that this small bombing raid was the beginning of larger and more intense ones to follow. Of the aircrews of the sixteen B-25Bs, 64 reached safety in China, eight were captured by the Japanese, three were killed on bailing out or ditching, and five were interned in Russia. Years later, Bill Birch remembered the aircraft that had not only changed the lives of its crew but had also helped change the course of the war. "Plane 40-2249 was a good ship. She brought us safely from take-off to flight's end... May she rest in peace."

In 1989, some forty of the Doolittle Raiders including General James H. Doolittle kindly assisted the Museum. Three large volumes of written material that include personal accounts, autographed cards, photographs and details of wartime service are preserved in the Museum's written archives. A small display on the Raid is also on view.



Yokosuka Naval Base as seen from the starboard side of a B-25B on its way to Tokyo. Notice the height of the aircraft, the ships and the lack of flak. Japan was taken by complete surprise. (National Air & Space Museum, Smithsonian Institution)

Flash Traffic

BAYONET's Career Ends

The Attack Class Patrol Boat BAYONET slipped beneath the waves of Bass Strait into 80 meters of water 19.5 nautical miles South West of Cape Schanck ending a long career.

Cairns shipyards of North Queensland Engineering and Agents Pty Ltd.

After paying off on June 26 1988 the boat was used as a training vessel at HMAS CERBERUS for the next nine years.

From 1989 to 1993 TV BAYONET, as she had become known, was used for target towing at



After the charges were set and the demolition party evacuated the explosives were detonated. The RNZN NUSHIPTE MANA was in the area on trials and stopped to watch the patrol boat's end (RAN).

BAYONET was laid down at the yard of Walkers Ltd. of Maryborough, Queensland, in October 1968, and was launched on 6 November 1968 by Mrs Purves, wife of Rear-Admiral F.W. Purves, RAN.

BAYONET was commissioned at Urrangan, Queensland, on 22 February 1969 and arrived at Sydney on March 18.

She spent her early years patrolling northern waters including assisting HMAS MORESBY in a survey of the Braxme-Port Hedland area.

She was handed over to the RANR in Melbourne on 27 March 1982 after an extensive refit at the

West Head Gunnery Range and Static training. She spent the rest of her serving life alongside CERBERUS as a training aid.

She was taken in tow from CERBERUS wharf at 0610 by the DMS Work boat RELIANCE and arrived at the scuttling site at 1530.

Two DMS staff were put on board to set demolition charges and removed any possible flotsam. The personnel were recovered and the charges were detonated at 1545 under the watchful eyes of two EPA observers.

No problems were encountered and BAYONET was out of sight by 1547.

By Leonard Smith, PAO HMAS CERBERUS



BAYONET sinks below the waves. May She Rest In Peace (RAN).

Malaysian Navy Grows



The new RMN frigate KD LEKIU.

The Royal Malaysian Navy (RMN) has ordered six GKN Westland Super Lynx helicopters to equip its two new Lekiu class frigates. The deal cost approximately US\$158 million with delivery expected around 2001 - 2003. The aircraft are understood to be Super Lynx Series 300 models and will replace the RMN's Wasp helicopters.

In other RMN news, the first of two Yarrow built Lekiu class frigates, KD LEKIU, has commissioned into the RMN at a ceremony in Glasgow.

The ships are three years late due to integration problems with the weapon systems. Many speculated if Malaysia intended to proceed with the acceptance of the two frigates given the Asian economic crisis.

The 1,874 tonne frigates are armed with a Bofors 57 mm gun for anti-aircraft and anti-missile tasks; two 30 mm guns; eight 70 km ranged MM 40 Exocet missiles; a 16 cell vertical launch system for 16 VL Seawolf missiles; and two triple torpedo tubes for six Italian Whitehead ASW torpedoes.

The ships are powered by four diesels for a maximum speed of 28 kts and a range of 5,000 nm at 14 kts.

Pakistan Gets New Submarine

The first of three new diesel electric Khalid (Agosta 90B) submarines has been handed over to the Pakistan Navy in a ceremony at the French Naval base at Toulon.

The submarine was built in France by DCN at its Cherbourg shipyard.

The second submarine has already been delivered to the Naval Dockyard at Karachi in three sections for



The Pakistan Navy's new Agosta 90B class submarine KHALID on the surface. She will be armed with French torpedoes and the sub-Exocet SM-39

assembly. The third 90B is expected to be fitted with a MESMA liquid oxygen air independent propulsion system, extending the boats length by nine metres.

The submarines will be armed with four SM-39 sub-Exocet and 16 F17P 533 mm torpedoes.

The Pakistan Navy currently has two Hashmat (Agosta) and four Hangor (Daphne) class submarines in service. The three new Agosta 90B will replace the four Daphne class.

USN Bids Farewell To Last Kidd DDG

Every U.S. Navy ship, at the moment of its commissioning, has a crew that posts a watch. That watch is regularly relieved by a new set of watch standers round the clock for the life of



USS CHANDLER tied up at Bravo pier Everett Naval Base Washington. She was later towed to Bremerton to be placed in storage. (USN)

the ship, without exception. When the command came over the I-MC aboard USS CHANDLER (DDG 996), moored at Pier Bravo Everett Naval Base on Sept. 30, to "secure the watch" rather than the more commonly heard, "relieve the watch," the command duty officer and officer of the deck left the ship without being replaced.

This procedure was one of several that both symbolically and literally ended the life of CHANDLER as a warship in the USN.

The first speaker at the decommissioning ceremony was Rear Adm. Steven Smith, Commander Amphibious Group Three and CHANDLER's third commanding officer. He regaled the audience with tales about CHANDLER during the tanker wars of the 1980s.

"Placing her out of service today is going to be hard to do, CHANDLER is one of the finest and most capable ships in the world. Eleven years ago, this ship took me and almost 400 sailors into harm's way, and brought us home safely ... no ship could have been designed better or performed better than CHANDLER did in the difficult environment of the tanker wars."

Smith described two notable events which reinforced his confidence and pride in the ship. In his first tale, he described the night that an Iraqi bomber approached the ship in a threatening manner. CHANDLER's crew "lit up" the plane with the ship's fire-control radar and fired harmless illumination rounds, which startled the pilot and caused him to abort his attack. In the process, the pilot launched anti-ship missiles at CHANDLER.

"CHANDLER's systems and crew performed flawlessly ... in fact, I was so confident that I was able to allow the missile to pass safely nearby without engaging it," he said. "As well as a fast ship, it could have been said that night, 'give me a good ship, because I intend to go in harm's way,' and that was never more appropriate. In situations like this, a commander may overreact if less sure of his ship and situation. In this warship, CHANDLER, I had the absolute confidence that allowed me to do a very fine balancing act that night that served our country well."

Smith also revealed that three prominent U.S. politicians spent several days aboard CHANDLER during that dangerous time, a fact that has never been publicly announced prior to the ceremony. He explained that he was revealing it to illustrate how much confidence the Navy and the country had in the capabilities and security of the Kidd class DDGs.

CHANDLER was towed to Bremerton the next day.

China Negotiating For Akula SSNs

Russia is considering the sale of at least two nuclear powered attack submarines (SSNs) to China, significantly boosting its capability to counter aircraft carrier groups in blue water.

Russia's Naval Machine-Building Design Bureau, Malakhit, St. Petersburg, and Amur Shipbuilding Plant, Komsomolsk on Amur, have joined forces to offer China two Project 971 Akula class submarines through Russia's state owned arms export agency, Rosvoorouzhnic.

A senior official at the Malakhit design bureau, which developed the sub, said Moscow already has sanctioned talks on possible sale of the submarines.

As China has a limited amphibious capability, it is seeking attack submarines as a way of applying pressure to Taiwan.

China's five Han class SSNs are too noisy, and the Type 093, an indigenous nuclear powered attack submarine being built with Russian help, is still under development.

Another reason for SSNs stems from the four Russian Kilo class submarines operated by China proving to be troublesome, with battery life being very short.

A Chinese Akula class SSN fleet would be a dramatic step in getting a quieter nuclear powered attack submarine. The threat of which could not be ignored.

A Malakhit official said both Akula submarines that might be sold are only 30 percent complete, and could be ready in less than four years.



A nuclear powered Russian Akula class attack submarine on the surface. These subs are said to be as quiet as the USN's Los Angeles 688 class submarines.

He said three such submarines are at the Amur plant, which manufactured more than a dozen of the same for the Soviet Navy. Another semi-assembled submarine is sitting at Malakhit's own Premises, he said.

Construction of the three submarines began in the late 1980s, but was halted due to lack of funding. All three vessels have low-magnetic steel hulls, but still need to be fitted with reactors, equipment and weaponry. Each submarine could be priced at as much as US\$500 million, but what price the Chinese might pay or the status of negotiations so far is unknown.

The Malakhit official said the Chinese Navy needs the Akula submarines - which have a diving depth of 600 metres, can operate autonomously for up to 100 days and go as fast as 35 knots - to boost its capability to combat aircraft carrier groups in the open sea.

The official conceded, however, that the Chinese may purchase only two submarines as a method of acquiring technology to further develop their own submarines.



With the addition of multi-role Flankers the Russian KUZNETSOV carrier can conduct the full array of naval carrier operations.

Russian Carrier Set To Strike

Russia intends to give its carrier air group the ability to strike at maritime and surface targets with the development of a new SU-27 variant.

Russia's only aircraft carrier, ADMIRAL KUZNETSOV, is limited to air defence operations as its SU-27K fighter is optimised for air-to-air missions. Only short and medium range air-to-air missiles are carried by the SU-27K.

The Russian Navy is interested in acquiring a multirole aircraft capable of carrying out air-to-surface missions. The acquisition of such an aircraft in reasonable numbers would mark a major improvement in Russian naval aviation capabilities. The new version of the Flanker is dubbed the SU-27KUB and is capable of carrying out reconnaissance missions as well as strike missions.

Russian naval aviation spent the last decade in tatters as the country's defence budget dried up forcing the procurement of two follow-on carriers to be cancelled.

The two-seat SU-27KUB, originally conceived as a trainer, flew for the first time on April 29 1999 and recently deployed aboard the KUZNETSOV for trials. The Russian Navy currently uses another Sukhoi aircraft, the SU-26UTG, as its carrier conversion trainer.

Russian Navy officers, however, have said this aircraft is less than ideal in preparing pilots to land the SU-27 on a carrier, given the considerable difference in handling characteristics between the subsonic SU-26 and the supersonic SU-27.

The side-by-side configuration of the SU-27KUB allows trainee pilots to become accustomed to landing the Flanker on a carrier, having an experienced instructor in the cockpit.



A Russian SU-27K Flanker about to 'trap' aboard the Carrier KUZNETSOV

Sukhoi has used a side-by-side cockpit configuration in the past, creating a long range, land-based strike derivative of the basic SU-27, the SU-27IB fighter-bomber. In fact, the SU-27IB is now one of the few remaining priority programs for the Russian Air Force.

The SU-27KUB is expected to carry a range of anti-ship weaponry such as the Kh-31A/P (NATO code name AS-17 Krypton), and the Kh-35 (AS-X-20 Kayak).

The SU-27K was recently displayed at a Russian air show carrying a mock-up of the air-launched variant of the 3M-80 (SS-N-22 Sunburn) large anti-ship missile. During the Aug. 17-22 1999 Moscow air show, a mock-up of the air launched version of the Onix anti-ship missile (SS-NX-26) was also displayed with the basic SU-27K. Both the Sunburn and the Onix were originally designed as ship borne missiles for use against surface targets.

Sweden's Gotlands Arrive

Sweden has taken formal delivery of the last of three A-19 Gotland class diesel electric submarines. GOTLAND, UPPLAND and HALLAND.



An A-19 Gotland class SSK on the surface. This is the world's first purpose designed and built class of SSK with AIP.

The Gotlands are unique in having Air Independent Propulsion units built into the boat as part of the original design. This gives the submarines the capability to operate submerged for 19 days (without using battery or diesels for power).

The Gotlands are reported to be amongst the most quiet conventional submarines in the world.

The submarines were built by Kockums Naval Systems, a division of Celsius, in a program costing US\$427million.

The Gotlands carry a crew of 25, have a displacement of 1,494 tonnes and are 60.4 m long. They are armed with four 533 mm and two 400 mm torpedo tubes for 12 Type 613/62 533 mm torpedoes and six 400 mm Type 43/45 torpedoes.

Argentina Buys DURANCE

The French replenishment tanker DURANCE, same class as HMAS SUCCESS, has been bought by the Argentine Navy for US\$15 million.

The ship was mothballed by the French Navy in 1997 after only 19 years of service and was to have been upgraded in France by DCN prior to transfer to the Argentines, but will now be upgraded in an Argentinean shipyard.

The ship was towed from Brest to Argentina's leading shipyard at Puerto Belgrano for its upgrade and overhaul before joining the Navy.

USN speeding up TBMD

The USN plans to fire more than 50 test missiles during the next two to three years in order to accelerate the deployment of its two TBMD (Theatre Ballistic Missile Defence) systems.

The Navy Area system, designed to protect coastal and more local assets from incoming enemy ballistic missiles, is expected to conduct at least 34 missile tests. The Navy Theatre-Wide (NTW) system, designed to protect entire regions, is being prepared to fire at least 15 test missiles during this time.

The Navy Area system is expected to be in use by 2001. If the tests for NTW succeed, the USN would hasten its deployment to 2004 or 2005, well ahead of the current deployment target of 2007. The Standard SM-2 Block IVa missile being used by the area programme has passed most of its previous tests and is almost ready for production.

After 10 test flights at the US Army's White Sands Missile Range in New Mexico, and two each aboard two Aegis-equipped cruisers at sea, the Navy Area system will be put through 25 tests that will be much more rigorous. One of these will gauge if a cruiser can intercept two ballistic missiles and two cruise missiles simultaneously.

Italy Decommissions Hydrofoils

The Italian Navy has decommissioned its five remaining Nibbio class missile hydrofoils (PHMs). The boats have been placed in reserve pending a final decision on their disposal.

The PHM design originated in the late 1960s when a high speed armed platform was needed to protect and interdict choke points in the Mediterranean.



An Italian PHM foil borne, at speed. Note the two Otomat ASM on the stern and the 76 mm gun.

Seven PHMs were built between 1974 and 1984. They had a top speed of 48kts via a Rolls Royce Proteus 15 M/560 Gas Turbine engine. They were armed with two Otomat Mk 2 (TGI) anti-ship missiles with a range of 80 km and a 76 mm OTO Melara gun for air, surface and missile targets.

The Italian Navy is exploring the possibility of selling the vessels, still having several years of hull life left, overseas. Several navies in the Middle East and Asia Pacific have expressed interest however, if the vessels are not sold soon they will be scrapped.

CHARLES DE GAULLE to be modified

The French Navy has been forced to lengthen the flight deck and install new safeguards against radiation from its reactors in its new aircraft carrier CHARLES DE GAULLE.

The 261 m long angled landing deck of the carrier will need to be lengthened by 4.4 m to accommodate the three E-2C Hawkeye AEW&C aircraft France is acquiring.

The additional length is required to ensure that in combat conditions the Hawkeyes can turn and clear the deck quickly after landing rather than have a vehicle tow them out of the way of other aircraft waiting to land or take off.

Other modifications needed by the carrier include new safeguards on the carrier's two nuclear reactors to comply with the new European Union standards due to come into effect in May 2000.

The total cost of the modifications could be approximately US\$85 million and delay the 41,000 tonne carrier's in service date by eight months.

F 3000S building for Saudi Arabia

The French shipbuilding company DCN has started work on assembling Saudi Arabia's three F 3000S frigates.

The frigates are enlarged versions of the stealthy French La Fayette incorporating additional features for the Saudi Navy. These include an enhanced AAW capability based on the European ASTER missile and a new 3D air search radar. Initially the

F 3000S will be fitted with two Sylver launchers for 16 ASTER 15 missiles but can be extended to take an additional two launchers for 32 missiles. Margins exist to also take the longer ranged ASTER 30 missile.

Other weapons to be fitted are similar to the French version of the frigate except for the addition of an active towed array sonar.

The ASTER 15 missile to be used on the Saudi ships is currently in production with the first customer being the French Navy's aircraft carrier CHARLES DE GAULLE. The ASTER 15 is intended as a missile defence weapon for use against sea skimming anti-ship missiles. It has a range of 1.7 to 30 kms. The ASTER 30 is intended for long range anti-aircraft/missile defence with a range of 3 to 100 kms. It has been reported that EUROSAM is further developing the ASTER 30 to fulfil the anti-ballistic missile role. Recently the missile system was criticised by some in the UK for not having this role which could have been achieved had the RN opted for the US Mk-41 launcher with SM-3 for its new Type 45 DDGs.

USN Seeks More Ships

The USN is seeking approval to lift its ship ceiling from 305 hulls to 327 hulls by 2003. Adding another 12 surface combatants to the planned ceiling of 116.

Given the large number of peace enforcement operations and other non-conventional missions the fleet is under strain to keep up a warfighting capability.

This call comes as an opening shot in the upcoming battle between the services for additional Pentagon funds in this years Quadrennial Defense Review.

The USN is also expected to ask for an increase in the number of SSNs which were reduced from 73 to 50.

One measure being looked into to address the problem is "buying back" decommissioning ships and submarines. Up to seven Los Angeles class SSNs could be saved from decommissioning as well as seven to 10 Spruance and or FFG-07 class ships.

Larger 'Air Capable' Ships For Japan

The Japanese Navy will build at least four large air capable surface combatants to replace its aging ASW destroyers, which serve as the Navy's flagships in its four flotillas.

The project is part of Japan's 2001-2005 Medium Term Defence Program pegged for authorisation by the end of 2000.

The service currently is studying several options for the vessels, which will have a wider range of missions, including logistical cooperation with the USN in regional contingencies. The vessels may also be designed to accommodate more, and larger, helicopters than the three SH-60 ASW helicopters currently carried on each of the Navy's destroyers.

The warships now under study are to replace the two 5,000 tonne DDH-141 Haruna class destroyers commissioned in the 70s, and the two DDH-143 Shirane-class helicopter destroyers commissioned in 1980 and 1981.



This French La Fayette class FFG is similar to the Saudi F 3000S class currently under construction. Notice the flush nature of the ship to aid in radar stealth.

The replacement vessels being touted will displace about 10,000 tonnes. If a new helicopter carrier is approved it is expected to be at least 15,000 tonnes.

Analysts believe the Japanese Navy's 2000 budget request, which includes funding for a 13,500 tonne combat support vessel, is the first sign that construction of larger warships is imminent.

The new warships will be planned as a part of Japan's own capability of projecting power in areas such as international peacekeeping operations under UN command. The Japanese Government is already making preparations to allow troops to participate in such undertakings.

Prime Minister Keizo Obuchi and other political leaders, including those of opposition parties, recently have lent their support to the idea of unfreezing or reversing legislation that prohibits deploying armed Japanese troops to trouble spots where a cease-fire agreement does not exist. Japan is even talking about being militarily involved in East Timor.

Navy League Meets

Following the Annual Meeting of the Federal Council of the Navy League of Australia, the Federal President, Mr Graham Harris, has praised the Navy for its efforts in East Timor. Specifically he noted:

- the extensive support being provided by units of the RAN in support of INTERFET forces in East Timor (Operation Stabilise);
- the ability of the Navy to lead and direct a multi-national naval force and coordinate civilian shipping;
- that over 1500 naval personnel were directly involved in the operation;
- the success of HMAS JERVIS BAY as a fast sea transport vessel; and
- that while the Navy's efforts in Timor are a continuing task the Navy is, at the same time, providing support for ADF units in Bougainville (Operation Bel Isi) and undertaking enhanced surveillance and sovereignty assertion operations arising from the influx of boat people from ports in Indonesia (Operation Cranberry).

He also noted:

- the rapid progress being made to

correct the range of deficiencies in the Collins class Submarines.

• the most satisfactory progress being made with Navy's major projects, namely the Anzac frigate program and the Huon minehunter program; and the progress being made in introducing new command and management structures within the RAN to respond to changes arising from the Defence Reform Program and the demands of a modern Navy. On the downside he expressed concern at:

- the current shortage of naval manpower;
- the high rate of naval personnel leaving the service early;
- the downturn in naval recruiting;
- the poor publicity in recent months involving the Navy which has been highly detrimental to the Navy's image; and
- the inability of the ADF, including Navy, to provide adequate air defence for deployed ADF units.

Anzac Upgrade

The RAN's Anzac class ships are to get their anti-ship missile defence upgrades but not their long-range air warfare capability.

The Defence Department has recommended proceeding at this stage with a modified upgrade of the Anzacs' anti-ship missile defence capability.

The Department has also ordered the investigation of alternative options for providing a long range air warfare capability.

In a release from Defence headquarters in Canberra it was pointed out that Defence has been investigating with industry an upgrade to the Anzac frigate fleet.

The original concept for the upgrade included improvements to their anti-ship missile defence capabilities and the addition of a long-range air warfare capability.

As the department and industry continued to

study the proposed upgrade it became clear that the upgrade was not achievable within acceptable costs and risks for the capability improvements sought.

The Anzac anti-ship missile defensive upgrade will be designed to provide a practical level of self protection against anti-ship missiles, allowing them to operate in medium threat environments and employ their surface warfare capabilities.

The pending retirement of the Perth class of guided missile destroyers will reduce the Navy's air warfare capability, the spokesman said.

The Department of Defence with help from industry will examine options for providing an appropriate level of this capability in the surface fleet.

The Government is committed to maintaining a highly effective surface fleet and recognises that close collaboration with industry is vital to achieving this aim.



The battleship NEW JERSEY (BB-62) was recently towed up the Delaware River toward the Naval Inactive Ships Facility in Philadelphia where it is on donation hold for use as a museum or memorial. The state of New Jersey plans to use the ship as a memorial. (USN)

Observations

By Geoff Evans

A Surprise Appointment

In the fifty-two years since Vice Admiral John Collins became the first graduate of the Royal Australian Naval College to head Australia's Navy as Chief of the Naval Staff (CNS), fifteen of the sixteen officers appointed to head the RAN commanded the seagoing forces beforehand – until Maritime Command was established in 1988 exercising their command from a flagship, usually a cruiser or aircraft carrier until large warships were considered to be unsuitable (or unaffordable) for the RAN.



Vice Admiral David Shackleton, CN (RAN)

The sixteenth CNS – or Chief of Navy (CN) as he is now titled – had a background different in several ways from his predecessors. David Shackleton was born in the United Kingdom in 1948 and entered the RAN in 1966 as a Supplementary List Seaman Officer. Following his initial training he was at sea almost continuously until 1979, serving in ANZAC, STUART, SYDNEY, VAMPIRE, CURLEW, QUEENBOROUGH, MELBOURNE, PERTH, (twice) and HOBART (twice); he also undertook training in the United States and exchange duty in the Royal Navy.

As a junior officer the CN-to-be qualified as a warfare officer specialising in combat systems and aircraft direction (PWO D) and as his career progressed went on to command DERWENT in 1988-9 and BRISBANE in 1992 the latter posting in the rank of Captain. Promoted to Commodore in 1993 a Navy Office appointment followed together with completion of the 1994 Senior International Defence Management Course in the United States, then Defence HQ appointments, promotion to Rear Admiral in July 1998 and finally to Vice Admiral on becoming Chief of Navy.

Along the way, in addition to graduating from the RAN and Joint Services Staff Colleges, David Shackleton became an Associate Fellow of the Australian Institute of Management, a Master of Business Administration and

received a Diploma in Corporate Management. One might assume the management qualifications in addition to his Service experience were a not-unimportant factor in his selection by the Government to be the Navy's chief.

It would not be surprising if this was so. Extensive and seemingly never-ending changes in the defence organisation over a period of 25 years, not least the establishment of a Maritime Command together with a re-direction of responsibilities throughout the Department of Defence, have inevitably had an effect on the responsibilities and authority of the CNS/CN. While together with the Chiefs of Army and Air Force he is a member of the Defence Executive, CN does not direct the activities of his Service in the way his predecessors were able to do prior to the functional changes in what has become a very complex bureaucracy.

Vice Admiral David Shackleton will need all his skills in the coming months.

Final Inquiry?

From time to time over the years reference has been made in this column to the efforts of a group of naval men who served in HMA ships involved in the Malayan Emergency anti-terrorist campaign and the Vietnam war to seek similar benefits to those awarded to their Army and Air Force colleagues.

Incredible though it may seem, satisfaction has not yet been achieved although the inquiry due to be completed on 31 December 1999, conducted by Major General the Honourable R. J. Mohr, with the assistance of retired Rear Admiral Phillip Kennedy, will probably be the last of several inquiries into what appears to be a relatively simple issue.

One can only hope the activities of sailors, soldiers and airmen undertaking specific tasks in the East Timor peacemaking engagement, do not become the cause of similar argument and bitterness at some future date.

Mr. Mervyn Cooper OAM QFSM

Several hundred people attended the funeral of Mervyn Cooper, President of the Tasmanian Division of the Navy League since 1981, who died in Launceston on 23 August 1999.

Apart from the Navy League, Mervyn Cooper was involved in a large number of Tasmanian community based organisations, almost always as president or an office-holder; he was in every sense a leader in his local community. This was recognised by the award of the Queens Fire Service Medals and the Order of Australia in 1979 and 1985 respectively.

In the Navy League Mervyn was fortunate to have his wife Joan as Honorary Secretary of the Division. In fact it was Joan who's tireless work kept the Navy League functioning in Tasmania especially in the north of the island State. Mervyn Cooper will be missed by his many ex-Navy and other friends but fortunately his wife will continue with her invaluable work.

Maritime Air Warfare for the RAN



A Standard SM-1MR leaves the rail of a Mk-13 launcher on one of the RAN's FFGs. SM-1 production stopped in 1985 which begs the question, 'how many SM-1 missiles are still available for the RAN to conduct medium ranged air defence tasks?' (RAN)

By Commander J.P.M. Shevlin, RAN

In a news release on 16 November 1999 the Federal President of the Navy League of Australia expressed concern at, amongst other things, 'the inability of the ADF, including Navy, to provide adequate air defence for deployed ADF units.' These comments struck a chord with many in Navy, the ADF and community who have recognised the looming gap in Australia's air warfare capabilities that will become a reality with the retirement of the last of the guided missile destroyers (DDGs) in 2001.

Against this backdrop, the Minister for Defence's announcement in late October 1999 not to proceed with the full scope of the planned ANZAC Warfighting Improvement Program (WIP) should be viewed as a positive development. The decision followed extensive studies by Defence and Industry which concluded that the proposed upgrade was not achievable within acceptable costs and risks for the capability improvement sought. Put simply, the studies confirmed that size does matter. They confirmed that the ANZACs, at 3600 tonnes, were too small to accommodate the planned capability enhancements without compromising system redundancies and denying the opportunities for future system upgrades.

The Minister's announcement to only proceed with a modified upgrade to the ANZACs' anti-ship missile defence and to explore other options for providing a long-range air warfare capability for Navy is therefore good news. It provides the opportunity to acquire a strategic defence capability that should serve the ADF well into the new millennium. A number of alternative options are being explored and the results of these efforts are expected to be provided to the Minister in the first quarter of 2000. However, it is not my intention to speculate on the possible

outcomes of this process here. Instead, I believe it is more appropriate to review why a maritime air warfare capability must be a critical component of tomorrow's ADF.

Extant Strategic Guidance

Australia's Strategic Policy (ASP97) was released by the former Minister for Defence in December 1997. ASP97 reaffirmed the fundamental requirement to maintain a balanced force noting that 'success in war will depend on having the appropriate balance of capabilities.' It stated that 'the task for Defence planners is to match actual capabilities and resources to the desired balance point' and noted that 'the balance would likely shift over time in response to a range of external factors, especially changing technology.' ASP97 recommended that priority should be directed towards 'the knowledge edge ... the effective exploitation of information technologies to allow us to use our relatively small force to maximum effectiveness.' Arguably, an effective maritime air warfare capability offers a practical example of the 'knowledge edge' at work.

The second priority was identified as 'defeating threats in our maritime approaches'. ASP97 asserted that, 'next to the information capabilities ... our highest priority is the development of capabilities to achieve that by defeating hostile ships and aircraft in our approaches.' Once again, this priority appears tailor-made for maritime air warfare capabilities.

ASP97 stated that 'defeating attacks against Australia is our core force structure priority.' It noted that 'maximising our self-reliant ability to defeat attacks on Australia is important because this capacity is central to our overall strategic posture.' Importantly, ASP97 also made specific

reference to the issue of posture. Indeed, it commented that this focus 'does not mean that we adopt a purely defensive strategy - our self-reliant posture may require us to undertake highly offensive operations in defence of our country. And it does not impose a ceiling on our capabilities - rather it sets the irreducible minimum capability that Australia needs to maintain.' Maritime air warfare capabilities must be part of this equation.

Current strategic plans seek to achieve strategic control over Australia's maritime approaches. This demands that the ADF is able to use this area for our purposes and deny its use to any would-be aggressor. Control of the air environment is an essential precursor for strategic control. This requires the capability to deny intelligence to the enemy, to provide warning to your own forces, to maintain a layered, defence in depth and, finally, effective command and control.

Parts of this equation will be satisfied by contributions from each of the warfighting Services: Navy, Army and Air Force. However, for a maritime island nation such as Australia, it is unthinkable that the modern fleet should not be at the vanguard of these efforts. A maritime air warfare capability provides the practical means by which this requirement can be satisfied. Australia's strategic geography demands such a capability. To suggest that command of the air could be achieved by air power alone is to deny the very real operational limitations of the Air Force's fighter force.

The string of bare bases in our north offers only an incomplete coverage of our northern maritime approaches. The availability of air-to-air refuelling would extend the patrol coverage but, even then, the outer limits of the patrol area would not bridge the sea-air gap west of Timor. Cognisant of the advances in missile technology and predictions that supersonic missiles could be seen in regional Defence inventories within the decade, accepting such an incomplete coverage would be unwise and imprudent.

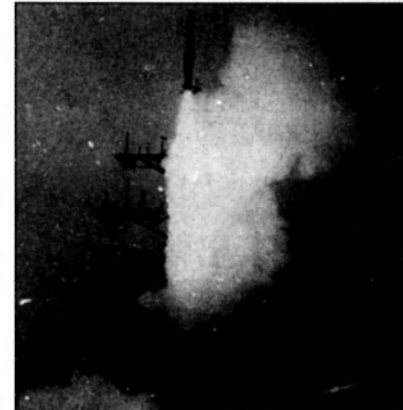
Maintaining an effective maritime air warfare capability in Navy would address this potential problem. Conversely, a fleet without this capability could impose significant limitations on the government's capacity to undertake maritime operations within reach of an enemy air threat and would introduce serious military risk should these operations nevertheless become necessary in circumstances we cannot yet foresee. It is therefore an essential capability.

Maritime Air Warfare Capabilities

What, though, constitutes an effective maritime air warfare capability?

In its rawest sense, air warfare is about being able to combat an air threat to ensure we are able to use the battlespace for our purposes. However, this is easier said than done. Maritime air warfare demands the employment and integration of a wide range of assets. From wide area surveillance and fixed wing air defence aircraft; to long-range surface-to-air missiles and complementary radar and sensor systems; to close-range point defence weapons and electronic warfare systems. It is about data fusion and information management. Put simply, it is about picture compilation. An effective maritime air warfare capability provides the means to take these separate pieces of puzzle and to merge them into a consolidated image.

Today, the ageing DDGs provide Navy with a limited air warfare capability. Their long-range air search radars



An SM-2MR missile is fired from the forward VLS of a USN Arleigh Burke-class DDG. The SM-2MR missile has a range of 74 km and can be used against ballistic missiles. (USN)

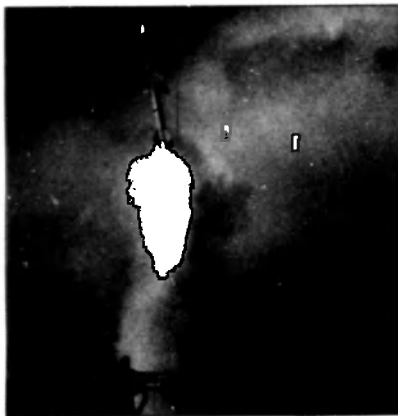
and electronic sensors and their ability to receive relayed surveillance and sensor information from other units give them situational awareness. The SM-1 missile, possibly employed in conjunction with a range of self-defence measures, provides the means to combat any likely air threat. However, the SM-1's operational range of around 25 miles is small and, critically, is less than the normal release range of many air-launched missiles which can be as far as 70 miles. Clearly, this differential must be reversed in our favour.

As already noted, the Air Force's ability to provide continuous combat air patrol cover in Australia's maritime approaches is limited. Its ability to do so in the littoral environment of the inner archipelago is even less. For the ADF to maintain operational freedom of manoeuvre within this environment - recognised as a credible area for future operations - demands that Navy retain a maritime air warfare capability. I would contend that the Air Warfare destroyer provides the best means of providing this core capability.

SM-2 missiles, operated in conjunction with an effective long-range three-dimensional radar, are an important part of the air warfare solution. They have a range of more than 80 miles and thus provide the means to combat enemy aircraft before they reach anti-ship missile (ASM) launch range. By so doing, they provide the Air Warfare destroyer with the ability to engage surveillance and strike aircraft at extended ranges and to deny them the freedom to use the air environment and the tactical information on which to base attack plans. This capability cannot be ignored. It demands attention and would require enemy aircraft to counter it thus diverting or distracting them from their primary attack mission.

The need to respond to the SM-2 threat would also deny the enemy accurate targeting information on which his own ASMs would be dependent. Their effectiveness would suffer. At the same time, the SM-2 would provide an effective means of engaging ASMs attacking other ships in company and could also offer protection to other critical ADF assets such as AEW&C and long-range surveillance aircraft.

A maritime air warfare capability built around SM-2 and long-range three dimensional or phased array radar, is an effective 'force multiplier' that offers the ADF real



An RIM-7 Sea Sparrow missile leaves a cell on HMAS ANZAC's Mk-41 VLS. The Sea Sparrow is a point defence missile and cannot provide the area defence needed by the ADF (RAN)

strategic benefits. A Task Group that includes an Air Warfare destroyer is able to be deployed more freely and is able to control its immediate air environment. This reduces the Task Group's reliance on fighter aircraft and would allow these aircraft to be released for other tasks or, alternatively, for their capabilities to be better directed where they can have the greatest impact.

Importantly, Air Warfare destroyers would also maintain the capability to effectively operate with US Forces and to make a notable and effective contribution to alliance operations. Mindful of our obligations under ANZUS and the desire to be viewed as a valued and reliable strategic partner, the Air Warfare destroyer would also provide Government with an appropriate, ready-made solution to future requests for Australian participation.

Opportunities for Future Growth and Development

A maritime air warfare capability does not come cheaply. The costs associated with it are a real challenge, particularly at a time when the ADF is struggling to come to grips with a forecast of long-term investment projects that is clearly unaffordable. At the same time, short-notice operational demands are increasing and the balancing act of resource allocations is becoming more daunting.

This reality was central to the decision not to proceed with the full scope of the ANZAC WIP. The planned upgrade simply did not represent value for money. It offered an effective medium-term air warfare solution but provided no opportunity for future growth and development. This must be a fundamental consideration if multi-billion dollar investments are to be supported. Such expenditure should not deliver an end but, rather, should be a part of a structured long-term strategy for maintaining required defence capabilities.

An Air Warfare destroyer provides this future growth path. Critically, SM-2, long-range phased array radars and Link 16 represent the core elements of current US plans to enhance the effectiveness of its surface fleet. The inclusion of these same systems in the Air Warfare destroyer would enable Australia to piggyback on these technological advances and, importantly, would retain the ADF's regional capability edge.

US efforts are currently focussed on what has been variously termed 'network-centric warfare' or 'cooperative engagement capabilities' (CEC). In simple terms this means sharing and distributing information in a seamless, integrated environment. CEC is designed to provide a clear, uncluttered, common airspace picture to facilitate faster reaction times to threats. It distributes sensor detections (radar and IFF) from and between equipped units where onboard processors generate a fused and continually updated air-space picture. The update rate and quality of this data is sufficient for a unit to achieve a fire control solution on a target and then engage it, without ever having detected that target with its own sensors. Effectively, CEC offers the potential to achieve a single force-wide distributed combat system.

Significantly, CEC also represents a primary building block for future Theatre Ballistic Missile Defence (TBMD). SM-2 Block IV+ missiles with their greater range and altitude ceiling offer a realistic avenue towards a capable TBMD capability. TBMD is currently outside the capabilities of all the world's air forces. Indeed, an Air Warfare destroyer equipped with SM-2 Block IV+ missiles could develop a defensive missile intercept envelope around a Task Group that is comparable to the level of protection now afforded by land-based fighter aircraft.

However, while fighter support is limited in range and is dependent on weather conditions and air-to-air refuelling support (among other factors over which Navy has no control) an Air Warfare destroyer can provide continuous, on-station control of the air environment. Whereas a full squadron of F/A-18s could be required to sustain around the clock combat air patrol cover for a Task Group operating in Australia's maritime approaches, one Air Warfare destroyer could do the same, for the same period - and further afield!

Conclusion

Air Warfare destroyers represent a highly desirable capability that would not only enhance ADF operational effectiveness but also reinforce the inherent flexibility and versatility of destroyers. I would contend that they not only represent value for money but must be a part of tomorrow's ADF. Maritime air warfare is a required capability. Air Warfare destroyers provide a practical and effective means of delivering it. They represent a 'force multiplier' capability and bring potential synergistic benefits to other ADF force elements. In any analysis, the Air Warfare destroyers are, unambiguously, a must-have capability.

Nevertheless, securing this capability for Navy will not be an easy task. The financial straits that Defence now finds itself in encourage insularity and have the potential to promote the re-appearance of single Service rivalries. To an extent this is understandable. No Service Chief wishes to relinquish capabilities. However, difficult times demand tough decision and give rise to innovative solutions.

The message should be loud and clear: a maritime air warfare capability is essential and Air Warfare destroyers provide the best means of providing it. This realisation underpinned the recent decision to reduce the scope of the ANZAC WIP and will hopefully also inform efforts now underway to identify a longer-term replacement for the air warfare capability provided by the retiring DDGs. Like the Federal Executive of the Navy League of Australia, I will follow this process with interest.

Indian Naval Expansion



The Indian Navy destroyer INS DELHI. The class has a considerable anti-ship capability previously only seen in the USN Iowa class BBs and Russian Kirov class cruisers (RAAF 92 WG, 1998)

By Neil Davis

The Indian Navy is currently undergoing a transformation with many new vessels expected to enter service in the next few years. By 2010 the Indian Navy will be able to dominate the Indian Ocean from the Arabian Sea to the Straits of Malacca. Its fleet will consist of aircraft carriers with supersonic MIG-29K fighters, at least one nuclear powered and armed submarine and long range anti-ship cruise missiles.

The Indian Navy's (IN's) prime functions revolve around its geo-strategic position in the Indian Ocean. Its functions include dominating the sea lanes around India, blockading Pakistan's ports in time of war, deterring Chinese and United States interference and providing an arm of the nuclear deterrent force.

The IN is a highly professional force of 53,000 personnel. This figure includes about 5,000 in the Naval Air Arm and 1,000 in the Marine Commando Force. It has a large, well balanced blue water fleet capable of protracted operations, as well as a very capable coastal force of missile armed corvettes.

After budgetary neglect for many years the Navy has suffered. The Navy has shrunk to just one old aircraft carrier, which is in refit until 2001, seven destroyers, 11 frigates and 16 submarines, of which three are old Foxtrot class submarines of dubious value. With the prospect of increased funding from the recently re-elected BJP government, together with previously announced projects, the IN is now undergoing expansion with many acquisition and construction projects already under-way or planned.

The Navy's current acquisition program is a combination of local construction, or indigenisation, and Russian built equipment. Self-reliance is the goal despite the fact it can take up to ten years to build a ship in India, such as the case with INS DELHI, and about three years to build in Russia. Where it is deemed desirable, Russian industry is used to fill gaps left by local construction. As a result, Indian industry has been very successful at integrating Russian equipment, usually weapons and propulsion, with local and western systems.

Submarines

India's 10th Shindughosh class submarine (a Kilo 877EKM class) has been launched in Russia and due for delivery in June 2000. These submarines are proving very popular amongst many navies. India's version is equipped with shoulder launched SA-N-8 Igla IR anti-aircraft missiles, permanently stored in the conning tower, to give them some protection from P-3 Orion type Maritime Patrol Aircraft. India has also acquired the P-10 Alfa supersonic cruise missile, known by its NATO designation as the SS-

N-27, which has a range of 1800km. Two of India's Shindughosh class submarines are fitted with the missile with all of India's Kilo's eventually being equipped, as will surface ships and aircraft. The Shindughosh class are equipped with six 533 mm torpedo tubes for 18 weapons consisting of a mix of Russian Type 53-65 passive wake homing torpedoes and TEST 71/96 anti-submarine torpedoes. Two of the six tubes are fitted for wire guided weapons with the other four having automatic reload capability.

Two new locally re-designed submarines, known as Project 75 are currently building at Mazagon Dockyard Limited in Western India. These are based on the four Shishumar (German 209 Type 1500) class of submarines already in service, and will have a tube launched missile capability for the SS-N-27 missile. The Indian Navy has approached the French Shipbuilder DCN for assistance in developing an underwater missile launching capability.

Design of a 6,000 tonne nuclear powered submarine with Vertical Launch Tubes capable of firing nuclear-armed cruise missiles is underway. The missile, known as the Sagarika (Oceanic) with a 300 km range is reportedly under development. The submarine, known as the Advanced Technology Vessel (ATV), will consist of five hulls, with introduction from around 2008. There has been considerable Russian assistance with the design of both the vessel and the reactor. The first keel is likely to be laid by 2002. The 190MW nuclear propulsion system is expected to begin testing at the Russian Kalapakkam atomic research centre in 2000.



The Indian Navy has announced it plans to purchase the Russian carrier ADMIRAL GORSHKOV and modify it to take MIG-29K fighters. The missile batteries located on the bow are to be removed and a ski jump installed.



The INS VIRAAT, ex HMS HERMES of Falklands fame, is currently undergoing a refit to keep her in service until her replacements arrive.

Aircraft Carriers

It was recently announced (*THE NAVY* Vol. 61 No. 4) that a 32,000 tonne aircraft carrier had been approved with work starting in 2000. By using a modular approach in building, it is expected to reduce the construction time down to six years. It will be 250 metres long and will have an angled flight deck and a ski jump allowing STOBAR (Short Take Off But Arrested Recovery) operations. While a navalised version of the Light Combat Aircraft (LCA) project could be included in the air-group, it looks likely that the MIG-29K will be selected. The air-group is expected to include 16 MIG-29K multi-role fighters and 20 helicopters. This ship will replace the Majestic class carrier INS Vikrant, which was decommissioned in 1996.

Negotiations are still progressing for the purchase and conversion of the 44,500 tonne ex-Russian Navy Kiev class VTOL aircraft carrier, ADMIRAL GORSHKOV to replace the INS VIRAAT (former HMS HERMES). A Memorandum of Understanding was signed between the two countries in 1998 that stated Russia was to provide GORSHKOV free of charge and India would pay for the conversion but in a Russian shipyard. It is expected that the conversion will involve the removal of the forward missile batteries and the fitting of a bow ski jump as well as arresting gear and other equipment to support STOBAR operations. The carrier could support up to 24 MIG-29K fighters and six helicopters.

For use on the two carriers orders have already been placed for four AEW&C Ka-31 helicopters. It is expected that both the AEW&C and ASW versions of the Ka-31 will be acquired. No deals have been struck yet regarding the MIG-29K, but it is believed that part of the deal for GORSHKOV includes purchasing the fighter. The MIG-29 is also in service with the Indian Air Force.

Destroyers

The third and final ship of the Type 15 Delhi class is due to be commissioned into the fleet in June 2000. These are the largest locally built ships of this type ever built in India and are exceptionally powerful destroyers. These 6,700 tonne DDGs are optimised for anti-air and anti-submarine warfare. They are armed with 16 SS-N-25 (Kh 35 Uran - 'Harpoonski') anti-ship missiles, a 100 mm gun, four 30 mm CIWS, five 533 mm torpedo tubes for the full range of torpedoes used by the IN submarine fleet and two SA-N-7

Gadfly SAM launchers for 48 Gadfly missiles with a range of 25 kms. The class also embark two Seaking ASW helicopters.

There are reportedly plans to modernise the five Rajput class destroyers with Ukrainian assistance. These 4,974 tonne destroyers were built in Russia during the 1980's and are based on the Kashin II class.

Frigates

Project 17 is the name given to this new indigenous frigate class. The first three of possibly 12 ships have been ordered and will start entering service from 2007. The others, following at approximately 1.5 year intervals. These 5,000 tonne frigates will have similar weapons systems found in the Delhi class but with improved ASW capabilities. They will also feature improved stealth features in their design. Some reports indicate that they could embark up to three helicopters of the locally designed Advanced Light Helicopter.

Three 4,000 tonne Improved Krivak III class frigates are being built in Russia. The current Chief of Naval Staff, Admiral Kumar, has said that construction is ahead of schedule and that the first ship will commission in 2001. These ships are expected to fill a gap in the fleet strength between the decommissioning of the Leander class frigates



The INS DELHI, first of three new DDGs.



A Godavari class FFG with embarked Sea King helicopter. Some of India's Sea Kings are fitted to take the British Sea Eagle anti-ship missile.

and until the Project 17 class frigates enter service. The IN's interest in these ships centre on their Vertical Launch Systems, hull design, stealth features and propulsion system. They are designed to primarily provide anti-submarine and anti-air defence of task forces and have facilities for two Seaking helicopters. They are expected to be armed with SS-N-25 or even SS-N-27 Alfa ASCMs (anti-ship cruise missiles) and the SA-N-9 SAM system. The Navy would also like to acquire three more which would most likely be built in India.

The Type 16A Godavari frigate program, a modification of the original three ship Type 16 Godavari class built during the 1980s, consists of three ships with the first delivered in 1999, and the others by 2003. The program had been delayed considerably due to problems integrating the locally designed Trishul SAM system. They are armed with 16 SS-N-25 ASCMs and expected to have a 76 mm OTO Melera gun. The ships are configured for ASW and embark two Seaking helicopters which also carry British Sea Eagle ASCMs.

Corvettes

For littoral operations the IN also has a large corvette construction program. The first of the 1,350 tonne Type 25A Khukri class, INS KORA, entered service in 1998. This design is a modification over the four earlier Type 25 class. A total of four ships are planned with the last one entering service in 2003. These are armed with 16 SS-N-25 anti-ship missiles, SA-N-5 SAM's, one 76 mm and two 30 mm guns. They also have a helicopter pad and carry one HAL Cheetak helicopter. They were intended to replace the aging Petya II frigates.

The last of the 455 tonne Russian designed Tarantul I class of 12 corvettes is expected to enter service in 2001. Four modified Tarantul I's have also been ordered. The original Tarantul's are armed with SS-N-2D Styx anti-ship missiles, SA-N-5 SAM's and one 76 mm and two 30 mm guns. The modified version will carry the Kh-35 ASM and will have an additional deeper deck.

There are also a number of other projects for small craft and support vessels.

If the stated programs progress as planned the fleet in 2010 should comprise the following:

- Sixteen submarines consisting of 10 Kilo class, four Type 1500 class and two Project 75 class. One nuclear powered submarine armed with nuclear tipped cruise missiles.



The Project 25 corvette INS KHANJAR. The newer project 25A class has 16 SS-N-25 ASMs compared to four SS-N-2 Sigs of the Project 25 (RAAF: 92 WG: 1998)

- Two medium sized aircraft carriers with MIG-29K fighters, Ka-31 AEW&C and ASW helicopters.
- Eight destroyers consisting of the three Delhi class and five Rajput (Kashin II) class.
- Twelve frigates including three Project 17, three Krivak III, three Type 16 and three Type 16A Godavari.
- Twenty-eight corvettes of four Type 25A, four Type 25, 16 Taranyul I and four Pauk II classes.

India is also negotiating with Russia to purchase an additional 6 Tu-142 Bear-F maritime patrol aircraft. These will be equipped with the SS-N-27 ASCM as well as Sea Eagles and SS-N-25's that are currently carried by the existing 11 aircraft. These large four engine turboprops are capable of flying from Bombay to Johannesburg and back unrefuelled.

Other IN expansion strategies consist of the construction of the largest naval base in Asia, to be built in Karwar in southern India. The government gave the go ahead to begin construction of the first phase of 'Project Seabird'. The base, to be completed by 2010, will have an airfield, a specialised shipyard and docks for maintaining warships. The purpose of the base is to ease congestion at the Navy's other two ports at Vishakapatnam and Mumbai.



For out of area operations the Indian Navy uses the commercially designed and built 35,000 tonne tanker: INS JYOTI (RAAF: 92 WG: 1998)



The Indian Navy large Offshore Patrol Vessel INS SARYU (Brian Morrison/Warships and Marine Corps Museum Int)

Conclusion

By 2010 the IN will not only be able to dominate and strangle Pakistan's sea ports, but it could also impact on the US Navy's freedom of operations in the Arabian Sea/Persian Gulf area. It would also be able to deny any freedom of movement to any Chinese incursion into the Bay of Bengal or Indian Ocean via the Malacca Straits. Its ships, submarines and long range patrol aircraft could operate off Australia's northern and western coasts with ease.

As India considers that China is its number one potential enemy, especially when China is increasing its influence in Bangladesh and Myanmar, the Malacca Straits could quickly become the focal point for future tensions and diplomatic activity. This area is clearly in the middle of Australia's zone of strategic military interest. As some in the defence establishment still justify our force structure on the premise that the RAN is the best Navy south of China and east of India, we could quickly find that the RAN is outclassed and out-gunned in almost every area of capability. Our naval task groups would not be able to operate effectively for long in any such environment. Without an adequately equipped Navy we could find that we could also lose the diplomatic battle for influence within the region.

Hatch, Match & Dispatch

Given the large number of ships due to launch (HATCH), commission (MATCH), and decommission (DISPATCH), we decided to create a photo record of these events as a regular feature, when we can. We hope you enjoy it.

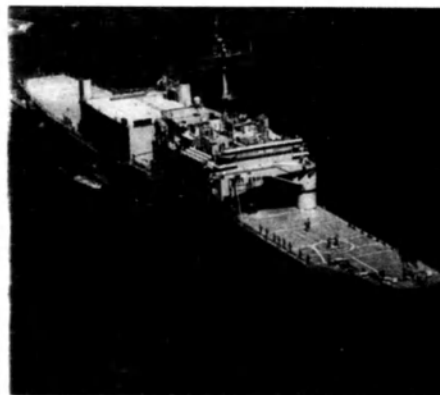
MATCH

HMAS MANOORA

In a brief ceremony at Forcacs, Newcastle, HMAS MANOORA was formally handed back to the RAN after extensive modification. Although not falling under the banner of MATCH in this section, given that she was commissioned sometime ago, we felt that as she is practically a new ship we should showcase her to our readers.

MANOORA and KANIMBLA have been rebuilt from their original Newport class LST configuration and fitted with a helicopter hangar amidships, capable of housing up to four Seahawk/Blackhawk size helicopters or three of the larger Sea King helicopters. The hangar is also high enough to accommodate a Chinook helicopter. The after helicopter spot is being expanded to a two spot deck capable of handling two Blackhawk sized aircraft simultaneously. A third spot on the forecastle is also available. This was been achieved by extending the deck 12 m and raking the stern.

Three dual-use compartments have been added on 03 deck providing a classroom and/or briefing room that seats 26, a chartroom with 15 work stations and a General Purpose room with another 10 workstations. These compartments can either be used as command and control areas for embarked amphibious forces, or for general training at sea. A boat deck has also been constructed on the port side for two 7.2 metre RHIBs (rigid hull inflatable boats).



HMAS MANOORA leaving Newcastle Harbour for the first time since modification (FORGACS)

To ensure enough space is provided for either the forward operating helicopter or for the carriage of two LCM 8 class landing craft, the ship was modified by removing the 34 m bow ramps and horns. The deck area has been expanded by the addition of 'flaring' to the hull. A 70 tonne crane is installed forward of the bridge to launch and recover the LCM 8s.

The tank deck, accessed through the stern door, the ramp to the forward flight deck or the hatch on the after flight deck, provides 810 square metres of stowage space for vehicles and equipment.

A medical facility has been installed to provide initial surgery and allot medical support to personnel ashore. The facility contains two pre-operating tables, two operating tables, two post operation recovery beds and six high dependency, intensive care beds. Three existing embarked force mess decks have also been modified to provide a 32 bed low dependency medical ward. Medical equipment such as X-ray machines and surgical systems are permanently fitted, however, the personnel to activate the facility will only embark when required.

The extensive aviation facilities including bulk JP5 (aviation kerosene) storage, 1007 I and F band radars, IFF interrogators and transponders and a new flight control facility provide a cost effective platform for the training and exercising of ADF helicopter aircrew in shipborne operations.

An enhanced Command, Control and Communications (C3) capability has been installed. This allows progressive upgrade or operation of the system using a combination of fixed and portable equipment to support the embarked force commander. Equipment includes the Battle Command Support System (BCSS) and a mix of Navy and Army HF, UHF and VHF radios. The BCSS provides land theatre picture compilation with command and control systems for the embarked force commander. The BCSS has multiple outlets and is available in all embarked force planning and briefing compartments on 03 deck. Naval communications have been upgraded to RAN standard and the Army RAVEN Combat Net Radio have been installed.

Selected ship systems have been improved to provide greater operational efficiencies. One major change is all steam driven systems having been replaced with electric powered systems in areas such as water making, cooking and internal heating. This has necessitated the installation of a fourth generator. Machinery control systems have also been upgraded in many of the engineering compartments.

MANOORA conducted extensive harbour trials before leaving Newcastle for sea trials. It is hoped that the ship will be ready in time to relieve HMAS JERVIS BAY in the Timor Sea.

DISPATCH

HMAS PERTH

The Americans called her the "jolly green giant", her code name was "gunpowder" and her captain called her the "quiet achiever." She was PERTH, the RAN's oldest ship.

Her White Ensign was drawn for the final time on October 15 1999 as the 34-year-old Adams class destroyer was decommissioned.

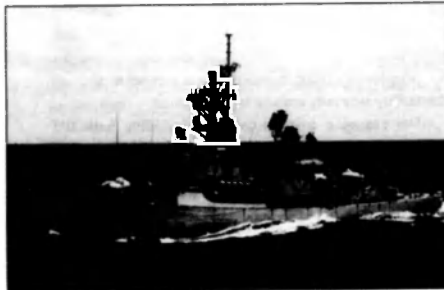
The sombre ceremony took place at Fleet Base East before a crowd of 250, among them VADM David Leach (rtd) who took her on one of her missions to the Vietnam War.

Another 300 officers and sailors quietly lined her rails and remembered their time aboard before they marched down the gangway for the final time.

"This is a proud ship with a marvellous history," the final commanding officer, CAPT Lou Rago told his ship's company and the general audience.

"We have been able to keep the dream alive. And we have been 'mission capable' right to the bitter end," he said.

He pointed out that despite her age (laid down in the Defoe shipyard in the US in September 1962, launched a year later and commissioned in July 1965) she "still has the



HMAS PERTH, during her last RIMPAC exercise 1998. (RAN)

grace to turn heads."

CAPT Rago said his ship will give up \$100 million in components which will go to other RAN ships.

One of her guns will be transferred to her sister ship HMAS BRISBANE to replace a weapon damaged by fire earlier this year.

Of 4,720 tonnes and 133 metres long, the steam driven warship usually carried a complement of 333 officers and sailors. She had a speed of more than 30 knots and saw service in the Vietnam War sustaining damage in a number of attacks.

She remained in Sydney until December and was then towed to Western Australia to become a dive site.

The Federal Government gave HMAS PERTH to the Western Australian State Government.

"Given her name, it is a particularly appropriate final destination for HMAS PERTH" said Defence Minister John Moore.

Two other Navy vessels have already been gifted to the State. The submarine, OVENS, is now a static display at the Western Australian Museum while SWAN is a dive site off Dunsborough. "Giving PERTH to Western Australia



PERTH's White Ensign is lowered for the last time. (Brian Morrison/Warships and Marine Corps Museum Int)

has the potential to provide another major boost to that State's economy." Mr Moore said. "In the first 12 months after SWAN was decommissioned and sunk, she attracted 10,000 recreational divers from around Australia and around the world."

The WA Government will establish an independent committee to consider the most appropriate location and use for PERTH.

The WA Government also met the cost of towing PERTH from FBE after she was decommissioned.

All systems and spares will be removed and used as cost effective spares to support Australia's other guided missile destroyers, HMAS HOBART and HMAS BRISBANE.

Potential contaminants will also be removed to ensure there is no negative environmental impact should the ship be used as a dive wreck.

Mr Moore said: "HMAS PERTH was Australia's first guided missile destroyer and she has served her country with pride and distinction. "During the Vietnam War, she completed two tours of duty with US forces, coming under heavy fire. "The ship was awarded the US Navy Commendation and the Meritorious Unit Commendation."

Although the Charles F Adams class PERTH will go, the name will continue with one of the ANZAC class ships



PERTH's crew march off their ship for the last time. (Brian Morrison/Warships and Marine Corps Museum Int)

ALONE ON GUADALCANAL

By Martin Clemens

Published by the United States Naval Institute Press

Enquiries re price and availability:

Border Books, 1/500 Chapel Street,

South Yarra Vic 3141

Phone 9824 2299

Reviewed by Geoffrey Evans

This is the story, told in old-fashioned "Boys Own", style of a young Cambridge educated Englishman who went to the Solomon Islands, a British Protectorate of more than 900 islands, as a cadet in the British Colonial Service in 1938. On the outbreak of World War II Martin Clemens attempted to join the armed forces but was instructed to remain in the Solomons. Following Japan's entry into the war in 1941 he was posted to the large and strategically placed Guadalcanal Island as District Officer where he established an important link in the chain of Coastwatchers reporting on Japanese movements.

When Japanese forces landed Martin Clemens retreated to the mountains and with his small but loyal team of Solomon Islanders — and his invaluable but cumbersome radio — lived and worked in the most primitive conditions until the American 1st Marine Division landed on the island in August 1942. Formally recognised, the little group continued to provide much sought after information on enemy movements to the Americans.

Due to the frequent use of unfamiliar place names readers would be well advised to study the maps at the back of the book before going too far into the text. The book is adequately indexed.

"*Alone on Guadalcanal*" is a reminder of the extraordinary hardship men and women can endure in the name of duty. It is unfortunate the book is not readily available in Australia.

Book Reviews

ATLANTIC ODYSSEY

By Michael Thwaites

The book is available from the author, Michael Thwaites,

49 Cobby Street, Campbell ACT 2612.

Reviewed by Harold Adams

Alfred Thayer Mahan, in his commentary on the Revolutionary and Napoleonic wars (1783-1815) observed 'that it was the storm battered ships of the Royal Navy upon which the Grand Army never looked that stood between it and its domination of the world.'

Almost one hundred and fifty years later it was the Royal Navy's flotillas of small storm battered ships, many hastily commissioned, that secured the Atlantic lifeline at a time when Great Britain and her Commonwealth Allies stood in defiance of the Nazi juggernaut which had conquered and enslaved the heart of Europe.

This is the story of one of those tiny ships which, without the benefit of radar and other aids and comforts, bucketed through storms and everything that Admiral Doenitz could throw at them and survived. Importantly she never faltered in her task of convoying and protecting her precious charges.

Barely 150 feet long, HMS WASTWATER was a converted whale catcher equipped with a 4' gun and ASDIC (nowadays called sonar). This is her story related by her 'Jimmy' or First Lieutenant, an Australian Rhodes Scholar who was commissioned into the Royal Navy Reserve at the outbreak of war in 1939. It is a very human story of personal tragedy, drama, courage and humour. It is no ordinary story because the author conveys, albeit in an unassuming and understated way, what it was really like. His descriptions of storm and tempest, cold and ice, heat and oppressiveness, are vivid and real. Above all the writing is as fresh as though this gallant little ship and her ship's company had just returned to harbour. At the same time it is not without genuine humour.

As the WASTWATER and her sister ship HMS BUTTERMERE steam towards the glitter of New York just weeks after the United States entered the war in December 1941, the gunner recognises the moment with a wry comment, 'Courage America, help is on its way!'

This little book is indeed a gem, a true sailor's story written with the sensitivity of a poet who at the time had been recently been awarded the Newdigate Prize for Poetry at Oxford University and later the King's Medal for Poetry.

Many who put to sea to keep the vital North Atlantic sea links open sadly did not return 'to enjoy the blessings of the land and the fruits of their labours'. It is our good fortune that Michael Thwaites did. His story has much appeal.

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 capability to defend itself, paying particular attention to maritime defence. Australia is, of geographical necessity, a maritime nation whose prosperity strength and safety depend to a great extent on the security of the surrounding ocean and island areas, and on seaborne trade.

The Navy League:

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

supported by strong research and design organisations capable of constructing all needed types of warships and support vessels and of providing systems and sensor integration with through-life support.

As to the RAN, the League:

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

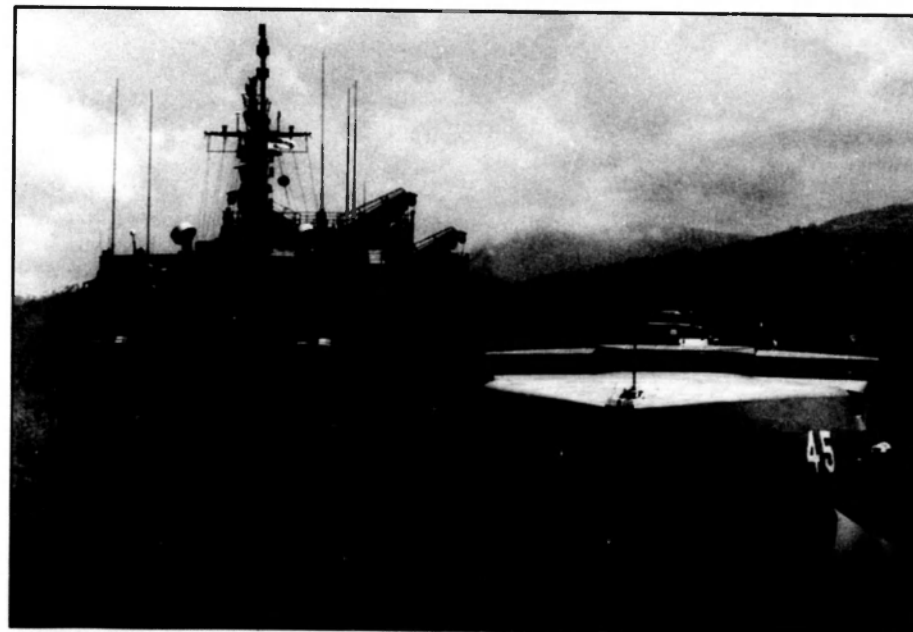
The League:

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

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



An Australian Soldier waves goodbye to the withdrawing TNI from Dili's dock. (Aust Army)



HMAS JERVIS BAY alongside HMAS SUCCESS being refuelled in Dili Harbour before her return to Darwin. (ABPH Phillip Hunt).



HMAS PERTH fitted with Phalanx CIWS, 1995 - RAN



An invitation to

PACIFIC

2000

THE MARITIME AND NAVAL EXPOSITION FOR THE NEW MILLENNIUM
1 - 4 FEBRUARY 2000 SYDNEY, AUSTRALIA

You are invited to attend
PACIFIC 2000
Australia's largest and most prestigious Maritime Exhibition

When: 1 - 4 February 2000

Time: Tuesday 1 February: 10am - 6pm

Wednesday 2 February: 10am - 6pm

Thursday 3 February: 10am - 6pm

Friday 4 February: 10am - 4pm

Where: The Sydney Convention and Exhibition Centre, Darling Harbour

What: The most comprehensive commercial maritime and naval defence exhibition ever held in the Asia Pacific region.

Why: An opportunity to network with more than 200 Australian and international manufacturers and suppliers (from 15 countries) as they demonstrate their products, services and capabilities.

Entry: Admission is free and exclusive to those with a professional or business interest in maritime, defence and related industries.

PACIFIC 2000 IS A DYNAMIC NEW INTERNATIONAL EXHIBITION WHICH WILL UNIQUELY COMBINE THE WORLD'S LATEST MARITIME AND NAVAL TECHNOLOGIES.



The first of its type in the Asia Pacific region, the exhibition will be a leading industry and professional forum, providing exhibitors, participants and visitors with a unique opportunity to meet international colleagues, potential suppliers and customers.

Pacific 2000 will promote Australia's considerable industrial and technological expertise as well as showcasing leading exhibitors from more than 15 countries. There will also be several thousand professional and industry visitors from around the world - with major contingents from the Asia Pacific region, the USA, United Kingdom and France amongst others.

Aimed exclusively at the commercial and naval maritime, corporate, government and defence sectors, Pacific 2000 is not open to the general public and will not include pleasure boating or recreational fishing displays.

Pacific 2000 will be the most comprehensive maritime and naval exhibition ever held in the Asia Pacific region. It will be an event that should not be missed.

CONFERENCES

Groundbreaking international conferences are being staged in conjunction with Pacific 2000, which will address a vast array of issues confronting commercial and military maritime operators into the new millennium.

The conferences will provide a unique forum for discussion of challenging topics such as international co-operation and shipping protocols, maritime defence and security, sovereignty over economic exclusion zones, maritime surveillance, commercial shipping, resource exploitation and policy.

The Sea Australia 2000 Conference will examine innovations in marine design, latest trends in port handling facilities, developments in international offshore operations and new legislation and safety requirements. Ninety papers from 16 nations will be delivered, featuring internationally renowned keynote speakers.

Sea Australia 2000 is being organised by the Institute of Marine Engineers, The Royal Institution of Naval Architects and the Institution of Engineers Australia.
Tel: +61 (0)2 9290 3366 Email: seaust2000@icms.com.au

The Royal Australian Navy will stage a two-day conference titled: *Fighting the Maritime War in the 21st Century - the Medium and Small Navy Perspective*. Featuring internationally-recognised speakers, it will cover issues including the navy of the next century, naval aviation, the naval role in expeditionary warfare and regional naval developments.

Tel: +61 (0)2 4429 7942

Email: David.Wilson.135076@navy.gov.au

The French Australian Chamber of Commerce will host a seminar on *High Technology and Research and Development*. The conference aims to foster contacts between the Australian industry and its French counterparts. Speakers will include top officials from the defence and commercial maritime sectors from the two countries.

Tel: +61 (0)2 9251 1033 Email: facci@acenet.com.au

The US-Australian Maritime Co-operation Conference will investigate the recent program of change that has revolutionised the United States' maritime industry. Speakers will include senior representatives from the US Departments of Commerce and Defence as well as the United States Coast Guard. Australian issues are likely to include the nation's fast ferry industry, a world leader in passenger and freight transport.

Tel: +1 703 760 0762 Website: www.ideea.com

For more information on the exhibition, contact Pacific 2000 on:

Tel: +61 (0)2 9806 9900

Fax: +61 (0)2 9806 9922

Email: expo@pacific2000.com.au

Website: www.pacific2000.com.au

For information on accommodation and travel to Sydney, contact our official agent on:

Tel: +61 (0)3 9682 6166 or 1800 818 538

Fax +61 (0)3 9682 8383





The Navy League of Australia

APPLICATION FOR MEMBERSHIP

HISTORICAL

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

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

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

MEMBERSHIP

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

OBJECTIVES

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

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

ACTIVITIES

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

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

Member participation is encouraged in all these activities.

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MARITIME WAR 2 I/PACIFIC 2000

THE NAVY

The Magazine of the Navy League of Australia

*Maritime Airpower
for Australia, Part 1*

*Submarine
back at sea*



*The new
face of Naval
Gunfire*

*The RNZN
in the next
century*

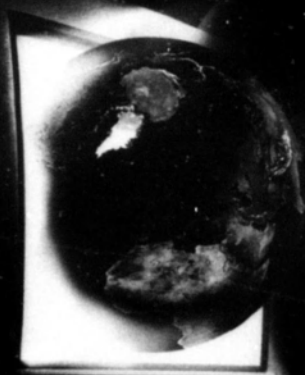
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THE NAVY

Volume 62 No. 2

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Front Cover: A computer generated image of wave piercing catamaran patrol vessel. (Computer Modelling Group, Naval Systems Command, RAN)

The Navy

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FROM THE CROW'S NEST

During last February at Sydney's Darling Harbour a naval conference entitled Maritime War 21 was held. It attracted the world's leading naval experts and provided a very interesting forum for their views and perceptions of the situation the RAN finds itself. The Federal Vice-President of the Navy League of Australia, RADM Andrew Robertson, details some of these insights in his article.

One of the more interesting insights was provided by two of the speakers, Dr Eric Grove and Dr Norman Friedman. It was interesting to hear them speak, separate, yet in complete agreement with each other, about the need for a navy such as the RAN to have an organic air capability, or loosely translated, an aircraft carrier. It was 'unfortunate' that when these speakers addressed the issue they were preaching to the converted, and not the authors of the new White Paper who had left for the day.



The new RN LPH HMS OCEAN. Notice the number of helicopters that can be accommodated on the deck alone (RN)

An aspect raised by Eric Grove was that less than five years ago nobody in the RN would have thought two 40,000 tonne aircraft carriers would be on the table to replace their INVINCIBLE class. The UK's new White Paper identified the need which is now being acted upon. This should give hope to the RAN but the constant government strangling of defence's budget, the anti-surface community within Defence, the military illiteracy of our local media and the scare campaign over the carrier question from the early 1980s will unfortunately not see the issue resurrected except in these pages.

Eric Grove's lecture on air support is reproduced in this edition with the permission of the RAN's Maritime Studies Program. It forms the first part of a series of articles on maritime air power for Australia.

A nail in the coffin of the RAN Carrier is the RAAF view that the FOB (Forward Operating Base) is a viable strategic option, also accepted by senior Defence strategists. This is despite the vulnerabilities of a large static air base that may not only have to be fought for, but built and then defended before support could be provided to deployed expeditionary forces. History demonstrates that air bases make attractive targets for commandos and

ballistic missiles as the best way to kill aircraft is whilst they are on the ground. The USAF has identified this as the lesson of the Gulf War for potential adversaries of the West. History also records more airbases being destroyed than aircraft carriers sunk.

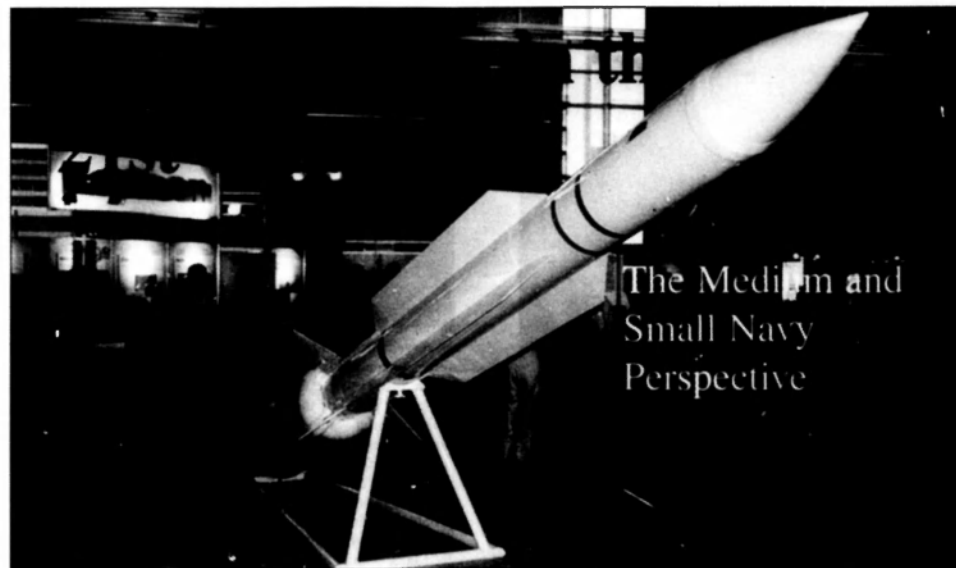
An example of how expensive this anti-carrier stance is can be seen in the LPA project. MANOORA and KANIMBLA. Had the RAN been allowed to explore the aircraft carrier option, without a permanent government gag on Navy investigating the issue, then the \$400 million for the LPAs could have been spent on a new light aircraft carrier similar to what the RN is introducing. HMS OCEAN was built using commercial standards for many design aspects and military specifications for others thus significantly reducing the cost. This light aircraft carrier, or LPH, carries more than three times the number of helicopters than the two LPAs with more troops, storage and support facilities in a new platform that will last three times longer and with \$80 million left over.

Another view to come from the Maritime Warfare 21 conference was the need for surface ships to branch out into offensive weapon systems. Currently, most of a warship's weapons and systems are embarked for self-protection. An article by Kevin Dunn examines the development of new technologies such as the United Defense Mk-45 Mod 4 gun and the Raytheon ERGM (Extended Range Guided Munition) which go a long way to re-instating the surface ship's offensive role. The new gun, which could be easily installed into an Anzac frigate, gives the ship a greater standoff range with conventional ammunition. Nearly 40 kms compared to 23 kms. The addition of ERGM allows the ship to apply precision firepower to a range of 63 nm or 116 kms using varying payloads with GPS accuracy.

Elsewhere in this issue we read about the re-emergence of the old Soviet era KIROV class nuclear powered guided missile cruisers. The re-introduction and modification of these four powerful battle cruisers along with Moscow's new Foreign and Military Policy will make them a planning consideration for any Western naval operation and give Russia 'stakeholder status' in the world's oceans. A SAC (Surface Action Group) centred on one or two Kirov's would be virtually impervious to all the ADF's assets except the submarines, which would be: A) hard pressed to find the group; B) virtually impossible to attack due to the group's speed; and C) almost certainly present an unachievable if not non-survivable situation.

The new government in New Zealand came to power with a very pro land forces policy. How this affects the RNZN is the subject of our final article. What it doesn't discuss is how this affects the RAN and ADF who have very close operational day to day links with the RNZN. A consequence of NZ's pro land forces stance is the need to transport troops and equipment by sea. If NZ is to provide a balanced force to Australia for the purposes of collective security then the addition of another amphibious warfare ship, HMNZS CHARLES UPHAM, at the expense of an Anzac frigate will provide an imbalance to any combined fleet operation. Given HMNZS CHARLES UPHAM's limited capabilities and the RAN's burgeoning amphibious fleet, TOBRUK and the two LPAs, another frigate would be a better option for NZ to bring to the collective security table.

Mark Schweikert



A Standard SM-2MR Block IVa on display at the Pacific 2000 exhibition. This missile, launched from ships via a Mk-41 VLS, can be used against aircraft, cruise missiles and Theatre Ballistic Missiles.

By Rear Admiral Andrew Robertson AO, DSC, RAN (Retd)
Federal Vice President, Navy League of Australia
Photos by Mark Schweikert

An important international conference on the future of navies, arranged by the RAN Seapower Centre, was held at the Convention Centre in Sydney's Darling Harbour on 1 and 2 February 2000.

It was conducted in conjunction with a three-day international conference Sea Australia 2000 organised by the Institute of Marine Engineers, the Royal Institution of Naval Architects and the Institution of Engineers Australia. This latter conference covered the latest developments and innovations in marine industries worldwide including fast transportation, innovative craft, and naval items such as the UK Trimaran warships.

Associated with these conferences was a showcase exhibition, 'Pacific 2000', in which many maritime firms and organisations displayed their products. This exhibition was the first in a series to be held biennially and organised by the Aerospace Foundation of Australia Ltd in the interests of promoting the development of Australia's industrial and technological resources.

Some 1,200 delegates from 26 countries attended the conferences, and industries from over 15 countries displayed their products.

The 'Maritime War 21' conference was opened formally by the Minister of Defence, the Hon John Moore MP, who concentrated on the industry aspects of defence and the 49 key initiatives which are being taken in this area.

There would be no further increase in defence funding this financial year, other than announcements already made. However, a close review of expenditure was underway and most importantly there would be a new White Paper on Defence to be completed by mid 2000.

Major issues to be tackled included more streamlining of decisions on the acquisition of equipment; more innovative policies for defence funding, including private financing; and acquisition and support would now be included in one organisation.

The first of two keynote addresses *Stating the Problem - Facing the Challenge* was given by Rear Admiral Geoffrey Smith, the Deputy Chief of Navy. He outlined the problem facing smaller Navies; the need to have no obvious weaknesses; the great pressure for Joint Forces; and the desirability of alliances, together with a capability for independent action. Emerging technologies would present significant advantages for smaller Navies.

The second keynote address *The Strategic Outlook* was given by Mr Hugh White, Deputy Secretary Strategy of the Department of Defence, and the author of the new White Paper, who started with the challenging and much agreed statement: *You never know what is going to happen!*

He outlined comprehensively the background to the world strategic situation of a century ago and compared this with today. At present no ideology, such as that espoused by the US Naval historian Mahan, dominated strategic thought. War at sea was, despite advances in technology, including the advent of ICBMs, still a very important aspect of warfare, and command of the sea was of immense importance.



Dr Norman Friedman of the US Naval Institute addresses the audience on the reason for CHSR. His comments during the Q&A sessions of other speakers proved very insightful and would have been valuable to the new White Paper authors.

International concepts of globalisation, world markets etc changed perceptions. The focus was now defensive. Maritime Power can support a stable Global Order. Technology is not as dynamic as it was 100 years ago, but it is nevertheless changing ways of fighting maritime wars.

Today there is one superpower with overwhelming maritime strength. This situation could last a long time and if so will change the shape of the international system. How, or whether, the US maintains its position will dictate the major strategic change of this century.

In Mr White's view, Asia will be the focus of maritime developments in the 21st century and these will depend on how Asian economies develop.

Much attention has been given in Australia to recent events including in East Timor, but lessons need careful evaluation. There is a need for a balance of current and future capabilities; a balance between maritime and land capabilities; a balance between war fighting and peacekeeping.

The challenge is to offer the Australian Government a range of options, but he couldn't imagine any option without heavy reliance on maritime capability. Australia faced the problem that it must deny its approaches to unfriendly sea and air forces, but what was the scale of threat to meet? What would be the future growth of forces in our region? What will technology produce in areas such as surveillance and targeting? What is the best balance of forces to contribute to future situations?

In answer to a question on the possible limitations to US power posed by the acquisition of nuclear weapons by China, India and Pakistan, he acknowledged the uncertainties which these developments posed.

During the conference, presentations were given by representatives from New Zealand, Canada, Malaysia, Holland, Japan and Singapore, including concern over the problems of interoperability, particularly in C4I with the USN, posed by rapid changes in technology.

Major Kum Chee Meng outlined the developments of the Republic of Singapore Navy with its small, heavily-armed vessels, and the close joint interoperability now achieved by Singapore's armed forces. (see Flash Traffic news item 'Six La Fayette for RSN').

Mr J N Mak of the Malaysian Institute of Maritime Affairs outlined the internal interoperability problems of the Malaysian Navy due to possessing ships and equipment from several countries.

He opened that the navies of South East Asia were not orientated for war fighting, but were regarded as constabulary forces. Singapore alone had a unique



The entire Exhibition Centre at Darling Harbour was taken up with defence and naval companies from around the world.

maritime strategy, and only Singapore and Vietnam took external threats seriously.

Of particular interest was an address by Dr Eric Grove, the Deputy Director of the Centre for Security Studies of the University of Hull in England on *Medium Navies and Organic Air*. He outlined the growing interest in aircraft-carriers of various types following experience in the Falklands and Gulf Wars, and in Bosnia and Kosovo. In this light the UK had changed its policy and had now approved the construction of two medium-sized carriers of advanced design.

The UK now considered that aircraft-carriers were of major importance, given the new emphasis on littoral warfare. Their advantages of near invulnerability in this situation: speed of response; likely freedom from the problems of overflying rights and the need for overseas bases; high rates of effort due to proximity to target areas; and their ability with escorts to provide area air defence for ground forces when far from allied air bases, made them most valuable assets.

The Indian Navy was likely to acquire the Russian carrier Admiral Gorshkov (see *THE NAVY* Vol 61 No.4) and was also building a carrier in India. China was thought to be considering acquiring a carrier and Brazil had just updated hers.

In recent decades Russia, Spain, Italy and Thailand had all acquired aircraft-carriers. France has built a new nuclear-powered vessel and Italy plans to build a 22,500 tonne through-deck assault ship.

Dr Lee Willett from the University of Hull and the Royal Navy Maritime Strategic Studies Institute spoke on *Cruise Missiles and Medium Navies*. He felt that these weapons with their range, power and precision provided an unmatched capability and constituted a very effective deterrent for use by medium powers. Submarines and surface vessels were most suitable launch platforms.

Though capital costs were not inconsiderable, through-life costs of these missiles were very small when compared with similar costs for manned high-performance aircraft.

It was, however, very important to be quite clear on the purpose of acquisition of such weapons.

Of considerable relevance to Australia was also a presentation by Sir Robert Walmsley, the Chief of Defence Procurement of the United Kingdom. He outlined the large British defence procurement programme (about A\$15 billion per year) covering new ships, aircraft and weapons.

New procurement systems and contracts had been put in place to save funds while preserving competition and speedy delivery, using private finance in numerous cases.

The UK was investigating the naval applications for new hull designs. Following initial research from 1991, DERA, an agency of the UK Ministry of Defence, is now conducting research into the performance of trimaran hullforms for warships.

A demonstrator steel-hulled, diesel-electric-powered research vessel RV TRITON, now under construction by Vosper Thornycroft Ltd, will be delivered for trials this year. TRITON displaces 1,100 tons, has a length of 97 metres, a beam of 22.5 metres, a speed of 22 knots and a crew of 12 civilians plus scientists. She will have a large flight deck capable of accommodating helicopters, Unmanned Air Vehicles (UAVs) and containerised equipment. The side hulls are about a third the length of the main hull. Various forms of propulsion can be fitted.

While current trials are for frigate applications, DERA will also study other roles such as for offshore patrol vessels, mini LPH, fast ro-ro deployment and air capable stealth vessels.

Commander Magnus Soderholm of the Swedish Defence Materials Administration spoke on *Smaller Ships* and gave an overview of the VISBY class of six corvettes now ordered for the Swedish Navy. These were fully stealth-designed high speed vessels of 625 tons capable of anti-submarine, anti-surface, minelaying and mine countermeasures operations. They were of carbon fibre construction with a PVC core and had a very low signature in all areas. In his view Sweden leads the world in this type of stealth vessel.

Commodore Timothy Cox, Director General Maritime Development, gave *An Australian View of Surface Warfare and Surface Combatants*. He felt that the RAN must be offensive. It must also now consider the impact of Theatre



From L to R: The Chief of Navy Vice Admiral David Shackleton; author and Federal Vice President of the Navy League of Australia; Rear Admiral Andrew Robertson (Rtd) and the Deputy Chief of Navy Rear Admiral Geoff Smith at the Maritime War 21 conference.



Our Editor, Mark Schweiken (left) with Managing Director of LOPAC Mr Stephen Youl. LOPAC represent, among others, United Defense who make the Mk-41 VLS and the Mk-45 naval gun.

Ballistic Missiles on naval development. With the phased withdrawal from service of the three DDGs the RAN had an urgent need for new ships with a high capability for Area Air Warfare. This demanded new long-range surface to air missiles with appropriate detection and control systems. A hull size of at least 8,000 tonnes would be needed.

Lieutenant Commander Michael Lupow, of the US Coast Guard spoke on *The Integrated Deep-Water System* of the US Coastguard. This was particularly relevant in view of the current debate on coastal surveillance in Australia and the number of agencies presently involved.

The US Coastguard is a formidable but costly organisation with two Ice-Breakers, 41 Cutters, 85 Patrol Boats, 1,500 smaller craft, 54 fixed-wing aircraft, 135 helicopters and six Port Security Units. Personnel number 35,000 with 8,000 reserves. The Coast Guard is responsible in peace-time to the Department of Transportation and in war to the US Navy.

Its main roles include Maritime Law enforcement, Search and Rescue, Environmental Protection and Defence. There are growing problems in the ocean areas with the effects of the world population explosion, declining fish stocks, the search for mineral resources and post-cold-war conflicts.

The US Coastguard now faces a major problem of mass obsolescence due to a shortage of financial resources over many years.

Other topics covered by the conference included Undersea Warfare, C4I and the problem of interoperability and a presentation on the *Joint Environment and the Littoral* by Army, RAAF and NAVY representatives.



On display at the Pacific 2000 exhibition was an artist's computer concept model of a trimaran DDG. The exhibition provided the biggest showcase of modern naval equipment in the South West Pacific region (DERA UK)

The Chief of Navy, Vice Admiral David Shackleton gave a final summing up, drawing together the many strands of maritime development and ideas.

The conference has, like its predecessors, done much to stimulate thought on development of the ADF and particularly its maritime elements, as well as cementing friendships with overseas organisations.

To the Navy League it was encouraging that the issues of Coastal Surveillance, cruise missiles, fleet integrated air power, area air defence, interoperability and new warship designs received prominence and discussion.

Australia is not currently threatened but it is arguably more exposed in a strategic sense and more on its own than it has ever been.

Possessing an advanced vibrant economy, nearly 19 million people and a trained work-force, Australia is expected to stand on its own feet in all but the most serious defence situations. It seems clear that this cannot be done effectively without an increase in the size and capability of the Australian Defence Force, which means the allocation of more resources. Defence cannot just be turned on and off like a tap, for many years are required to build ships, aircraft and other equipment and to recruit and train the required personnel for all arms of the Defence Force.

The pity is that our national media has taken little interest in these major international conferences and exhibitions which are of considerable relevance to our defence and maritime industries. How can Australians be reasonably informed in order to play their part in 'a home gift by sea'?

Maritime Airpower for Australia

Part 1



A F/A-18 Hornet passes the carrier USS CARL VINSON. (USN)

By Dr Eric Grove
Centre for Security Studies
University of Hull, United Kingdom

The definition of organic air power I will be using means air assets that are actually carried in ships. These assets can be fixed or rotary wing and the vessels that carry them either optimised for the task or have a more general capability of which the aviation component is a part, e.g. a frigate or supply ship. All this is fairly straightforward. A definition of medium navy, however is more tricky. Clearly a personnel strength of 40-50,000 and a range of capabilities including SSNs, SSBNs as well as aircraft carriers and a major amphibious squadron qualifies both the UK and the French in the top end of the medium fleets. Arguably this category also includes the Russians and the PRC. It then begins to blur as the nuclear powered submarines disappear. India, Japan and Italy all have navies with the same number of personnel as the British and the French and all have carrier type ships. It is perhaps best to put these towards the top end of our category which can then be brought down via Spain and the Republic of China to navies with strengths of about 10,000 and significant fleets of major surface combatants and submarines. Australia comes out about the middle of this group to which the rest of this paper will primarily refer.

It is part of the definition of a medium navy that it has at least some organic aircraft. Virtually all truly modern major surface combatants have at least one helicopter as part of their weapons suite: it is a key asset both for anti-submarine warfare (ASW) and countering fast attack and similar surface craft. In the latter role missile firing helicopters have decisively called the bluff of the missile boat that had its brief moment of glory from 1967 to 1991.

In the ASW role the active dipping sonar helicopter is even more useful than before with an increased emphasis on the conventional submarine threat in littoral waters. It seems strange now that the original specification for the new RN helicopter, the Merlin, did not include such capability. These users are extremely impressed with the performance of the AQS 960 dipping sonar that was added to supplement the sonobuoys of the original. Even the largest ASW helicopter can be embarked in a frigate designed for the purpose, while the supply ship also lends itself as a platform for such aircraft.

Helicopters are also vital components of amphibious capability in an era of Ship To Objective Manoeuvre (STOM). It is this that has brought even the Japanese MSDF to procure flat-top ships and helicopters, which of course form an important part of the capability of HMAS KANIMBLA and MANOORA.

There seems to be broad consensus that the helicopter is a natural organic component of fleets. Not so the ship based fixed wing aircraft. Indeed rarely has there been such controversy surrounding a military capability. The prophets of 'air power' (i.e. land based air power) have almost always tended to argue that ship based aircraft are unnecessary and expensive luxuries, especially when navies have been competing for scarce resources of funding and industrial capacity. Land based aircraft, these siren voices have argued, could carry out all necessary fighting functions over and from the sea as well as over the land. Moreover, aspersions have been persistently cast on both the cost-effectiveness and the vulnerability of aircraft



A RAF GR-7 Harrier lands on HMS ILLUSTRIOUS. The use of RAF aircraft from an RN vessel and mixing with RN Fleet Air Arm assets has been very useful and effective. (RN)

carriers. These arguments have had some success, especially both here and in the UK where existing carrier capabilities were abandoned, happily in the UK's case not terminally.

In the top end of the medium navies definition the tide has happily turned. Most operate at least one fixed wing aircraft carrier in either the CTOL (Conventional Take Off and Landing) mode with catapult and arrestor gear, STOBAR (Short Take Off But Arrested Recovery) mode with ski-jump and wires or Short Take Off and Vertical Landing (STOVL). Most seem agreed that the Chinese PLA-N plans to acquire a carrier of some type (probably a STOBAR ship) in the not too distant future and that helicopter carrying training ship/transport SHICHANG is but a preliminary step. Both European members of this group are either Commissioning or planning new ships, larger than their predecessors.

Some upper level medium navies also possess fixed wing carriers. The former British light fleet carrier is still not quite extinct in the shape of the Brazilian MINA GARAIAS with her recently updated A-4 air group and the last of the line, the Indian VIRAAT, with her Sea Harriers. Harrier type aircraft also equip the Spanish PRINCIPE DE ASTURIAS, the Italian GIUSEPPE GARIBALDI and the Thai CHAKRI NARUEBET (although she has reportedly not been to sea or operated aircraft for some time. Indeed, the status of the Thai Navy in this category is questionable in all but numbers of personnel. It does not operate submarines and has only four surface combatants fully fitted for helicopters).

Most of the above Navies expect to expand their carrier forces. India plans to purchase the former Russian ADMIRAL GORSHKOV with conversion to STOBAR

(see *THE NAVY* Vol. 61 No. 4). Brazil has plans for a replacement carrier in the 35-40,000 ton category and Italy plans to replace the 9,500 ton helicopter cruiser VITTORIO VENETO with a fully fledged 22,500 ton through deck carrier-assault ship planned to commission about 2007 to carry a mixed helicopter/Harrier air group.

What do these nations get for their investment? Captain Waite CSO (Operations and Capability) to the RN Flag Officer Naval Aviation put it well at a recent conference in London. "A carrier is not just a mobile airfield you simply move into a location and fly from. It has inherent mobility, which if used intelligently and in concert with a surge profile to deliver offensive air operations, provides the force commander with a powerful asset." Land based air is not always available. Captain Waite continued: "and you do not have to be far from the fighter bases to make such provision very asset intensive, dependant upon weather at fixed bases, and therefore unreliable. The advantages of carriers include the fact that cloud bases are usually higher over sea than over airfields; you never have a cross wind and you can manoeuvre your carrier to areas of good weather, in particular running before weather fronts then sprinting back through them to clear air on the windward side, thus minimising lost flying time. Finally if the weather is bad it is also bad for offensive operations against you. The situation where you have no organic fighter capability: the weather over you is gin clear, but the airfield providing your fighter cover is socked out is a very uncomfortable one. The only way you can guarantee fighter cover at sea is to have it with you". And he might have added, as shown in the Adriatic, the only way to guarantee air cover for forces ashore well within normal combat ranges of land based asset is to have a mobile platform that can avoid morning fog.

Too often the argument between ship and shore based air is put in either/or terms but this dangerously oversimplifies the situation. In many situations a mix of sea and shore based assets provides maximum flexibility to joint forces. A paper presented ten years ago would not have used the Adriatic as a proving scenario for carrier based aviation but British experience in 1993-4 did much to make the case for improved carrier capability in the Strategic Defence Review of 1997-8. When I visited her in 1994 only seven Sea Harriers in ARK ROYAL were providing not only a capability to fill in weather created gaps in the Allied air operation covering UNPROFOR ashore but also reassurance to the John Major government that there was a national asset capable of providing air support to British forces with no allied or UN 'strings attached'. This was a condition for the deployment of British ground forces, in a highly uncertain situation. ARK ROYAL was always kept in a separate national UK Task Group; her aircraft only chopped to NATO when they left the flight deck on agreed NATO Deny Flight offensive counter air or exercise close support missions. Purely national operations were a contingent possibility in certain circumstances.

I stress this example, as it demonstrates the utility of a small carrier with a small number of aircraft of limited capability supporting peace support operations in a politically confused and uncertain situation ashore where a country was breaking up. It does not require much imagination to transfer such a scenario to this region.

This is not to say that small is necessarily beautiful in carrier design. As in many things, to quote the Renault advertisement, "size matters". Bigger ships can operate more aircraft more economically. They are also less vulnerable as the increased chance of being found or hit is negligible compared to the proportionally diminished damage caused by any hit. Moreover larger ships need not be proportionately more expensive as to quote a phrase common in the UK at the moment "steel is cheap and air is free". On the other hand, the bigger the ship the more psychologically and politically difficult it may be for supporters to convince sceptical Defence establishments and cabinets that they are not suffering from delusions of grandeur. Even in Britain the RN's carriers had to masquerade as 'through deck cruisers' until the first entered service and all three were safely laid down. As Brazil demonstrates, one does not have to be a top level medium Navy to be in the market for a vessel in the 30-40,000 ton bracket as smaller ships of half the size can still be useful and, in some circumstances, vital. They are certainly better than nothing.

Even quite small carriers can put up impressive sortie rates. In the Gulf in early 1999 in the crisis over UNSCOM inspections, HMS INVINCIBLE with her joint air group of 16 aircraft, eight Sea Harrier FA-2s and eight Harrier GR-7s, was able to put two packages of eight aircraft over Iraq in each 24-hour period. INVINCIBLE, operating up-threat and closest to Iraq of all the carriers engaged, was providing up to a third of the mission packages in which her aircraft flew. As her commanding officer reported the Americans were most impressed at the sustained rate at which INVINCIBLE flew her aircraft.

As mentioned above the tactic of 'surging' can also be used to optimise the capabilities of a limited number of aircraft. As Captain Waite vividly explains, "gains in surge peaks should more or less make up for losses in the troughs when repair and maintenance can be carried out ... surge activity is most effective for offensive and power projection operations, the object here being to align the peaks of your activity with the key event; in the overall campaign plan. The concentration of force in time and space; another principle of war and a real battle winner if you get it right".

The reason INVINCIBLE was operating her aircraft in the Gulf was the unwillingness of most of the locals to give host nation support for the armed coercion of Iraq. The provision of land bases for shorter ranged aircraft cannot be taken for granted. Even if they are generally supportive of a mission politically, nations might be unwilling to allow their airfields to be used for strike missions against a neighbour. The threat of terrorism might be a consideration. More acceptable might be the operation of less visible support aircraft, notably tankers, in synergy with more combatant sea based air assets.

Aircraft based ashore on fixed airfields are vulnerable to a wide range of threats, conventional and unconventional. In many circumstances the safest place to be is on a mobile base at sea. I would now like to spend a little more time firmly knocking the myth of carrier vulnerability, such that it is, on the head. Aircraft carriers are not especially vulnerable things, certainly they are not vulnerable platforms compared to other types of warship - including submarines. Neither are they vulnerable

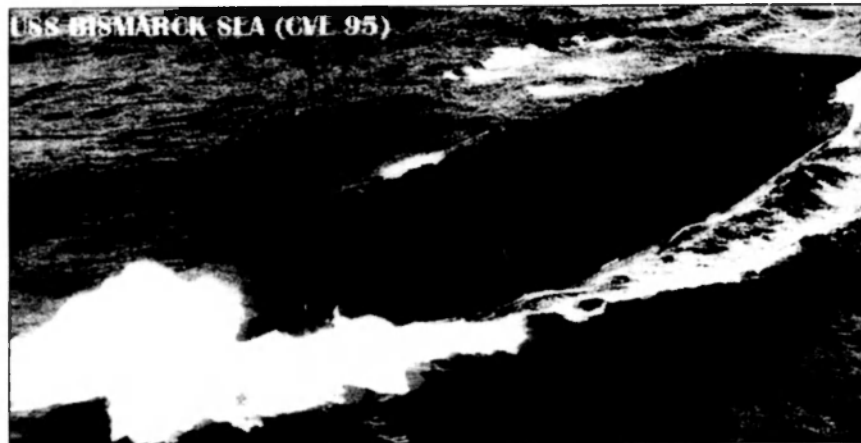
compared to aircraft. Although carriers have been heavily engaged on operations since 1945, the last carrier of any nation to be sunk was the Japanese AMAGI by air attack at Kure on 24 June that year. Her sister UNRYU had succumbed to submarine torpedoes in December 1944. By this time Japanese home waters had become a pretty hostile environment. In these circumstances it is perhaps of significance that three major Japanese carriers, HOSHO (the first), JUNYO and KATSURAGI survived the war to be used as repatriation transports. Moreover the giant SHINANO, lost to four submarine torpedoes because of deplorable damage control in November 1944 took no less than seven hours to sink.

The Americans did not lose a large carrier after HORNET in October 1942, which was less than a year into a fierce four-year conflict. Only one of the nine smaller INDEPENDENCE class carriers was sunk, at the Battle of Leyte Gulf in October 1944, and none of the seventeen ESSEX class fleet carriers commissioned before the end of the Second World War was lost, although most were heavily engaged and some badly damaged. Inevitably, the small escort carriers proved more prone to loss with six sunk to various causes out of a total of over 75 commissioned before the war's end (still, not bad odds compared to other platforms). Some of these CVEs took major Kamikaze hits and survived. Inevitably it was the smallest ships of the Casablanca class (11,000 tons) that proved most vulnerable, all but one of those lost coming from this group. US carriers have led active operational lives since 1945 but none has been sunk since the CVE BISMARCK SEA took a large twin engine Kamikaze 'Betty' bomber on the after elevator off Iwo Jima on 21 February 1945 (a very large anti-ship missile in anyone's language even today).

Carriers are robust because they can defend themselves in three dimensions and form the core fighting capability of any group of which they are a part. Although it is often argued that a carrier's escorts are only there to protect the larger ship this should not be overstated. Rather the entire group forms an integrated fighting unit in which the vessels provide mutual support. Surface ships without carriers are probably more vulnerable than carriers without surface ships. In relatively benign environments carriers can operate alone, without close escort, as British carriers usually did in the Adriatic in 1993-4. Moreover a carrier's fighters are not merely defensive armament protecting the ship. They are an anti-air warfare capability that can be



One of the UK contenders for the INVINCIBLE carrier replacement. The need for a 40,000 tonne carrier was a result of the last UK Defence White Paper realising the utility and need for such a vessel.



The Casablanca class CVE USS BISMARCK SEA was the last US aircraft carrier to be sunk. She fell victim to a large twin engine 'Betty' bomber in a kamikaze attack in 1945. Technically this represents a bigger anti-ship missile than any used today. (USN)

strategically offensive even if operationally defensive, as the Japanese found to their cost at the Battle of the Philippine Sea and as the Soviet Naval Air Force might have found out if the Cold War had gone hot in the 1980s.

As with all weapons platforms and systems the way they are operated has much to do with a carrier's vulnerability. The carrier has one fundamental advantage over a fixed airfield: as a mobile platform it is very hard to find. Captain Waite yet again puts it well: "The very nature of the sea may provide the bulk of your force protection for you, but only if you use it wisely and well. Unless you have to, do not operate very close inshore in a static location, where enemy reconnaissance cannot be denied. Ships over the horizon, properly handled are difficult targets both to locate and hit. Anyone trying to prevent you achieving your objectives will need an 'at sea warfighting capability' of some sophistication. The further over the horizon you are, the less predictable your movements, and the less time you spend in any one location, the more sophisticated that enemy capability must be. It may be that this is virtually all you need do to create a near benign environment from the less sophisticated air and surface threat".

Even if there is some danger of attack the carrier's mobility can be turned to advantage. Captain Waite once more: "Don't be there when that attack happens. Manoeuvre your carrier group within the battlespace so you are forward attacking the enemy during the peaks of your cycle and well back out of range during your troughs. Move in, punch hard, move out; conduct your maintenance and repairs, then reappear again at a time and place of your choosing and where least expected to hit him again. The timing of this cycle should be such as only to be forward and therefore vulnerable within the reconnaissance/decision/action cycle of the enemy. Unless he has a sophisticated and well practised war at sea capability, this is a very difficult tactic for him to counter."

The emphasis above on the level of capability needed to counter a properly handled carrier group is noteworthy. It might be doubted whether many nations in the Asia Pacific

region have the required combination of assets for effective anti-carrier warfare. Indeed luring weaker forces into the attempt at anti-carrier warfare might be a fruitful means of destroying them.

Carriers therefore offer secure mobility for their aircraft. Small to medium sized carriers generally operate one type of fighter attack aircraft. Currently these are Harrier derivatives in STOVL ships, and variants of more conventional aircraft in France's CHARLES DE GAULLE and Russia's KUZNETSOV. It is currently expected that the Harrier replacement in both Britain and with the US Marine Corps (who operate STOVL fighters from their flat topped assault ships) will be a STOVL variant of the JSF (Joint Strike Fighter). This is likely but far from certain for a number of reasons, not least the funding squeeze in the US caused by the existing F-22 and F/A-18 E/F programmes.

Ski jumps and the high thrust to weight ratio of contemporary fighters makes STOBAR operations a practical half way house between STOVL and the CTOL operations that more or less dictate nuclear power, at least if steam catapults are used. A STOBAR carrier might not need to be too large if size was a problem. Its aircraft could not be identical to land based variants of the same type but the cost of modification might not be too much (navalising EFA for STOBAR is currently estimated as less than five per cent of total cost per aircraft).

The trend, in any case is to maximum commonality of aircraft in joint air wings. The British have formed Joint Force 2000, a mixed force of RN Sea Harriers and RAF Harrier GR-7s, both of which will be replaced – if all goes according to plan – by the same JSF. Indeed there is nothing to stop the entire fixed wing component of the air wing being part of the Air Force if that prevents the latter service taking refuge in trenchardian ideology to kill the programme. There are some potential disadvantages in this, notably the lack of naval officers with fixed wing aviation experience but secondment of Naval officers to carrier squadrons might solve this. No-one is more aware than this author of the defects normally attributed a similar

system in the UK in the period 1918-39 but this period is still to be satisfactorily analysed historically for the lessons to be properly learned. Certainly the problems such as those the RAN faced in obtaining aircraft from the RAAF in the inter-war period need to be avoided at all costs. It is to be hoped that our experience with Joint Force 2000 can be turned to good account in vindicating the idea of Air Force units treating a carrier as another airfield. Navies and Air Forces must, if at all possible, shed their cultural prejudices – which are not all on one side – in the national interest. Organic maritime air power is potentially too useful and important to be sacrificed on the altar of service theology.

Any small carrier needs organic airborne early warning capability to operate its aircraft effectively. This can be provided on non-catapult ships by helicopter. The latest helicopters have both data links and overland search capability. Further improvements are planned with a possible MV-22 Osprey derivative allowing a pressurised cabin for higher altitudes beyond 10,000 feet. As with STOVL or even STOBAR capable fighters the expanding carrier market makes relatively cheap 'off the shelf' procurement a possibility for the upper level medium Navy.

I conclude with the obvious question at which I have already hinted. Should Australia have organic maritime air power beyond her existing helicopters? To my mind the answer is an unequivocal "yes". As her national anthem reminds her Australia is surrounded by sea which is her primary mode access to the region. A mobile self-contained air base that can move in this medium would give Australia's air power greater flexibility and deployability. Given the regional threat environment such a floating base

might well offer the greatest possible security for the deployed aircraft. The latter could be mixed and matched according to the mission required and they could come from whichever service was deemed most appropriate as is done with helicopters today. The growing fashion for maritime aviation will provide a number of assets that can be obtained off the shelf at relatively limited cost. Perhaps even a second-hand ship capable of being given a service life extension refit (the Invincibles spring to mind). A through deck ski jump ship added to the existing LPAs would provide an expeditionary whole that is definitely greater than the sum of its individual parts. A carrier type vessel would also enhance significantly the utility of the frigate and destroyer force that might have to be reduced a little in numbers over time to provide personnel for the extra ship.

East Timor may be only the first of a number of conflicts of Indonesian succession into which Australia cannot help but be drawn. The lessons of the Balkans are that carrier based air can be almost indispensable for peace support operations in such circumstances giving a range of contingent options to support – or evacuate – forces deployed ashore. A carrier type ship also gives opportunities to make contributions of greater political and military significance to coalition expeditionary operations in support of common western interests throughout the Asia Pacific region.

It will soon be fifty years since HMAS SYDNEY (III) made her vital contribution to the war in Korea. It would be an excellent way of marking the anniversary to make at least a commitment to the resurrection of a capability that it is surprising Australia has gone on so long without.



The Imperial Japanese Navy carrier AMAGI was the last aircraft carrier sunk since 1945. Here she has capsized in shallow water after beaching



The Russian CGN USHAKOV (ex-KIROV) executing a turn.

By Alexey D. Muraviev

The Russian Navy's desire to significantly enhance its blue water capabilities has brought about a plan to reintroduce and modernise its KIROV class Battle Cruisers. Alexey Muraviev examines the KIROV's second wind.

The year 1999 may become one of the most memorable years in the post-Soviet history of the Russian Navy. Reports from Russia suggest that three former KIROV class nuclear-powered guided missile cruisers, the most remarkable examples of the Russian Navy blue-water capability, will undergo refit and modernisation, with two of them being already towed to naval shipyards. They are: ADMIRAL USHAKOV (former KIROV), ADMIRAL NAKHIMOV (former KALININ), and the Pacific Fleet unit ADMIRAL LAZAREV (former FRUNZE). If the Russian Navy is able to get these three battle cruisers back into operation, its striking capabilities will be significantly improved, especially in the Pacific.

The development of the Kirovs

KIROV was the first Soviet nuclear-powered surface warship. Known as project 1144.1 (codename Orlan) the ship was developed as a nuclear-powered combatant with powerful strike capabilities, capable of sustaining independent long-range operations. The idea to build a nuclear-powered surface strike warship reflected the desire of the Soviet Navy to upset the unilateral monopoly of the seas, held by the United States after 1945. The design work began in 1968 and immediately gained full support of the Soviet military-political leadership, especially Admiral Sergei Gorshkov, the creator of the Soviet blue-water Navy.

Originally intended as a 8,000 ton vessel, armed with 6-8 missiles with a range of up to 150 km, the tonnage was later expanded to 20,000 tons. In 1973, the Baltic shipyard in Leningrad started the development of the first sections of the ship. In 1980, after trials in the Baltic Sea, KIROV, the first ship of the series of heavy nuclear-powered guided-missile cruisers (CGNs) was commissioned by the

Soviet Navy and transferred to the Northern Fleet. The second KIROV class CGN, FRUNZE, was commissioned in 1984, and was deployed to the Pacific in 1985. KALININ, commissioned in 1988, joined KIROV in the Northern Fleet. YURI ANDROPOV was launched in April 1989 and expected to be operational by 1992. The fifth ship of the series was laid down but later was scrapped before being launched in 1989. By the time of the collapse of the USSR, the Soviet Navy had three operational Kirovs (two in the North, one in the Pacific), with one improved CGN (Project 1144.2) under construction.

After the collapse of the Soviet Union, the construction of YURI ANDROPOV was virtually put on hold due to insufficient state funding. The maintenance and overhaul of major surface warships has become increasingly painful for the cash-strapped Russian Navy. In the case of the Kirovs, this problem got even worse due to the high cost in repairs and refit of the ships of this class. They are also very expensive to operate. As a result, by 1997, all Russian Kirovs, now known as the USHAKOV class CGNs, were placed in reserve. They were still accountable by the Russian Navy, though they remained non-operational. Western experts were almost certain that at least ADMIRAL USHAKOV and ADMIRAL LAZAREV would never go to sea again, and would be inevitably scrapped. They even doubted the future of the PIOTR VELIKII (former YURI ANDROPOV), commissioned by the Russian Navy in 1998 after almost twelve years of construction. However, by the end of 1999, the situation changed dramatically. In 1998, Commander-in-Chief of the Russian Navy Admiral Vladimir Kuroyedov approved a resolution to refit ADMIRAL NAKHIMOV. In August 1999, Nakhimov was towed to the Severodvinsk Severmashpredpriyatie where it is undergoing refit.

In July 1999, Russia's Vice Premier Ilia Klebanov, responsible in the Russian Government for the military-industrial complex, approved a proposal funding the overhaul and refit of the Pacific Fleet unit ADMIRAL LAZAREV. It is likely Lazarev will undergo major refit at the 178th naval repair plant in Vladivostok, also known as Dal'zavod. The plant is the only Russian naval facility in the Far East capable of refitting and modernising large surface combatants, including aircraft carriers.

However, the future of the first USHAKOV class cruiser ADMIRAL USHAKOV remained uncertain. The Navy was sceptical about allocating its scarce resources for the major overhaul and modernisation of the former KIROV, because unlike its sisters, Ushakov has non-standard armament and equipment. Nevertheless, Russian society and the political elite did not want to see the former pride of the Soviet Navy and the shipbuilding industry going for scrap metal. In March 1999, Russia's Federation Council (the Senate) and a group of deputies of the Russian Parliament supported the establishment of a special benefit fund to raise money for the Ushakov's refit. The initiative received such a positive response in Russian society that by September 1999, Ushakov was towed to the Severodvinsk shipyard Zvezdochka to undergo a major refit.

For the first time in the history of the Russian Navy, a cruiser will be repaired and modernised with finance provided by public contribution, not by the State. The completion of PIOTR VELIKII was also possible partially due to public donations.

It is expected that USHAKOV's three-year refit will cost approximately 3 billion roubles with 10 million already being allocated for repair work. It can be expected that if the initiative goes well, the Navy may also make a contribution.

A Battle Cruiser

There is no doubt that the USHAKOV class CGNs occupy a special role in the order of battle of the Russian



KIROV (now USHAKOV) during the height of her first career in the mid 1980s.



KIROV at sea during the Cold War. This class of ship represented a very real and a credible threat to US influence over the world's oceans. (USN)

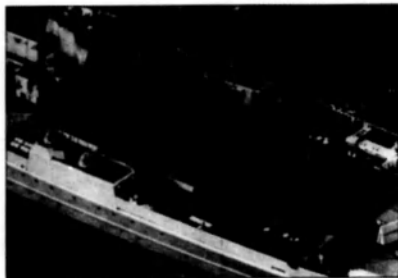
Navy, since the ships of this class were designed to engage enemy task forces in remote areas of the world's ocean. The ships of this class are the largest surface combatants (other than aircraft carriers) built since the end of the World War II. With a full displacement of over 24,000 tons, they have been labelled by Western experts as 'battle cruisers' due to their impressive size and heavy armament.

Similar in concept to the US Navy's cruisers, the Ushakov's also serve as group flagships. Ushakovs can also provide a defensive screen in high-threat environments through the employment of powerful layered anti-ship and air aircraft weapons. Project 1144.1/2 cruisers were intended to destroy enemy SSBNs (nuclear powered ballistic missile submarines) and large surface combatants (mainly aircraft carriers), and to escort convoys and amphibious forces and were optimised for surface strike operations in various environments.

The main armament of the USHAKOV class cruiser consists of 20 3M 45 Granit (NATO designation SS-N-19 Shipwreck) supersonic surface-to-surface high diving cruise missiles, installed below the upper deck and mounted at a 60 degree angle. The 3M 45 cruise missile has a range of over 500 km, and is armed with either a 750 kg high-explosive conventional or 350kT nuclear warhead. The missiles exchange targeting data in flight for greater accuracy and kill probability. If the lead missile is destroyed the next automatically takes on the lead role. Granits can also resist hostile jamming countermeasures.

The USHAKOV class CGN is capable of maintaining its combat potential via its sophisticated layered air defence (AD) system. The AD armament comprises two vertical launch missile systems. An S-300F Rif (SA-N-6 Grumble) AD underdeck missile complex is installed on the ship, with 12 launchers containing 96 vertical launch SAMs, capable of intercepting airborne targets at altitudes ranging from 25 m to 30,000 m and out to 90 km. PIOTR VELIKII is equipped with the modernised S-300FM Fort FM complex. The AD armament also comprises 2 Kinzhal (SA-N-4 Gecko) underdeck twin launchers with 40 vertical launch missiles, capable of engaging targets at a range of up to 1.5-12 km at altitudes between 25 m and 5,000 m. The cruisers AD and anti-missile defence comprises two Kashtan missile/gun CIWS (Close In Weapon Systems), two command and six combat modules. The system can engage up to six targets simultaneously, one target for each combat module. The point defence missile's range is between 500 m-8,000 m and the 30 mm gun 500 m-5,000 m.

The ship's defences are also supplemented by one multipurpose 130 mm twin gun mount (AK-130-MR-184 artillery system) with a range of up to 29 km and the maximum fire rate of 35 rounds per minute.



The heart of the KIROV's massive anti-ship capability lies in the 20 under deck launchers SS-19 Shiva supersonic anti-ship missiles. (USN)

The antisubmarine warfare (ASW) capabilities consist of a combination of ASW torpedos, missiles and ASW rocket systems (Udav-1 with 40 anti-submarine rockets and two RBU-1000 anti-submarine rocket launchers with 102 rockets). Three Ka-27pl Helix ASW shipborne helicopters, capable of operating at a distance of up to 200 km from the ship, further enhance the class's ASW and SSM targeting capabilities.

It can be anticipated that the Project 1144.1 ships, USHAKOV, LAZAREV and NAKHIMOV, may be re-equipped with advanced electronics and new AD capabilities already found on PIOTR VELIKII.

If plans to bring the three USHAKOV class CGNs into operational status come to fruition then changes in the composition of their deployment may also occur. In particular, PIOTR VELIKII may be transferred to the Pacific. Currently the Russian Pacific Fleet has two missile cruisers in its order of battle: the non-operational ADMIRAL LAZAREV and the Moskva (ex. Slava) class Varyag (Table 1.). Both ships are based in Fokino (Shkotovo-17) naval base, situated some 65 km south of Vladivostok, principal home-port of the Fleet's large surface combatants.

Table 1.

CURRENT AND POSSIBLE FUTURE DISTRIBUTION OF THE RUSSIAN MISSILE CRUISER FORCE AMONG THE FLEETS

FLEETS	ASSIGNED CRUISERS	
	1999	2003
NORTHERN	4	3
	ADMIRAL USHAKOV ADMIRAL NAKHIMOV PIOTR VELIKII MARSHAL USTINOV (Slava class)	ADMIRAL USHAKOV ADMIRAL NAKHIMOV MARSHAL USTINOV
PACIFIC	3	3
	ADMIRAL LAZAREV VARYAG (Slava class) PETROPAVLOVSK' (Kara class)	ADMIRAL LAZAREV PIOTR VELIKII VARYAG
BALTIC		
BLACK SEA	4	1
	MOSKVA' (Slava class) KERCH (Kara class) OCHAKOV' (Kara class) ADMIRAL GOLOVKO (Kynda class)	MOSKVA

non-operational/in reserve: - will become operational by this year.



PIOTR VELIKII is the only active and operational USHAKOV at the moment

PIOTR VELIKII, initially built for the Pacific Fleet and even manned with the crew from the Pacific, was anticipated to join the fleet by 1997. However, after sea trials in 1996 it was transferred to the Northern Fleet. The likely reason for this transfer was the concern of the Russian military and political leadership about the weakening state of the Northern Fleet, in particular when both USHAKOV and NAKHIMOV became non-operational. The Northern Fleet has become increasingly important in the system of Russia's defence in Europe, especially after NATO's eastward expansion. But with the prospective return of USHAKOV and NAKHIMOV into operational service in two-three years time, the transfer of PIOTR VELIKII looks like becoming a reality. Still, the refit and the return into operation of only one USHAKOV class CGN, ADMIRAL LAZAREV, will significantly increase the combat potential of the Russian Pacific Fleet, by up to 17%.

If the plans to bring back to service of all the Ushakovs becomes reality, Russia will be able to retain a significant blue-water capability for some time. Ships of this class will probably stay with the Russian Navy until 2015-2020, when they will be replaced with a new-generation of missile cruisers (the "Squadron Surface Ship" project), design work on which is already underway.

*Reprinted with the permission of Jane's Intelligence Review.

Flash Traffic

Sovremenny arrives in China

The PLA-N (Peoples Liberation Army Navy) has taken delivery of the first of two Russian SOVREMENNY class DDGs.

late 1996 and is estimated to be worth US\$800 million. It is probably no coincidence that earlier in 1996 the Chinese faced off against two US CBGs over its live missile firings near Taiwan and that the Sovremenny's were originally intended as anti-US



China's new SOVREMENNY class DDG making its way towards China from the Baltic for the first time. (RAF)

The arrival of HANGZHOU heralds a significant leap in capability for the Chinese. The Sovremenny's more noteworthy armament consists of eight supersonic sea-skimming SS-N-22 'Sunburn' ASMs and two launchers for 44 SA-N-7 'Gadfly' SAMs, giving the Chinese their first area air defence capability.

The deal between China and Russia for the two ships was signed in

carrier platforms using the SS-N-22 'Sunburn'.

Both of the new ships were initially ordered for the Russian Navy but financial problems suspended work.

HANGZHOU will be joined at the end of the year by the second Sovremenny with talks already underway with Russian officials for three more.

WESTRALIA back at sea

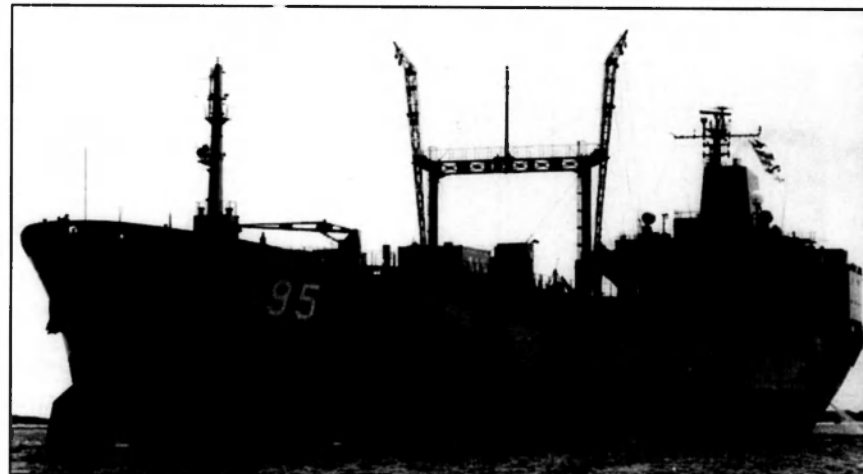
After 19 months alongside at HMAS STIRLING, the underway replenishment vessel HMAS WESTRALIA has rejoined the Australian Fleet. WESTRALIA completed contractor's sea trials off the Western Australian coast on 22 December and is now fully operational.

The ship was seriously damaged in a tragic engine room fire off the Western Australian coast on May 5, 1998, which claimed the lives of four members of the ship's company.

Big changes for Navy

VADM David Shackleton has announced that the Navy is about to embark on the most significant structural reforms since its formation. It will see the formation of seven Force Element Groups (FEGs) and a new command known as Systems Command.

Also announced was more responsibility for senior sailors. Warrant Officers and Chief Petty Officers are to be appointed as executive officers of the RAN's heavy landing craft. This plan may later be extended to the patrol boat fleet.

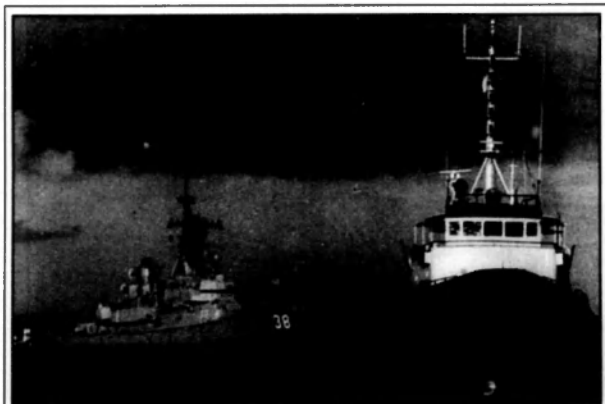


HMAS WESTRALIA back at sea after extensive repair work following a tragic fire on board. (RAN)

With the announced changes came a number of important senior command promotions. Other promotions were announced by signal around the same time. Those appointed to lead the new organisations within the RAN included: CDRE Mervin Davis as the commander of Naval Systems Command (COMNAVSYSKOM); CDRE Keith Eames as the Aviation FEG manager (AVNFEGMGR); CDRE Les Patakay as the Surface Combatant FEG manager (SCFEGMGR); CDRE Peter Clarke as the Submarine FEG manager (SMFEGMGR); CAPT Stephen Hooke as the Amphibious and Afloat Support FEG manager (AASFEGMGR); CAPT Gerry Christian as Patrol Boat FEG manager (PPFEGMGR); CAPT Geoff Geraghty as the Hydrographic FEG manager (HYDROFEGMGR); and CAPT Mike Angus as the Mine Warfare FEG manager (MWCDFEGMGR).

Other important changes announced include the rolling together of the Personnel and Training organisations under CDRE Louis Rago (DGNP and T).

The aim of this move is to more closely align training and personnel management. Navy Headquarters will be reorganised, placing a greater emphasis on strategic issues, and there will also be changes in Maritime Headquarters and in Support Command.



The former HMAS PERTH being towed from Sydney for the last time. Much of her equipment was removed for use on the two remaining DDGs. (Ian Edwards)

As well as structural changes, a number of other initiatives have been implemented as a result of the work done by the Tomorrows Navy Team (TNT). CAPT James Gault is developing a business case to move to class basing over the next decade as the FFG's are refitted in Sydney.

The primary reasons for class basing are to provide more stability for Navy families and centres of excellence for each class.

A new team has been formed in NHQ to look at personnel issues. The Personnel Action Team (PERSAT), under the guidance of CAPT Marcus Peake, is looking at ways to reduce the Navy's wastage rate and increase recruiting levels. The PERSAT is mainly looking at issues concerning job satisfaction and working levels.

The TNT has now completed its work and has handed over to the Tomorrows Navy Program led by CAPT Simon Woolrych who had been with the TN Team since its inception.

The former members of the TNT will have key roles in the new Navy organisation.

CDRE Lee Cordner will lead the new Strategic Policy and Futures Branch within NHQ. CAPT Drew McKinnin will lead the new Naval Certification and Safety Agency within Systems Command.

CAPT Malcolm Wright will be the Director for Business Process Improvement in NHQ.



The Gloucester Cup presented to Capt Russ Crane, CO HMAS SUCCESS, by the Governor General Sir William Dean (RAN)

CAPT Nigel Perry will head up the new C4IEW (Command, Control, Communications, Computers, Intelligence, Electronic Warfare) branch in Systems Command and LCDR Sue Scott returns to DIO.

WOCMSM Greg Stroud will provide the continuity from the TNT and has joined the TNP staff.

Among those to be promoted were CAPT Lee Cordner who becomes a commodore, as does CAPT Paul Greenfield. CAPT Lou Rago becomes a commodore along with CAPT Denis Mole. Other captains to become commodores are CAPT Syd Lemon, CAPT Ken Joseph, CAPT Les Patakay, CAPT Peter Clarke and CAPT Rowan Moit.

1999 Navy Awards

The 1999 Gloucester Cup, the award for the best operational effectiveness, has gone to HMAS SUCCESS (CAPT Russ Crane.)

HMAS ARUNTA (CAPT Greg Yorke) was runner-up while the submarine HMAS FARNCOMB (LCDR Greg Sammut) received a special mention.

The Maritime Commander, RADM John Lord announced the Gloucester Cup winner as part of a list of 1999 fleet awards.

Other awards were:

McNicol Trophy (air squadron efficiency): No 723 Squadron.

Kelly Shield (patrol boats overall efficiency): HMAS GERALDTON, runner-up HMAS GAWLER.

Kelly Shield (MCMV overall efficiency): MSA WALLAROO, runner-up MSA BANDICOOT.

LCH Proficiency Shield: HMAS BETANO, runner-up HMAS BRUNEL.

Hydrographic Excellence Shield: HMAS SHEPPARTON, runner-up HMAS BENALLA.

Otranto Shield for gunnery: HMAS ARUNTA, runner-up HMAS CANBERRA.

Voyager Trophy for ASW proficiency: HMAS DARWIN, runner-up HMAS ARUNTA.

EW Proficiency Shield: HMAS ANZAC, runner-up HMAS MELBOURNE.

AIO Shield: HMAS ARUNTA, runner-up HMAS ANZAC.

Collins Trophy for embarked flight proficiency: flight from HMAS SUCCESS, runner-up flight from HMAS SYDNEY.

Submarine Fighting Efficiency Shield: HMAS FARNCOMB, runner-up HMAS WALLER.

Commodore Wardle Cup for communications proficiency: HMAS MELBOURNE, runner-up NAVCOMSTA Darwin.

Wormald Shield for NBCE proficiency: HMAS ARUNTA, runner-up HMAS DARWIN.

Combat System Proficiency Shield: HMAS MELBOURNE, runner-up HMAS ANZAC.

Australia Cup for marine engineering efficiency: HMAS DARWIN, runner-up HMAS HOBART.

Supply Excellence Award: HMAS ARUNTA, runner-up HMAS BRISBANE.

Silver Platter for excellence in food service: Major units HMAS ARUNTA, runner-up HMAS DARWIN, submarines HMAS OTAMA (no runner-up) smaller vessels HMAS BETANO, runner up HMAS GAWLER.



The RAN's first SH-2G(A) Super Seasprite. The helicopter is fitted with many defensive systems that one would expect to find in an army battlefield helicopter, not a naval helicopter. Armed with two Penguin anti-ship missiles the RAN Super Seasprite is a potent littoral warfare weapon. (Kaman)



A RAM missile leaves its launcher and streaks towards its target (Raytheon)

RAM Ready

The US-German RAM (Rolling Airframe Missile) Block I is now ready to enter service after extensive modifications and testing by the USN.

RAM is produced by Raytheon Missile Systems in the US and the German RAM System GmbH consortium. It is used as an inner layer fire and forget missile interception system to counter threats such as Exocet, Harpoon or Sunburn at up to 5 kms away.

The original Block 0 missile, currently in service with the US and German Navies, used a dual RF/IR seeker to intercept its target. This dual seeker would home in on an incoming missile threats own radar and heat source in order to achieve a kill.

Although providing greater accuracy against ASMs (Anti-Ship Missiles) some criticised RAM as it required the incoming threat to be emitting radar energy for the final terminal phase of the interception.

To alleviate this deficiency the Block I variant was fitted with a new IR seeker which can conduct ASM interception without the target using its radar. The new seeker head also provides better interception of crossing targets as well as the capability to engage fixed and rotary wing aircraft.

During the USN's test, 23 of the 24 test missiles used successfully intercepted and destroyed their targets. The test conducted on the RAM Block I is considered one of the most rigorous ever conducted on a ship self defence weapon system to date.

After the successful tests, Raytheon announced that the Republic of Korea Navy had chosen RAM for its new KDX-II destroyer program. RAM will provide the KDX-II with the middle layer of its layered defence against anti-ship missiles.

Raytheon's RAM was selected over two competing systems - the Israeli Barak and the French Crotale VT-1. Korea is the third country to purchase the RAM weapon system.

Under a direct commercial sale contract, Raytheon is to deliver RAM Block I, 21 round launcher systems beginning in 2001 and provide logistics, technical and integration services. The missiles will be procured at a later date under a separate contract.



The Canadian VICTORIA (former Upholder) class SSK may receive AIP in the future. (RN)

Pakistan to sell new Subs in region

Hot on the heels of the arrival in Pakistan of its first Agosta 90B SSK, Pakistan has announced it intends to commercially build and sell new Agosta 90B submarines to the region. It is understood three Asian countries have expressed interest in new build submarines.

The original deal with DCN of France was for three submarines, one built at DCN's facility in France (see *THE NAVY* Vol 62 No.1) and two built in Pakistan. The deal also called for significant technology transfer to Pakistan.

Three more submarines are expected to be built for regional customers under license from DCN and with DCN assistance in Pakistan.

Swede's progress with Mk 3 AIP

Kockums Naval Systems of Sweden has signed a deal with the Swedish Navy to back fit the next generation of AIP (Air Independent Propulsion) into two of its submarines.

The new Mk 3 Stirling AIP system is to be installed into two VASTERGÖTLAND class (A 17) submarines giving the Swedish Navy a total of five AIP equipped SSKs.

The Mk 3 Stirling engine is a development of the Mk 2 installed on Sweden's new GOTLAND class

(A 19) submarines (see *THE NAVY* Vol 62 No.1). The Mk 3 burns a 1:4 mixture of diesel fuel and LOX (Liquid OXYgen) in a circular combustion unit to provide power for nearly 20 days of submerged operations at slow speeds.

Work on the Mk 3 installation is expected to be complete by 2003.

ANF delayed

France has delayed production of its new ASM (Anti-Ship Missile) as it believes the threat posed to its ships by others does not warrant the new high cost weapon. The ANF (Anti-Navire Futur) was to be powered by a liquid fuelled ramjet engine giving it supersonic speed and a range of 150 km. Over 200 missiles were to have been supplied at a cost of US\$615 million.

Ministry of Defence officials stress that the project can be resurrected in the future but only if the need arises and or stocks of existing Exocets are depleted or retired. The MM 40 Exocet was to be withdrawn in 2005 to make way for the ANF. Instead, the French Navy will extend the life of the MM 40 Block 2 missile to a date to be fixed.

Officials at Aerospatiale-Matra hope that the Ministry of Defence will change its mind as they have no plans to further upgrade the Exocet which has been in French service for over 20 years.

Mk-48 for Victoria SSKs, and AIP?

The RCN has decided to upgrade the fire control systems on its four VICTORIA class submarines (ex-RN UPHOLDER class). The current fire control system is configured to fire British Tigerfish torpedoes. The new system will allow the RCN to use its existing stocks of the US Mk-48 torpedo.

The upgrade will also include new standardised communications and cryptography suites taken from the decommissioning Oberons and other RCN vessels. The first sub is due to be completed in July 2000.

The RCN continues to explore the possible retrofitting of AIP to the four submarines and has defined the AIP requirement as 20 days of submerged

endurance using a hybrid AIP diesel power plant or 30 days patrolling at four knots with a standard AIP plant.

USN plans new carrier catapult

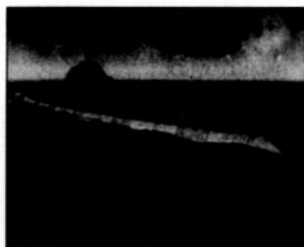
The USN plans to phase out its aircraft carrier steam catapult systems and move to an electrically powered catapult.

The new catapult will enable significant reductions in weight, volume and manpower requirements. These advantages may see a return to CTOL (Controlled Take Off and Landing) as the preferred method of launch and recovery on smaller aircraft carrier designs such as the RN Invincible class.

Northrop Grumman and General Atomics have both been awarded contracts for project definition studies into the new aircraft launching system. Both companies will develop a land-based prototype that will use a 93 m linear motor to accelerate a 45 tonne aircraft to over 130 kts and a lighter aircraft up to 200 kts.

The new catapult will equip the new CVNX-1 aircraft carrier due to start building in 2006 and to enter service in 2013.

Electric Drive for DD-21



An electric drive system will power the USN's new DD-21 destroyer. (USN)

The US Navy has announced that the Land Attack Destroyer (DD 21) will be its first class of ship designed to be powered by electric drive featuring an integrated power architecture. The first of the DD 21 class of destroyers is expected to be in commission by the end of this decade.

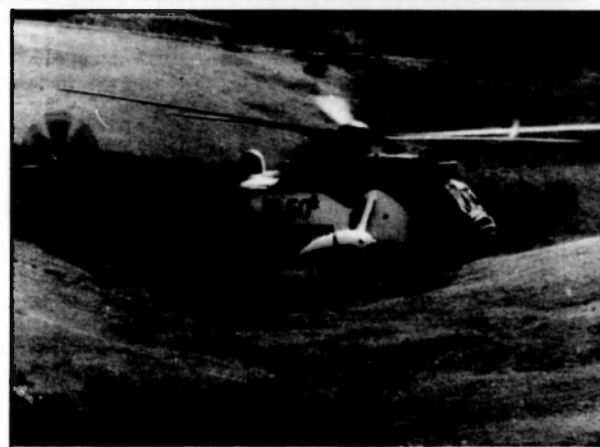
Underscoring the importance of using integrated power technologies, Secretary of the Navy Richard Danzig said, "Changes in propulsion systems fundamentally change the character and power of our forces. This has been shown by the movement from sail to steam or from propeller to jet engines or to nuclear power. Electric drive will reduce the cost, noise and maintenance demands of how our ships are driven. More importantly, electric drive, like other propulsion changes, will open immense opportunities for redesigning ship architecture, reducing manpower, improving shipboard life, reducing vulnerability and allocating a great deal more power to warfighting applications."

Major benefits related to electric drive are derived in two areas, warfighting capability and quality of life for sailors. In terms of warfighting, this technology represents significant increases in stealth capability through signature reduction, and a large increase in available power that is seen as critical to future weapons systems that will be aboard Navy ships. Electric drive technology also represents great potential to improve the quality of life for embarked sailors. It will free up large amounts of internal space, leaving room for significant habitability improvements.

The key design element of integrated power and electric drive is a single source generator for the requirements of all ship's power needs, including propulsion. One of the most attractive elements of the design is the resultant elimination of the drive shaft and reduction gears found in traditional Navy ships. The Department of the Navy decision to team DD 21 with electric drive for its propulsion comes after careful consideration among several possibilities studied by the two contractor teams involved.

Six La Fayette FFGs for Singapore

In an unexpected move, Singapore has announced it is buying six French built La Fayette FFGs. The announcement has taken many by surprise as it was not known



The RAN's 817 Squadron is celebrating its 50th anniversary. To mark the event, one of their Sea King helicopters has been specially painted to commemorate 50 years of squadron service. (RAN)

Singapore was in the market for such vessels.

Details about the ships intended weapon, sensor, helicopter and systems are yet to be released, but it is known that the ships will be partially scaled down versions.

This is the fourth nation to buy the stealthy French ship along with France, Taiwan and Saudi Arabia (see

Singapore chooses to arm and equip its FFGs with.

The Singaporean announcement indicated that the six La Fayette were replacements for six older missile patrol boats. However, six large FFGs will present a new challenge to the RSN (Royal Singapore Navy) as well as a massive boost to its current naval capability which will not go unnoticed in the region.

The ships will join the RSN's six Victory class corvettes, its three new large LHDs and its new submarines soon to arrive.

Six La Fayette FFGs would certainly present a credible counter to the PLA-N's Sovremenny DDGs.



A French La Fayette FFG. The addition of six of these high-tech stealthy warships into the RSN will significantly boost its at sea war fighting capability.

THE NAVY Vol 62 No.1). Each customer has specified a different fit out to the others. The French navy ships are armed with eight MM 40 Exocet, a naval Crotale SAM, a 100mm gun, ASW torpedoes and a large ASW/AsuW helicopter. It will be very interesting to see what

First Type 42 DDG retires

The RN has decommissioned its oldest Type 42 class DDG, HMS BIRMINGHAM.

BIRMINGHAM entered service in 1976 and was decommissioned at Portsmouth on 10 December 1999. Two of her sister ships, SHEFFIELD and COVENTRY, were sunk during the Falklands (Malvinas) conflict.

The Type 42s are becoming increasingly expensive to operate and their Sea Dart missile system is approaching obsolescence. The



HMS BIRMINGHAM is the first Type 42 DDG to retire. (RN)

retirement takes the RNs anti-air warfare DDG fleet to 11 ships despite the first Type 45 DDG replacement not due into service until 2007.

The UK MoD has stated that the remaining Type 42s will remain in service until late 2006 where they will then decommission at six-monthly intervals.

Super torpedo revealed

Information is slowly coming to light about a Russian developed rocket-powered 200 knot torpedo known as the Shkval.

Shkval is a rapid reaction counter-fire torpedo developed to protect Russian SSBNs during the cold war.

Given the Russian realisation that Western submarines were far quieter, and thus able to close with their Russian counterparts without long range detection, meant that the Russian's would lose vital minutes in counter detection and thus reaction time to the Western sub. The Western sub would thus fire at a greater range than Soviet sub could detect.

To remedy this sonar/reaction deficiency the Shkval was developed. It would be fired down the bearing of an incoming torpedo at a depth of 20m with a speed of 200kts to a distance of 8-10kms and then detonate its nuclear warhead, hopefully in the area of the attacking Western submarine.

The Shkval rocket motor is believed to burn for 90 seconds. The

passage of the Shkval in the water creates a super-cavitation bubble a few millimetres thick allowing it to pass through the water with little to no surface drag. Its range is thought to be approximately 10 kms but given that detection ranges and accurate targeting data could be difficult to obtain it would be fired at much closer ranges giving the target even less time to react.

Intelligence sources suggest that the Shkval-E version is thought to be a conventional anti-ship torpedo with a 500 lb warhead.

It is understood that China has purchased an unknown quantity of Shkval-E.

Bargain FFG for Turkey

In the wake of the Turkish earthquakes of August 1999 the US Government has agreed to sell the FFG-07 class frigate, USS JOHN A MOORE, to Turkey for US\$29 million.

The low price is half what the US was going to charge for the ship but agreed to a reduced price due to the Financial pressures on Turkey resulting from the earthquakes.

The price is the lowest the US Government is permitted to sell the ship under US law.

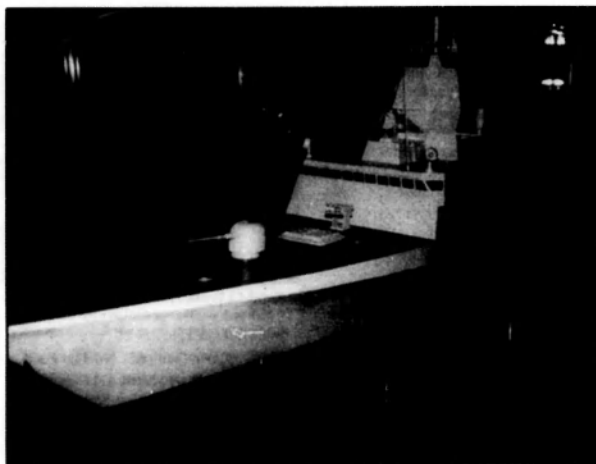
USS JOHN A MOORE is the sixth FFG-07 class frigate sold to Turkey.

BAZAN wins Norwegian frigate deal

Norway's government decided recently to award the Royal Norwegian Navy's New Escort vessel programme to a team led by Empresa Nacional Bazan, ending a protracted industry battle between the Spanish shipyard and its German rival Blohm+Voss.

The frigate design was recently displayed at the Australian Pacific 2000 exhibition.

The design is 132m long with a beam of 16.3m. It displaces nearly 5,000 tonnes and has maximum speed of 26kts with a crew of 146. Its most unique and advanced feature is the SPY-1F phased array radar. At least three frigates are expected to be ordered.



On display at the recent Pacific 2000 exhibition was BAZAN's now successful competitor for the Norwegian Frigate contract. This ship is stealthed and has SPY-1F radar system.

Navy League Award

The Chief of Navy, VADM David Shackleton, presented the Navy League of Australia National Efficiency Shield to T.S. HAWKESBURY at Gosford, NSW, on 21 November 1999.

T.S. HAWKESBURY was awarded the Peter Ballestry Trophy for the Most Efficient Unit in the NSW and ACT for 1999 and received the State Colour at a parade on Spectacle Island in July 1999.

Despite having to prepare for and be subjected to four inspections in five months, the enthusiasm and *esprit de corps* shown by the cadets of T.S. HAWKESBURY on the parade ground and whilst sailing earned them the highest accolade any unit can receive.

The unit is grateful for the support received from the community and especially ex-service organisations such as the Navy League of Australia.

The unit also notched up another first when cadets from T.S. HAWKESBURY were part of the commissioning ceremony of the new minehunter HMAS HAWKESBURY (see Hatch, Match & Dispatch) on 12 February 2000. The unit has developed a close relationship with the new ship since her keel was laid.



From L to R, SMN Kelly Hopper, PO Phillip Marsh and AB Craig De Vita with the Peter Ballestry Trophy and the Navy League of Australia Award. (Patrick Marsh)



INTERFET Fleet alongside in Darwin, Sun 16 Jan 2000. Bkgrnd: ITS SAN GIUSTO Frigate L-R: the Thai LST HTMS SURIN, the Portuguese MEKO class frigate NRP VASCO DA GAMA and HMAS MELBOURNE alongside Stokes Hill Wharf. (LSPH Tracy Casteleijn, DPAO Darwin).



Members of the INTERFET Task Force leaving Dili, East Timor. L-R: HMAS JERVIS BAY, HMAS LABUAN & LCM 8s with HMAS Melbourne in company. (LSPH Tracy Casteleijn, DPAO Darwin).



The USN command ship USS BLUE RIDGE in Dili Harbour

Observations

COASTWATCH – NO MORE INQUIRIES PLEASE

By Geoffrey Evans

Although most of its operations take place out of the public's sight and in some of Australia's most remote regions, few organisations have received such close scrutiny and media attention in recent years as Coastwatch.

Policing the country's main points of entry – established ports and airports – to prevent the entry of unwanted people, narcotics, illegal goods etc, has for long been established practice, officers of the Customs Department being the most visible sign of authority.



The new Customs service Bay class patrol boat, BUTANY BAY (Customs).

The late nineteen-sixties appears to mark the time when the first serious steps were taken to extend surveillance operations, principally to detect trespassers in the then newly proclaimed 12 nautical mile fishing zone. Following a request by the Department of Primary Industry, RAN patrol boats and RAAF aircraft were made available for duty in northern waters.



The pride of the Coast Watch air fleet is the radar and FLIR equipped Dash 8 aircraft. (Customs)

Over time, increased foreign fishing activities, an upsurge in attempts to enter the country illegally using a variety of small craft ("the boat people") in 1973, declaration of a greatly expanded (200 nm) Australian Fisheries Zone (AFZ) in 1979 and of an Exclusive Economic Zone (EEZ) in 1994, led to greatly increased pressure on surveillance/interception resources.

Despite numerous inquiries and reviews – the writer is aware of at least eight – some open to public participation, others of an inter-departmental nature, governments generally were slow to act on recommendations made by their advisers; this often resulted in unfair criticism of hard-pressed operators, particularly when unannounced visitors suddenly arrived in the more heavily populated areas of the country.

Delays were probably inevitable given the large number of government authorities involved: Apart from Primary Industry and the Fishing Services, Customs and Defence, organisations such as the Australian Federal Police, the Quarantine Inspection Service, Transport and Communications, Immigration, Health, Foreign Affairs, Environment and of course the States and Territories, all had an interest in guarding Australia's sovereignty.*

Two important issues discussed at the major inquiries related to departmental (and consequently, to ministerial) responsibility for surveillance activities, and the apportionment of costs – aircraft and ships together with their crews do not come cheaply.

In 1975 the Department of Transport, which had various maritime responsibilities, became the formal co-ordinator of surveillance/interception operations, an arrangement that continued until 1984 when, following a revue carried out by Mr. Kim Beasley in his capacity as

Minister assisting the Minister of Defence, the Australian Federal Police became the co-ordinator. The question of costs continued to be a vexatious issue.

A comprehensive report in 1988 by Mr. Hugh Hudson resulted in further changes. As well as dealing with the financial aspects Hudson recommended the establishment of a semi-independent Agency with an Executive Director to direct, co-ordinate and manage civil coastal and offshore surveillance operations, the Agency to be serviced by the Department of Transport. An Advisory Committee comprised of representatives of the various authorities involved was also to be formed with the Agency Director as Chairman. This was a significant recommendation.

While the government of the day accepted a number of the Hudson recommendations it declined to act on the Agency proposal: the co-ordinating task was in fact passed to the Customs Department in 1988. Subsequently all the Hudson recommendations were implemented, even the important Agency proposal in all but name.

The present government has gone a stage further and in 1999 after further reviews and inquiries appointed an experienced senior naval officer, Rear Admiral Russell Shalders, as Director-General of Coastwatch, seconding the officer to the Customs Department for the purpose.

Provided the Director-General has the authority advocated in the Hudson Report, together with appropriate resources (not least intelligence backing), the arrangements should work well. Surveillance-interception reports in recent times have been encouraging.

Suggestions that Australia should have a US-Style Coast Guard appear to ignore reality. Although the coastlines of the two countries are comparable, the US Coast Guard has inland water responsibilities not contemplated in Australia, together with a vastly greater population better able to bear the cost of the organisations.

The effect on the RAN, already short of personnel and strapped for recruits, of having to compete with a second, coastal Navy, also requiring personnel hardly bears thinking about. As for an inevitable competition between Defence and a Coast Guard with its own administrative bureaucracy for funds at budget time, the less said the better.

If you see or have seen what you believe to be illegal activity along the Australian Coastline, call the 24 hr toll free Customs Watch Hotline on 1800 06 1800.

*Several of the departments named in this paragraph have been renamed following government decisions to reallocate responsibilities.



A Coast Watch Bell 206L patrolling a beach. (Customs)

FROM OUR READERS

Dear Sir,

I enjoy your magazine very much particularly the way it keeps me informed on the happenings of the senior service. I am an ex-naval rating and served in many ships, SYDNEY, ARUNTA, AUSTRALIA, VOYAGER etc. I wish to know if you would be interested in some of my casual snaps taken during my time in the Navy? I would however, like them returned as they come from my album.

Leslie Napper
Ashwood, Victoria

Editor:- Leslie,

I would be keen to use your images from the period you served in the Navy. Producing THE NAVY from Australia's only landlocked capital makes locating images of modern ships hard enough let alone images that the RAN doesn't keep handy any more due to age. I will certainly keep you in mind as a source of images for future articles and all images will be returned.

Many thanks
Mark Schweikert

The RNZN in the new century

HMNZS CANTERBURY in Dili Harbour with the Italian LPD SAN GIUSTO in the background (RNZN)

By Richard Jackson

The Royal New Zealand Navy is faced with shifting to a new force structure – after several years of politically-imposed uncertainty. For the last ten years, the RNZN had worked to a consistent plan centred on a future Naval combat force of four ANZAC class frigates. But political events have halted this plan – first the previous coalition government failed to take up the option for the final two new frigates, then the election of a left wing government has put all of Defence under close and critical scrutiny. How then is the RNZN placed to face the new century?

Today New Zealand's Navy is the smallest since 1947 – when the post WWII demobilisation had gutted the wartime fleet. Today the RNZN operates two Anzac frigates and one 29 year-old LEANDER class frigate, a fleet replenishment tanker, a dual purpose survey and Naval research ship, and a diving support vessel. As well there are five inshore patrol craft in service. The present day fleet may be small, but it has in fact a wider range of capabilities than the cruiser and corvette force of 1947.

The Navy's infrastructure has slimmed down too – the Devonport Naval base complex now includes HMNZS PHILOMEL, the primary administrative base, HMNZS TAMAKI, the shore training establishment, Babcocks NZ Ltd (who manage the dockyard) and the Naval supply depot. Former Navy land has been vacated, but the Officer Training School remains (for a few years more) on a separate site, as does the ammunition depot. The Naval shore broadcast radio aerials remain in the central North Island, but the communication station moved some years back into the DNB complex, when new technology

enabled the station to be run remotely from Auckland.

While many of the infrastructure changes resulted from the Navy's own initiatives to reduce running costs, they also reflect a consistent public presumption that the Navy's choice locations on Auckland Harbour can and should be given up. That attitude resulted in a study of the possibility of moving the Navy completely out of Auckland, to provincial ports like Picton (South Island) or Whangarei (North Island). In part, that pressure reflected not only demand for Auckland waterfront land, but also a presumption that the Navy should be a make-work organisation for economically troubled provincial towns. However, the Navy will stay in Devonport, and hopefully, will continue to earn recognition as a good neighbour.

It is that wider public presumption which places the NZ Defence Force as a whole under constant threat; many of the public assume that defence units and bases are relevant only if they mean local jobs. But public understanding about the long term purpose and value of the armed forces remains weak. Even though the East Timor deployment vindicated the current balanced force, public opinion tends to presume that a handful of soldiers will suffice for peacekeeping duties.

That attitude was confirmed by the 1999 Parliamentary Select Committee on Foreign Affairs and Defence, which last August issued an extensive (but inconsistent) report entitled *Defence Beyond 2000*. In it, the Committee advocated a two frigate and two multi-purpose logistic ship fleet, a critical review of the Air Force's F-16 acquisition



HMNZS TE KAHA taking on fuel from USS CONSTELLATION during her recent Gulf deployment. (RNZN)

project, and an Army of two battalions but with a ready reaction force of only one infantry company. Despite its flaws, the Select Committee Report was quickly adopted by the Labor Party as the basis of their defence policy.

The political environment for the NZDF, and especially for the RNZN, is unsympathetic. What then is the Navy doing?

The Navy's first priority is to ensure that the two modern frigates, TE KAHA and TE MANA are fully manned and worked up to be ready for operational duties. TE KAHA achieved this in August last year, after a year of trials and helicopter trials (interrupted by a Southern Ocean deployment in February 1999). TE MANA is currently operating off Western Australia and should undergo her ORE in late May.

CANTERBURY has been designated the sea training ship and will focus on sea training for junior officers and sailors. In previous years this role has been filled by WAIKATO and then WELLINGTON, but with the 1997 decision to reduce to a three ship fleet WELLINGTON has been placed at extended notice and will decommission early this year.



HMAS MELBOURNE prepares to take on fuel from HMNZS ENDEAVOUR. ENDEAVOUR has provided flawless support to the INTERFET fleet. (RAN)

All three of our frigates can operate the new Seasprite helicopters. The current SH-2F helos have proved themselves off Timor and in the Gulf; we are looking forward to the entry into service of the G models next year.

Two of our three support ships have been in service for over a decade, and ENDEAVOUR, the fleet replenishment ship has proven her value to both the RAN and the RNZN. The diving support vessel MANAWANUI is at the time of writing engaged in combined Singapore/New Zealand Naval diving training, and her capabilities are well known to the RAN from her time supporting HMAS COLLINS' first diving trials. RESOLUTION, the latest of our support ships, has now been in service for just on two years, but is already a hit with the hydrographers and Naval scientists.

Each of these auxiliary ships is maintained to mercantile standards (Lloyds' classifications) and each has minimal manpower requirements, so running costs and the manpower bill are low. But the auxiliary ships are not versatile; they have limitations on their speed for sovereignty patrols or interception of transgressors, while with small ships' companies they cannot easily spare people for boarding parties.

So even for the basic task of sovereignty protection, the RNZN must maintain seaworthy high endurance ships that cannot only patrol and monitor our sea areas, but also contribute in the event of Naval combat contingencies. That of course means vessels like frigates, but in the present climate such ships are simply not acceptable to the new government.

The lessons of the East Timor operation should provide an endorsement of the value of navies. The multinational fleet that began gathering in Darwin, early last September as the East Timor crisis deepened, had an obvious deterrent effect on Jakarta, validating the international community's concern. TE KAHA was ordered from the South China Sea to join the force, the first NZDF unit to be committed. Our tanker ENDEAVOUR soon followed, after topping up with fuel for INTERFET at Singapore. The initial expectation



A RNZN SH-2F Seasprite with HMCS REGINA in the background during exercises. (RNZN)

was for a Services protected evacuation, but as the UNAMET personnel got out safely the Naval task changed to prepare for the eventual insertion of the international force.

When the INTERFET Naval force sailed from Darwin on 18 September 1999, TE KAHIA, like the other warships in the task force, was fully ready for possible combat. The Naval component had to provide air defence for the operation, including the vulnerable air landing of the initial wave of troops, maintain surveillance across the Area of Operations, and escort the amphibious ships and chartered merchant ships into what were then Indonesian territorial waters. Much defence diplomacy ensured the operation, the largest amphibious operation in the region since WWII, took place without combat. But as the UN Secretary General has previously observed, diplomacy must be backed by credible force.

That lesson from last September will be self-evident to *THE NAVY* readers, yet incredibly, some commentators in Wellington are discounting the Naval role in East Timor. In part this is a result of the inter-Service tensions that have built up after years of declining defence budgets, with commentators who desire a strengthened Army seeking to play to the new government's apparent preference for land-based peacekeeping operations as the NZDF's prime role. New Zealand's battalion performed well in East Timor, but the crisis underlined key lessons of readiness and reliability of equipment. These issues must be addressed, but little will be gained by rewriting history and distorting the fundamentally maritime nature of the INTERFET insertion.

New Zealand's new government, meantime, has initiated a series of reviews, likely to culminate in a complete defence review. First under the microscope is the planned lease-to-purchase of F-16 fighters. The fate of that project ought to be decided by the time this is published, but as I write the prospects for the RNZAF look gloomy. The RNZN's combat force is also under study, and this is where a restructured Navy is now inevitable. The political mood for multi-purpose logistics ships is strong, and the illogical perception that 'frigates were no use in East Timor because they couldn't carry troops' is well entrenched.

This mood also reflects disenchantment with the RoRo merchant ship HMNZS CHARLES UPHAM, which was

bought in 1994 but is now decommissioned and under charter to a Spanish shipping company. This came about when the 1998 defence capital equipment plan gave funding priority to re-equipping the land force but the sealift ship was not given funds for its planned military conversion. So rather than have it stagnate in the Devonport dockyard, approval was given for the ship to be chartered, and at least earn some money while it waited its turn.

The charter is due to end late this year, and current plans allow for CHARLES UPHAM to be converted by adapting the upper deck for helicopter operations, building in accommodation for 100 soldiers and improving the ship's empty stability. The modified ship will carry two LCM 8 landing craft aft, with a heavy lift crane mounted nearby. The result should be appropriate for the Army's vision of "logistics across the shore". However, given current political pressures, the RNZN may well be looking for a similar ship, or seeking something more obviously amphibious, to join CHARLES UPHAM in our new role of transportation for the Army, providing its initial base support and delivering logistic support.

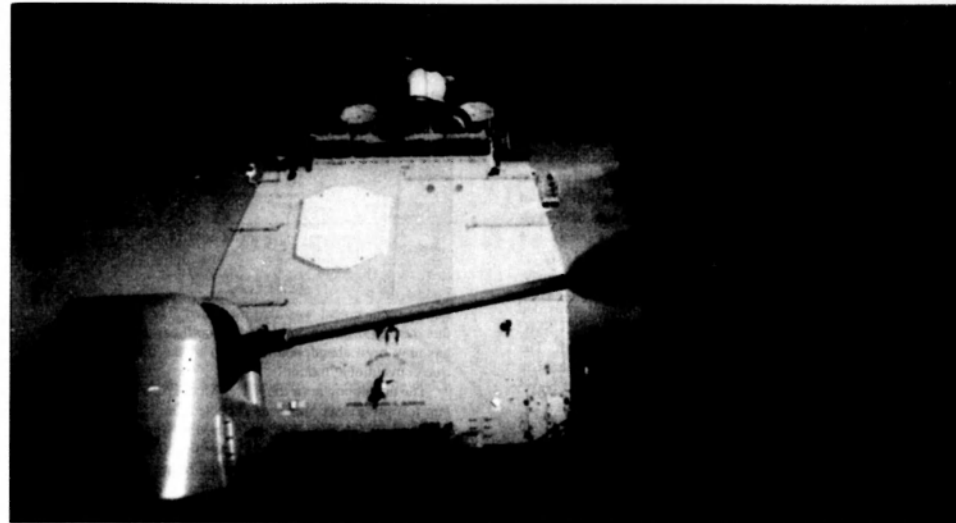
So the challenge for the RNZN is many fold – the frigates will no longer be the primary focus of our operations; amphibiousness is to be our preferred capability. The implications for recruiting, training, doctrine and operations are huge, and the impact on our people will be significant. Money, of course, will be an issue, but despite this significant change of direction it will remain as tight as ever.

The Australian Defence Force will need to adjust. Rather than New Zealand providing 20% of balanced forces in all three environments, our Naval combat contributions will be limited, our amphibious commitment will increase from zero to at least 33%, and the air combat contribution may fall to zero. There are large implications in all this, and the impact on trans-Tasman relations will be enormous.

However, the RNZN specifically will remain determined to operate its two new frigates to the same standards as the RAN, while it adapts to the requirements of sealift and amphibious operations. The men and women of the RNZN are living in very interesting times.



The RNZN's newly commissioned second Anzac frigate HMNZS TE MANA. (Brian Morrison, Warships and Marine Corps Museum Int)



The Mk-45 Mod 2 gun of the cruiser USS SHILOH fires to port. (USN)

By Kevin Dunn

A new acronym has been developed for what promises to be a revolutionary change in Naval gunfire and munitions. The Extended Range Guided Munition (ERGM) is in essence, a highly sophisticated miniature missile capable of being fired through the barrel of a gun.

Although being developed primarily on behalf of the USN, ERGM technology has far-reaching applications for all modern navies that have an interest in littoral gunfire support.

The history of this project can be traced back to the USN's policy document of 'Forward...From the Sea', which stresses the new emphasis being placed on littoral warfare and joint (in their case Marine) operations. Together with the end of the Cold War came the realisation that blue-water operations and warfighting was (at least in the short term) a thing of the past. The new doctrine is concentrated on power projection from the sea by way of amphibious operations. The USN doctrine was followed up upon swiftly by the USMC's policy document entitled Operational Maneuver from the Sea.

The USMC require a more aggressive use of accurate gunfire to engage any opposition the landing forces may encounter. As a consequence a new emphasis has been placed on the importance of NGS (Naval Gunfire Support) which carries it beyond the need to just prepare the beachhead and support the landing of troops, to in effect become the new means of what was traditionally land based artillery.

NGS has many advantages over land based artillery in the littoral scenario, as one pundit put it artillery must 'shoot and scoot' to survive on the battlefield as opposed to naval guns which can 'shoot and shoot'. From almost all aspects NGS comes out on top. Ships carry an enormous load of munitions and come with their own built in protection. They can also be re-supplied as necessary in relative safety far beyond the enemy's reach. This new hoped for reliance on NGS by the Marines can only come to fruition with the development of new technologies.

The USN and many other Navies (including our own) use the United Defense Mk-45 5-inch (127 mm) 54 calibre gun. The design of this gun dates back to the mid-sixties and it was primarily designed to provide protection against air attack. With swift development of AAW missile systems and more specialised weapons (Phalanx for example) the AAW mission for the gun virtually evaporated, leaving it with the role of anti-surface and fire support.

Though not primarily designed to specialise in these areas it has proved almost adequate for the fleets' needs. It was only during the Gulf War that the severe limitations evidenced with this gun (and others) became obvious. With its range being only 23 km (13 nm) it was severely hampered by the existence of mine fields and the threat of land based 'Silkworm' surface to surface missiles which prevented the ships getting close to shore to be effective. This is why the much loved veterans, the IOWA class battleships, were called upon once again to provide fire support and attack by way of their much larger 16-inch (406 mm) guns.

As discussed in a previous issue (Vol 61 No. 4 *THE NAVY*), the battleships could not go on forever in this role. They were too costly to run and maintain. What was needed was a very long range, very accurate (at least conquerable to the mobile artillery in use by the Marines) Naval gun.

It soon became obvious that big was not necessarily better, the sheer logistics involved in the battleships proved this. It was estimated that the range needed by the USMC would be in the vicinity of 63 nm (116 km). This comprised of being at least 25 nm off shore (over the horizon) another 16 nm inland from the shore for suppression of enemy formations and a further 22 nm to neutralise enemy artillery.

This represents a massive increase in distance over existing capabilities. The Marines already utilise a rocket-assisted projectile from their land based M-198 155 mm howitzer, though its range is a relatively low, 16.3 nm.

In December 1994 the USN formulated the requirement for the new era in naval guns, adopting the existing 5 inch standard munitions capability but with a revolutionary five fold increase in performance. This advance consisted not only the development of a new gun but also a new type of projectile far in advance of standard munitions or rocket-assisted munitions.

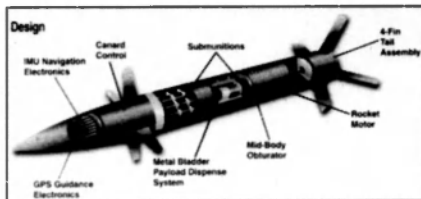
The Mod 4

The basic United Defence Mk-45 mount provided scope for improvements to meet the USN and USMC requirements, particularly by way of barrel length. The strength of the combustion chamber and breech mechanism of the Mk-45 was such that it was determined the barrel length could be increased from 54 to 62 calibres.

The lengthening of the barrel combined with an increase in propellant charge enabled more pressure to act upon the projectile for a longer period of time before being expended from the barrel. This increases velocity and thus range of the standard projectile from 23 kms to approximately 40 kms, the only down side being the need to re-work the recoil mechanism to allow for the increased recoil pressures.

Other improvements to the gun include strengthened trunnion supports, and ERGM initialisation interface, round identification ability, stealth shielding and an enhanced control system. All of which means a more reliable gun which costs less to operate and which can still use all types of existing 127 mm rounds.

In conjunction with these developments came the examination of a rather more revolutionary type of gun, the vertically launched 155 mm 'Advanced Gun System' (as the project became known). This gun would have taken the form of an installation of vertical barrels placed below decks similar to the Mk-41 VLS for missiles. The main advantages for this system would have been a considerable



A cut away of the ERGM round. (Raytheon)

increase in the rate of fire with the load distributed over the number of barrels. Greater life expectancy for each barrel before replacement was also identified. The research into this method of firing continued up until earlier last year, it has now been abandoned in favour of the more tried and true conventional mount.

The development of the newer Mod 4 62 calibre Mk 45 gun has progressed much as expected and is on schedule and ready for the new ERGM. The Mod 4 gun has already been installed on the DDG-51 class ship USS WINSTON CHURCHILL and will be fitted to all future DDG-51 class destroyers as well as backfitted to other ships of the class.

ERGM

In 1996 a \$US44 million contract was awarded to Raytheon Systems Co in Arizona for the development of the radical new projectile. The requirement stated a need for the projectile to be available to deploy to the fleet initially in 2001, but this was soon revised to 2003. As could have been predicted the adoption of such an advanced munition would prove very challenging.

The concept for the performance of the projectile is that it be initially fired from the gun, the booster rocket fires launching it to a point where the Global Positioning System can ascertain a lock to a satellite. The canards deploy and the GPS guides its descent to a point where it's own Inertial Navigation must take over (due to either jamming or loss of GPS lock).

At an altitude of about 250-400 m it ejects its payload of 72 M-80 sub munitions within 20 m of the target or target area. However, the sub-munitions can comprise various types of lethal, non-lethal, hard or soft target munitions. Each M-80 can penetrate 76 mm of armour plate.

Early problems with ERGM stemmed from the fact that in reality they are firing an extremely sophisticated mechanism (missile) from a cannon. The requirements for distance and accuracy of the munition meant that it must contain within it's diminutive size (under 2 m), deployable canards (wings) for directional stability and control, a sophisticated inertial navigation system and an even more sophisticated Global Positioning System (GPS). This is combined with an ability to resist electronic jamming, provide it's own power for the electronics and deploy sub-munitions. Also required is the rocket motor and propellant for its boost phase. All this is then subjected to the extreme pressures involved in being fired through the barrel of a gun at 80,000 lbs. per square inch and experiencing 12,000g's.

The initial design baseline for the ERGM round was provided by an existing 5 inch semi-active laser guided projectile known as DEADEYE. This provided the basic airframe which had already completed flight and firing



A successful firing trial of the Mod 4 gun with the 62-calibre barrel with the ERGM round frozen in flight by the camera. (Raytheon)

tests successfully. The only drawback is the length of the round requires the gun to 'double ram' the projectile which in turn halves the rate of fire to 10 rpm. However, accuracy and reach, 63 nm or 116 kms, more than compensate for this when using ERGM rounds.

Problems

As with all such developments getting at the actual status of the new system and technology is extremely difficult. Due to cost over-runs, in particular with regards to the projectile, Congress requested via the General Accounting Office, a review of the status of the program and costs be produced. This review was presented to Congress in June 1999. The only cited problem indicates a gas leakage problem from the obturator (the sealing device) which surrounds the projectile, this would increase the barrel wear. The obturator allows the projectile to engage the barrel's rifling and at the same time provide a seal around the projectile to stop gas pressure leaking out around the projectile's body and thus reduce its range and velocity.

One of the major problems in the program seemed to come from the re-location of the company from Texas to Arizona part way through the project. This involved considerable loss of staff with an estimated one-year disruption to the overall implementation.

Also the costs involved in development have blown-out to an alarming degree. In November 98 the original contract price was increased by \$US57 million. Currently, the project team are requesting a further increase bringing the overall contract up to \$US119 million.

A very tempting offset against this is the potential return on development of these new projectiles. Many options beside the conventional munitions have been hypothesised, the development of improved terminal seeker heads creates the possibility of either infrared, TV and microwave guidance. Also suggested is a expendable reconnaissance version, FASMi (Forward Air Support Munition), complete with either an inflatable wing or composite swing-wing enabling a loiter time of some 3 hours over the target area.

The Future

The Mk 45 Mod 4 gun is to forward fit on the remaining Arleigh Burkes (DDG81- DDG107). The new gun will also be retrofitted to TICONDEROGA Class cruisers (CG52 - CG73).

In a further effort to allay the Marines concerns re fire support, the USN has also had several other programs in development. Their much hoped for Advanced Land-Attack Missile, a variant of the Army Tactical Missile, program has had a chequered career. Initially to be fitted to all the Arleigh Burke destroyers and Ticonderoga cruisers, it was put on hold in 1998 in favour of a modification of 800 existing Standard SM-2MR surface-to-air missiles into a land attack configuration. Although this would provide a short fall in range from the initial requirements, it was considered a more economical proposition.

To combine with the new missile systems a new fire control system is being developed for fitting to all new and most existing combatant ships, equipped to handle the Tactical Tomahawk and Land Attack Standard Missiles, as well as ERGM. Under consideration is also a resumption of the Advanced Land-Attack Missile Program as well as a new larger 155 mm gun.

Conclusion

Through a recently announced deal between Raytheon, the US Navy and Army the schedule for introduction has been stepped-up as well as the development and production costs have been substantially reduced by a revision of the ECM capabilities. This is estimated to save approximately \$US37 million and has brought the estimated introduction to 2004.

Meanwhile here, the RAN while taking the new system under consideration have yet to commit, however, at least the new stealth type gun structure is being adopted on all our new build ANZACs. The first of the new look turrets is currently in evidence on the RNZN's HMNZS TE MANA.

It is envisaged that all future RAN operations will be conducted in the littoral, as has been the case historically.

The new gun system would give the RAN a new found offensive strike role. Combine the strike possibilities with the coming on-line of our greatly re-vamped MANOORA and KANIMBLA would no doubt provide greater security and flexibility to our own amphibious operations.



The gun mount on HMNZS TE MANA has the stealth shielding of the Mod 4 Mk-45 gun. The actual Mod 4 would fit very easily into the Anzac's (RNZN)



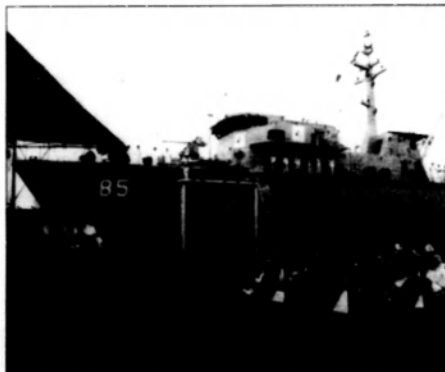
The new Mk-45 Mod 4 gun with the 62-calibre barrel being installed aboard the new ARLEIGH BURKE class DDG, USS WINSTON CHURCHILL. (United Defense)

Hatch, Match & Dispatch

HATCH

GASCOYNE launches

The fourth of six Huon Class minehunters ADI is building for the Royal Australian Navy was recently launched at Newcastle. The on schedule, within budget launch of GASCOYNE follows the commencement of service by the first two ships, HMAS HUON and HMAS HAWKESBURY, and the advancement of sea trials by the third of the class, NORMAN. The fifth minehunter, DIAMANTINA, is currently being outfitted and the sixth, YARRA, is completing construction. The \$1 billion project will provide Australia with the world's most advanced mine warfare capability. GASCOYNE was launched by Ms Victoria Peel, daughter of Captain John Peel who commanded the first HMAS GASCOYNE during World War II.



The newly launched minehunter GASCOYNE. (ADI)

MATCH

HAWKESBURY JOINS THE FLEET

The latest of Australia's HUON class minehunters has joined the fleet in a traditional commissioning ceremony held at HMAS WATERHEN.

HMAS HAWKESBURY (LCDR Steve McCarey) was commissioned on Saturday, 12 February, at her new homeport, HMAS WATERHEN in Sydney.

Hawkesbury's launching lady, Mrs Jennifer Smythe, was on hand for the commissioning. Mrs Smythe is the wife of Commodore Dacre Smythe AO RAN (Rtd), former commanding officer of HMAS HAWKESBURY (I).

In what is believed to be a first for the Royal Australian Navy, members of the Naval Reserve Cadets played a prominent part in the commissioning ceremony.

Three members of Training Ship HAWKESBURY took



The HUON class minehunter HMAS HAWKESBURY. (Brian Morrison, Warships and Marine Corps Museum Int)

part in the ceremony, bearing the responsibility for raising the Australian National Flag, Australian White Ensign and Commissioning Pennant.

The three Cadets chosen carried out their duties flawlessly, although all admitted to more than a few butterflies as the ceremony proceeded.

TS HAWKESBURY has a close association with the RAN's newest minehunter, having attended HAWKESBURY'S launching as well.

With the commissioning ceremony over, the guests proceeded indoors to witness a number of traditional activities, including a presentation of a framed image of the ship from ADI to HAWKESBURY.

Mrs Smythe received the HMAS HAWKESBURY tally band worn by ABCSO Adam Browne, who was the first sailor to march on board the ship as a commissioned fleet unit.

The commissioning cake was then cut by Mrs Smythe and AB Browne as the youngest member of the new ships company.

HAWKESBURY is the first of the new minehunters to be completely Australian built, the hull of HUON having been brought out from Italy.

The commissioning of HAWKESBURY highlights the success of the new minehunter project, with six state of the art minehunters being delivered to the RAN.

With HAWKESBURY now in commission, NORMAN, GASCOYNE, DIAMANTINA and YARRA building and HUON already showing her paces on exercises, the way forward is looking bright for the Mine Warfare Branch.



The newly commissioned HMAS HAWKESBURY has her White Ensign raised for the first time. (Brian Morrison, Warships and Marine Corps Museum Int)

BOOK REVIEWS

THE ROYAL NAVY IN WORLD WAR II

By Robert Jackson

Published by Airline Publishing Ltd., England
Distributed in Australia by Peribo Pty Limited, 58
Beaumont St. Mt. Kuring-Gui, NSW 2080

Hard cover, RRP \$57.95

Reviewed by Vic Jeffery

This is detailed account of the Royal Navy's crucial role in initially, against all odds, helping Britain survive the fall of France, the Battle of the Atlantic, siege of Malta, and the Russian Convoys. Then once the tide had turned, the Royal Navy played an important role in defeating the Axis forces, one of the major campaign being the D-Day invasion.

It is difficult to condense the Royal Navy's role in World War II into one 176 page book and author Robert Jackson is to be commended for doing so, presenting a most informative account.

Consisting of 18 chapters this profusely illustrated book is supported by two appendices: the first titled "Principal Royal Navy Ship Losses, 1939-45. This covers the three battleships, two battle-cruisers, 10 aircraft carriers (fleet and escort), 27 cruisers, 142 destroyers (including 'HMS' NESTOR), 75 submarines, plus sloops, frigates, monitors, corvettes, fleet minesweepers, armed merchant cruisers, minelayers and river gunboats. The second covers Auxiliary Trawler Losses 1939-45 listing the 68 anti-submarine and minesweeping trawlers lost during the conflict.

My one criticism of this well-presented book is a small number of the 177 photographs included are postwar views, especially submarines where streamlined shots of HM Submarines SCOTSMAN, SERAPH and TIRELESS appear. A view of wartime -constructed destroyer is listed as the sloop HMS MAGPIE. It is disappointing to see such a commendable book spoilt by some lazy photograph selections.

However, despite this one criticism, it does not detract from this well-written and entertaining book which would be a most worthy addition to any library or naval bookshelf.

SHACKLETON'S CAPTAIN A biography of Frank Worsley

By John Thompson

Published by Allen & Unwin, PO Box 8500, St. Leonards, NSW 2065

Soft cover, RRP \$29.95

Reviewed by Vic Jeffery

This is the first biography of New Zealander Frank Worsley, was an extraordinary man, a master mariner with a keen sense of humour, he was known for his pranks.

Worsley, together with Sir Ernest Shackleton, undertook one of the greatest adventures of the 20th century exploring the Antarctic. They saw their ship ENDURANCE crushed by Antarctic ice in 1915; they survived four months adrift on an iceberg, and with four companions in a flimsy lifeboat sailed the worst ocean in the world. It is now history how Worsley, proving his skills in navigation and seamanship, managed to sail the lifeboat to Georgia some 800 miles away and with every member of the expedition surviving.

Born in Akaroa in 1872 and raised in Christchurch, he seemingly crammed several lifetimes into his 70 years, dying in England in 1943.

Frank Worsley won a DSO on September 26, 1917 for sinking a German submarine, UC-33, by ramming it in the Irish Sea whilst commanding the Royal Navy patrol vessel PQ61 as a RNR Lieutenant Commander. He later commanded the Q-ship HMS PANGLOSS operating in the Mediterranean.

In 1919, Worsley was sent to Russia as part of the British expedition, which engaged the Bolshevik Army, Worsley commanding the monitor HMS M24. It was soon after that he was awarded his second DSO, the citation reading "In recognition of the gallantry displayed by him at Pocka, in North Russia between the 2nd and the 5th of August, 1919. This officer formed one of a large patrol which, in circumstances of great danger and difficulty, penetrated many miles behind the enemy lines, and by his unfailing cheery leadership he kept up the spirits of all under trying conditions. By his assistance in bridging an unfordable river between the enemy lines, he greatly helped the success of the enterprise".

He was also awarded the Russian decoration, the Order of St Stanislaus for his escapades at this time. Another award Frank Worsley received at a later date was an OBE.

Postwar Commander Worsley engaged in a little spirit-running to North America, searched for lost Inca gold off Costa Rica and navigated perilous Arctic regions in a sailing ship.

Supported by nearly 100 photographs and maps, this is a fascinating account of a true 20th century buccaneer, a man who seemingly knew no fear - Frank Worsley.

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 capability to defend itself, paying particular attention to maritime defence. Australia is, of geographical necessity, a maritime nation whose prosperity strength and safety depend to a great extent on the security of the surrounding ocean and island areas, and on seaborne trade.

The Navy League:

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

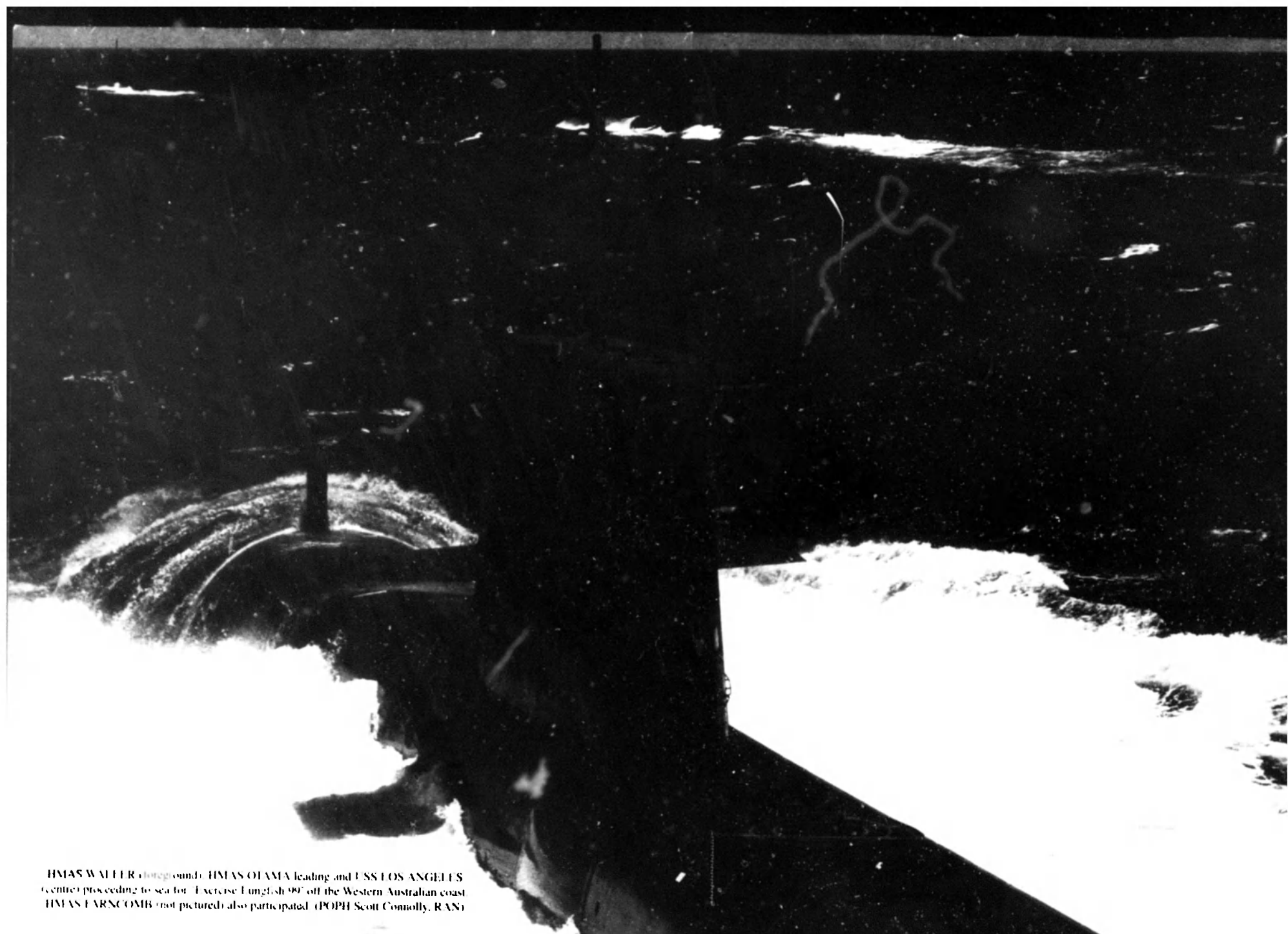
As to the RAN, the League:

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

The League:

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

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



HMAS WALLER (foreground), HMAS OTAMA leading and USS LOS ANGELES (centre) proceeding to sea for Exercise Tungshi 99 off the Western Australian coast. HMAS FARNCOMB (not pictured) also participated. (POPH Scott Connolly, RAN)



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