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THE NAVY

The Magazine of the Navy League of Australia

THE SYDNEY INQUIRY

MARITIME AIR SUPPORT

A NAVY FOR NEW ZEALAND

HMAS JERVIS BAY (III)

THE NAVY

Volume 61 No 3

Contents

Front Cover: HMAS BRISBANE leading HMAS DARWIN. (ABPH Torrin Nelson 1998, RAN)

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The Navy League of Australia

From the Crow's Nest

In this edition's News section we read about the recent creation of the position of Commander Australian Amphibious Forces (CAAF). Although a step in the right direction, given our burgeoning and significant sea lift capability, should it have gone further? The demise of the Cold War saw the replacement of blue water naval operations with brown water or littoral operations. Given the West's occupancy of this area, many smaller nations are developing and buying weapons to use in this environment. To a defender, significant advantages exist within this environment as current generation radars and sonars suffer in this area. The USN discovered these dangers during "Desert Storm" with PRINCETON and TRIPOLI hitting mines. In the future, Navy should consider extending CAAF into a new command, Commander Littoral Forces (CLF), to specialise in this demanding environment. Hopefully CAAF will act as the foundation stone to a littoral command HQ which has doctrine and tactics established before operational use is required. Another advantage of a CLF would be its organisational structure. CLF would have the necessary fighting ships to support an amphibious assault, ie. DDGs, FFGs and Anzacs, under command during peacetime thus ensuring a smooth transition into war. Army would also be involved in a CLF HQ as "joint warfare" is becoming increasingly important and necessary. The notion that amphibious warfare is still exclusively a taxi service for army should be well and truly outdated. Amphibious warfare is but one stage of a greater littoral operation. Navy and Army could, under a CLF, train and work together not as integral to one another but integrated.

Recently the Government deployed the frigate HMAS MELBOURNE to the Persian Gulf to assist in maintaining sanctions against Iraq. It would be wise of the ADF, and in particular Navy, to pursue high profile missions such as these. Public perception, and thus political perception, of the ADF is important if budgets are to rise and equipment and capability replaced. The recent public dismay over Army's need for funds to increase the readiness of 1 Brigade highlights the public's ignorance of the ADF and its financial position. Navy needs to be especially aware of its public image and be seen as combat ready and active as a contest is currently brewing over the fate of the RAN's surface combatant. There is a concerted effort in some quarters to have the surface ship go the way of the RAN's carrier force, ie. into oblivion. These same antagonists use many of the arguments against surface ships as they did against the aircraft carrier but ironically believe that this same application of force looses its value when placed on the water. It's a shame that some denigrate the carrier and surface ship with subjective labels as "floating targets". These same people, who worship the alter of land based "Air", are currently questioning the value of surface ships and not learning from other nations who have gone down the same path. These nations have only come back from that path more in favour of surface ships than before. The road to Damascus is not down this path. It's time we stood up to these illogical and uninformed detractors who, perhaps unknowingly, are currently the greatest threat to our maritime security.

As *THE NAVY* went to press the 1999 Federal Budget was handed down. Once again defence has been quarantined from cuts but with a projected surplus of over $5 billion cuts would be illogical, given the Governments plan to increase the readiness of the 1st Brigade, the leasing of the INCAT Catamaran and the RAN deployment to the Gulf, all government initiatives. How much longer will we rejoice for defence's annual stay of execution? The Defence Reform Program, another government initiative, was meant to "de-criminalise" defence to the point that the full pardon of increased defence spending could be issued. Sadly, its back to the chain gang for defence for another year.

Mark Schweikert

From Our Readers

IK ??

Dear Editor,

I would like to reply to F.W. Austin's letter that appeared in the last edition regarding what IK means in the "BARCOO aground" article. Briefly, the Earth is divided into time zones which change with every 15 degrees of longitude east of Greenwich. Greenwich Mean Time (GMT) is also referred to as Zulu (Z) time in the International Time Co-ordinated (ITC) system, which has the world divided into the zones every 15 degrees.

Due to the fact that there are 360 degrees of longitude, 15 divides into it 24 times, hence 24 time zones around the world. However, because there are 26 letters in the alphabet, 2 letters either have to be deleted or combined to fit in with the total of 24.

Therefore, I & K are combined, which is actually Eastern Standard Time (EST), or I/K time under the ITC system. The letter actually deleted from the alphabet for this purpose is "O", because it could be confused with a zero in any preceding time group.

Stephen Gillard, LEUT, RANR NHQ TAS

Editor: Many thanks Stephen.

Right Volume, Wrong Year

Dear Editor

Obviously the sun has not yet set on 1998. Please pipe aboard 1999 for the next edition.

Regards

Geoff "Rustpicka" Wynn, Sydney

Editor: Apologies to all those who were inconvenienced. The error was detected during the proof reading of the first draft and corrected. For some reason, when the magazine went into print, the error re-emerged at a time when it was too late to re-correct. However, THE NAVY finds itself in good company as JANE'S NAVY INTERNATIONAL recently made the exact same error.

The Sydney Inquiry

By Senator David MacGibbon
Chairman
Joint Standing Committee on Foreign Affairs, Defence and Trade

On 26th August, 1997, the Parliament referred to the Joint Committee on Foreign Affairs, Defence and Trade a reference which required the Committee to inquire into:

The circumstances of the sinking of HMAS SYDNEY off the Western Australia coast on 19 November, 1941, with particular reference to:

1. The extent to which all available archival material has been fully investigated and whether any relevant material has been misplaced or destroyed;
2. All relevant archival material available from allied and former enemy forces;
3. The desirability and practicability of conducting a search for HMAS SYDNEY and the extent to which the Commonwealth Government should participate in such a search should one be deemed desirable and practicable;
4. The practicality of accurately locating the grave of an alleged body from HMAS SYDNEY which was allegedly buried on Christmas Island;
5. The identification of any scientific procedures now available which could verify the identity of human remains alleged to be those of a crewman of HMAS SYDNEY buried on Christmas Island if and when such remains were located;
6. Measures which should be taken to protect and honour the final resting places, if and when located, of HMAS SYDNEY and KSN KORMORAN.

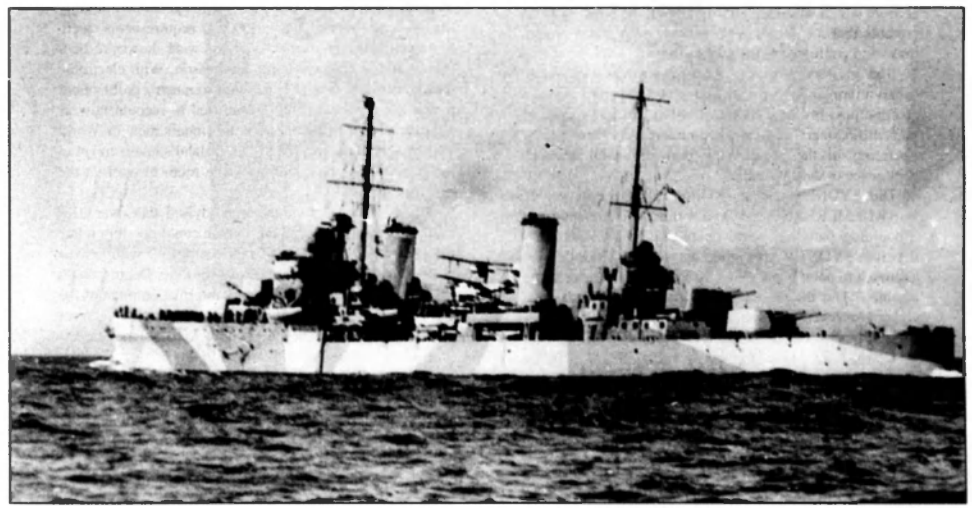
On 22nd March 1999 the Committee tabled its report to the Parliament.

Probably no single event in the Second World War attracts as much interest today as the circumstances surrounding the loss of SYDNEY on 19th November 1941. In total some 201 submissions and 208 supplementary submissions were received by the Committee – a very high number. Most unusually some respondents sent multiple supplementary submissions, commenting on the arguments advanced in other submissions and providing additional information.

It was anticipated that the two schools of thought on the fate of SYDNEY would put their case to the inquiry. For want of a better description those schools are the orthodox school and the unorthodox school: the orthodox school being those who accept that SYDNEY was sunk by KORMORAN alone; and the unorthodox that more than one enemy ship was involved.

What was not foreseen was the intense and intemperate personal animosity which exists between these two groups and which emerged in written submissions – a quite pointless state of affairs.

A search of archival material to satisfy the first two directives of the inquiry led the Committee to conclude that SYDNEY was sunk by KORMORAN acting alone, as a consequence of an intense engagement which also proved terminal for KORMORAN. This conclusion is broadly in agreement with the account in the official history of the RAN.



HMAS SYDNEY (II) in her prime during World War II. (RAN historical via Ross Gillett)

Details of the battle and the final hours of SYDNEY will never be known. What information does exist comes from the survivors of KORMORAN who are now all of advanced years. Those survivors who were contacted generally expressed no desire to add to previous statements they have made and some expressed a desire to be left alone.

Many allegations have been made that the German accounts are an elaborate fabrication. While there are minor inconsistencies between accounts the overall story is coherent. Those inconsistencies in so far as they exist are explicable as only those few crew members on the bridge at the time of the action would have had an overall knowledge of what occurred.

Senator David MacGibbon (right) presenting a copy of the report to our editor.

It is not credible that after a huge battle, surrounded by the dead and wounded on a sinking ship, loaded with mines and ammunition and almost certainly uncontrollably on fire, that Captain Detmers assembled his ships company and calmly constructed a false account of the action, an account which was learnt by heart by all the crew. Nor is it credible that 58 years after the event no one has broken ranks and confessed to the fabrication.

The mystery is why a modern warship with vastly superior armament, armour and speed came to be in a position possibly only 1000 to 1500 metres away from an unidentified merchantman when raiders were known to be operating in the area. What part did foolhardiness, negligence or deception play?

Did SYDNEY mistake KORMORAN for its supply ship KULMERLAND and close with it in an attempt to get a boarding party on board quickly? Did KORMORAN deceive SYDNEY and thereby entice SYDNEY to approach to point blank range by simulating a fire or being disabled? Did the Germans actually have the codes and correctly answer as "Straat Malakka" when challenged?

These questions probably never will be answered.

Claims are made for the great skills of Captain Detmers. He was certainly competent and had greater experience of command in a wartime environment than his Australian counterpart, Captain Burnett. As a professional naval officer through the period of over a year that KORMORAN was at sea, Captain Detmers must have thought often about what he would do when he came up against an Allied cruiser. If what happened to SYDNEY was the consequence of a premeditated course of action then he does merit the accolade of possessing exceptional ability as a naval Captain.

The unorthodox account of the action postulates the presence and involvement of one or more enemy vessels. The most frequently advanced explanation is that KORMORAN was in a rendezvous with a Japanese I class submarine when surprised by SYDNEY. Other variations involve a German submarine, and an Italian submarine.

Despite being given every opportunity to do so, no hard evidence was advanced to the Committee to support any of these allegations. Nor could the Committee find any evidence on its own account of the presence of any enemy vessels in the area at the time.

Allegations of Japanese involvement are interesting because they lead to the assertion that the Germans and Japanese had to conceal their involvement, since Japan was not then in the war. Japanese involvement had to be concealed to avoid the KORMORAN crew being charged and executed as war criminals. This adds a nice symmetry to the story and to some degree adds to its plausibility.

There is no evidence of any Japanese submarine being deployed in the area at that time; there was no military objective to be gained by such a deployment. Planning for the audacious and very high risk strategy of the attack on Pearl Harbour only a few weeks away would have fully occupied the minds of the Japanese Navy.

However, if proof does emerge in the future, the Committee left the door open by recommending the funding of a research grant scheme so that any new evidence in the future can be properly addressed.

Over the years and in some of the submissions to the inquiry, allegations have been made that successive Australian Governments have concealed or deliberately destroyed records pertaining to SYDNEY

Despite the fact that the RAN has a reputation for bad record keeping, as demonstrated recently by the absence of some records for the DDGs on deployment to Vietnam, there was a vast stock of paper records generated through the Second World War. Storage requirements were immense. Huge volumes of records were destroyed both during and after the war for this reason. With electronic data processing, storage is now not so much a problem but it was not always so. My father used to recount how as adjutant of his battalion prior to embarkation in World War I he burnt the records of Queensland's involvement in the Boer War so he could get some room to work in the orderly room.

Even so, the Committee was advised that over 21.6 shelf kilometres of documents which could possibly relate to SYDNEY still exist. The Committee, with expert professional assistance from Professor Peter Dennis, could find no records which added new information. One of the Committee's recommendations was that the Government review the operations of the Archives Act 1983 in regard to World War II material, with a view to providing full public access to all material.

The Committee categorically rejected the assertion that the Australian Government had concealed or withheld any records of SYDNEY.

Special attention was paid to signal records. An area of some controversy, there is no evidence that relevant documents were intentionally destroyed or are currently concealed. What transmissions were made by SYDNEY or KORMORAN are obscure. Both ships certainly maintained a disciplined radio silence as a matter of routine. Transmissions were by HF radio in 1941 with the attendant reception variability of that mode. It is probable that SYDNEY's ability to communicate was destroyed in the opening salvo.

Consideration of the body washed ashore on Christmas Island occupied a large part of the Committee's time. There is a very high and understandable degree of interest in the identity of this body among the families of the ships company. Somewhere about 6th February, 1942, a decomposed body in a faded boiler suit floated to Christmas Island in a Carley float. There were no identifying marks on the body or on the boiler suit. Because it was a Carley float the assumption is that it was a naval sailor and not from the merchant marine. After a careful review of all the ships sunk in the relevant area and at the relevant time, if the body did not come from SYDNEY then it could not be determined what other ship the sailor might have come from. The Committee concluded that on the balance of probability, the body did originate from SYDNEY.

The Committee resolved, having regard for the feelings of the families, that if it was possible to identify the grave site and gain approval then the body should be exhumed. DNA testing may then lead to a positive identification.

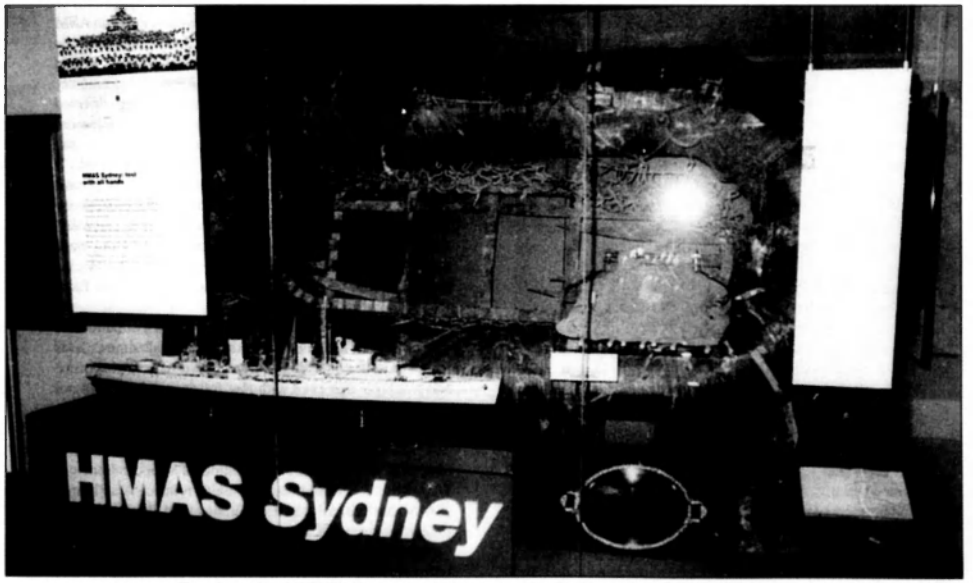
The inquiry was required to address the location of SYDNEY and KORMORAN. Captain Detmers declared in 1941 the position where KORMORAN was scuttled. This may or may not be the true position. It may be that the Captain wanted to conceal for military reasons in war time the site of the action. The location of SYDNEY is much more obscure. It is said to have sailed off into the night on a south easterly heading. It probably lies off the continental shelf in very deep water. Remote though the possibility is of finding the wreckage, the Committee recommended that, once a search area has been more closely defined, the Commonwealth should fund a search on a dollar for dollar basis up to $2 million.

If found, then the protection of the wrecks of both SYDNEY and KORMORAN must be maintained.

The Committee felt that a memorial to the SYDNEY was appropriate and that it should be both for the living and the dead. Accordingly it recommended that the RAN set up a research grant in the name of HMAS SYDNEY II and her crew to support research into aspects of Australian Naval history. As well, a memorial should be erected to HMAS SYDNEY in Fremantle jointly funded by the Commonwealth and the Western Australian Government and dedicated by the 19th November, 2001, sixty years after the loss of the ship.

The Committee recognised that its report will not put an end to the controversy surrounding the loss of SYDNEY. What the inquiry did create was the opportunity for all those who were alive at the time, as well as subsequent generations, to put their views on record and argue their case.

It was a great pity that a comprehensive inquiry was not held through the period from 1945 to 1950. While there would still have been an absence of detail particularly in relation to the final hours of SYDNEY, a great deal more information would have been available at that time. Had that been done the events surrounding the loss of this famous cruiser and the 645 members of the ships company might have been de-mystified to some degree.



The only remains of SYDNEY (II), the new exhibit at the Australian War Memorial containing the Carley float

Maritime Air Support

By John Bird
Federal Vice President
Navy League of Australia

Two F/A-18s about to pass over HMAS ANZAC during FCP 99. (Denis Hersey, DPAO)

The subject of adequate air support for the RAN has long since disappeared from the front page, but is still a matter of grave concern to many. However, this is not an article about the procurement of an 80,000 tonne aircraft carrier. It is about the need to recognise that presently the defence force and particularly Navy, is not a self-reliant entity as some have suggested. Self-reliant is what our defence force should be.

It is more than 15 years since the ill fated, ill conceived decision was made to disband the RAN's fixed wing air support, a decision that has left Navy without a crucial support element that will see it in a hazardous position in many conflict situations.

Lest this article be seen as a biased political statement, it should be said that the defence force may well have suffered the same loss no matter which party had been in power during the intervening period. The only difference would have been one of reason, philosophical in one case, economic in the other.

For a short time after the decision was taken, Navy re-iterated its long held belief that fixed wing air support was essential to its viability as a credible naval defence force. For a considerable time thereafter, when Navy became muzzled by its political masters, the Navy League continued the fight. Carrying out various studies for economical ways of regaining the lost facility and keeping the matter before the public eye through articles, letters in the press and public seminars. However, there came the time when it was perceived that further action could be an embarrassment to Navy and the League ceased its efforts, which may have been seen to conflict with Navy. Currently, Navy sees itself relying on three proposals to satisfy its support needs that were once provided by organic fixed wing air cover.

Sadly, concern must be expressed at Navy's acceptance of a situation that will still see the fleet at considerable risk, because of a lack of credible air support.

The proposals referred to above are the upgrading of the defensive armaments of the surface fleet, Penguin ASM (Anti Ship Missile) for the Super Sea Sprite and the proposed RAAF AEW&C (Airborne Early Warning and Control) platform. The first two proposals, eminently desirable though they may be, will in no way match fixed wing aircraft in the ability to carry offensive/defensive weapons at speed to an over the horizon target. Further, the chances of surviving a massed aerial assault are far less if the fleet is obliged to tackle incoming weapons which have already covered much of the intervening distance between attacker and the fleet. As for the proposed AEW&C aircraft, it is good news that Navy is supporting their acquisition, but the facility is complementary to organic air and not in any way one which replaces the need for fixed wing support.

There is incidentally, concern about the availability of the proposed AEW&C aircraft at crucial times. It is understood that the hope is to acquire seven platforms. Navy accepts that even with that full inventory, it will not be possible to expect continuous surveillance support, even less if the acquisition is less than expected. The aircraft will be available on an 'as and when required' basis and one is reminded of the former expectation of support from our F/A-18s. It is believed that such naive reliance is no longer part of our current defence thinking and that RAAF no longer support such a proposition.

However, RAAF may still oppose the re-introduction of fixed wing aircraft into the fleet and somehow this opposition must be overcome. We must not allow inter

An APG-65 radar equipped USMC Harrier AV-8B II Plus returning from a recent attack mission over Kosovo. (USN)

service rivalry to continue its negative influence on this vital matter and if it is necessary to dress our naval aviators in air force blue in order to gain RAAF support, then so be it. It is interesting to note that RN carriers are operating helicopters and fixed wing aircraft flown by all three services.

There is no reason to change a view long held by many that Navy must again have, as one of its essential weapons systems, ship borne fixed wing aircraft capable of offering support in both defensive and offensive roles to support the fleet.

There is still an urgent need to develop a defence force that is, to the extent that is economically feasible, self reliant and a fleet without organic fixed wing air support cannot, in this day and age be considered self reliant. Our Navy must be able to respond to situations in and around our island home, our neighbourhood, our island dependencies and to a reasonable extent our sea lines of communication. The loss of which would deny the nation the ability to resist an aggressor for more than a very limited period of time given the crippling effects on our economy. A self-reliant fleet is an essential element of any force charged with these tasks.

It is unlikely that the present government would argue against the strategic necessity for organic fixed wing air support. However, the need for restraint in our defence expenditure is recognised given the inadequate budget. Consequently, one would not advocate the acquisition of a US style 80,000 tonne carrier or even a 50,000 tonne vessel as is suggested by those who would kill such a project. There have been many models investigated over the years, converted container ships, simple purpose built hulls and the relatively cheap carrier designs from the Spanish shipyard Bazan which could fill the requirement. The fact is that there are numerous options which would not be excessively expensive. Aircraft, which would form part of the package, could be acquired in small numbers at the outset sufficient to enable the RAN (or RAAF) to regain the skills which were once possessed and so provide a base for expansion should the need arise.

The size of the platform would dictate the type of aircraft to be employed, that is STOVL (Short Take Off Vertical Landing) aircraft which have proved their worth with the USMC in 'Desert Storm' and more recently in Operation 'Allied Force' and in a combat with the RN in the Falklands and again in Kosovo. The Sea Harrier and the US AV-8B have been improved over the years. The Sea Harrier is now considered one of the best Air Superiority fighters in Europe given the addition of a Blue Vixen radar and AMRAAM. The new Boeing AV-8B Harrier II plus is fitted with the APG-65 radar, as found in the F/A-18, and can use the full array of weapons in the USN air power arsenal.

Work on the Harriers replacement, the JSF (Joint Strike Fighter), will provide a significant advancement over the current Harriers with supersonic speed, stealth and VSTOL capabilities. The JSF is also considered a possible future replacement for our Hornets. The specific aircraft to be acquired is a matter for later procurement decisions. The important thing at this time is to recognise the essential need and to no longer bury our heads in the sand or dream up alternatives which are far less than the best and which will sell short our ships and those who sail in them in time of trouble.

Notice the pointed nose below the mounted FLIR. This denotes a radar equipped Harrier II Plus capable of using AMRAAM and Harpoon. (Boeing)

Previous articles have suggested that STOVL aircraft would additionally provide invaluable ground support and air cover to Army in remote locations in our north and in other areas where our land based aircraft would find difficulty in operating. It has also been suggested that our F/A-18's are 'too expensive an asset to be used in a ground support role'. In the event that Army was required to offer support to allies in offshore theatres, STOVL aircraft could be disembarked by Navy to offer support in areas remote from access by mainland based aircraft. It is of more than passing interest to note that the USMC have for many years relied on ship borne STOVL aircraft in support of troops.

The Italian Navy now use the Harrier II Plus off the carrier GIUSEPPE GARIBALDI giving them a far greater sea control capability

It appears that Defence is again looking to return to a more pragmatic forward looking defence policy which may see the army operating in locations described above and in urgent need of fixed wing air support. There would be instances in which land based aircraft with in-refuelling might offer that support, but not so effectively and more importantly not with the immediate response as would aircraft carried with the troops and operating from the sea or from their immediate environment ashore. It is recognised that such aircraft, even with economical carrying platforms, will not come cheaply, but there are ways that they may be acquired at affordable cost.

One less conventional approach to platform costs may be the acquisition of COTS (Commercial Off The Shelf) platforms which would come at a fraction of the cost of MILSPEC (Military Specifications) platforms. The addition of a modest ASMD (Anti-Ship Missile Defence) capability would make such platforms very cost effective.

A large surface force with no organic air cover will be at extreme risk in numerous conflict situations and will be less capable of carrying out its various functions than could a smaller force complete with its own fixed wing air support. It logically follows that one saving offset could be a reduction in the number of other surface units presently in the pipeline. As suggested above, the platform does not require MILSPEC armoured command and control facilities but could rely on existing fleet units for this task.

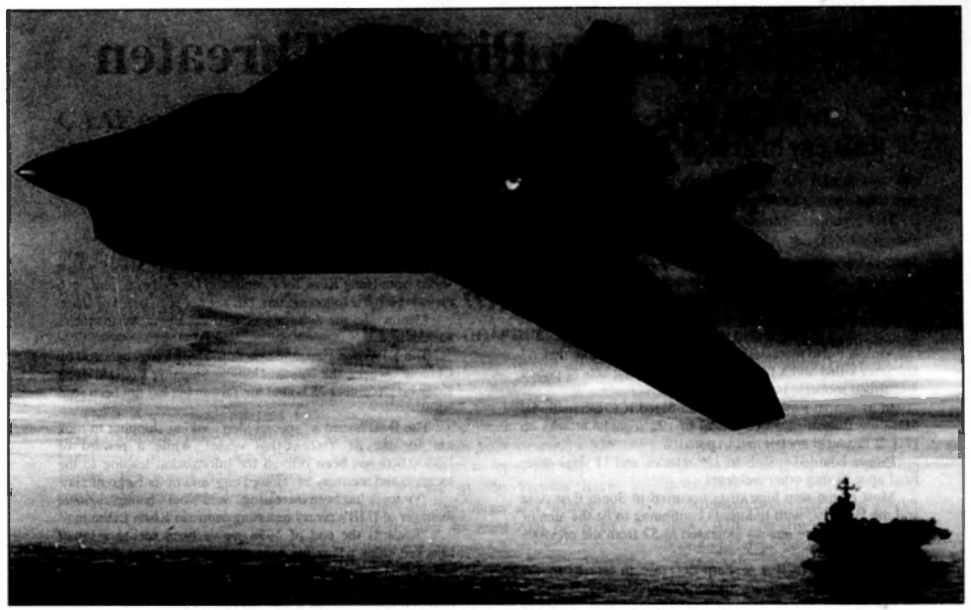
Some positive comments regarding AEW&C and fixed wing air support made by an RAN PWO (Principle Warfare Officer) tell of a recent exercise with the RN in which RAF AEW&C aircraft were performing surveillance duties for the fleet. As would be the case with the proposed RAAF support for the RAN, there were gaps between on time stations of the aircraft. These gaps were filled very usefully with the same AEW equipped Sea King helicopters that the Navy League advocated acquiring some years ago. If the capability had been available to the RN earlier in the Falklands conflict, it is plausible that SHEFFIELD, COVENTRY, ARDENT, ANTELOPE, SIR GALAHAD and ATLANTIC CONVEYOR would still be with us. No doubt the systems have been upgraded since then and should still be on our list of essential acquisitions.

To those who point out that STOVL aircraft will always be outclassed by other high tech machines, it should be pointed out that the former have certain operating characteristics which the others lack and in any event in this day and age the aircraft is but a part of a weapons system. The task of which is to deliver, at high speed, the final strike weapon to a point at which it can be released to carry out its task, whilst the aircraft returns to fight another day.

It can be argued with certainty that STOVL aircraft are less vulnerable than helicopters charged with a similar task and it follows that the fleet is less vulnerable when relying on fixed wing support. It is important to recognise that despite the lower speed of the STOVL aircraft, when compared with an opposing air force with supersonic aircraft, what is more important is the weapons carried, as demonstrated by the Sea Harrier in the Falklands. Similarly today, an AMRAAM equipped Harrier can defeat or match any supersonic aircraft with or without similar BVR (Beyond Visual Range) missiles

Others who oppose naval air have referred to the support' presence of INVINCIBLE during the Gulf War in containing any aggression from Libya and then comparing it with the majesty of the US carriers. Of course a STOVL platform pales into insignificance when set alongside 80,000 tonne giants, but send it to the Falklands, or consider it in terms of the needs of the RAN and it becomes much more than a token.

There are those in high places who believe that should the fleet find itself in need of fixed wing air support in a conflict situation that support can, without question, be expected from the Americans. Whilst recognising the need to aim for the collective defence of our region, realistically it must be accepted that there are circumstances in which we would not receive the support of our allies. This includes circumstances in which the US may not be in a position to provide assistance. We must recognise that the RAN will require self-reliance, to the extent that this is possible and not relying on our own sister services. Self-reliance must be the name of the game. It has been made clear by the US that if we are to expect their defence support, we must increase our endeavours to achieve an acceptable degree of self-reliance and commonality.

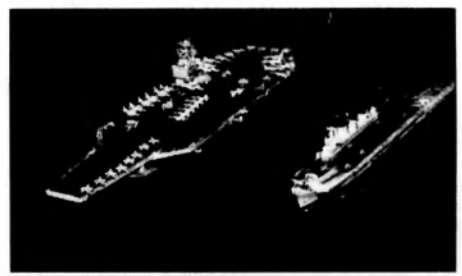


An artist's depiction of the Boeing X-32 JSF in USN colours. (Boeing)

Much of the above highlights the change in Navy thinking over two decades and somehow those current thoughts must be redirected. Perhaps the catalyst for that redirection will spring from a possible change in the face of STOVL aviation in the foreseeable future. It may well be that the arrival of the JSF could resolve Navy's need for fixed wing air support, even if belatedly.

There would still be the question of appropriate platforms for carrying the aircraft to sea and it is interesting to note that unlike previous STOVL designs, the proposed aircraft would be capable of being catapulted, thus expanding the options for sea going operation. Mindful of days of yore when aircraft were by various means coaxed into the air from the fore decks of cruisers, one might imagine our frigates carrying a helicopter on the quarter deck and a catapult operated STOVL aircraft on the fo'c's'le. The mind boggles, but a little imagination could open up various scenarios that would enable such aircraft to be used in novel and effective ways. In a defence force without funds to spare, innovation could play a significant role. Recent history has brought us such obvious (in retrospect) innovations as the mirror landing aid, the angled flight deck and the ski jump, maybe this is the time for more.

It is suggested that the time is ripe to persuade government and to persuade Navy that we cannot afford not to plug the serious gap in our defence capability, by acquiring a facility as soon as is practicable. A facility without which will mean we possess a fleet unable to carry out its intended functions, without placing the ships and their crews at unacceptable risk.



Notice the size difference, particularly in the flight decks, between the Nimitz class CVN, left, and the Invincible class CV, right. Those who would denounce carriers for the RAN cannot see beyond the Nimitz. (USN)

The Spanish PRINCIPE DE ASTURIAS, left, and the Thai CHAKRI NARUEBET, right, built by Bazan both represent carrier power projection at an affordable cost.

Brutal Asian Pirates Threaten Ships and Their Crews

By BILL BEECHAM

(Re-printed with the permission of AUSTRALIAN SHIPS AND PORTS Magazine)

Modern day piracy is increasing with eight countries sharing two-thirds of the incidents reported in 1998.

Listed according to the number of incidents, they are: Indonesia 69, the Philippines 15, India 12, Malaysia 10, and Bangladesh, Somalia, Brazil and Ecuador nine each.

Violence also increased during the year, with more than 67 seafarers killed and a further 35 injured during acts of piracy and armed robbery.

In its annual Review the London-based ICC International Maritime Bureau recorded a total of 198 separate attacks on vessels at sea, at anchor and in port.

Pirates boarded vessels in 138 attacks, and 11 ships were fired upon during other incidents.

Most of the ship hijackings occurred in South East Asia and the Far East, with Indonesia continuing to be the area of highest risk. There attacks increased to 57 from the previous year's total of 47.

However, there was a sharp decrease in attacks in the South China Sea, Thailand, Sri Lanka and Nigeria.

Legislation introduced last year by Sri Lanka, together with increased security in the nation's ports, saw attacks falling from 13 in 1997 to one last year.

Attacks in Malaysian waters increased from four to 10, though many of these were on fishing boats.

Australia was involved in one high profile act of piracy when the Malaysian-owned tanker 'Petro Ranger', captained by Australian Kenneth Blyth, was seized by Indonesian pirates before being intercepted in Chinese waters.

Captain Blyth and his crew were held in the Chinese port of Haikou during a long investigation, after which the Indonesian offenders were repatriated.

China is not a reporting member of the IMB and Hong Kong Shipowners Association president Arthur Bowring believes Chinese officials carry out their investigations in total silence.

"We are not given the full story by the officials we talk to," he says.

Several ships have been seized in the South China Sea by China's customs or navy and accused of smuggling. They are typically taken to a Chinese port, their cargoes sold and their crews discharged.

Most worrying are the attacks on the crews of hijacked vessels.

The 16,785dwt bulk carrier 'Cheung Son' was on a voyage from Shanghai to Singapore when she went missing on November 16.

Pirates are believed to have hijacked the ship and killed all 23 crew members.

China's Public Security Bureau arrested seven men suspected of the murders, and they have reportedly admitted planning the hijack after each being paid 100,000 yuan.

In a second incident the 4,240dwt vessel 'Tenyu', owned by Maumoto Kisea Shipping Co of Kobe, Japan, sailed out of the Straits of Malacca while bound for South Korea with a cargo of 1,500 tonnes of aluminium ingots.

The Panama-registered vessel was found much later in the Yangtze River port of Zhangjiagang with the new name 'Sanei I' and a replacement crew.

It is widely believed that the original crew of two Korean and 11 Chinese nationals were murdered.

Another ship missing is the 5,145dwt 'Pixy Marzo' which sailed from Hong Kong for Keelung on December 6, sent out a distress alert the following day, but has not been heard of since.

Meanwhile, the disappearance of vessels in Asian waters has continued.

The 5,193 dwt general cargo ship 'Hong Peng' operated by Chinese owners, the Hainan Hongda Shipping Co, left Hong Kong on December 28 bound for Taiwan but has not been seen since.

The IMB issued a "special alert" asking shipping to look out for the St Vincent-flag vessel, while a reward of US$50,000 has been offered for information leading to the location and recovery of 'Hong Peng' and/or its cargo of clay.

"Violence has been increasing," said Noel Choong, regional manager of IMB's piracy reporting centre in Kuala Lumpur.

"Towards the end of 1998 we've been seeing a lot of hijacked ships where we have crews missing and, I believe, killed. It is a major concern for us.

"We call for strong government action to wipe out piracy in Asian waters before it gets out of control."

The IMB will draft new legislation for countries without laws to tackle piracy, but this is likely to take over a year to clear the committee process.

A British government paper written for a Singapore summit meeting on tackling piracy states that co-operation between regional states is crucial if piracy is to be tackled effectively.

Difficulties in co-ordination mean that many attacks are not investigated and the criminals are free to attack again.

The problems of dealing with piracy involving nations with different judicial systems have been outlined by Geoff Rees, of New Scotland Yard's organised crime group.

"What happens if you get a ship registered in Honduras, owned in Britain and operated by a Malaysian company, which is hijacked in the Philippines?" he asked.

"The high number of agencies involved is a problem for the investigation process."

He said other problems included the complexity of laws involving the movement of vessels and the unfamiliarity of land-based law enforcement agencies with crime at sea.

"The performance in recent years to combat piracy hasn't been all that successful and the current situation is gloomy," he said.

Meanwhile, the IMB has linked with a French company, Colecte Localisation Satellites, to launch SHIPLOC, a low-cost vessel tracking system.

Claimed to be capable of the instant location of a vessel at sea or in port, the system has been developed for maritime use from the well established satellite-based tracking system ARGOS.

IMB strongly encourages shipowners to install SHIPLOC on their vessels. At between US$150 and US$310 per month, it is claimed to be relatively inexpensive.

For their own safety the crew need not be informed of the existence or location of the transmitter, IMB says. The only equipment needed by the shipowners is a PC with Internet access.

However, unless rigorous, concerted international action is taken against modern day pirates it seems certain that more vessels will be taken and more seamen's lives lost.

Naval Happenings

CAAF on Deck

The refurbished amphibious transport ship HMAS MANOORA should be at Fleet Base East, Sydney, by the end of the year.

Early in the New Year of 2000 first-of-class trials for the helicopters which will operate from the ship, the RAN's Sea Kings and the Army's Blackhawks and Chinooks, will commence.

Delivery of her sister ship HMAS KANIMBLA is expected six months later.

These details were released by CAPT Stephen Hooke, the new Commander Australian Amphibious Forces. The new CAAF command structure was announced by CN last September and went into operation on February 1.

Based at MHQ in Sydney, the unit has a staff of six with CAPT Hooke supported by two LCDRs, two WOs and an AB.

It will be boosted by the posting of the CO of TOBRUK , CMDR Alan Du Toit, to become the deputy CAAF.

Now falling under the command of CAPT Hooke are HMA Ships TOBRUK, MANOORA, KANIMBLA, BALIKPAPAN, BRUNEI, LABUAN, TARAKAN, and BETANO.

More than 580 members of the RAN and Army man the ships. Another landing craft, WEWAK, is in reserve.

CAPT Hooke said the role of his unit was to prepare, train and test the ships for their amphibious roles.

He said much attention would be directed to preparing the former US landing craft MANOORA and KANIMBLA for their future roles.

The two ships are at the Forgacs shipyard in Newcastle undergoing massive changes.

Each will be fitted with large helidecks and hangars, operating theatres and 32-bed hospitals, 70 tonne capacity cranes to lower smaller landing craft over the side and accommodation for 450 troops.

"I expect MANOORA in Sydney by the end of the year," CAPT Hooke said.

Asked about the delivery of KANIMBLA he said: "She's about six months behind MANOORA."

He said once MANOORA was operational HMAS TOBRUK would undergo an extensive refit.

Meanwhile, as he awaits delivery of the ships CAPT Hooke and his team will be kept busy planning for the time troops will go aboard.

By Graham Davis

ADI wins WESTRALIA Repair Contract

Despite ADI being named in the report on WESTRALIA'S fire as contributing to the chain of events that caused the death of four RAN personnel, it has been awarded a $25 million contract to repair the ship.

Families of the victims have expressed their anger and dismay at the decision to grant ADI preferred status for the contract.

Lyndon Pelly, who lost his daughter Megan on her first day at sea, told *'The Hobart Mercury'* that he was amazed by the decision. "It is unbelievable that the government is willing to award ADI this contract," he said.

This is the third major contract that ADI have won within the year prior to its expected sale. Sixteen companies submitted applications for the repair work with ADI being selected from a final list of four.

MELBOURNE Departs to the Gulf

During March the Minister for Defence, John Moore, announced that Australia would deploy HMAS MELBOURNE to the Gulf in support of United Nations sanctions against Iraq.

The Australian-built frigate, with an embarked Seahawk helicopter, will form part of the multi-nation Maritime Interception Force (MIF) for a three-month period commencing late May.

The Sydney-based frigate departed Australia on 30 April to join a US Naval task group also operating in the Gulf.

Approximately 220 mixed gender crew will be involved in this operational deployment.

The MIF was mandated by UN Security Council Resolution (UNSCR) 661 in August 1990. Its purpose is to conduct maritime interception patrols and boarding operations to enforce sanctions imposed on Iraq after its invasion of Kuwait.

"The Australian Defence Force has contributed naval ships to the MIF on eight earlier occasions during the period 1990-1996," Mr Moore said.

HMAS MELBOURNE departing Dramantina Pier, Fleet Base West, for the Persian Gulf. (RAN)

The last deployment was conducted in mid-1996 by HMAS MELBOURNE. In recent times, nations contributing to the MIF have included New Zealand, Canada, the Netherlands and the United States.

"Australia remains committed to the UN Security Council Resolutions on Iraq," said Mr Moore.

"These resolutions, the sanctions that give effect to them, and the MIF's role in enforcing them, are an important element in ensuring that Saddam Hussein is not able to threaten regional and international security.

"It is in the interests of international stability that we continue to enforce these sanctions against Iraq until it fully complies with UN conditions."

As mentioned, this will be the second time MELBOURNE has deployed to The Gulf to enforce sanctions. During her last five month deployment, MELBOURNE, intercepted 25 ships, boarded 14 and escorted 11 into port.

MELBOURNE is due back in Australia in September.

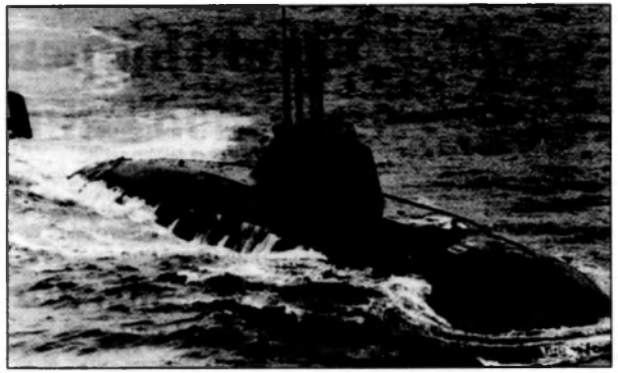
COLLINS Investigation Board Formed

Based on comments made to the Senate estimates committee the Minister for Defence has announced the formation of an investigation board to report to the government on the continuing problems associated with the Collins class submarine project.

"I have decided to appoint Dr Malcolm McIntosh, the former Chief of Defence Procurement in the United Kingdom, and Mr John Prescott, the former Chief Executive of BHP, to review progress to date on the Collins submarine project, and to report to me on proposals for completion of the project.

I have asked the Review Team to complete their report by 30th June" said Minister for Defence, The Hon. John More.

The Deputy Secretary of the Defence Acquisitions Organisation, Mr Gary Jones, listed the problems as being noise, unreliable engines, outdated periscopes and cracking propellers. Mr Jones said that given the high-technology metal used to make the propellers fatigue cracking was



A Soviet Victor I class SSN, now one of the 150 ex-Soviet SSNs awaiting urgent disposal.

starting to show. However, it is the propellers which give the Collin's class its unique reduced noise signature.

Recently the investigation team went aboard a Collins class sub to experience the submarine first hand. As is the practice before a sub dives a next of kin signal is sent listing all those on board and their closest relatives in case of accident. During the teams sea day the HF antenna used to send this signal failed to work and the signal was sent in the clear, delaying the dive by one and half hours.

In other Collins related news, crew numbers for the submarines are reaching critical levels. Morale problems associated with the bad publicity and extended evaluation period of the class have left many officers and crew complaining they were trained for operations rather than builders trials. It is understood that a very high number of crew from WALLER have resigned and that SHEEHAN, recently launched, is well short of a full crew.

Streetfighter Frigate under Consideration

The USN is considering developing a small, low cost frigate-sized warship to help maintain its 300 ship ceiling. The frigate is touted to be around 2000 tonnes with speed, stealth and the ability to support and hunt with the larger ships in the fleet.

The consideration of a frigate-sized ship marks a reversal in USN thinking on small combatants. At present the USN is expected to retire its entire Perry class frigates by 2008. Hull design considerations include the possibility of an open ocean catamaran. The US ship building industry is keen to see the concept develop as the 'Streetfighter' could provide a source of foreign sales.

US May Aid Russia Scrap Nuke Boats

Russian nuclear energy officials have applauded a US Government plan to provide funds for scrapping Russia's decaying and potentially dangerous nuclear powered submarines. Russia has been struggling to deal with its aging SSN and SSBN fleet which environmentalists charge are leaking dangerous amounts of radioactivity into the Pacific and Atlantic Oceans.

There are over 150 decommissioned nuclear powered subs floating in ports owned by the navy's Pacific and Northern Fleets.

Discussions on a time table for the aid was to have been discussed in March however, NATO attacks on Serbia meant that the Russian Prime Minister cancelled his trip to the US mid-flight as a protest at US involvement in the strikes.

Russian estimates of disposal of one SSN amount to US$8 million. According to Russia's Atomic Energy Commission about 30 submarines are in urgent need of disposal. Early build submarines such as the November, Echo and Hotel are in urgent need of safe disposal with other submarines such as early Charlie and Victor class SSNs next on the list.

RNZN Fleet Plans

According to Jane's Defence Weekly (JDW) of 10 March, the RNZN is formulating plans to pursue the acquisition of two second-hand ships to enter service as the frigate CANTERBURY pays off in 2005. JDW states that the RNZN's long term plan to operate a single class Navy has to be revisited.

Quoting Rear Admiral Fred Wilson, the RNZN's Chief of Naval Staff, the respected defence weekly reports that an interim solution is inevitable. "I believe the future will be to plan for two pairs of combat ships, with each pair being replaced about 15 years apart. This will avoid problems of block obsolescence and funding peaks that are inherent in a combat force of one class of ship."

The RNZN's Development and Operations Division is likely to be asked to investigate the availability of "pre-loved" ships as part of a longer term replacement strategy. According to Captain Gary Collier, there is no possibility of running CANTERBURY on beyond 2005.

USS WINSTON S. CHURCHILL

The Arleigh Burke Flight IIA class guided missile destroyer, WINSTON S. CHURCHILL (DDG 81), was christened and launched on 17 April during ceremonies at Bath Iron Works. Janet Langhart Cohen, wife of Secretary of Defense William Cohen, is the ship's sponsor and Lady Mary Soames, (Churchill's youngest and last surviving child), served as honorary sponsor for the United Kingdom. They were joined by a host of dignitaries, including Secretary Cohen; British Secretary of Defence George Robertson; Secretary of the USN Richard Danzig, RN First Sea Lord Adm. Sir Michael Boyce; and Chief of US Naval Operations Adm. Jay Johnson.

WINSTON S. CHURCHILL is the fourth American warship to be named in honour of an Englishman. The armed merchantman ALFRED went into commission in December of 1775 as the first ship of the Continental Navy. It was named after Alfred the Great, the English king who has been called "Father of the Royal Navy." During the Revolutionary War, the Continental frigate RALEIGH was named in honour of Sir Walter Raleigh, while another frigate was named EFFINGHAM in honour of the British Earl of Effingham, who resigned his commission rather than fight against the American colonists.

WINSTON S. CHURCHILL is the 31st ship of the Arleigh Burke class and the 18th of the class to be built by Bath Iron Works. With a crew of 22 officers and 324 enlisted personnel, WINSTON S. CHURCHILL will be homeported in Norfolk, Va., as part of the U.S. Atlantic Fleet upon commissioning in the year 2000.

The new Flight IIA Arleigh Burke class DDG WINSTON S. CHURCHILL being launched. (USN)

The Type 22 Batch 2 frigate HMS BEAVER similar to HMS BRAVE

HMS BRAVE Decommissions

HMS BRAVE returned home to Devonport on 22 March at the end of her final operational deployment.

After 13 years in the Royal Navy, the Type 22 Batch 2 frigate has decommissioned. In keeping with Royal Navy tradition, the ship marked her last entry into her home port by flying her paying off pennant.

During a distinguished career, HMS BRAVE saw action in the Gulf War and deployed all over the globe, including the Adriatic, the South Atlantic and the Caribbean. In 1996, the ship was involved in the seizure of a record breaking £150 million worth of cocaine while on West Indies Guard Ship duty. HMS BRAVE, the ninth warship since 1588 to bear the name became non-operational on 1 April.

This is the second Type 22 Batch 2 frigate to decommission early to comply with the UK's recent strategic review. Who will eventually buy these magnificent ships, still with another 15-20 years left in the hulls, is anyone's guess.

First Operational Firing of UK Tomahawk

The commencement of military action by NATO against the Serbian military in Kosovo saw the first operational firing of British Tomahawk cruse missiles. The

missiles were fired from the British nuclear attack submarine HMS SPLENDID. The deployment of HMS SPLENDID and the operational use of the Tomahawk missiles shows the determination of the UK Government to play a full part in achieving a successful outcome to the Kosovo crisis.

HMS SPLENDID is a nuclear powered attack submarine capable of sustained submerged operations in support of a wide range of military tasks. She is the first Royal Navy submarine to be equipped with Tomahawk Land Attack Missiles. The submarine is believed to have fired seven to 10 missiles.

Exercise Thrust '99

The USS Blue Ridge (LCC 19) kicked off Exercise Tandem Thrust 1999 in the Pacific Ocean on March 15 and which continued until April 4. Tandem Thrust is a biennial exercise designed to enhance fleet commanders ability to function as joint task force commanders under the US Pacific Command's two-tier concept.

The exercise involved more than 12,000 personnel, 18 ships and 110 aircraft from the US military, the Australian Defence Forces and the Canadian Navy.

Embarked aboard Blue Ridge, Commander US 7th Fleet was in charge of the combined task force.

Tandem Thrust was held in two phases. The first phase was a command post exercise (CPX) held between March 15-22.

The second phase of Tandem Thrust was the field training exercise which took place from March 26 to April 4. This phase involved the actual movement of air, ground and naval forces from the US and Australia in a joint and combined environment.

The operation involved rescuing American and Australian citizens and assisting fictitious defence forces in restoring their territorial integrity.

"In today's dynamic and multi-dimensional combat environment, it is more important than ever for our services to be able to operate together jointly," explained Vice Adm. Walter F. Doran, Commander, US 7th Fleet. "Tandem Thrust enables us to do that, bringing together forces from the Navy, Army, Air Force and Marine Corps in a challenging joint environment."

Doran added that with near constant need for armed forces involvement in hot spots around the globe, combined efforts of US and coalition forces are needed to assist in conducting military operations.

"With the participation of Australian Defence forces, Tandem Thrust enables us to exercise in this realistic combined environment," said Doran.

The Canadian Navy served as the opposition force throughout the exercise.

Tandem Thrust is the largest regularly scheduled joint-combined exercise in the Western Pacific. It continues to be the centrepiece of the USN's 7th Fleet's training to function as a Joint or Combined Task Force.

Approximately 1000 Australian Navy and Air Force personnel participated in TT99. The four participating RAN ships were HMAS PERTH, SYDNEY, NEWCASTLE and SUCCESS. They were supported by three RAAF P-3C patrol aircraft from 92 Wing.

An 18 personnel Clearance Diving Team (CDT1) element also attended. They were involved in operations that included Clandestine Beach Recon, EOD, Flyaway missions, fast rope/parachute and boat insertions.

There were also a number of personnel from the newly formed Deployable Joint Forces Headquarters (DJFHQ) under the command of COMFLOT. This was their first international exercise since their inception.

There were approximately 800 Canadian Navy and airforce personnel aboard three Canadian Navy ships and one patrol aircraft serving as the maritime opposition force for TT99. The ships were HMCS HURON, CALGARY and PROTECTEUR.

USN Commissions New Destroyers

The US Navy' has commissioned two Aegis equipped Arleigh Burke class Guided Missile Destroyers, USS PORTER (DDG 78) and USS HIGGINS. PORTER joined the Atlantic Fleet on March 20 during a commissioning ceremony at Port Canaveral, Florida.

The ship honours a father, Commodore David Porter (1780-1843) and his son, Vice Adm. David Dixon Porter (1813-1891), whose combined legendary naval exploits earned them a place of honour in US Navy history.

The elder Porter achieved fame while in command of the frigate ESSEX by capturing the first British warship of the War of 1812. He later served as a member of the Board of Navy Commissioners before resigning his commission to become commander-in-chief of the Mexican Navy. He died while serving as US Minister to Turkey.

The newly commissioned USS PORTER DDG-78

USS HIGGINS's sponsor Mrs. Robin Higgins and ex-President Bush thank the USMC guard commander after the commissioning ceremony. (USN)

His son, Vice Adm. David Dixon Porter, distinguished himself by rising from the rank of lieutenant to Rear Admiral in two years during the Civil War, fighting in more battles and earning more laurels than any other senior officer. He is considered one of the most colourful US naval officers to ever command a squadron.

Another Arleigh Burke-class destroyer, HIGGINS, commissioned on April 24 in Port Everglades, Florida. The ship is named after Marine Corps Col. William "Rich" Higgins, a distinguished Vietnam veteran killed in Lebanon. While serving as a senior military adviser for the UN Peacekeeping Mission in Lebanon, Higgins disappeared in February 1988. He was held captive by the Hezbollah in Lebanon and later murdered. After his death, President Bush awarded him the Presidential Citizens Medal and Purple Heart.

Like other Arleigh Burke-class destroyers, HIGGINS will employ cutting edge, state-of-the-art technology in virtually all aspects of her design. The ship was even equipped with its own Local Area Network (LAN) while in the shipyard. "Installing the LAN while the ship is under construction makes integration easier," said LAN Administrator Chief Radio man (SW) Don Acker. "Physical access is easier, for one. Cableways are open, so we can run the fibre-optic cables throughout the ship. It also allowed the LAN team to place access points, or 'drops,' at the best location in a room, instead of having to put them in the only space available. "Every Sailor on board has an e-mail account," Acker continued. "Their e-mail accounts can be used to send and receive e-mail both on and off the ship. This makes keeping in touch with family and friends ashore much easier, as well as ensuring the crew gets messages and job-related information."

HIGGINS contains the latest navigation, communications and tracking equipment. It is the first Navy ship to sail without a magnetic compass on board, instead using the digital flux gate magnetometer for accuracy. The ship's sponsor is Robin Higgins, widow of Col. Higgins.

SSBNs May Convert to Conventional Role

Senior USN officials may soon approve a plan to convert four Ohio class Nuclear Powered ballistic Missile Submarines (SSBNs) to a conventional role. The plan is to convert the subs from ballistic missile carriers to Special Forces and Tomahawk carrying platforms, SSGNs. Nearly 154 Tomahawk cruise missiles, 104 Special Forces troops and their equipment and a Command and Control centre to replace the 24 Trident D4 missiles are envisaged in the plan.

The plan itself would not only meet the requirements of the Strategic Arms Reduction Treaty 2 (START 2) with Russia but save the USN from retiring the subs early and many millions in new build combatants.

The projected refit cost is between $1.2 billion and $1.5 billion and produce an enhancement on the war fighting capabilities of the USN plus the ability to remain at sea for 80% of the year.

During Operation 'Allied Force' the USN had four ships and one SSN firing Tomahawk missiles in support of NATO's operation. Admiral Archie Clemins, Chief of the US Pacific Fleet, recently said "if we had two SSGNs (modified Ohios), they could do the whole mission and we would not have to tie any other ships up there."

The USN is currently working on ways to reshuffle its existing budget to accommodate the refit.

An artist's conception of a converted Ohio class SSBN.

'More Silver Bullets Please'

Pentagon officials have received emergency funds to replenish the US militaries dwindling stocks of Precision Guided Munitions (PGMs).

The increased funding is going towards the purchase of more ship launched Tomahawk, more of the newly introduced Joint Direct Attack Munition (JDAM) and more Conventional Air Launched Cruise Missiles (CALCMs) for the USAF.

The call came from use in last December's Operation 'Desert Fox' and the more recent Operation 'Allied Force' against Serbia.

'We're running out of cruise missiles and CALCMs" said Navy Captain Bert Johnson, Commander Naval Warfare Testing Centre, China Lake, Calif. "In Kosovo and Iraq and these smaller conflicts, we're using a lot of standoff weapons and PGMs to avoid US casualties".

Before 'Operation Desert Fox' the USN had 2200 Tomahawks however, since last December more than 425 Tomahawks, nearly five years worth of production, have been used. The USN has been given US$421 million to remanufacture 324 older Block IID, 100 Block IC and 200 Block I TASM (Tomahawk Anti Ship Missile) missiles to the Block IIIC version. The conversion of the TASM is the most expensive, at US$1 million each, while the others will cost half that amount. For the TASM everything from the wings forward has to be replaced. The whole 624 missile conversions will take two years to complete by which time Raytheon is expected to start production of a new Tomahawk missile.

As *THE NAVY* went to press it was revealed that Congress was considering going further than the military's request adding 300 brand new build Block III missiles, converting another 100 from Block II and converting all 525 TASM to Block III land attack variants.

Vietnamese Boost Military

The Vietnamese Navy is set to receive two modified Tarantul II corvettes from Russia. The two 450 tonne corvettes will join two other Tarantul I corvettes which have been in service since 1996. The new ships will be armed with two twin launchers for SS-N-2D Styx ASMs (anti-ship missiles), an Igla SAM system, a 76 mm gun and two 30 mm air defence guns.

The two corvettes will enhance Vietnam's capability against ships in coastal or littoral waters and around the Spratly islands.

Vietnam has also recently ordered two new corvette designs from Russia to be built in Vietnam. The 2000 tonne corvettes, the KBO 2000 class, are to be armed with the new SS-N-25 'Switchblade' ASM, SA-N-9 'Gauntlet' SAMs, a 100 mm gun, two 30 mm anti-aircraft guns and torpedoes. According to the Russians, design work on the new corvettes is complete.

This order comes on the heals of a recent US$100 million purchase from North Korea of two second hand Sang-o mini submarines and, in what could be described as an escalation in the regions arms race, an unspecified quantity of Scud C missiles.

Melbourne Unsafe from Serb Protests

A planned visit to Melbourne by the Ticonderoga class cruiser USS PRINCETON last April had to be cancelled and the ship diverted to Hobart due to concerns about protests from Melbourne's Serbian Community.

The order to divert to Hobart and join the carrier, USS CARL VINSON, came from US 7th Fleet Command as a result of violent protests against the US Consulate in Melbourne and reports of planned protests against the ship.

USS PRINCETON tied up, with the Tasman bridge in the background after the ship was diverted to Hobart (Kevin Dunn/Fleetline)

JMSDF Fires on North Koreans

On 23 March two 'suspicious' North Korean ships, which had entered Japanese territorial waters, were chased by units of the JMSDF. Officials claim that the two ships were mother ships for North Korean infiltration craft. JMSDF vessels challenged the two craft which then gave the names of two Japanese trawlers however, one of the names given was a trawler that had been scrapped in 1994. Nine JMSDF ships pursued the North Koreans, including the Japanese Aegis destroyer MYOUKOU. Two of the pursuing JMSDF ships fired warning shots across the bows of the fleeing North Koreans. During the chase North Korea dispatched two MIG-21s into the Sea of Japan which turned away after the two mother ships entered North Korean waters. This was the first time JMSDF units had fired warning shots since 1953 and has sparked debate on possible changes to their rules of engagement and procedures.

In other Korean peninsular news, the Republic of Korea Navy (RoKN) has succeeded in salvaging a North Korean infiltration craft (the sort launched from mother ships that the JMSDF chased) which sank during a firefight on 18 December 1998.

The vessel, which was conducting covert operations inside South Korean waters, was recovered from a depth of 130m by a 12 tonne salvage ship fitted with a special crane. The remains of six North Koreans were found inside the boat as well as one million Japanese yen and 570,000 won.

The five tonne infiltration craft was constructed of plastic and reinforced fibreboard and measured 12.8m x 2.95m x 0.62m. The vessel had a top speed of approximately 50 kts. The craft could also submerge to a depth of 20 metres at 12 kts. The hull was coated with a radar absorbent paint and the boat fitted with a GPS. According to an RoKN official the boat was the most advanced ever recovered.

India Despatches Carrier to Persian Gulf

India has sent its aircraft carrier, INS VIRAAT, to the Persian Gulf for the first time as part of its attempt to increase its influence in the region.

The carrier was accompanied by the Kashin II class destroyer INS RANVIJAY and the replenishment ship INS SHALKTI.

"India would like to have greater interaction with its neighbouring militaries for there is much to share", said a un-named senior Indian defence official.

On returning from the Gulf the carrier group is expected to conduct joint manoeuvrers with the French carrier FOCH off the western coast of India.

New ASM Defence

US Defense scientists are working on a new form of ASM (Anti-ship Missile) defence involving a wall of water. Called the Water Barrier Ship Self Defence System, it involves launching a rocket propelled line charge 100m from the ship which explodes causing a wall of water to be formed.

According to the scientists, modelling and trials work has demonstrated the ability of the water barrier to defeat incoming fragments and projectiles. Tests conducted on a TOW anti-tank missile validate the scientist's claims and demonstrated the destructive effects of the water plume.

Scientists are investigating other applications for the water plume such as torpedo defence, mine countermeasures and non-lethal use against small craft.

Land Attack Standard Missile Go Ahead

The USN has been given the go ahead for modification of 800 SM-2 Block II/III Standard missiles to the new Land Attack Standard Missile configuration (LASM).

Fired from a MK-41 VLS the missile is a normal SM-2MR anti-aircraft missile modified with a new warhead, low drag nosecone and GPS in order for it to attack land targets out to 140nm. The missile is intended to provide land forces with rapid precision fire support.

CHARLES DE GAULLE Achieves 20kts

The French nuclear powered aircraft carrier CHARLES DE GAULLE has reached over 20kts on speed trials during March.

The trials were late as a propulsion failure laid the ship up for eight weeks. French Navy officials said the new trials confirmed that the carriers previous problems had been rectified. Auxiliary electrical pumps, used to circulate water around the vessels secondary circuit, were responsible for the delay but are now working well.

The ship is expected to conduct aircraft landing trials soon with Super Etendard fighters and then with the new Rafale.

UK Awards Trimaran Demonstrator's Contract

Vosper Thornycroft has been awarded a US$21.3 million contract by the UK MoD (Ministry of Defence) to build a trimaran demonstrator to assess the merits of the trimaran hullform. The vessel will have a length of 90m, a beam of 20m and displace 1,100 tonnes. The demonstrator will test the new hullform as a possible replacement for the Type 23 frigate post 2010.

Initial research on the new hullform have indicated that savings could be made in reduced life cycle and acquisition costs as well as providing better sea keeping, reduced signature, better survivability and a more flexible layout.

The fundamental advantage of the trimaran is that it resolves the dichotomy of minimum resistance, where a long slender hull is the optimum shape, against deck space and stability. It achieves this by using outriggers to provide stability and a main hull optimised to provide speed.

The ship will be powered by a 4MW diesel-electric propulsion unit for a maximum speed of 20kts. The vessel is due to undergo testing in September 2000.

Ticonderoga Upgrade Plan

The USN is seeking approval to spend US$4.5 billion to upgrade its fleet of Aegis equipped cruisers.

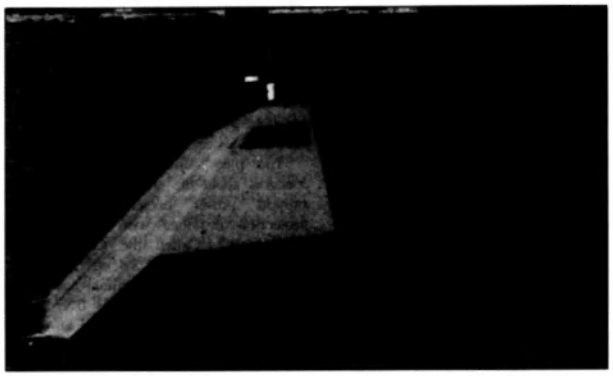
The plan comes about from concerns about the ships ability to support power projection and protection missions with current technology. Called the Cruiser Conversion Program, USN officials are calling for the plan to commence immediately due to concerns over growing demands being placed on US Naval ships by regional commanders.

The upgrades would concentrate on areas such as Theatre Ballistic Missile Defence, improving the classes strike capabilities and adding an area air defence commander capability.

Proposed upgrades:

- CG 47-51
  VLS, ERGM (Extended Range Guided Munition), LASM (Land attack Standard Missile), Tomahawk and SM-2.
- CG 59-64
  Navy Theatre Wide Missile Defence (4 ships) and Navy Area Wide (2 Ships). SM-3 plus Area Air Defence Commander Battle Management System.
- CG 52-58
  Upgraded Navy Theatre Wide Missile Defence, SM-3 and Battle Management System.
- CG 65-73
  Area Theatre Wide Missile Defence, ERGM, LASM and SM-2.

USS MOBILE BAY during the recent Tandem Thrust exercise. (USN)



The recently re-activated USN Sea Shadow seen here in San Francisco Bay during the USMC Urban Warrior exercise. (USN)

Contract Signed for 2nd Penguin Acquisition

The Department of Defence has exercised an option worth $76 million to buy additional Penguin air-to-surface missiles and related equipment for the Navy's ANZAC Ship helicopters, the Kaman SH-2G (A) Super Seasprites.

A contract for additional missiles was signed by the Vice-President of Kongsberg Defence and Aerospace AS of Norway, Mr Vidar Sandengen, and the Director General Helicopter and Guided Weapons, Mr Gunnar Tuisk, in Canberra.

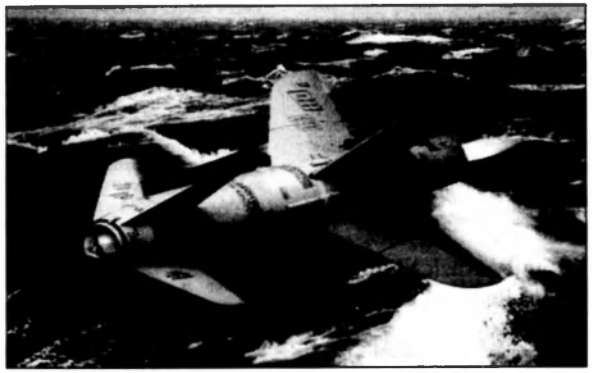
The contract for Phase 2 of the project follows the initial contract for $79 million signed with Kongsberg in February last year which provides for transfer of technology to Australian Defence Industries to allow manufacture of Penguin warheads in Australia. With the availability of funds, the Phase 2 contract was brought forward to take advantage of prices which will ultimately result in savings on unit costs of Penguins.

The missiles, with a range of better than 30 km, will provide extra 'teeth' to the ANZAC Ships in addition to the Warfighting Improvement Program (WIP) designed to upgrade their combatant ability.

"Penguins are currently in service in the United States and Hellenic Navies as well as the Norwegian, Swedish and Turkish Defence Forces", Mr Tuisk said after the signing, "but the missiles we are buying are optimised for countering surface threats that the ANZAC Ships could face in Australia's maritime approaches."

Mr Tuisk said the first of the Penguin missiles should be available when the Super Seasprites enter service with the RAN early in the next century.

Delivery of the missiles will follow on from the phase 1 acquisition and are expected to be completed by January 2003.



BELOW

A Penguin Anti-Ship Missile as recently purchased for the RAN's Super Seasprite helicopters.

BOTTOM

This recent photo of HMAS BRISBANE in Sydney's Captain Cook Dry Dock could be the last time a DDG will be seen in the dry dock.
(LSPH Kevin Bristow, RAN)

HMAS JERVIS BAY (III)

HMAS JERVIS BAY has been approved by the Governor-General as the name for the new high-speed catamaran chartered by Navy from International Catamaran Australia INCAT in Tasmania. The formal naming and commissioning ceremony took place in Hobart on Thursday, June 10, 1999.

The new JERVIS BAY is an 86 metre high-speed catamaran built and trialed in Tasmania. She is capable of carrying 500 fully equipped combat troops and a range of army vehicles and equipment at speeds in excess of 40 knots (nearly 80 km/h) over a considerable distance.

The crew was trained at the Australian Maritime College in Launceston, and have now joined additional Army and Navy personnel on board in Hobart.

There had been two previous naval ships named JERVIS BAY.

The first ship to bear the name was a passenger cargo vessel built in 1922. She was built on order of the Commonwealth Government Line of Steamers and conducted an average of three round trips between Australia and the United Kingdom per year.

During WWII, she was commissioned by the RN and converted into service as an armed merchant cruiser. In 1942, while acting as a convoy escort in the Atlantic, HMS JERVIS BAY engaged the German pocket battleship ADMIRAL SCHEER and was sunk after a valiant battle.

Her commanding officer, Commander E.S.F. Fegan, was killed during the action with ADMIRAL SCHEER and was posthumously awarded the Victoria Cross.

The second ship to bear the name was the Australian 'Roll On, Roll Off' Ferry formerly named MV AUSTRALIAN TRADER, which was built in the Newcastle State Dockyard.

She served in Bass Strait until commissioned into the RAN as HMAS JERVIS BAY on 25 August 1977. In addition to her primary role as the RAN training vessel, she was also used for military sea-lift tasks.

HMAS JERVIS BAY (III) will supplement the current amphibious force element group that comprises HMAS TOBRUK, the two amphibious transports (LPAs) and heavy landing craft (LCH).

Design

The wave piercing catamaran was developed by Incat in the early 1980's and it has undergone 15 years of refinement. The design is characterised by long slender waterborne hulls; each subdivided into eight watertight compartments, which have very little buoyancy at the bow. As each hull encounters a wave it tends to "pierce" through, rather than ride over waves.

The concept is simple. At the bow the waterborne hulls are 10% immersed and contain 10% reserve buoyancy. The remaining 80% reserve buoyancy for the wave piercing catamaran is held in the forward central hull, located above the loaded smooth water line. This results in a very versatile hull form which is sympathetic to a safe ride in all weather conditions and sea angles. Other high speed craft hull forms experience limitations in some conditions.

Construction

HMAS JERVIS BAY, formerly known as INCAT 045, is a further development of the successful 74, 78 and 81m INCAT car ferries. It has been built to the requirements of the Det Norske Veritas High Speed Light Craft Rules (classed +1A1 HSLC R1 Car Ferry "A" EO) and the International Maritime Organisations (IMO) High Speed Craft Code.

INCAT 045 was constructed at the modern INCAT shipyard in Hobart, Tasmania, Australia. The ferry is a product of an efficient assembly line – similar in principle to those currently used in the aircraft and vehicle manufacturing industries.

Essentially the shipyard is divided into two production areas, prefabrication and assembly. Initially prefabricated items, including various modules and frames, are constructed. These are then transported a short distance to the 280 metre long assembly line, known as the Coverdales shipyard.

The assembly takes place in three stages and the ship is moved through each stage on a simple, but highly effective, fixed railway system designed specifically for transporting large catamarans.

In stage one the keel is laid and the prefabricated frames and beams are assembled.

In stage two, among other work, the superstructure frame is constructed, the hull plating is completed, the wave piercing bows are added and the jet rooms are installed.

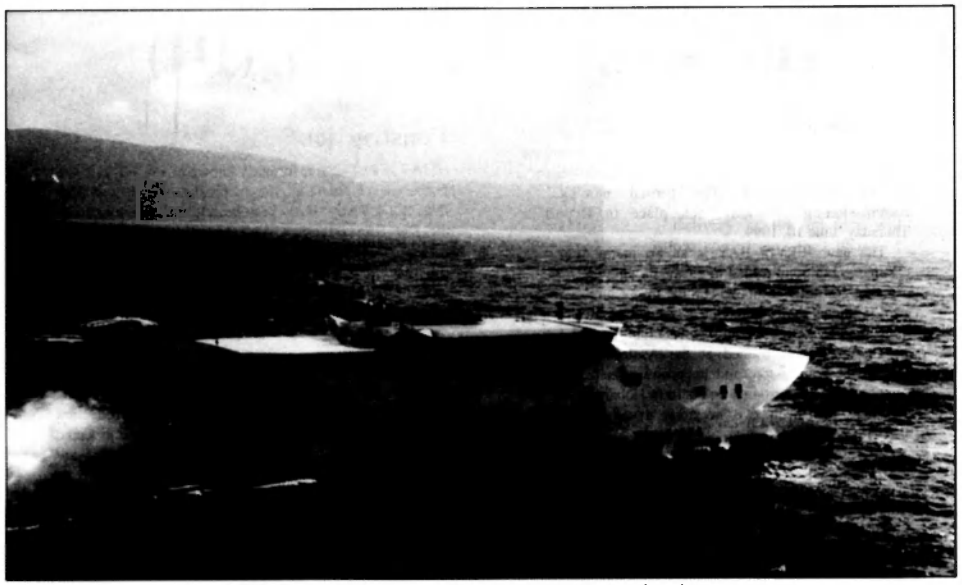
The ship is then moved to stage three which is a dry dock facility. In this final construction stage the engine, gearbox, jet units, liferafts, electronic and electrical equipment are installed. In addition, fitout is completed and the ship is painted prior to the dry dock being flooded and the "launch".

Once in the water, each ship typically undergoes about 4 days of trials prior to delivery. Amazingly, the INCAT shipyard is building, in various production stages, 4-5 ships at any one time with a launch every 10-11 weeks.

JERVIS BAY is constructed from marine grade aluminium alloys and INCAT has insisted on the earliest introduction of the rare 5383 – H116 alloy, which provides significant marine and mechanical property improvements over the superseded 5083 range, for sheet and plate throughout the ship. The internationally accepted 6082.T6 alloy is being used for extruded aluminium while INCAT communicates with suppliers about changing to the 5383 series alloy.

Propulsion

The vessel is powered by four Ruston 20 RK270 conventional medium speed diesel engines that develop 7080 kW each. Each engine drives a transom mounted waterjet (Lips LJ145D) through a Renk ASL60 reduction gearbox. The custom designed Lipstronic jet control system provides, apart from steering and reversing, the option of thrust vectoring and auto pilot is even more appealing.



HMAS JERVIS BAY, recently commissioned by the RAN still in its civilian colours.

Superstructure

The aluminium superstructure is supported on vibration damping mounts and was configured to provide seating for up to 876 passengers and a crew of 24 people.

A full width wheelhouse is fitted with central and wing control positions for docking. A variety of entertainment, navigation, radio, control and monitoring equipment has been provided to suit the owner and Classification Society requirements.

The spacious air conditioned crew mess, located under the bridge, can be accessed via a private stairwell leading from the bridge or alternatively, from the forward starboard passenger ramp.

Access to the main passenger areas may be gained through: dedicated passenger gates located aft; two aft stairwells from the vehicle deck; or alternatively, two forward ramps from the vehicle deck.

Ride Control

Passenger comfort has again been increased significantly with the introduction of the 86 metre wave piercing catamaran. Part of the improvement can be attributed to the enhancement of the Maritime Dynamics Inc. ride control system now installed on 21 INCAT car ferries.

The system consists of an active trim tab mounted at the transom of each hull, which provides trim and motion dampening. Interestingly, the operator can adjust the gain on pitch, roll and heave motions to optimise the performance of the system for a specific sea condition, wave direction and speed. The optimisation obviously results in enhanced ride characteristics.

Ride has also been enhanced by increasing the waterline length of the ferry. For example, since the early 74 metre car ferries the waterline length has been increased by more than 17 metres (15%).

Safety and Fire Protection

JERVIS•BAY is equipped with four of the world's most advanced Marine Evacuation Systems (MES) and six, 100 man liferafts.

The system, supplied by Liferaft Systems Australia, has proven itself under international scrutiny and is without doubt the fastest and safest available. The MES and rafts fitted ensure that 900 people can be evacuated in under 12 minutes – a time which is significantly less than that required by the IMO standard. Further, the system reduces the full load minimum evacuation crew to 24 people.

Each MES can be operated individually by a single crew member at a local evacuation station or alternatively, the entire system can be activated from the bridge. A significant safety feature incorporated into the MES is that when deployed, the liferaft (connected by the slide) is securely positioned 12 metres out from the hull of the ship, as opposed to deploying alongside. All MES units are removed, inflated, tested and reinstalled every year. The 100 person rafts are fitted at the aft port and starboard escapes for use on the low level decks.

Advanced lightweight fire protection, developed by a Tasmanian company, Colbeck & Gunton, and multinational Thermal Ceramics, has been used throughout JERVIS BAY.

Significant features of the fire protection include increased water resistance; it is robust and can be easily opened/removed to allow access to vessel services. Colbeck & Gunton have installed single leafed hinged fire doors, single and double sliding fire doors, guillotine fire dampers, engine room fire dampers, fire hatches and smoke baffles throughout the ship forming the best structural fire protection system available for high speed aluminium craft.

A marine approved Thorn Solid State Fire Detection system which monitors a combination of smoke, break glass, heat and flame detectors has also been installed. The three levels of fire extinction devices provided are listed below:

- Portable hand held extinguishers;
- Fire hydrants and fire hose reels; and,
- Overhead fire sprinkler system and CO2 gas flooding system for the engine rooms.

Conclusion

The introduction of a high speed catamaran will complement Australia's ability to move troops and equipment in the most effective manner and will support the increased levels of preparedness recently announced by the Federal Government.

The new vessel will participate in a range of ADF exercises including 'Crocodile 99' later this year. There is also scope to use it in the provision of support for disaster relief operations within Australia.

The Department of Defence has chartered the catamaran for a two year period.

It will be based in Darwin from the end of June and commissioned into Naval service, with two crews of 20 Navy and Army personnel. As mentioned training of the crews took place at the Australian Maritime College, Launceston. Additional, onboard training, will take place under the supervision of an experienced check captain.

"This charter represents a further investment by Defence in Australian industry and technology," said the Minister for defence Mr John Moore. "It increases the operational effectiveness of the ADF and boosts linkages between the Defence Force and local industry. It also provides the ADF with an opportunity to trial and evaluate high speed, multi-hull technology for a range of military applications, in a realistic operating environment."

The United States Navy and Royal Navy are also considering the multi-hull concept for sea transport operations and have expressed interest in Australian catamaran designs.

"Australia is internationally renowned for advances in the development of this type of vessel which offers an innovative solution to current Defence requirements," Mr Moore said.

Principal Dimension and Capacities

Length overall	86.62 m
Length waterline	76.41 m
Beam overall (excluding fenders)	26.00 m
Hull beam	4.33 m
Depth (mld)	6.75 m
Hull centreline to vessel centreline	10.83 m
Draft (U.S.K.)	3.60 m
Fuel capacity (approx.)	4 x 15,250 l
Long range fuel capacity (approx.)	2 x 245,000 l
Emergency genset fuel capacity (approx.)	2 x 857 l
Fresh water capacity	5000 l
Sullage capacity	5000 l
Lubricating oil storage capacity	2 x 823 l
Passengers (900 maximum however, reduced to 800)	876 people
Crew	24 people
Vehicles	200 cars or a combination of cars and up to four coaches

Abbreviations: MCR = Maximum continuous rating

l = litres m = metres kW = kilowatt hour

Trial results	
Lightship	47.5 knots @94% mcr
Two way average speed (370 tonne deadweight)	42.19 knots @94% mcr
Typical Performance	
Service speed (350 tonne deadweight)	43 knots
Fuel consumption	212 grams/kW hour
Fuel consumption, 350 tonne deadweight, per seat per mile @ 44 knots	0.21 litres

Book Reviews

AUSTRALIA'S NAVAL INHERITANCE

Imperial Maritime Strategy and the Australian Station, 1880-1909
By Nicholas A. Lambert
Publisher: Maritime Studies Program
Dept of Defence (Navy)
Reviewer: M. G. Bryant

In recent years there has been a small revolution in the field of Australian naval history. This revolution has resulted from the publishings and conferences of the Maritime Studies Program and the grassroots work of the Naval History Directorate. Together these organisations have revitalised the study of Australia's naval history to the benefit of the Royal Australian Navy.

An example of the fine work being currently undertaken is the latest volme in the series Paper's in Australian Maritime Affairs. This volume authored by Nicholas A. Lambert, an internationally known and respected naval historian, is a compilation of documents, principally from the Public Records Office, dealing with the naval defence of the Australian colonies in the period through to 1909.

The volume shows, in documentary form, the battle between the Admiralty and Australian Government in their desire to create an Australian navy. They reveal in part, the reasoning behind the Admiralty's opposition to the establishment of an independent navy, including strategic control and personnel. However, what the Admiralty failed to appreciate was the national desire of Australia to have its own navy, not just a visiting squadron of British warships.

Nicholas Lambert has prefaced *Australia's Naval Inheritance* with a lengthy article tracing the naval relationship between the Australians and the Admiralty. The perspective of the article, principally British, provides a good balance to some of the more nationalistic appraisals that have been written in Australia.

The publishing of this work has made available to Australian scholars documents which otherwise may only be available in the United Kingdom and will prove to be an invaluable research resource. The period covered by the documents in *Australia's Naval Inheritance* is also significant in that these were the years leading up to and immediately following Federation. An important component was the defence of the colonies.

If there is criticism that could be made, it is that a better product could have been produced if this work could had been produced by a commercial publisher. This is a criticism levelled more at Australia's commercial publishers, who would rather publish second rate stories than first rate naval history.

Australia's Naval Inheritance is an excellent work and builds on the previous publications of the Maritime Studies Program. It is a work that is highly recommended to anybody interested in the history of the Australian Navy and Australia's road to nationhood. I am looking forward to seeing future publications from this series.

Editor's Note: Copies of *Australia's Naval Inheritance* may be obtained from Naval History Directorate, Department of Defence (CP3-4-41), Canberra ACT 2600.

CANADA AND THE BATTLE OF THE ATLANTIC

By Roger Sarty
Publisher: Art Global and Department of National Defence
Reviewer: Joe Straczek

If there was a battle that was crucial to the outcome of the war in Europe it was undoubtedly the Atlantic Ocean. Victory against the U-boats ensured ultimate victory for the Allies. Defeat, whilst not leading to an ultimate Allied defeat, would have resulted in a far greater loss of life and longer war.

The naval victory in the Atlantic helped shorten the war and reduce the human suffering. The role of the Royal Canadian Navy has often been overlooked or understated, as has the role of most Commonwealth countries in the Second World War. Many an RAN DEMS gunner serving in the Atlantic has memories of the small Canadian escorts battling not only the U-boats but also extremely poor weather conditions and at times uncooperative merchant ships in an attempt to get the vital supplies through.

Canada and the Battle of the Atlantic tells the story of the Royal Canadian Navy in this momentous struggle. Above all else it is a human story. A story of life, struggle and death at sea. Whilst some readers may question the retelling of such a story after 50 years, it is important to remember the service rendered by seamen and the roles played by the Navy in war.

Roger Sarty has written a book about these human elements as much as it does the history of the events he describes. It is illustrated with a large variety of photographs clearly depicting the many aspects of the war at sea. From those who commanded ashore to the ships and men who fought the war at sea.

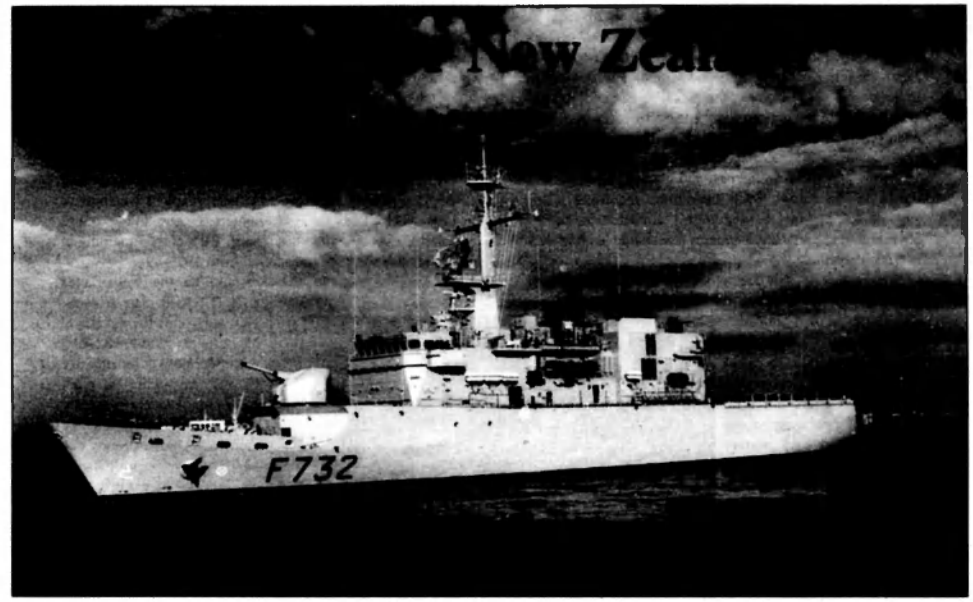
Canada and the Battle of the Atlantic is highly recommended.

PORTSMOUTH WARSHIPS 1900-1950

By Syd Goodman
Publisher: Halsgrove House, Lower Moor Way, Tiverton, Devon, EX16 6SS, United Kingdom
E-mail: www.halsgrove.com
Reviewer: Ross Gillett

This is a 150 page book, a pictorial survey of many of the Royal Navy warships that operated from the historic port. Each illustration is captioned with a brief history of the ship, with all of the 180 photos re-produced from the Goodman Collection, a 40,000 photo library amassed over a century.

The publishers have also released a companion volume, *Plymouth Warships 1900-1950*.



The French Navy Floreal class frigate, NIVOSE, leaving Melbourne recently. (Kevin Dunn/Fleetline)

The Royal New Zealand Navy (RNZN) is a small but efficient service, with a proud history of naval operations dating back to the actions of the RNZN-manned light cruiser HMS ACHILLIES at the battle of the River Plate in 1939.

The RNZN of today is busy accepting into service two major programs that will see it into the next century. The first is the new SH-2G Super Seasprite helicopter. Replacing the elderly Wasp helicopters, the SH-2G represents a quantum leap in capability, and will introduce an anti-ship missile capability to the RNZN.

The second major program is the ANZAC ship program. This joint New Zealand/Australian project will see the construction of ten ships at Williamstown in Victoria, from components manufactured in both countries. Eight ships are destined for the RAN, with two more, HMNZ Ships TE KAHA and TE MANA, being delivered to New Zealand.

It was originally envisioned that New Zealand would exercise an option in the contract and order one or two additional ANZAC frigates to replace the aging LEANDER class frigates WELLINGTON and CANTERBURY. WELLINGTON was commissioned in 1969 while CANTERBURY was commissioned into the Royal Navy as HMS BACCHANTE in 1971, before being transferred to the RNZN in 1982. Instead a New Zealand cabinet decision saw the option to order not exercised.

This has left the RNZN with the two new ANZAC frigates, WELLINGTON (due to pay off in late 2000) and CANTERBURY (due to pay off in 2005). With the Navy's oft-stated case that a minimum of three ships were required to allow the Navy to carry out even a bare minimum of operational tasks, together with cabinet's refusal to fund the construction of new ships, plainly some other avenue needs to be sought.

One option is to acquire second hand warships to replace the LEANDER's when they pay off. It has been reported that the RNZN is studying such options with an eye to introducing them in the 2005 timeframe. If a decision is taken to pursue this option, what ships may be available?

The fall of the Berlin Wall in 1989 and the resulting demands for a "peace divided" have seen the world's navies shrink dramatically. Hundreds of ships have been scrapped or been sold off to buyers around the world. The once mighty US Navy has paid off more than 300 ships since 1989, with similar, smaller reductions in other Western and Warsaw Pact navies.

Amongst the most popular ships to be sold off to other navies have been the frigates of the US, with several dozen BRONSTEIN, GARCIA, KNOX and PERRY class frigates transferring to other countries. On a smaller scale the UK has sold off members of the LEANDER, AMAZON and BROADSWORD classes while the Netherlands has sold KORTENAER class frigates to both Greece and the United Arab Emirates.

The sale or transfer of these ships, together with those of other declining naval powers, has seen the number of ships that may be available for purchase by New Zealand dwindle.

To understand which ships are available or which may become available it is necessary to examine the requirement they would have to fill. New Zealand is a maritime trading nation, with the vast majority of all imports and exports travelling by sea. Whilst there is no perceived threat to local shipping routes, further afield the

same cosy situation may not always apply. Many of New Zealand's major markets are located in north-eastern Asia, Japan, South Korea, Taiwan and China. The continuing multi-lateral dispute over the Spratly Islands, through which much of the regions maritime traffic must pass, is an example of an area in which future problems may lie.

In addition, New Zealand has been a contributor to UN Maritime operations in the past and may be called upon to do so in the future. Such operations require a vessel capable of making a meaningful contribution to the operation, and prudence dictates a reasonable level of self-defence capability.

The waters of New Zealand's 200 kilometre Exclusive Economic Zone are home to vast stocks of fish, and may support other resources such as seabed minerals. To patrol and protect these resources, the vessels used must be capable of operating in the notoriously stormy waters off New Zealand.

The Type 22 Batch 2 frigate HMS BEAVER during the 1988 Naval Bicentennial Salute in Sydney. (John Mortimer)

Taken together, this suggests that a replacement for WELLINGTON and CANTERBURY should be a well-armed frigate design, of at least 3,000 tonnes, with good sea-keeping qualities and capable of operating a Super Seasprite sized helicopter. Secondary considerations would include interoperability with the Royal Australian Navy, long range to patrol New Zealand's vast EEZ and reduced manning requirements compared to the LEANDER's 250 personnel.

The number of second-hand ships available that match the New Zealand requirement is limited. The fire sale earlier in the decade has cleared the majority of the excess older ships, with those remaining having many years of life left in them. Even so, the continuing downsizing of the larger Western navies is still releasing some vessels onto the market.

One source might be the American PERRY class guided missile frigates, with examples sold to Turkey, Egypt and Bahrain. Sister ships are in service with the Royal Australian Navy, providing a ready source of expertise across the Tasman. The introduction of FFGs would introduce a number of new weapon systems into the RNZN, most notably the SM-1 Standard area anti-aircraft missile and the 76 mm Oto-Melara gun. The frigates displace some 4,100 tonnes and have a complement of 210 in RAN service.

On the positive side they utilise a number of weapons systems, sensors, electrical and engineering systems which are in service with the ANZAC frigates. The FFG can also operate two of the RNZN Super Seasprite helicopters. The FFG is in service with the navies of Australia, the US, Taiwan, Spain, Turkey, Egypt and Bahrain and will easily integrate into multinational or UN naval forces.

Negative points include the fact that the ships are larger and far more heavily armed than New Zealand's ANZAC frigates and may attract more of the same adverse criticism as the ANZACs from the large and vocal New Zealand "Peace" movement. In addition, Australia is about to undertake a $1 Billion modification of its six FFGs, diminishing commonality between the two navy's ships. It is unlikely that the RNZN could afford to have their FFGs modified to the same standard as the RAN.

The final point is that the US may not be willing to sell FFGs to the RNZN. The after effects of the ANZUS treaty break may still mitigate against allowing such a large and tangible sign of support as the sale of major warships to take place. Leasing F-16 fighters is one thing, major warships are quite another. The PERRY class remaining in US service were commissioned from 1979-89.

Another suitable vessel would be the Netherlands KORTENAER class frigates. Ten were built for the Royal Netherlands Navy (RNLN) with two more completed for Greece. An additional eight were completed to a similar design in Germany for the then West German Navy. The RNLN has commenced disposing of their ships, with four sold to Greece and two more to the United Arab Emirates. The remaining four ships are expected to begin paying off from 2004, which would fit in well with the RNZN timeframe.

The 3,600 tonne KORTENAER class was designed as general purpose frigates, with an emphasis on anti-submarine warfare. Intended for operations in the rough waters of the Atlantic and North Sea, they possess excellent seakeeping qualities. Systems they are armed with what would be new to the RNZN include an Oto-Melara 76 mm gun, the non-vertical launch version of the Sea Sparrow anti-aircraft missile, the Harpoon anti-ship missile and the Goalkeeper 30 mm close in weapon system. A number of the radars and electronics systems are also not currently in RNZN use, as are the Rolls-Royce Tyne and Olympus gas turbines. The hangar is large enough to hold two Super Lynx helicopters but may need modification to hold the taller Super Seasprite.

The acquisition of the KORTENAER class has a number of positive aspects. They have a manpower requirement of 174, far lower than the LEANDER class, they are fitted for mixed gender crew arrangements and several of the main radar systems are currently in use on the LEANDER class. In addition the acquisition of ships from the Netherlands, as opposed to the US, would probably prove less politically sensitive. The KORTENAERs remaining in Dutch service were commissioned in 1981-83.

The third possible supplier is the United Kingdom. The Royal Navy plans to decommission a number of its Type 22, Batch 2 frigates, within a time frame compatible with the RNZN requirement. A specialist anti-submarine ship, the Type 22 class was built in three series. The first four ships, including HMS BROADSWORD, have been sold to Brazil. The second and third batches, incorporating improvements from the Falklands War, number six and four ships respectively. The six Batch 2 ships have been

Two Kortenaer class frigates and a Witte De With class frigate, right of photo, during the 1988 Naval Bicentennial Salute in Sydney. (M. Schweikert)

built to differing standards, most notably the last four were built with substantially lengthened flight decks to handle a Sea King or Merlin helicopter.

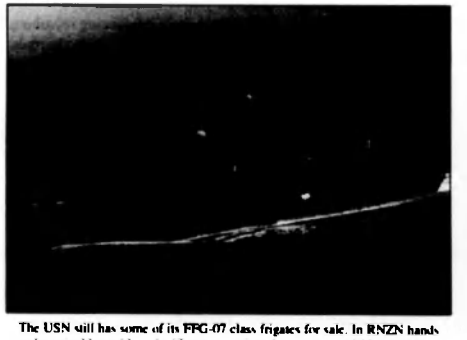
If it is assumed that the two short flight deck ships are available for sale, New Zealand would be acquiring large vessels, 4,800 tonnes, designed to operate in the harsh waters of the North Atlantic north of the UK. The ships are armed with two sextuple mounts for the Sea Wolf anti-aircraft missile, four Exocet anti-ship missiles, two triple anti-submarine torpedo tubes, four 30 mm and two 20 mm cannon.

The advantages of the ships are that they are well proven, with sister ships having seen service in the Falklands War and Gulf. The Royal Navy will continue to operate the remaining Type 22 frigates through to at least 2015 if not longer, ensuring a ready availability of spare parts and technical expertise. The Type 22 is well known for its sea-keeping characteristics, designed to operate in the stormy waters north of the UK in the Greenland-Iceland UK gap, and as such would easily cope with the rough waters off New Zealand. In addition, the RNZN has a long tradition of operating RN ships, with all major warships operated being of UK design, with the notable exception of the Anzac class.

The major disadvantages of the Type 22 include a large crewing requirement (30 officers and 240 crew) and an almost complete lack of commonality with machinery and electronics currently in RNZN service, or in service with the major navies that the RNZN operates with. The weapons fit is also completely new to the RNZN and has nothing in common with the ships currently in service. A lesser disadvantage is that the Type 22 is the largest ship of the three possible LEANDER replacements, and may well attract even more criticism from the "peace" lobby than the ANZAC class did.

In summary, the RNZN is not able to carry its original plans for a four Anzac ship navy. The recent announcement that the RNZN will be a half Anzac and half 'pre-loved' ship fleet should be good news to many on both sides of the Tasman. But with the ADF becoming more cash strapped as time goes on, friendly concessions and assistance to the RNZN's second hand ships may not be forth coming, making their choice and maintenance of these second hand ships that much more difficult. Although second hand ships conjure up headlines such as 'rustbuckets' they can be a quick, cheap and simple means to boost one's naval capability for a fraction of the cost of ships that those who scoff at 'pre-loved' are destined to pay.

Ironically, whatever second hand ships the RNZN choses they will no doubt be a far more capable warship than the current 'fitted for but not with' Anzacs they have in service now.



The USN still has some of its FFG-07 class frigates for sale. In RNZN hands they would provide a significant upgrade to its naval capabilities. (USN)

Observations

By Geoffrey Evans

The People Problem

In a lengthy association with the RAN the writer has observed a great many changes, mostly but not always resulting in a more effective navy.

One of the most important areas of change – perhaps the most important – is that of personnel: the most sophisticated equipment is wasted without someone to decide how and when it is to be used – although it seems even decision-making is becoming a task for computers rather than humans.

When the writer joined the navy during World War II the destroyer in which he served had a complement of over 300 – all men of course. Her 1990's frigate namesake, a slightly larger and potentially more lethal warship, is manned by little more than half this number – including women, restricted to dreams (and shore leave) by seagoing sailors until recent times.

A gradual move from steam to other forms of propulsion and a very rapid advance in electronic technology are among the changes that have reduced the requirement for seagoing personnel in all modern navies. In the RAN the demise of big-complement ships – cruisers and aircraft carriers – has also reduced the demand, compensated in part by a need for increased shore based training facilities and the necessity of more frequently upgrading the skills of personnel.

The present RAN workforce is 13,600 men and women with a target of 14,000, a comparatively small number measured against employment in many industries and commercial organisations; it is reasonable to think that recruiting would not be the problem for the navy – and the ADF generally – that it has become.

Interest, particularly among young people, in the armed forces as a career or form of employment seems to have declined from the late 'seventies onwards, a period during which youth unemployment has remained fairly high. Table 1. indicates the extent of the decline (see next page).

Failure rates – enlistments as a percentage of applications – are due initially to inadequate numeracy and literary skills followed by medical rejections as the recruiting process continues.

While there are numerous factors influencing recruiting for the ADF, changes in society are without doubt the main cause of problems and seem likely to continue. The quest for material gain has become much more important, authority tends to be distrusted or resented, "globalisation" and nationalism compete and cause confusion, affluence does not appear to have been matched by a corresponding desire to help the less-fortunate – or to serve the nation.

Pay and conditions: For "Old Navy " personnel both have improved almost beyond recognition, but even so pay is reported to be unattractive to would-be applicants as well as causing retention problems in respect of those already in the Services ("wastage" is the new word). Following a lengthy inquiry extensive changes are taking place, too complex to discuss here, but designed to reward skills and, financially at least, to make the Services competitive with civilian occupations.

The writer learned to his surprise that events such as the Gulf War and the more recent "Balkans" operation, instead of attracting more recruits has had the opposite effect. It would seem that unless the Australian society undergoes some fundamental changes and becomes less materialistic, less in need of constant entertainment and more conscious of the world in which it is a geographically large but in other respects a small part, then it has a somewhat suspect future.

Melbourne – Uncertain Welcome

The diversion of the American cruiser PRINCETON from Melbourne to Hobart earlier this year did not help the city's reputation as a friendly place to visit. Quite the reverse.

The precautions necessary to protect the crews of visiting warships alleged, without foundation, to carry nuclear weapons; (not forgetting the disgraceful episode involving the British aircraft carrier ARK ROYAL, when tugs refused to enable the ship to berth) must surely have influenced the thinking of hundreds of young men and women about Melbourne hospitality.

The precautions taken and decisions made to divert ships away from Melbourne are no doubt warranted but it is not to the credit of the vocal groups that cause the problems.

The SYDNEY Inquiry

This "Observer" does not pretend to have read every one of the nineteen volumes of submissions and statements made to the parliamentary inquiry into the loss of the Australian cruiser SYDNEY, following an engagement with the German auxiliary cruiser KORMORAN in November 1941. He did however, read many of the papers and in particular the final report issued in March 1999, itself a sizeable document of over 200 pages.

The Defence Sub Committee, part of the Joint Standing Committee on Foreign Affairs, Defence and Trade which carried out the inquiry, states in the opening paragraph of its conclusion and recommendations that it is aware the report "may not put an end to the wilder speculations that surrounds this matter". In this regard the writer is of the opinion it would have been better to confine the report to the 10 pages containing the conclusions and recommendations, each of which is supported with an adequate explanation, and omit most if not all the 172 pages elaborating on the reasons many of which repeat the "wilder speculations". Repetition would not appear a good way to reduce the large number of theories which will no doubt continue to be argued.

The sub committee clearly accepts that the reason SYDNEY was placed in a position enabling her inferior opponent (KORMORAN was well-armed but with limitations of a merchant ship) to cause her loss, will never be known. It makes 18 recommendations of which those relating to a search for SYDNEY and KORMORAN (nos. 10 to 15 incl.) are particularly important.

HMAS COLLINS, even the best equipment is worthless without the right personnel. (RAN)

In the first place, the writer has reservations about the need to find the wrecks, or indeed the desirability of doing so. He has it in mind that one of the greatest maritime tragedies of all time, the loss of the TITANIC and over 1,500 lives has, since discovery of the wreckage, developed into a form of entertainment. Rather than be memorials, as proposed, over time SYDNEY and KORMORAN could well become objects of curiosity and money-making in an increasingly materialistic world.

Also, given the uncertainty surrounding the site of the engagement, any search will require resources and facilities likely to be costly. In this regard it would seem unwise to place undue pressure on the RAN to be a provider as it is already stretched coping with today's rather more pressing security problems.

With regard to ways of commemorating the heavy loss of life resulting from the SYDNEY-KORMORAN engagement (recommendations nos. 16 and 17), the writer wonders if it is appropriate to select any particular ship to receive special attention: Many Australian sailors lost their lives during World War II in a variety of circumstances, but in the end no sacrifice can be said to be greater than another.

Tabel 1.

	1978/9		1996/7		1997/8	
	ADF	NAVY	ADF	NAVY	ADF	NAVY
Enquiries			92,599	25,593	69,655	16,815
Applications	44,599	10,305	24,254	5,866	18,542	4,716
Enlistments	8,058	1,779	4,412	1,560	3,409	1,201
as % of Applications	18	17.25	18.2	26.6	18.3	25.5

Notes: 1998/9 figures to date follow a similar pattern
: The unemployment rate was lower in 1978 than at present.

Out of the Past
HMAS LEEUWIN (II)

By Vic Jeffrey

At the mention of HMAS LEEUWIN (II), most people immediately think of the new RAN Survey ship of that name. Not so.

HMAS LEEUWIN (II) was a World War II Naval base located several kilometres further up the Swan River then HMAS LEEUWIN shore establishment at east Fremantle, on the Northern side of the river in Western Australia.

Commissioned on September 7 1942, By Commander C.P Hearle (CO of HMAS LEEUWIN) the base was to act as a tender to her larger sister. It occupied the premises of one of WA's most prominent yacht clubs, The Royal Freshwater Bay Yacht Club located at Keane's Point in the prestigious leafy Perth riverfront suburb of Peppermint Grove.

The Royal Freshwater Bay Yacht Club was the most suitable and only position close to Fremantle that could be used for harbour and coastal patrol work. With a state of the war emergency in June 1942, the site was requisitioned by the RAN.

A number of new buildings were added to house personnel and maintenance workshops to service patrol craft. The upstairs area of the yacht club housed the ratings who marched in July 1942. The downstairs area became the officer's wardroom with the annexe becoming the ship's office and spare quarters.

The rallying of boat owners and other citizens considerably assisted the building of the small and efficient depot at minimal cost to the government. It was commanded by Lieutenant Commander Roland Smith, the former Commodore of the Freshwater Bay Yacht Club and one of the driving forces behind its successful transition.

Initially, 20 of the best and most suitable privately owned launches and other craft from the waters of Perth were taken over by the NAP (Naval Auxiliary Patrol) with the number expanding to 105 vessels with 419 service and civilian personnel operating in Western Australian waters by late 1942. At that time there were 6,632 vessels and 3,185 personnel operating nationwide.

An Australia-wide forces, it was first founded on 28 March 1938 as the Volunteer Coastal patrol and renamed the NAP on 25 June, 1941.

The object of the organisation was to utilise the private launches, yachts and fishing vessels, ranging in size from 6 to 20 metres. They were armed with machine guns, Lewis guns, depth charges (of varying sizes and usually one per boat), hand grenades and small arms.

Patrol vessels from LEEUWIN (II) performed various duties by both day and night including inner harbour patrols, patrols of the inner and outer harbour boom defence nets, patrols of prohibited areas used by USN floatplanes, Gage Roads – where despatches, mail and relief crew ferried to naval vessels in the outer harbour, and sweeps as far as the South Passage and Garden Island.

Some of the privately owned vessels taken up by the Naval Auxiliary Patrol were: ALTAR, AVALON, AVANT, DOLPHIN, GLADMORE, GREEK, HALYCON, HIAWATHA, JAMES INNES, KIMRA, MARLIN, MIAMI, PETER PAN, PINAFORE, SEAFARER, SIESTA, TEMERAIRE, WINNILYA and VLAMING. Two of these vessels, SIESTA and GLADMORE were lost to fire during their NAP service.

From June 1944 the NAP was reduced to a minimum as modern patrol vessels entered service and the threat of attack diminished.

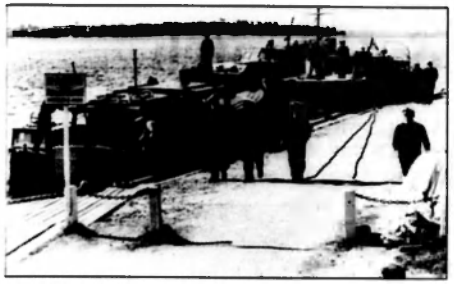
One of the relics, which still stands today, from that era in the 3.5-inch deck gun from the Dutch submarine K XI which was decommissioned in Fremantle on 10 April 1945 after having arrived on 22 March 1945.

Purchased by a Mr McMinn of the New York Junk Co. through the Australian disposals commission, Captain Harold Tilly of Fremantle's company were contracted to strip the submarine.

With berths in Fremantle at a premium, K XI was towed to LEEUWIN (II) where she was secured to allow stripping to commence. At 670 tons and a length of 180 ft (60 metres), the K XI was the largest vessel to ever ascend the Swan under the Fremantle traffic and railway bridges.

A grateful Captain Tilley, a club member, was so appreciative of the cooperation received, allowing him to erect tents for his workmen and allowing them to use the facilities, offered the submarine's deck gun to the club. The gun was subsequently removed and located overlooking the Swan River where it still stands today.

The white ensign was lowered for the last time at LEEUWIN (II) when Commodore C. J. Pope, the Naval Officer in charge of Fremantle, addressed the ship's company and performed the 'paying off' ceremony on 6 March, 1946. Thus closing another chapter in the RAN's history.



Patrol Vessels PETER PAN (nearest Camera), unidentified Launch outboard,' with KIMRA and WINNILYA (outboard) astern at HMAS LEEUWIN (II). (Photo Courtesy of WA Newspapers via Vic Jeffrey)

NAP vessel PANTOMINE (P 47) RANVR 1941-45. Originally owned by Percy Tasker. Based at HMAS LEEUWIN (II). (Royal Bay Yacht Club)

NAP vessel KIMRA underway in the Swan River WA.

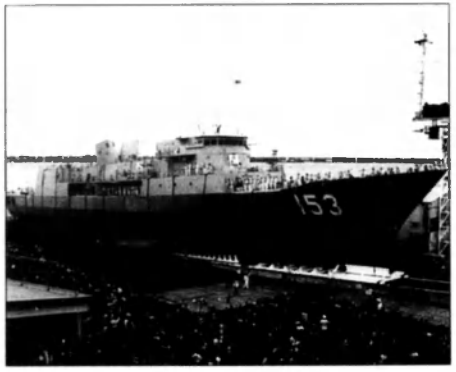
NAP Personnel on Parade

Hatch, Match & Dispatch

This edition sees the addition of a new regular feature entitled 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.

HATCH

The new minehunter NORMAN entering the water at ADI's Newcastle facility. (ADI)

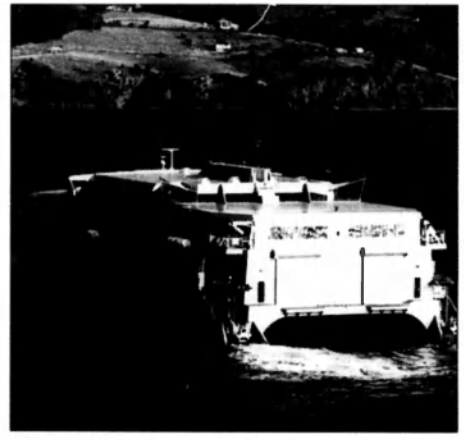


STUART launching from Tenix's Williamstown facility. (Kevin Dunn/Fleetline)

Mrs Ivy Hayes, sister of Teddy Sheehan, with our latest Collins class sub SHEEHAN being launched in Adelaide. (Rann Communications)

MATCH

The newly commissioned minehunter HMAS HUON. (ADI)



The newly commissioned HMAS JERVIS BAY in her navy colours. (RAN)

DISPATCH

The former HMAS ONSLOW now forms part of the exhibits at The National Maritime Museum at Sydney's Darling Harbour following her recent decommissioning. (Jeff Mellefont, National Maritime Museum)

The flag being lowered for the last time at the decommissioning ceremony for HAMS PLATYPUS. (RAN)

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.

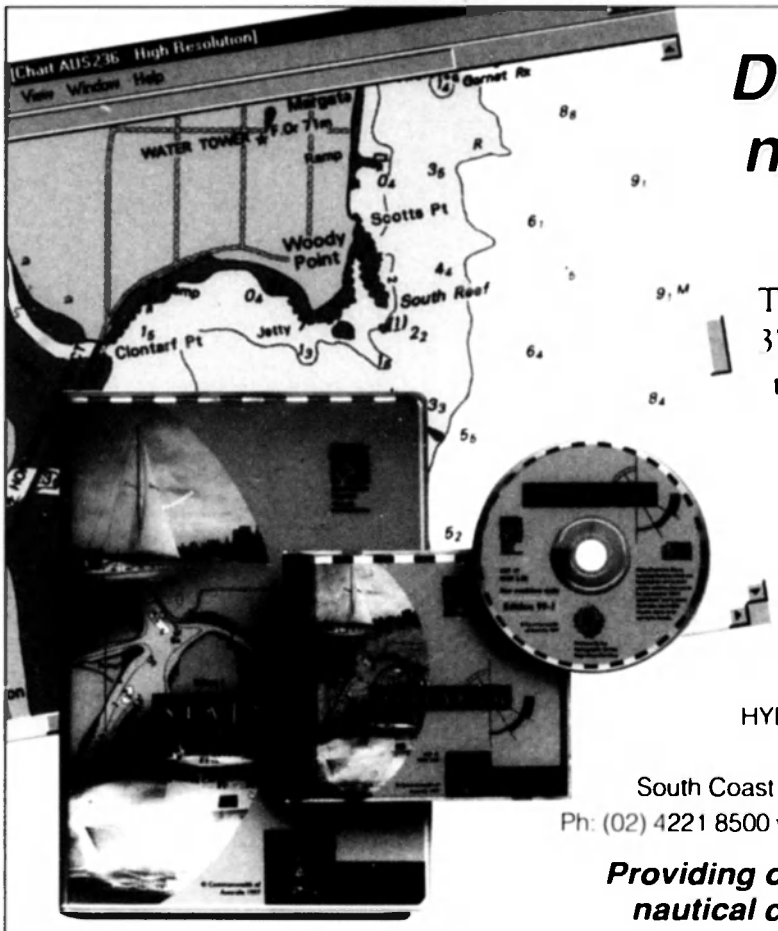
As to the RAN, the League:

- 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.



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An F/A-18 Hornet flies over HMAS ANZAC during the recent FCP 99. (Denis Hersey, DPAO)

The Collins Submarine Capability Team

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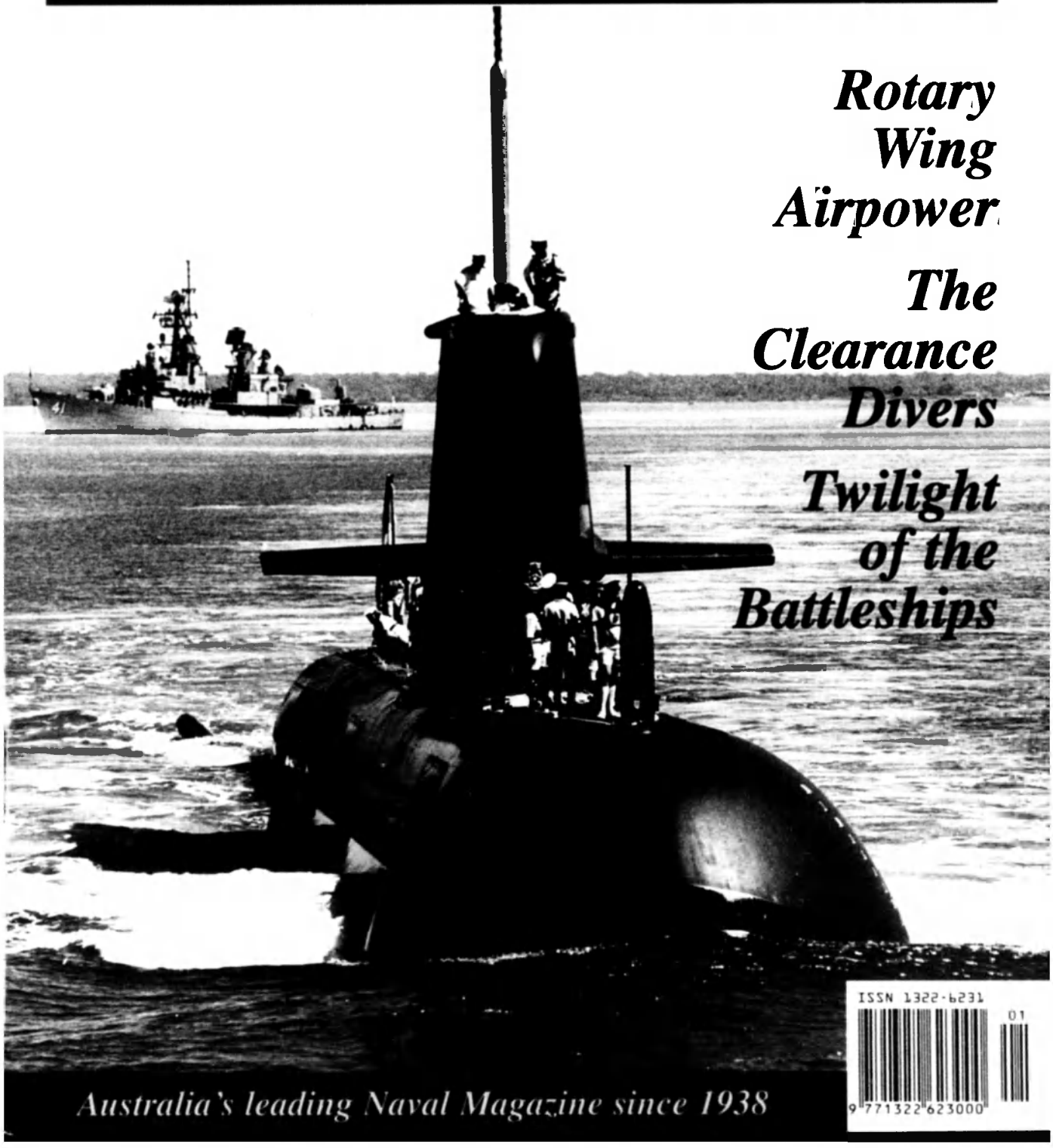

Rotary Wing Airpower

The Clearance Divers

Twilight of the Battleships

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Australia's leading Naval Magazine since 1938

THE NAVY

Volume 61 No 4

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Front Cover: HMAS WALLER leaving Darwin Harbour during the recent KAKADU '99 exercise.
(LAPH Erik Kennelly RN)

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The Navy League of Australia

FROM THE CROW'S NEST

In this last issue for the 20th century *THE NAVY* examines the most talked about program in defence, the Collins class submarines. We present an article from the man tasked with fixing the Collins submarines, Rear Admiral Peter Briggs, as well as an update of the submarine's achievements. We also hope to have RADM Briggs write a regular update for the magazine.

George Kaplan examines Rotary Wing Airpower in the Asia Pacific Region and details the number of very capable aircraft being employed by our neighbours from relatively small ships.

Many are aware of the Navy's Clearance Diving Teams (CDTs) role in peacetime, i.e. general diving work and explosive ordnance demolition. What most are unaware of is the CDT's wartime role and how it contributes to the Special Forces mission. David Watt recently spent an afternoon with AUSCDT ONE and examines this issue.

The recent fire in a gun mount onboard HMAS BRISBANE during KAKADU '99 highlighted the need for damage control drills to be as effective and proficient as possible. It is by coincidence that this issue carries an article on the RAN's Sea Training Group and how it drills the navy in battle procedures and damage control. In 1987 the frigate USS STARK, the same class as HMAS MELBOURNE which recently returned from The Gulf, was struck by two Iraqi Exocet missiles while on patrol in that region. Damage control procedures were vital in saving the ship and should serve as a reminder that battle procedures and damage control are even more important now as they may be called upon at any time and anywhere.

Many in Australia will remember the sight of the Iowa class battleships when they visited. What many are unaware of is the current fate of the Iowas. We examine this with a view to the future of naval gunfire support and answer the question where are the Iowas now?

As well as our regular features this edition of *THE NAVY* sees some style changes which we hope our readers will appreciate.

COLLINS REPORTING

Sometime ago when HMAS FARNCOMB dispatched TORRENS with a Mk-48 torpedo many in the media made wild claims about hidden explosives in the hull and that it was just a public relations stunt. While incorrect it also served to highlight the media's 'military illiteracy'.

Whilst many journalists forget their duty to report the facts free of the notion that controversy will attract ratings, sales and commercial gain, they are somewhat handicapped in that defence has, for a long time, veiled itself in secrecy. When a journalist catches Defence out it is news in itself and supports the old adage 'one dog barks at something, the rest bark at him'. In his opening statement to the Collins Submarine Industry Brief, RADM Peter Briggs indicated that part of the blame, for why the media is so militarily illiterate, must be born by the military for not educating the media or providing the transparency needed for accurate reporting.

Despite this handicap, the media's reporting of the Collins story could only be described as a frenzied, ill-informed, irresponsible attack. Radio commentators, news reporters, retired politicians even local community papers all engaged in this sensationalism. Their concern that the 'defence of the nation is at stake' is highly questionable. Where were these conscionable pillars of the fourth estate when defence's budget kept falling, when ships were being fitted for but not with and when we rejected the offer of four Kidd class DDGs from the US?

One radio commentator, in a regular newspaper column, even went so far as to attack one of the submarine project's directors after he wrote a letter to the editor of that newspaper correcting many of their false claims. It would appear fact does not sell, or attract paid favourable comment in today's general media.

The journalists whom defence trusts and those who are informed have favoured Collins and support the whole program. They see that in five years the Collins submarines will be as indispensable to the ADF as the F-111 is today. During its introduction many in the media did to the F-111 then as they are doing to the Collins today but could anyone criticise the F-111 today or see the ADF without them? The F-111 is so indispensable it is expected to remain in service until 2020 at least. That would be the same as operating a Spitfire or Hurricane today in an indispensable front line role. The F-111 is the region's premier strike asset and one which the USAF has openly stated it misses in its frequent UN sanctioned operations.

When fixed, the Collins class will represent a potent deterrent to any enemy's naval operations. The same sort of deterrent that Argentina felt at the thought of RN nuclear powered submarines during the Falklands conflict despite Australia's submarine arm being diesel electric. However, technology is already indicating that submarine diesel electric propulsion systems will be obsolete and replaced in 10 years with AIP (Air Independent Propulsion) systems. An AIP Collins will have the same underwater capabilities presently enjoyed by the French Amethyst and Rubis class SSNs making them true hunter killers.

The TORRENS sinking re-iterated the fact that the torpedo is still the premier ship killing weapon employed by navies. After all, it is easier to sink a ship by letting water in the bottom than air in the top. Given the destructive power of one torpedo, and that Collins carries 23, spells devastation for any Carrier Battle Group or Surface Action Group.

Despite the problems with the class, the three Collins' presently have the underwater capability to close off half the sea lanes in the Indonesian Archipelago. Collins will go down in history as the most potent weapon system ever employed by Australia.

THE FUTURE

As the new millennium approaches the RAN finds itself on the verge of a significant capability replacement, minehunters, Anzacs, LPAs, submarines etc. Whilst necessary it unfortunately demonstrates that the replacement syndrome is alive and well. It is time Navy concentrated on effects not platforms and took ownership of the maritime and littoral environment. Naval technology is currently providing opportunities and capabilities in areas previously the domain of other services. We should not look at a class of ship due for replacement with another class of ship but what effect can we impose over a wider area using different means. For example, a fixed wing land attack capability could be achieved from a surface ship (bearing no resemblance to an aircraft carrier) employing cruise missiles, the new 127 mm ERGM (Extended Range Guided Munition), Land Attack Standard Missiles and UCAVs (Uninhabited Combat Air Vehicles). To achieve such a capability one would have to recognise that government finance committees look at platforms and make funding decisions based on the item, not its effect. This could be seen in the aircraft carrier debate in Australia during the 1980s. Detractors concentrated on the platform or item, not its effects.

Whilst being a very lateral thinking exercise it should be practised and developed now as our defence budget is unlikely to alter significantly in the future. Lateral thinking about technology and its relevance to our future naval force structure may be the only means to maintain our current naval capabilities and simultaneously enhance them.

Mark Schweikert

FROM OUR READERS

IK?? Again!?! K?

Dear Sir,

With reference to LEUT Gillard's helpful letter regarding K.W. Austin's query about IK time, I feel that some further information may clarify the position.

The two letters dropped from the time alphabet are O and J, surprisingly not I. However, the Eastern Standard Time normally kept by the four eastern States is Kilo time in zone –10.

South Australia or central time is normally half an hour behind E.S.T. and is the mean of I and K times hence the I/K. Thus BARCOO grounded at 0507 IK or 0537 K.

The uniform time system is covered in the admiralty navigation manual Vol. 1 1964 on pages 358-9.

Articles such as BARCOO's stranding are of considerable interest and there must be many reports of proceedings available covering situations worthy of publication.

LCDR Ted Bryden-Brown RFD, VRD, RANR Ret.

Mark,

Just flicking through your Jul-Sep edition and noticed a letter from Stephen Gillard LEUT RANR regarding the time zone I/K.

In fact, I and K are not combined to reduce the number of letters in the alphabet, they are in fact two separate time zones. I/K (-9.5 hrs) is the time zone used in the Darwin area and is midway between time zone India (-9) and Kilo (-10).Time zone O does in fact exist (over Greenland) J is the only letter that does not appear, and M and Y are only 7.5 degrees rather than 15 degrees.

Pete Davis

The Sydney Inquiry

Dear Sir,

The "categorical rejection of a government concealment or withholding evidence of SYDNEY II" was put in doubt by a Sunday *Herald Sun* report, 20/7/99, that relevant documents were recently spirited towards London (where 70 year secrecy can apply)! So much for the non conspiratorial hypothesis. In a time and place of KORMORAN's choosing she was a match for SYDNEY II. KORMORAN carried enough mines to sink a squadron of cruisers making her more than a match for the lone cruiser in waters that were thought to be "beyond minable depths". In the early 1940s the allies suffered for misconceptions about the enemy which the enemy took advantage of.

In the Indian Ocean near Australia in November 1941 the German Captain would have had the defeat of EMDEM on his mind and the belief of allied cruisers were in the area. Consequently, he would have been prepared to meet the enemy and unable to be "surprised". Did SYDNEY II face two dangers, a dedicated Captain Detmers and a blundering naval HQ in "impregnable" Singapore?

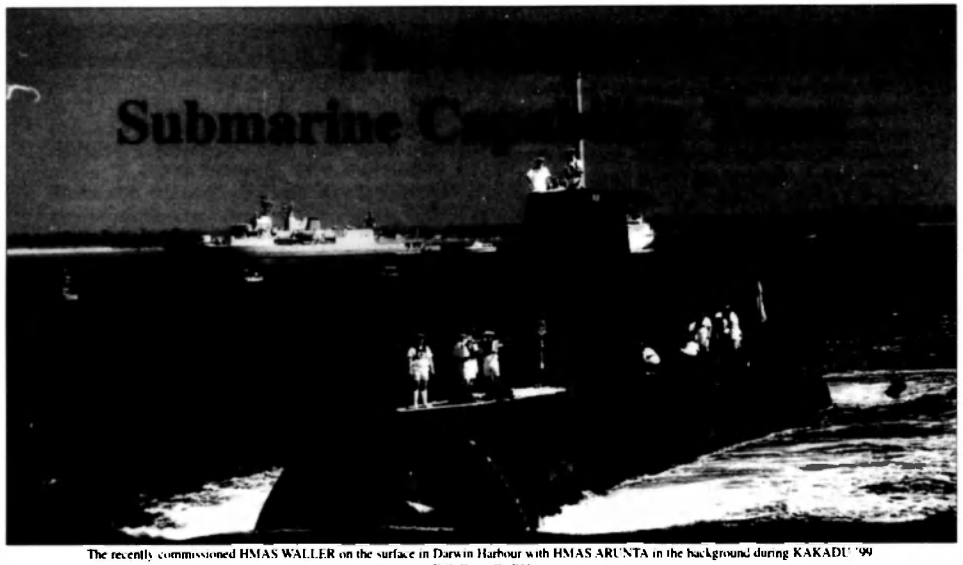
Mr Fred Weyerman
Frankston, Victoria

Editor: Our investigation of the referral back to the UK has uncovered the only relationship between SYDNEY and the material is the time period. Unless the author of the article had seen the material he is only guessing it directly related to SYDNEY II.

The referral of foreign originated material back to source governments for permission to release the information is standard practice, not only in Australia but internationally. The two signals concerned covered a myriad of subjects which required referral back to the host. Australia has a reciprocal arrangement with all other countries its shares information with.

The author of the article in Sunday's *Herald Sun* is well known for his own theories on SYDNEY II and provided substantial input to the Inquiry thus bringing into question his motives for this article.

As a prominent naval historian recently told me, SYDNEY's Captain may have been in bed with appendicitis at the time of the encounter. The point is we will never know what happened. However, I believe many have lost sight of the real issue. That is that 645 men lost their lives in this tragedy. The constant conspiracy theories do nothing for their memory or the notion of rest in peace. The lesson that should be learned from the SYDNEY II tragedy is that this should never happen again at any level or at any time in our maritime security.



The recently commissioned HMAS WALLER on the surface in Darwin Harbour with HMAS ARUNTA in the background during KAKADU '99 (Erik Kennelly RN)

By Rear Admiral Peter Briggs, AO, CSC, RAN

The recently appointed Submarine Capability Team's (SMCT) mission is to achieve a fully operational and sustainable submarine capability for Australia as quickly as possible and within approved resources.

Collins is our submarine future and although there are problems, I am confident that together with industry we are going to fix them. This will be achieved as quickly as possible to provide Australia with the submarine capability it needs.

The Collins mission can only be achieved by carefully focusing, orchestrating and directing the activities of all agencies that have responsibility for different parts of the total submarine requirement.

The Submarine Project, run by Commodore Eoin Asker is bearing a major portion of this load. However the team also includes CASS and MHQ within Navy, the Acquisition Organisation, Support Command, Defence Headquarters including Capability Development and Personnel Executive. DSTO is playing a major role in identifying the root cause of the problems and developing solutions. Various industry participants are involved. We are receiving outstanding support from the USN and their research organisations in pursuit of improvements to noise and combat system augmentation.

To ensure the widest consideration of options as possible, industry was briefed on July 23 and has been asked to respond to the Project by August 15. I was pleased to see so many ex-submariners at this briefing day – it felt more like a submariners re-union.

Australia places great importance on the continuity of an operational submarine capability and, with this in mind, Defence will pull out all the stops to achieve this. The Government's acceptance of the McIntosh/Prescott report also reflects this commitment.

HMAS WALLER underway for her first deployment to exercise KAKADU '99 from HMAS STIRLING. (LSPH Darren Yates)

The team is aware that some problems would be overcome relatively quickly, while others could take a number of years to rectify.

Therefore a two pronged approach has been formulated:

- Fast track, to provide two operationally ready submarines by December 2000 with the current capability of the Oberons as the minimum standard, and
- Longer-term, start to provide a higher level of capability in approximately two to three years plus examining through life issues for a modern submarine.

The immediate task is to submit, by 30 September 1999, a report for Cabinet consideration which includes feasible options, an order of cost and schedule, and a recommended way ahead to achieve a fully operational submarine capability.

As well as operational capability, high on the priority list is personnel issues. Issues such as watch keeping regimes, a completion bonus, provision of a trials crew and the future location for depot level maintenance are receiving high priority. As a start, the Maritime Commander at my request is conducting a trial of a three-watch regime.

In order to provide a framework to accomplish the team's mission, I have established the hierarchy of forums to coordinate agreed actions and to monitor progress.

At the top of this hierarchy is the Submarine Alliance Board (SAB). The SAB brings together key Defence and Industry representatives at Board level, to manage the resolution of issues that have been identified as having a significant impact on the achievement and supportability of Submarine Capability.

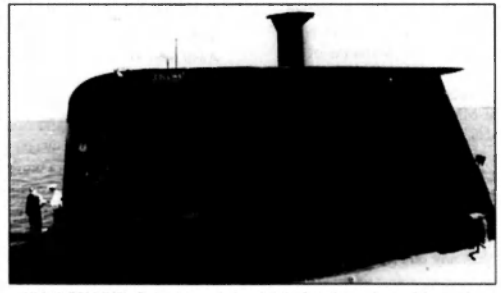
The Board is comprised:

RADM P.D. Briggs	HSMCT (Chairman)
RADM J.R. Lord	MCAUST
RADM R. Lamacraft	HSA (M&G)
RADM W.A.G. Dovers	SPTCOM(N)
RADM G Smith	DCN
DR B. Schofield	DAMRL
Mr Tomy Hjorth	MD Kockums Pacific
Mr H Ohff	MD ASC
Mr M Irving	Chairman AIDC

The SAB will provide direction, review progress and marshal resources within Defence and Industry to achieve the mission.

The remainder of the hierarchy consists of five forums covering operations, personnel, combat system, platform systems and in-service support. Forum's membership is representative of all the key areas needed for the mission's success.

There has already been a considerable change of attitude as a result of the McIntosh/Prescott Report. A collaborative effort is underway with ASC and Defence, and the pace to identify and fix problems has increased dramatically.



HMAS COLLINS's fin has been redesigned at the front foot and rear of the conning tower to help reduce underwater flow noise. (Rann Communications)

Report Card on the Submarine Project

On 3 June 1987, a contract was signed with the Australian Submarine Corporation (ASC) for the design and construction of six submarines and associated supplies and services for the RAN. The submarines are based on the Kockums (Sweden) design fitted with combat systems supplied by Boeing Australia Ltd, formally Rockwell Systems Australia (RSA).

The current shareholders in ASC are Kockums 49%, AIDC 48.45% and RCI Limited, a wholly-owned subsidiary of James Hardie Industries Limited, 2.55%.

The first submarine, HMAS COLLINS, was formally delivered on 15 July 1996. The second submarine, HMAS FARNCOMB was delivered on 15 December 1997 and the third HMAS WALLER was delivered on 30 April 1999. DECHAINEAUX is mid-way through contractor sea trials, SHEEAN was launched at ASC on 1 May 1999 and setting to work systems and equipments prior to commencement of sea trials later in the year. The final submarine RANKIN is 94% structurally complete, coming together in ASC's outfitting hall and scheduled for launching mid 2000.

In excess of 70% of the platform work and 45% of the combat system work has been undertaken in Australia. A 30% offsets obligation applies to the imported element of the combat system.

The total approved project cost in December 1998 prices is $A5074.7 million. $4424 million of this represents the current price of the contract with ASC and the remainder represents the cost for other project elements such as integrated logistic support, administrative support, the provision of Australian Government resources (eg. trials crews and equipment) and contingency. Changes in the total project cost since contract signature in 1987 are attributable solely to inflation and exchange rate variations.

The submarines are being assembled at the Australian Construction Facility at Port Adelaide which was officially opened in November 1989.

The contract with ASC requires work amounting to $A3162 m (December 1995 prices) to be placed in Australian industry. $A3204 m (December 1995 prices) worth of Australian work has already been committed which exceeds the contractual commitment.

Over 1000 new jobs were created at ASC but lack of further orders or new work means that some of these have begun to be laid off. Several thousand other Australians also gained work through subcontracts.

More than 100 Australian companies are participating in the program. The work being done in Australia has introduced significant new skills to Australian industry such as specialised steel production, complex welding, fabrication and machining techniques, software development,

Before and after. Note the new more pointed after hull casing modification on HMAS COLLINS compared to HMAS WALLER (left). This is hoped to further reduce flow noise and cavitation around the propeller. (LAPH Erik Kennelly RN & Rann Communications)

and processes associated with producing electronic and electro-optical systems.

Work at HMAS STIRLING in WA on a Magnetic Measurement Range, Magnetic Treatment Facility and an Underwater Tracking Range, is complete. These facilities are now available for the conduct of Collins Class trials and to support the submarines and other RAN Ships through life.

Other facilities associated with the program, including a Submarine Training and Systems Centre in WA and a Land Based Test Site and Combat System Simulator in HMAS WATSON, in Sydney, are also complete and in use for proving systems and for conversion training for the crews of the new submarines.

Whilst accepting the significant number of shortcomings and problems to be fixed, the news is not all bad – there are a number of successes and technological achievements that have been realised through this project, such as:

Dynamic Performance. The underwater manoeuvrability of the submarine exceeds the contracted requirements in many areas. The Collins dives deeper, goes faster and turns quicker than any known submarine of its type.

Integrated Ship Control Managemem and Monitoring System (ISCMMS). The ISCMMS, software based ship management system, regarded originally as one of the higher risk areas, has been a success. It is the only known, fully automated ship control system in existence; it works well and a great deal of interest is being expressed in it by our allies.

Habitability. The habitability standards of the Collins Class are equal to or better than any other conventionally powered submarine.

Anechoic Tiles. The anechoic tiles developed by DSTO in co-operation with ASC have so far proved a great success. They are designed specifically for Australian operating conditions and illustrate how the RAN, DSTO and industry are capable of working together to produce a first class product.

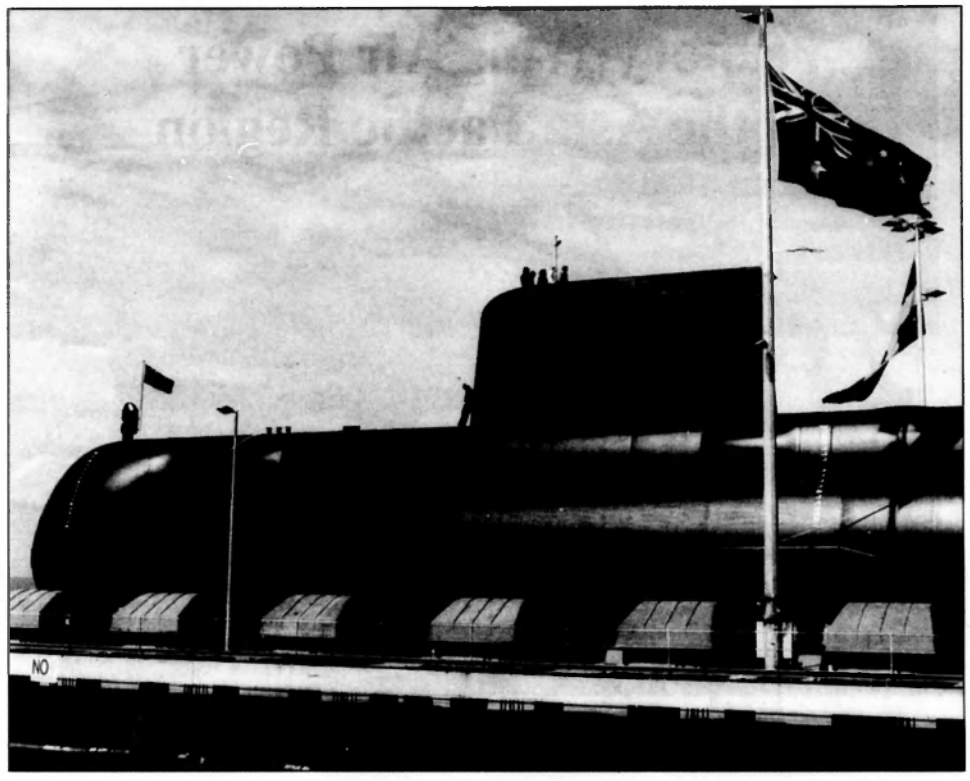
Steel Development, Production and Welding. Although based on a Swedish formula, the steel in the Collins class has been locally developed and produced. It has taken the production and welding of high strength steel in Australia to new, and higher levels. From a Quality viewpoint the welding carried out by Australian welders at ASC has a rework rate of between 0.1 and 0.3 percent against an industry standard of 3%. Australian welders are performing between 10 and 30 times better than their overseas counterparts.

Australian Industry Involvement. (AII). Prior to this project, the AII level in major defence projects seldom exceeded 12-15%. The initial goal for the Submarine Project was 60%. Defence contracted for 70% and have actually achieved some 72%.

SUBSAFE Program. Based on the US system but further developed to meet Australian requirements, the Australian SUBSAFE program, introduced for the Collins Class, is probably the most comprehensive and well documented system of its type in existence.

Industry Quality Standards. Many industries that were forced to raise their quality control and assurance to international standards in order to participate in the project are now finding that their quality accreditation has resulted in their winning competitive tenders on the world markets.

The Australian technology knowledge base has received a boost through this project. The skills and technologies now embedded in Australia as a direct result of the project are invaluable both for new projects and in-service support of Collins.



HMAS COLLINS on the ASC Shiplift, 1993. (RAN)

The new submarines have been named for past distinguished officers and sailors of the RAN.

Name	Number	Keel Layed	Launched	Delivered
COLLINS	SSG 73	1990	1993	1996
FARNCOMB	SSG 74	1991	1995	1997
WALLER	SSG 75	1992	1997	1999
DECHAINEUX	SSG 76	1993	1998	
SHEEAN	SSG 77	1995	2000	

Collins Statistics

Surfaced Displacement:	3050 tonnes
Dived Displacement:	3350 tonnes
Length overall:	77.8 metres
Beam	7.8 metres
Draught:	6.8 metres
Diving Depth	180+ metres
Speed:	
Surfaced	10+ kts
Snorting	10+ kts
Dived	20+ kts
Machinery:	Diesel electric; 3 Hedemora VB 210 18 cylinder diesels; 5.4 MW. Jeumont Schneider main motor; single shaft.
Range	9000+ nm at 10 kts
Complement	42, plus 5 trainees
Weapons:	6 forward tubes for Mk 48 torpedoes and Sub Harpoon missiles.
Combat System:	Rockwell Advanced Combat System (now Boeing)-Scylla sonar suite by Thomson Sintra.

Rotary Wing Air Power in the Asia Pacific Region

An SH-2 Seasprite helicopter about to touch down on the deck of an FFG (Kaman)

In the decades since the first use of helicopters at sea, their roles and capabilities have grown immensely. Looking at the pioneering helicopters of the 1940s and 1950s, it is hard to imagine that they were the beginning of a path that would lead to today's multi-tonne, multi-million dollar helicopters.

Today's Seahawk, Super Lynx and Super Seasprite helicopters contain some of the most complex computer technology to ever fly and are as expensive as front line jet fighters. The capabilities they offer have revolutionised naval combat, extending the reach of even quite small naval vessels beyond the horizon and acting as the quintessential 'force multiplier'.

It is a truism that no part of a warship's armament receives as much use as its embarked helicopter. In war and peace, the ship's flight is an indispensable part of maritime operations. Over the horizon targeting to search and rescue, mail runs to surveillance, personnel transfers and anti-submarine warfare, all are part and parcel of the naval helicopters career. Such is their utility that strenuous efforts are made to incorporate a helicopter into even the smallest of new warships.

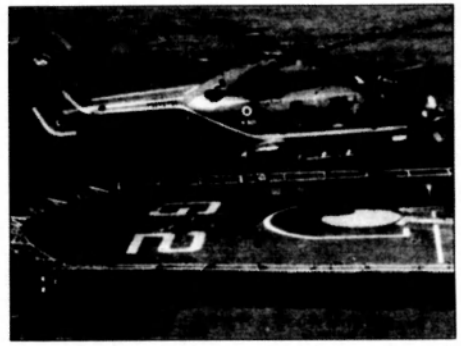
Adding to the capabilities of even the smallest of embarked helicopters are the lethal ant-ship missiles they can carry. Small missiles such as Penguin, Sea Skua and Maverick, carried by the Super Lynx, Seahawk and Super Seasprite, are deadly to smaller vessels such as patrol boats and fast attack craft, as the destruction of a large part of the Iraqi Navy at the facetiously named Battle of Bubiyan Island demonstrated. There was no glorious battle, the missile and strike craft of the Iraqi Navy were simply caught on the water and wiped out for no coalition losses.

The larger missiles such as Sea Eagle, Exocet and Harpoon can be carried by larger helicopters such as the Super Puma and Sea King, and have proved their lethality in the Falklands conflict and the actions in the Persian Gulf. Major warships have been crippled and sunk by these missiles, and the future promises to introduce even faster, longer ranged and deadly ship-killers.

THE REGION

The navies of the Asia Pacific have, with several notable exceptions, been slow to take up the challenges and capabilities of embarked helicopters. The blue water navies of the United States, Canada and Japan have been enthusiastic helicopter operators for decades, with Canada and Japan pioneering the operations of large Sea King helicopters from destroyer and frigate sized vessels. Other regional navies with a long tradition of embarked helicopter operations include New Zealand (Wasp), Australia (Scout, Bell 206, Wessex and Sea Kings from the

An Indian Navy KA-28 Helix



The new Indian ALH-3 will replace the Alouette in Indian Navy service and will be armed with ASMs, torpedoes and ASW sensors

carrier MELBOURNE) and India (Alouette, KA-25 Hormone, KA-27 Helix and Sea King from frigates and aircraft carriers). The other nations in the Asia Pacific have lagged behind in the use of embarked helicopters, however, this is changing.

In recent years more navies have undertaken the acquisition of modern, multi-role helicopters, including Malaysia, South Korea, Taiwan, China and Thailand. In addition, many of the established helicopter operators are expanding and modernising their helicopter fleets. Given the scope of these activities a short review of each Navy's aviation capabilities may be in order.

JAPAN

Japan has the most modern and capable fleet in the Asia Pacific region. The Japanese Maritime Self Defence Force operates a large fleet of frigates and destroyers, numbering more than 50, is supported by a capable submarine force and a large and sophisticated maritime aviation arm. The JMSDF operates large numbers of helicopter equipped destroyers, equipped with the SH-60J Seahawk helicopter which has replaced the SH-3A Sea King. A total of 54 Seahawk and 39 Sea King helicopters are in service (the latter now operating from shore bases). The large destroyers of the SHIRANE and HARUNA classes each operate three Seahawk helicopters, with most others operating a single Seahawk. In addition ten large Sea Dragon minesweeping helicopters are in service, and can be embarked from the new OSUMI class amphibious ships.

The JMSDF operates a fleet of more than 90 land-based P-3C Orion aircraft while a small number of Shin Meiwa US-1A flying boats remain in service. While there is no intention at this time to operate fixed wing aircraft at sea, it has been noted that the OSUMI class could be fitted with a ski-jump to assist in the operation of VSTOL type aircraft.

INDIA

India has operated fixed wing aircraft and helicopters from aircraft carriers for several decades. In addition it operates a mix of Russian and western helicopters from several classes of frigates and destroyers of Russian, western and indigenous design.

The paying off of the VIKRANT has left the Indian Navy with a single carrier, VIRAAT (ex-HMS HERMES), however, it was recenlty announced that the Russian carrier GORSHKOV would be acquired and unodified to operate the MIG-29. India has also announced the construction of a 32,000 tonne carrier to be built in India also using MIG-29. VIRAAT normally operates 12 Sea Harriers (20 are in service) and a mix of seven helicopters (Sea King and KA-27 Helix) however, it has the capacity to operate a mix of up to 30+ aircraft.

The Indian Navy operates a force of 15 helicopter capable frigates and destroyers, with several more under construction. The majority operate the Sea King, of which there are more than 30 in service of different marks, while VIRAAT and the Russian-built RAJPUT class operate the Kamov KA-27 or variants. Some 20 are in service with a number of the Airborne Early Warning variants on order. For training and utility work, and operation from offshore patrol vessels, 23 of the Alouette III (locally known as the Chetak) are in service. To replace the aging Chetak, the indigenously designed Advanced Light Helicopter (ALH) is being developed, which will be fitted with locally designed sensor suite and either anti-submarine or surface weaponry. Five are already flying.

AUSTRALIA

The Royal Australian Navy is currently undertaking an expansion of naval aviation. In addition to the Sea King, Seahawk, Squirrel and B206 helicopters currently in service, the Super Seasprite helicopter is on order to provide an enhanced anti-surface warfare capability. The RAN for many years relied on the carrier MELBOURNE for maritime aviation operations, and her retirement in the 80s left a substantial gap in capability. The Sea Kings were too large to operate from the unmodified FFGs, leaving them to operate Bell 206 and Squirrel utility helicopters until the introduction into service of the Seahawk in time for the Gulf War.

The RAN inventory includes 16 S-70B-2 Seahawks operating from the six ADELAIDE class frigates and the first two ANZAC class frigates, seven SK50 Sea Kings, of which one periodically embarks in the replenishment ship SUCCESS, six AS350 Squirrel utility helicopters which embark on the ADELAIDE class and a small number of

B206 light utility helicopters which were operated from the now decommissioned survey ship MORESBY and are now used for fleet training and liaison duties.

The RAN has several major programs underway which will have a major effect on the Fleet Air Arm. These are the decision to acquire 11 Kaman SH-2G Super Seasprite helicopters for operation from the ANZAC frigates, the construction of two large survey ships, each of which will operate a utility helicopter, and the conversion of two ex-USN tank landing ships into aviation capable amphibious ships. The last has taken substantially longer than initially expected and cost a great deal more than anticipated.

Another complication is that the Army is reluctant to operate its non-marinised Black Hawks from the vessels, citing numerous reasons why extended operations from the ships are not feasible. This may require the RAN to provide helicopter support from the ships with the Sea King fleet, which is currently too small to do the job and would need to be expanded.

NEW ZEALAND

The Royal New Zealand Navy has finally taken delivery of four interim SH-2F Seasprite aircraft, pending the delivery of five SH-2G Super Seasprites in 2000-2001. This has allowed Navy to pension off the Wasp helicopters. The Seasprites operate from the two ANZAC class frigates, the two LEANDER class frigates and occasionally from the replenishment ship ENDEAVOUR. The military sealift ship CHARLES UPHAM has the capacity to provide a platform for two medium helicopters after her full conversion is completed. These are most likely to be UH-1 troop transport helicopters.

MALAYSIA

Malaysia operates a small force of five aging Wasp helicopters, which are embarked on board the two KASTURI class corvettes while the elderly S-61 Nuri is operated for Army support, most commonly for support of amphibious operations. The remaining helicopter capable ships in the fleet are only fitted with platforms, and lack hangars and maintenance facilities.

Two new frigates, the LEKIU and JEBAT are being delivered by Yarrow in the UK, and to replace the Wasps, for operation on both the KASTURI and LEKIU classes, Malaysia has selected the Westland Super Lynx. Initial deliveries are due to commence in late 2000 and there is a requirement for at least six aircraft to replace its five Wasp.

SOUTH KOREA

The South Korean Navy is actively engaged in continuing defensive operations against hostile incursions from the North. In recent years media attention has been drawn to several incursions into South Korean waters by North Korean mini-submarines, together with surface craft attempting to land commandoes on South Korean beaches.

To deal with this growing threat the Korean Navy has expanded in the last decade, building submarines and frigates, with ambitious plans to build larger Aegis-style destroyers for improved air defence at sea. Maritime aviation has also benefited from this expansion. The three aging WW II-era GEARING class destroyers have been modified to operate a helicopter, while the latest frigate design, the OKPO class, are designed from the outset to operate a single helicopter. A number of auxiliaries are fitted with a platform but have no facilities to hangar or maintain a helicopter.

The Republic of Korea Navy operates six aging Aerospatiale Alouette III in the utility role, however, these are rapidly being replaced by the Westland Super Sea Lynx. 17 of which are in service, with another 13 on order. Of the helicopters in service, six are of the anti-ship version armed with four Sea Skua anti-ship missiles and surveillance and tracking radar, while the remaining 11 are equipped with anti-submarine torpedoes and sensors. The 13 additional on order are of the anti-submarine version, not surprising given the repeated incursions by mini-subs from the North.

Shore based aircraft include eight Grumman Tracker aircraft for anti-ship and anti-submarine operations, supplemented by eight of the vastly more capable P-3C Upgrade III Orion. It is intended to eventually replace the Trackers with an additional eight Orion's, however, no order has yet been placed.

The RN version of the Super Lynx, the Mk 8. Super Lynx is used by many regional navies (Westland).

TAIWAN

Taiwan, facing a substantial threat from mainland China, operates a large and diverse fleet of ships, many of which are helicopter capable. The bulk of the fleet is made up of extensively modified and upgraded GEARING, FLETCHER and SUMNER class destroyers dating back to WW II. Nine ships are fitted to operate the small MacDonnell Douglas MD500 which carries rudimentary ASW sensors and a search radar, and can be armed with a torpedo or depth charges. A total of nine MD500 aircraft are in service.

More modern frigates such as the CHENG KUNG (seven modified US PERRY class) and KANG DIN (six French LA FAYETTE class) are fitted to operate the S-70C(M) Thunderhawk, a variant of the Seahawk, nine of which are in service with 11 more on order. The eight former USN KNOX class frigates transferred to Taiwan in the mid 1990s are too small to operate the Thunderhawk, and thus 12 ex-USN SH-2F Seasprite helicopters are being proposed for acquisition. For operations from the small fleet of amphibious ships, the Air Force operates 14 variants of the Thunderhawk, the S-70B/C, in Search and Rescue and troop lift roles.

A PLA-N Harbin Zhi-9a Haitun (Dauphin) helicopter (Brian Morrison/Warships and Marine Corps Museum Int.)

CHINA

Across the straight that separates Taiwan from the mainland, the Peoples Liberation Army Navy has embarked on a major expansion, with a large number of new frigates and destroyers under construction. All of these new classes are designed to operate helicopters, most commonly the Harbin Zhi-9A Haitun (a licence built version of the French Dauphin 2). At least ten are in service and more will be required for the ships under construction. The most recent classes of destroyer operate two helicopters, with the frigates operating a single Haitun.

In addition, the PLAN has brought into service an aviation-training vessel, the SHICHANG, which is capable of embarking two Haitun, and which will be essential to train pilots for the continuing expansion of naval aviation. This vessel, which resembles a modified container ship, is a major step forward in providing the PLAN with experience in simultaneous helicopter flight operations. This is considered essential if China is to proceed ahead with its long anticipated plans to build a larger aviation ship, along the lines of the VSTOL carriers of Spain, Thailand and Italy.

In recent years China has purchased substantial amounts of Russian hardware, including KILO class submarines and SU-27 Flanker aircraft. Amongst the purchases were two SOVREMENNY class destroyers, each equipped to operate one Kamov KA-28 Helix helicopters. China had previously acquired two Helix for evaluation purposes and more should be acquired in due course.

AEROSPATIALE SA-321G Super Frelon helicopters undertakes heavy lift, ASW and support missions. The initial purchase of nine has been supplemented by additional licence built versions designated Zhi-8 and it is believed that total numbers in service are 15. As well as operating from shore bases, the Zhi-8 is embarked on replenishment ships, submarine rescue ships, transport ships and research vessels.

THAILAND

The Thai Navy seemed poised for a major expansion of naval aviation, with the delivery of an aircraft carrier and other new acquisitions planned. The Asian economic meltdown put paid to those ambitious plans and today the Navy is busy just keeping its head above water.

The acquisition of the Spanish-designed 11,500 tonne aircraft carrier CHAKRI NAREUBET signalled a major new step for the region's navies. It was the first aircraft carrier to be commissioned into a South East Asian Navy since the Indian acquisition of the former HMS HERMES in 1986 and the first new carrier to enter service in the region since HMAS MELBOURNE.

Built by the Spanish shipyard that built Spain's PRINCIPE DE ASTURIAS, the new carrier is generally similar in layout and is fitted to operate six Harriers and six Seahawks. Unfortunately the economic crisis has severely restricted the amount of time that the fleet spends at sea

and limited Navy's development of operational experience with carrier operations. Seven single seat and two twin seat ex-Spanish Navy Harriers (known in Spanish service as Matadors) were acquired as part of the purchase of the CHAKRI NAREI BET and will provide a framework for expansion onto more modern aircraft when the financial situation improves.

Other helicopter-capable vessels include two Chinese built NARESUAN class frigates fitted with a hangar for a single helicopter, two ex-USN KNOX class frigates and the replenishment ship SIMILAN (two helicopters). A number of other vessels are fitted with a platform only.

The Navy operates a number of different types of helicopters, in addition to a surprisingly strong land-based fixed wing strike and reconnaissance force. In addition to the nine Harriers and six S-70B7 Seahawks, a force of eight Bell 212 transport helicopters are in service for troop transport and support duties, while six S-76B helicopters were acquired in 1996 for maritime surveillance and utility roles. The realisation that the KNOX class is too small to embark the Seahawk led to an order for up to 10 SH-2G helicopters however the status of this order remains uncertain in the current economic climate.

For land based operations, the Thai Navy acquired 18 ex-US Navy A-7E Corsair fighter-bombers in 1996. These are armed with air to air missiles and can be fitted with a range of other ordnance. They can provide air defence over the fleet or act in a maritime strike role. Surveillance is the province of two P-3T Orion, five Nomad Searchmaster's, five Maritime variants of the Fokker F-27 passenger aircraft and six Dornier 228 surveillance aircraft. The Orion and Maritime aircraft can be fitted with anti-submarine torpedoes or Harpoon anti-ship missiles.

CONCLUSION

The Asia Pacific has witnessed substantial growth in the navies of the region, and this growth has been reflected in the numbers and capabilities of the helicopters operated. The operation of helicopters is major step forward for smaller Navy's, opening up a new range of tactics and roles. Whilst the costs of operating a professional, proficient and capable fleet air arm are considerable, the benefits are substantial, and this has obviously been realised by the Navy's covered in this short article.

The introduction of new aircraft may have been slowed in many countries in the region by the recent economic difficulties, but the acquisition plans and aspirations remain, as do the requirements. For those countries not so affected, new aircraft continue to be acquired and will continue to become an ever more crucial part of naval operations into the foreseeable future.

A USN SH-60 Seahawk fires a Penguin ASM. Seahawk is used by four regional countries, none of which use the Penguin except Australia but from its SH-2G Super Seasprites (USN).

Flash Traffic

$897 Million frigate upgrade contract

ADI has won an $897 million contract to upgrade the RAN's six Adelaide Class Guided Missile Frigates (FFGs).

The FFG upgrade project aims to provide major improvements to the ability of the frigates to defend themselves against modern anti-ship missiles introduced after Australia's FFGs had entered service.

"After an exhaustive evaluation process which considered capability, value for money, through-life support, greater training self-reliance and involvement of Australian industry in the project, ADI Limited was selected as the preferred tenderer," Defence Minister Mr Moore said.

"I am very pleased to see that Australian industry involvement in this project will exceed 60 per cent of the contract value.

"A substantial amount of the work to be undertaken by Australian industry will include high technology work associated with improved combat systems for the ships and local manufacture of the combat system.

"The Australian Industry Program for the FFG Upgrade will place Australian companies in a good position to provide through-life support for the ships and importantly, the ability to maintain a local shipbuilding and overhaul capability," Mr Moore said.

All six FFGs will be upgraded at ADI's Garden Island Facility in Sydney, and associated warfare support and training centres will also be upgraded.

The project includes:

- Better defences against anti-ship missiles, torpedoes and mines;
- Enhancements to overall reliability of the ships, making them more cost-effective to operate, maintain and support; and
- Improvements to living conditions on board.

The first ship, HMAS ADELAIDE, will begin the upgrade in mid-2002 following a three year detailed design and equipment acquisition phase. The final FFG should complete upgrade in late 2005 or early 2006.

ADI has already awarded Thomson Marconi Sonar (TMS) a $66 million contract to provide the Spherion medium frequency sonar, a derivative from the Spherion B sonar already in the Anzacs.

TMS will also be providing the Petrel mine, obstacle avoidance sonar. This is the first time Petrel has been ordered which was designed in conjunction with the DSTO and Navy.

DSTO helps Navy see threats

A Defence Science and Technology Organisation (DSTO) developed software system will allow the RAN to optimise the performance of its radar and communications systems when confronted with meteorological conditions known as ducting.

Ducts can cause radiowaves to propagate to anomalously long or short ranges. DSTO's Surveillance Systems Division (SSD) recently handed over the software, known as the Tropospheric Refractive Effects Prediction System (TREPS), to Navy in a ceremony that marked the end of the development project.

TREPS exploits atmospheric meteorological information, such as air pressure, temperature and humidity, to model where atmospheric ducts occur and how strong they are. The software uses this ducting information to predict the effects on microwave propagation and the performance of radar and other microwave systems.

The significance for defence is that radio waves, such as radar, can be trapped in a duct and propagate along a path following the curvature of the earth's surface, instead of travelling in a straight line. This bending of the radio wave path is caused by the refractive properties of the atmosphere and sometimes results in waves bouncing along the sea surface for long distances.

"This software system allows officers aboard ship to understand how ducting is influencing the various systems on board and how to get best use out of them," DSTO's team leader Dr David Phillips said. "For detecting a sea-skimming missile, the decision might be either to switch on the radar or to rely on a passive ESM system. Ducting also has implications for communicating with other vessels or aircraft," he said.

Ducting is a very common phenomenon in the first few tens of metres over the oceans surrounding Australia. In addition, elevated ducts commonly occur at heights of hundreds or thousands of metres above the surface.

Maximum radar detection ranges against low flying targets, such as sea-skimming missiles, are strongly influenced by the heights of both the radar and the target in relation to the height of the duct. Electronic support measures (ESM) systems are also affected in a similar way. Most ships have several radar and ESM systems capable of detecting an incoming sea-skimming missile. Since these systems are generally fitted at different heights above sea level and operate at different frequencies, they are affected differently by given ducting conditions. Consequently, for the warfighters aboard RAN ships, TREPS can determine which radar or other system aboard ship is best suited to detecting and tracking targets

Tomahawk demonstrates Y2K compliance

A U.S. Navy Tomahawk cruise missile demonstrated year 2000 (Y2K) readiness recently in an operational test launch from the Naval Air Warfare Center Weapons Division sea range off the coast of southern California. USS SAN FRANCISCO (SSN 711), a submerged Los Angeles class submarine, launched the Tomahawk. The missile flew a land attack mission profile to the Naval Air Warfare Center Weapons Division land range at China Lake, Calif.

The test is one of several conducted this year that has demonstrated Tomahawk's readiness for the year 2000.

During the test, all clocks associated with the launch process were advanced to Feb. 29, 2000. The test mission was fired the next day with all system clocks indicating March 1, 2000. Although all equipment has been individually tested and certified Y2K compliant in a laboratory environment, this was the first beginning-to-end Y2K demonstration of the weapon system culminating in an actual launch of a Tomahawk from a Fleet submarine.

TE KAHA to the Gulf

The NZ Government has agreed to contribute the new frigate HMNZS TE KAHA to the United Nations mandated Multinational Interception Force (MIF) in the Gulf.

The MIF assists in policing and enforcing the UN sanctions on Iraq. The sanctions are in place to encourage Iraq to comply with UN resolutions requiring the dismantling of its weapons of mass destruction.

TE KAHA sailed on June 28 for Darwin where she took part in KAKADU 99. The frigate then deployed to Singapore to take part in the FPDA exercise STARDEX.

Following that exercise TE KAHA deployed to East Timor but is still expected to spend eight weeks on duty with the MIF in the Gulf.

The RNZN has contributed to the MIF on three earlier occasions: HMNZS WELLINGTON in 1995/96; CANTERBURY in late 1996 and then in late 1998 a six-man boarding team which deployed from USN ships assigned to MIF duties.

"This latest deployment further underlines New Zealand's commitment to meeting its obligations as a good international citizen", the Minister of Defence commented.

Type 42 upgrade announced, Type 45 DDG planned

With Britain's withdrawal from the European Horizon collaborative frigate project an upgrade to its Type 42 class DDGs is now warranted to keep them in service until a replacement can be found.

The RN was planning on replacing the Type 42 at the turn of the century but now must press the ships into at least six more years of service.

British Defence Procurement Minister Baroness Symons said: "The PAAMS missile will provide our new Type 45 destroyer with the best air defence capability, and will be effective well into the next century. The system's advanced technology

The Type 42 DDG HMS GLASGOW leaving Sydney Harbour. The Type 42 will now serve much longer than anticipated requiring an upgrade. (Brian Morrison/Warships and Marine Corps Museum Int)

Differences over the configuration of the final Horizon design, and the industrial program to build them, resulted in the project's collapse.

A Spokesman for the MoD said that Britain will go it alone and replace the Horizon project with its own national program, the Type 45 destroyer. Under this program Britain may purchase up to 12 Type 45's using the Horizon project's Primary Anti-Air Missile System (PAAMS). The national program to replace the Type 42 is expected to cost up to six billion pounds.

While Britain has abandoned the Horizon project it remains wedded to the PAAMS program and the Sylver Vertical Launch System for the Aster family of missiles which forms the core of PAAMS.

Recently The United Kingdom, France and Italy placed a £1.3bn contract for the PAAMS surface-to-air missile system, which will form the heart of the air defence of their three navies.

The French Defence Contracting Agency placed the contract for the engineering development and initial production, on behalf of the three collaborating nations, with EUROPAAMS SAS, an industrial consortium formed by Thomson-CSF, Aerospatiale, Matra BAe Dynamics, and Alenia.

will create or sustain around 300 jobs in the UK, and help to keep this country in the front rank of the aerospace and electronics industry."

Work on the UK warship programme, the Type 45 Destroyer, is being taken forward by an MoD Integrated Project Team working closely with industry. Smart Procurement principles are being followed to ensure that the warship will be available to deploy the PAAMS system at the planned in service date in 2007.

EX KAKADU 99

KAKADU 99 was the largest concentration of maritime units in Australian waters this year. The KAKADU exercise series is conducted every two years and provides a unique and valuable opportunity to progress RAN preparedness whilst enabling interoperability with our regional navies. This year the RAN invited eight regional countries to participate in KAKADU 4/99 for naval training activities and manoeuvres in the Timor Sea over a ten day period from 2 - 12 August 1999.

The KAKADU exercise commenced with building up individual ships' performances in a realistic, multiple-asset environment and then moving toward a graduated series of training activities, weapons firings and a structured freeplay period. The objective of KAKADU 99 was for both Australian and foreign naval units to improve their operational effectiveness in a concentrated training environment.

LIST OF PARTICIPATING UNITS:
AUSTRALIA
RAN
HMAS BRISBANE, DARWIN, SYDNEY, ANZAC, ARUNTA, FARNCOMB, WALLER, GAWLER, CESSNOCK, AUSCDT1 Explosive Ordnance Disposal element, HS816 SQN 2 x S-70B2 Seahawk helicopters, 723 SQN 1 x HS748 electronic training aircraft, TARGET SERVICES GP 2 x GAT36 Learjets
RAAF
75SQN RAAF TINDAL 10 x F/A-18 Hornet fighters,
1 and 6 SQNS RAAF AMBERLEY 3 x F-111 strike aircraft,
10 SQN RAAF EDINBURGH 2 x P-3C Orion aircraft,
NEW ZEALAND:
RNZN
HMNZS TE KAHA.
CANTERBURY, ENDEAVOUR, 2 x SH-2F Seasprite helicopters
RNZAF
No.75 SQUADRON 8 x A-4K Skyhawk, No.5 SQUADRON 2 x P-3K Orion aircraft
SINGAPORE:
RSN
RSS VALIANT (P88), VALOUR (P89) Victory-Class missile corvettes
RSAF
6 x T/A-4SU Super Skyhawk fighters
1 x F50 MPA Maritime Patrol Aircraft
INDONESIA:
TNI-AL
KRI NALA(FFG 363)
PAPUA NEW GUINEA:
PNGDF (ME)
HMPNGS SEEADLER (PC03)
BASILISIC (PC04) Pacific-class Patrol Craft
PHILIPPINES:
PN
BRP BACALOD CITY(LC 550) Logistic Support Vessel, BRP RICARTE (PS35) Peacock-Class Offshore Patrol Vessel
OBSERVERS:
THAILAND
SOUTH KOREA
MALAYSIA

RSN launches two more subs

The second and third submarines of the Republic of Singapore Navy (RSN), RSS CONQUEROR and CENTURION, have been launched at Kockums Shipyard in Karlskrona, Sweden.

RSS CONQUEROR and CENTURION, like their predecessor, RSS CHALLENGER which was launched earlier on 26 Sep 97, will undergo further refurbishment and tropicalisation to extend their operational life span.

The submarines will be operating in different conditions when they return to Singapore. Warm tropical waters around Singapore are more conducive to active growth of marine barnacles on metal surfaces. The high salinity of the waters also makes the pipes and valves in the submarine more susceptible to corrosion. These problems can be addressed by replacing the steel pipes and valves with copper nickel iron ones to reduce corrosion. A marine growth protection system will also be installed to minimise the growth of marine barnacles on the submarine surface.

RSN submariners, who have been undergoing training in Sweden since 1995, have made good progress. Second Minister for Defence RADM (NS) Teo said, after witnessing a torpedo firing demonstration against a target ship on 27 May, "I'm very satisfied with the way that the crew performed. This is a new capability for us. We started practically from scratch and they have come to what I consider reasonably good standards."

RADM (NS) Teo, who officiated at the launching ceremony, commented on the RSN's submarine acquisition programme. "Submarines represent one possible solution for harnessing technology to meet our defence needs. They require relatively small but highly trained crews, which fits our manpower profile in Singapore. Submarines have the potential to form a key component of the Republic of Singapore Navy's overall strategy of building a balanced, capable and technologically advanced Navy."

Two carriers for India

The Indian Security Cabinet Committee has approved the plan for the construction of a 32,000 tonne "Air Defence Ship" (ADS) to be built at Cochin Shipyard for approximately Rs20 Billion (US$476 million).

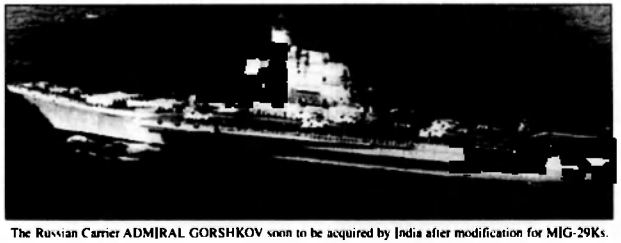
The Indian Chief of Naval Staff said that the ADS was the number one construction priority for the Indian Navy.

The ADS, aircraft carrier, will incorporate modular building techniques from DCN of France in order to cut construction from nine years to six.

It is designed to operate 16 combat aircraft and 20 helicopters. It will utilise the Short Take Off But Arrested Recovery (STOBAR) system using a ski jump to assist in take off and an angled flight deck and arrester wires for recovery.

It is expected that the carrier will operate the MIG-29K Fulcrum to give it commonality with India's other recent carrier acquisition decision, the former Soviet Kiev class carrier ADMIRAL GORSHKOV.

Negotiations are underway between India and Russia after India agreed to the purchase the 44,500 tonne ADMIRAL GORSHKOV. The



The Russian Carrier ADMIRAL GORSHKOV soon to be acquired by India after modification for MIG-29Ks.

Russian's are offering the ship for the price of its refit, US$750 million, but in Russian shipyards. The refit will convert the carrier to the STOBAR system with a ski jump on the bow, requiring the removal of its missile batteries, and arrested recovery gear to operate the MIG-29K.

No dates have been given for introduction of both carriers into service.

Israeli suh found after 31 years

Having been missing for 31 years the Israeli submarine INS DAKAR has been found and positively identified.

DAKAR was identified by a joint US-Israeli search team using very sophisticated underwater search equipment.

The remains of the 1,500 tonne submarine were found at a depth of 2,900 metres in the Mediterranean southeast of Crete.

The Submarine's last radio transmission was received on 25 January 1968, 16 days after leaving Portsmouth, England, on her maiden voyage to the Israeli port of Haifa. It was widely speculated that she had been attacked and sunk by enemy craft.

The DAKAR, formerly the RN WWII Triton class submarine HMS TOTEM, was launched in 1942. One of three submarines ordered by Israel, it was fitted with specialised underwater commando launch and recovery equipment.

Images of the wreck obtained by remote underwater robots have shown the boat broke in two, possibly from impact with a passing ship and high pressure at great depth. However, malfunction or human error cannot be ruled out. It is hoped that further study of the wreck will reveal more. All 69 crew members of the DAKAR died.

Chilean fleet size plummets

At the end of last year the Chilean Navy retired two of its eight major surface units into reserve, LATORRE (ex-HMS GLAMORGAN, County class destroyer) and GENERAL BAQUEDANO (Ex-HMS ARIADNE, Leander class frigate).

It is expected that within the next two years another destroyer and frigate will also be retired into reserve effectively halving the Navy's strength.

To combat this naval officials from Chile have signed a Memorandum of Understanding (MoU) with the Argentine Navy to hold joint training exercises and undertake joint procurement of surface vessels.

Under the MoU the countries will establish a team to manage the construction of warships as well as negotiate shipbuilding contracts to reduce cots through larger orders.

If successful, this new arrangement may mean both countries no longer relying on the US or Europe for warships. This is particularly important for Chile which was intending to buy the RN's decommissioning Type 22 batch 2 frigates. However, this plan was cancelled following the UK's internment of former ruler Augusto Pinochet.

China unveils export frigate

At the recent Middle East IDEX defence exhibition, the China Shipbuilding Trading Company, unveiled an export design for a new 1,600 tonne guided missile frigate.

The design is believed to be aimed at Pakistan as a counter to the Indian Navy's Delhi class DDGs, improved Krivak III FFGs, and the Project 16A and 25A vessels, all representing a very powerful striking force of 12 ships.

Weapons shown on the design are of a western origin indicating the vessel is designed for export. The F16U multipurpose frigate was shown to be armed with: a 32 cell VLS; eight SSMs (Harpoon, MM 40 Exocet or SS-N-25); a 76 mm OTOBreda gun; two Chinese 37 mm guns; and a Signaal 30 mm Goalkeeper CIWS.

Other features included a bow sonar, twin screws, a Dauphin shipboard helicopter, a 3D radar, chaff/flare launchers and an infra red search and track sensor.

The frigate is expected to be 103 m long, have a beam of 10.8 m and a draft of 3.2 m with a top speed of 30 kts.

Another potential customer for the F16U would be Thailand which already has six Chinese built ships with two of them having be fitted with western weaponry and sensors.

AEGIS radars on way out

A study on the future radar requirements of the USN has found the US must take the next step in radar evolution from the SPY-1/AEGIS radar system.

The call comes as the current generation of SPY-1 radars is not expected to meet all future requirements for future warships. A recent study suggested that what is needed is a combination of Multi-Function Radar (MFR) and Volume Search Radar (VSR) for surface ship anti-air and land attack missions with a high power discriminator for theatre missile defence missions.

MFR refers to radar that can do ship self defence and also defend against anti-ship cruise missiles to the horizon. VSR is a radar that can detect air targets at longer ranges. USN officials believe the MFR approach to future radar requirements will also reduce costs however, many in the AEIGIS/SPY-1 camp believe that this new radar system is a rejection of the 25 years already invested in the SPY-1 radar. They are also promoting the idea of a SPY-1E version for future warships.

Anzacs back at full speed

The Gas Turbine problem plaguing the first two Anzac class frigates has been rectified. Whilst awaiting repair of the Gas Turbine both ANZAC and TE KAHA had to rely on their two diesel engines only.

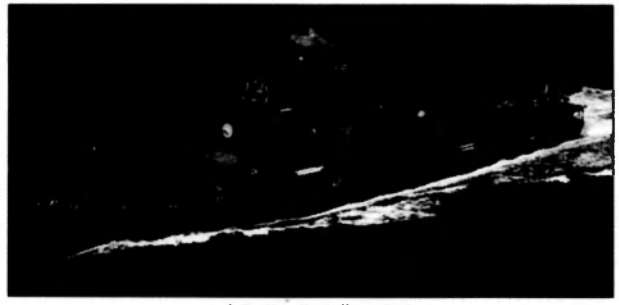
The problem was first discovered last year. The blades of the turbines expanded with heat and started to score the turbine cylinder.

In order to fix the problem a hole had to be cut on the port side of No.1 deck and a plate lifted to expose the machine compartment. Turbines awaiting instalment into other Anzacs still building were used to replace the faulty LM-2500s with the faulty turbines sent back to the US.

The cost of the repair job was born by the ship's builders Tenix. Both ships are now capable of operating on their gas turbines at full speed.

Indian Navy conducts exercise near Pakistan

In an unprecedented move the Indian Navy has changed its traditional naval training area on the east coast to the west coast near the border of Pakistan. The naval force being moved for "training exercises" consists of Kilo class submarines, destroyers and frigates.



An Indian Navy Kashin II class DDG

Although said to be routine by senior Indian Navy officials, many believe the ships were moved to the west coast to provide a ready strike force against Pakistan and to be close to any possible war zones.

Tensions have been rising since both countries tested nuclear weapons and more recently with border incursions and fighting in Kashmir and the downing of a Pakistani Atlantic Maritime Patrol Aircraft. The Indian carrier VIRAAT is said to be on a weeks notice for sea with a full complement of Harriers in case of trouble despite being in refit. The Indian's have also increased surveillance flights over the region using Tupolev Tu-142 'Bear' and Ilyshiun Il-38 'May' aircraft.

Frigate for sale

The former RNZN frigate WAIKATO is for sale by tender. Built in Belfast and launched in 1965, the ship was decommissioned by the RNZN earlier this year.

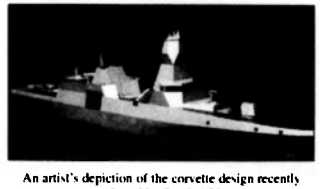
Potential bidders have shown interest in using the former frigate as a floating naval museum, a nightclub, a Hotel or a diving wreck. It could also be sold for scrap.

In other RNZN Type 12 frigate news, the frigate CANTERBURY has finished modifications to allow herto operate an SH-2F helicopter from her flight deck. The rebuild consisted of upgrading the hangar and deck handling equipment. CANTERBURY deployed to KAKADU 99 with her Seasprite.

South Africa to buy German Submarines

The South African Minister for defence has approved the acquisition of three Type 209 submarines from The German Submarine Consortium. The three submarines will cost R4.5 Billion (US$730 million), with the first scheduled for delivery five years after the contract has been signed. The two remaining subs will follow at annual intervals.

The submarines are but one of six major defence equipment acquisition decisions made by South Africa in recent times. Others include four corvettes, 28 Saab Grippen fighters, 24 BAE Hawk lead in trainers, 40 Augusta A-109 helicopters and four Westland Super Lynx helicopters.



An artist's depiction of the corvette design recently purchased by South Africa.

Spanish Navy growing

The Spanish Navy has achieved two significant milestones recently with the launch of the second Galicia class amphibious transport and the keel laying of the new F-100 frigate.

The LPD CASTILLA is scheduled to begin sea trials shortly and expected to commission in June 2000. CASTILLA differs from her sister ship GALICIA by having a command and control suite including an operations centre for a naval command group and another for an amphibious force group. Both facilities allow the ship to operate as a command flagship.

An artist's depiction of the Spanish Navy's new F-100 frigate with an AEGIS combat system.

The 13,815 tonne LPD can carry four NH-90 helicopters or six medium sized helicopters. It has a crew of approximately 190 and can embark 468 marines.

The 5,760 tonne F-100 frigate, ALVARO DE BAZAN has had its official keel laying ceremony with the ship expected to be launched in October 2000 with a commissioning date of September 2002.

The new frigate is equipped with a Lockheed Martin SPY-1D multifunction radar and is the first ship in Europe to use the AEGIS system. The ship is also armed with a 48 cell Mk-41 VLS for Standard SM-2MR Block IIIA and Evolved Sea Sparrow Missiles (ESSM). Along with eight Harpoon, a Mk-45 naval gun and four 323mm torpedo launchers she will also embark a Meroka 20mm CIWS. The inclusion of this weapon represents a continuing endorsement of gun CIWS despite many navies doing away with this system and relying solely on ESSM.

The Boeing Super Hornet is tipped as the USN's new EW aircraft to be known as the F/A-18G (Boeing).

USN EW Crisis

The USN is asking for US$361 million in emergency funds to keep the US Military's only EW (Electronic Warfare) jamming aircraft flying.

A USMC EA-6B Prowler EW aircraft taking off for a mission over Kosovo during operation 'Allied Force'. 50 of the US military's 90 EA-6Bs were deployed stretching the military's EW resources (USN).

During the recent operation Allied Force' 50 of the USN's 90 EA-6B Prowlers were deployed to the region to provide the NATO operation with EW support. The use of over half the force has strained crews, systems and aircraft maintenance schedules so much that the USN has asked for funds to not only keep the EA-6Bs flying but to upgrade a number of training aircraft for operational use.

Part of the reason for the extensive use of the EA-6B was the realisation that Russian electronics engineers had provided upgrades to the Serbs which allowed them to see and, in one case, shoot down stealth aircraft. After the loss of a F-117A, which Pentagon Officials unofficially credit to a modified SA-3 SAM system, every stealth mission required EW support from the EA-6B fleet, one aircraft usually but sometimes two for a B-2 mission.

Realising that the EA-6B fleet has a limited service life left and that the current shortage will continue, the USN has approached Boeing and asked them to design and build an EW version of the Super Hornet to be designated, if produced, the F/A-18G. The two seat G model would be fitted with much of the same EW equipment of the EA-6B but with greater automation.

Boeing's vice president of F/A-18 programs said that "the Navy came in and said how fast can you give us a low cost version of the E/F to do the EA-6B mission, using systems in use on the aircraft or eyed for the EA-6B".

Boeing is hoping to have an aircraft produced and operational by 2006.

Current shortages of EA-6Bs are so acute that recently the USS CONSTELLATION went to sea without EW aircraft support. The carriers EA-6Bs self deployed to South Korea rather than waiting to be deployed to the region by the carrier.

More power for Sea Harrier

The RN has received authorisation to study the need for an engine retrofit for some of its FA.2 Sea Harrier fighters.

The Sea Harrier's current Pegasus Mk 104/106 engine experiences a sharp decline in performance in hot and humid conditions. This narrows vertical recovery safety margins to a critical degree when ordnance is brought back.

A RN FA.2 Sea Harrier returning from a mission. New engines will mean safer recovery limits in hot and humid climates.

The Israeli submarine DOLPHIN during constructor's trials in Germany.

The fitting of a Pegasus 11-61 engine, fitted to the RAF GR.7, would provide an extra 3,000lbs of thrust and require some airframe modification.

The need for more power comes from operational experience in the Persian Gulf. Temperatures above 40 degrees effectively ground Sea Harrier operations due to the safety implications of reduced engine output.

DOLPHIN arrives in Haifa

Israel's newest sub, INS DOLPHIN has arrived in the Israeli port of Haifa after its maiden voyage from the German builders Howaldtswerke-Deutsch Werft AG (HDW) and Thyssen Nordseewerke (TNSW).

Started in 1992, she has conducted two years of sea trials including deep diving tests and other testing in the Baltic sea with the German Navy.

The submarine has four 650 mm and six 533 mm torpedo tubes for STN Atlas DM2A3 torpedoes and sub Harpoon missiles. A total of 16 weapons can be carried with these supplemented by mines.

Several modifications are expected to be made soon including the ability to fire a nuclear tipped cruise missile for a second strike or retaliation capability.

Two other submarines, INS LEVIATHAN and TEKUMA, are also testing in the Baltic and expected to be in Israel by mid 2000.

Type 212A submarine started in Italy

Construction has begun at Fincantieri's Muggiano Shipyard on the first Type 212A SSK for the Italian Navy. The submarine was designed by The German Submarine Consortium (Howaldtswerke-and Thyssen Nordseewerke) and modified to Italian requirements. Four Submarines are planned with the first expected to be launched in late 2002.

An artist's depiction of the German Type 212 SSK similar to the Italian Type 212A.

The 56 m submarine has a surface displacement of 1,450 tonnes, a crew of 24 and will be equipped with a hybrid fuel cell/battery propulsion system based on the Siemens PEM fuel cell. This is expected to provide an underwater endurance four times greater than normal batteries.

Construction of the German variant is expected to start soon with an order for four submarines with an expectation of four more.

US approves more ship transfers

Egypt, Greece, Turkey and Taiwan are some of the countries shortlisted to receive ex-USN ships at little to no cost by the US House of Representatives.

The naval vessel transfer legislation is part of an annual US disbursement of free or cut rate surplus military equipment known as the Excess Defence Articles (EDA) program. From 1990 to 1995 the US transferred nearly US$7 billion of excess military equipment under the EDA program.

The following countries have recently been approved for grant transfers of warships; Greece, the Knox class frigate CANNOLE, Poland, the FFG-07 class frigate CLARK; and Thailand, the Knox class frigate TRUETT.

Cut-rate vessel sales of warships include; Egypt, the Newport class LSTs BARBOUR COUNTY and PEORIA; Mexico, the Newport class LST NEWPORT and the Knox class frigate WHIPPLE; Taiwan, the Newport class LST SCHENECTADY; and Turkey, the FFG-07 class frigates FLATLEY and JOHN A. MOORE.

The guided-missile frigate HMAS MELBOURNE (FFG-05) entering the Port of Fremantle on August 26 for a four day visit on her return to Australia after a four month Arabian Gulf deployment as part of the United Nations Multinational Maritime Interception Force. (Vis. Jeffery)

Observations

By Geoff Evans

The Collins Class Submarine Project

Since World War II a number of Australia's major defence equipment proposals and projects have attracted publicity and criticism, not least the Navy's unsuccessful attempts to retain a carrier-based Navy and the eventually successful plan to acquire a sophisticated aircraft, the F-111. No project however, has attracted as much attention as Australia's first major locally-built submarine programme.

In April this year Defence Minister John Moore called for a report on the state of the Collins class submarine project. This was made public on 1st July and proved to be highly critical of several aspects of the project; further, it was followed by very unseemly happenings involving the Defence Minister and the civilian head of his Department (Mr. Paul Barratt) which at the time of writing remain unresolved.

Shortly after the report was released the writer was asked to comment upon it by the editor of NEWS WEEKLY: the text of an article subsequently published in the paper follows:

"Early this month, a report by Dr. Malcolm Macintosh, former head of the CSIRO and John Prescott, former head of BHP, into the troubled Collins Class submarine project was released by the Defence Minister, John Moore. The report raised important questions relating to Australia's defence acquisitions, which are discussed here by Geoffrey Evans, Former President of the Navy League of Australia.

The report to the Minister for Defence (Mr. John Moore) on the Collins class submarine project makes it clear an examination of the project was not so much timely as overdue.

One could expect the report of an experienced public servant and the former CEO of a major industrial organisation on what had become a controversial project would be thorough and constructive even if it meant placing on record past failures and/or incompetence. Dr. Malcolm McIntosh and Mr. John Prescott have produced such a report.

Although some of the difficulties associated with the project had been public knowledge for some time, it was surprising to learn of the lack of co-operation between the main parties involved – the Defence Department and Navy, the prime contractor (the Australian Submarine Corporation, jointly owned by the Swedish firm Kockums and the Commonwealth, the former being the major shareholder) and various sub-contractors including America's Rockwell/Boeing. A threat of legal action hanging over the project seems much more likely to aggravate rather than improve relations between the parties.

Also surprising was the extent of problems that had developed in the diesel propulsion system – after all, diesel engines have been functioning satisfactorily in Naval vessels including submarines and in merchant ships for many years. While the investigators expect most problems including faulty periscopes, cracked propellers, communications shortcomings, noise and mechanical failures to be solved, they state deficiencies "...will require vigorous management if they are to be remedied in a more timely fashion than has occurred to date".

The principal problem concerns the combat system which, with a unique military specification was included – mistakenly in the opinion of the investigators – with the platform (i.e. the hull, machinery etc.) in a single prime contract. While the USA and UK had done much the same thing with their combat systems they had recognised a problem, cancelled that route and according to the report moved to "a much more reliable route based on commercial, off-the-shelf technology". Australia however, had persisted and tried, unsuccessfully in the event, to make the system work.

With the aid of the USN it is now intended to install a combat system utilising commercial technology.

Concern is expressed in the report about difficulties that arise with fixed-price contracts for very long lead-time defence projects such as ships and aircraft. During the period of the contract strategic circumstances and missions may change while technological advances are a virtual certainty requiring, for example, a different weapon fit. Included in the recommendations of the investigators is provision in contracts for periodical reviews so that changes can be made satisfactory to both contractor and buyer.

It is noteworthy that the investigators consider the Collins class submarines to be in the words of their report "probably Australia's most important strategic asset for the decades starting 2000..." and like the F-111 aircraft, to possess significant deterrent capabilities enabling Australia to have a stabilising influence in the region. It is therefore considered important for the faults to be remedied and the submarines brought into service as soon as possible.

Dr McIntosh and Mr. Prescott do not dwell unduly on the past other than try to identify those areas where failures have occurred and corrections must be made if further costly defence acquisition problems are to be avoided. They do suggest that in selecting an unfamiliar contractor to build submarines for Australia, a unique project, it would have been wise to have sought experts from the USA or UK to advise on practical aspects and act as "buyer's friend" (both the US and Britain have a history of successful submarine design: The RAN is an experienced operator but design and construction are different matters requiring particular skills).

A chapter in the report is devoted to a summary of the measures considered necessary to make the Collins class

operationally useful. Also proposed are changes to remedy deficiencies in the defence procurement system; those will require a much closer association with commercial organisations and procurement projects together with stronger management and greater acceptance of responsibilities at all levels in the Commonwealth instrumentalities involved.

Defence Minister Moore has already taken steps to implement a wide range of measures recommended in the McIntosh/Prescott report. It needs to be said however, that the Armed Forces and their administrating department have been in a state of almost constant change since 1975 when the separate service departments were integrated into a single Department of Defence. It has taken years to rationalise rivalry between Navy, Army and Air Force – usually for limited funds – and for the uniformed and civilian elements to better appreciate their inter-dependence, it is to be hoped a period of stability follows the latest changes."

While the regrettable deterioration in relations between Minister and Departmental Head has captured the headlines, the newly appointed Submarine Project Director, Rear Admiral Peter Briggs, an experienced submariner, has tackled his difficult task energetically and hopefully our new submarines will be heading for calmer waters than exists at present.

An Undiplomatic Gesture

True or otherwise, media reports in July that Defence Minister More wanted to replace Defence Department Secretary Barratt and that the latter had been offered the post of High Commissioner in New Zealand, was not flattering to the New Zealanders.

Mr. Barratt would most likely be an excellent representative for Australia in New Zealand or anywhere else, but such an appointment in the prevailing circumstances could only be seen as very undiplomatic.

Notice is hereby given that the

ANNUAL GENERAL MEETING

of

THE NAVY LEAGUE OF AUSTRALIA

will be held at the Brassey Hotel, Belmore Gardens, Barton, ACT

On Friday, 12 November, 1999 at 8.00 pm

BUSINESS

1. To confirm the Minutes of the Annual General Meeting held in Canberra on Friday, 13 November, 1998
2. To receive the report of the Federal Council, and to consider matters raised therefrom
3. To receive the financial statements for the year ended 30 June 1999
4. To elect Office Bearers for the 1999-2000 year as follows:
   - Federal President
   - Federal Vice-President
   - Additional Vice-Presidents (3)

   Nominations for these positions are to be lodged with the Honorary Secretary prior to the commencement of the meeting.
5. General Business:
   - To deal with any matter notified in writing to the Honourary Secretary by 2 November, 1999
   - To approve the continuation in office of those members of the Federal Council who have attained 72 years of age, namely Gwen Hewitt (WA), Arthur Hewitt (WA) and Joan Cooper (Tas).

ALL MEMBERS ARE WELCOME TO ATTEND

By order of the Federal Council

Don Schrapel, Honourary Federal Secretary, PO Box 309, Mt Waverley VIC 3149

Telephone (03) 9888 1977 Fax (03) 9888 1083

The Clearance Diving Team

Clearance divers have numerous and public peacetime duties but also have covert wartime missions to perform. (RAM).

*By David Watt**

Spending an afternoon with the CO of AUSCDT ONE, LCDR Jonathon Peacock, dispelled some myths and preconceptions of the role CDTs play in peace and war.

In a most appreciated tour of AUSCDT ONE's facilities and equipment, and in a frank an informative discussion, LCDR Peacock demonstrated that Clearance Divers are not so much 'Special Forces' as commonly displayed by Hollywood, but rather a group of highly skilled underwater specialists called upon to undertake selected high-risk tasks. Their "enemy" is less an adversary's soldiers and bases, as the bombs, mines and obstacles he throws against the ADF.

The visit also emphasised to me that the CDTs are not just about training for war – they have demanding peacetime responsibilities that keep them alert and prepared – all AUSCDT operational elements are at very short notice to deploy within Australia and overseas in support of operational and civil contingencies.

CDT Structures

There are currently two Clearance Diving Teams in service in the Royal Australian Navy, AUSCDT ONE, based at HMAS WATERHEN in Sydney, and AUSCDT FOUR, based at HMAS STIRLING in Western Australia. Each team consists of four officers, 9 senior sailors and 36 junior sailors, divided into three operational elements; Mine Countermeasures (MCM), Maritime Tactical Operations (MTO), Under Water Battle Damage Repair (UBDR), plus a headquarters and training element.

Each team is administered by Commander Australian Mine Warfare and Clearance Diving Forces, but is operationally commanded by Maritime Commander Australia. The clearance diving teams have the flexibility to combine elements from AUSCDT ONE and AUSCDT FOUR for operations – such as where the scale of the task require a large concentration of forces including Vietnam and the Gulf War in 1991. Additionally, clearance divers are posted on rotation to fleet units for example the – the Mine Hunter Coastal have six CD personnel embarked to locate, recover and render safe mines for exploitation if required. These personnel are either used in addition to or in conjunction with the ships fitted remotely operated mine disposal vehicle.

The roles of CDT elements

The Mine Countermeasures (MCM) element consists of around 16 sailors and is responsible for the location and disposal of mines in shallow depths where mine hunters cannot operate effectively, airborne disposal of drifting mines, and the recovery and rendering safe of enemy mines for intelligence purposes. Once mines are found, the CDs determine whether to raise to surface, tow ashore and then render safe for intelligence purposes, or if not wanted for exploitation, CDs can place charges and dispose of or mark the mine and report its positions to higher command. The MCM element has the capability to provide limited self protection in operations - but generally operate in a permissive environment. If there is a higher level of threat

they will generally conduct their operations in conjunction with other ADF asset support.

CDs check target areas by searching the seabed methodically using the Jackstay method involving the laying of two lines of wire jackstay attached to lead sinkers forming a grid on the seabed. Divers slowly swim parallel to each other, dragging a snagline between them. An alternate and often preferred search method is the use of an underwater handheld sonar to locate and identify targets of interest.

All diving equipment used for MCM must have a low magnetic and acoustic signature - right down to the spanner used to work on the mine - so as not to detonate the modern range of underwater explosive devices. CDs use a derivative of the USN Mark 16 semi closed circuit rebreather called the A5800. The set, which provides a nitrogen/oxygen mixture to the diver with a constant partial pressure of oxygen, provides optimal bottom time to the diver during search and recovery operations. The capability to dive on a helium and oxygen mixture to greater depths is currently under development.

The Maritime Tactical Operations (MTO) element, comprising around 14 sailors, performs a number of clandestine missions in support of amphibious advanced force operations including clandestine beach reconnaissance, underwater survey, and obstacle clearance.

The reconnaissance of prospective beach landing sites is a major task for the CDs with the information essential to the success of amphibious landings. Prior to a joint or combined amphibious advance force landing the MTO will conduct reconnaissance to identify the slope of the beach, the depth of the water, underwater obstacles, sea conditions and enemy defences. Because of the higher threat inherent in such operations, the MTO element is required to maintain a clandestine posture (including the LAR-V oxygen rebreather set producing no bubbles), and are armed for self-defence with an array of appropriate weapons, but only used if the mission is compromised. Beach landing areas are marked using IR strobe markers, and, if required, the MTO element will prepare breaching charges on obstacles to be set off immediately prior to the landing.

The Underwater Battle Damage Repair (UBDR) element provides diving support to Fleet Units and defence agencies such as DSTO. The element is capable of underwater ship maintenance activities - such as propeller cleans and hull surveys; underwater ship repair activities - such as propeller changes, and stabiliser changes; underwater salvage such as that performed on the RAAF 707 that crashed of East Sale in 1991 and support for submarine rescue operations. These skills also enable the element to be employed in a threat area to conduct repairs on ships such as damage from propeller strike or battle-damage from enemy ordnance. The UBDR element maintains an extensive suite of equipment to perform the aforementioned tasks.

The disposal of Explosive Ordnance and Improvised Explosive Devises are core skills performed by all operational elements. AUSCDT ONE provides EOD (Explosive Ordnance Demolition) and IEDD (Improvised Explosive Device Disposal) support on the Eastern Seaboard

An RAN Sea King hovers near a floating mine and launches two CDs who will either mark it, attach explosives to it for demolition or render it safe for intelligence purposes. (RAN)

Clearance divers can also conduct reconnaissance of beaches. (RAN)

for all ordnance found in a maritime environment be it shipborne, underwater or naval ordnance. This 24hour/7 day duty watch is called out many times each year during peacetime and while they have had false alerts (such as having to dispose of "suspect" boxes of business cards) many old munitions have been found. This core capability can be used in war to provide commanders with flexibility for bomb disposal past the beach landing.

Development Issues

Australian CDs maintain a technological improvement program among the best in the world. CDTs work extensively with the DSTO to maintain knowledge of mine development and techniques for disposal and these are incorporated into team training activities. Navy's 1999/2000 Forward Procurement Plan identifies a number of items that will enhance the CD capability including:

- The Clearance Divers' Tactical Communications.
- The Underwater Searched Area Marking System.
- The Mine Counter Measures Underwater Computer System to provide computerised data logging capability for divers.

The latter system will eventually allow CDs working underwater to have access to computerised databases and an interface with a GPS system that will allow mines once located to be identified and marked. The information will then be downloaded to other ADF command systems for use by commanders and those planning activities such as an amphibious landing.

Longer term, DSTO and the CDTs will examine other options to improve CD effectiveness including advanced swimmer delivery vehicles and remotely operated submersibles. CDs intend to revive the parachuting capability to allow the delivery of CDs to fleet units at long range using parachute load follow techniques.

Becoming a Clearance Diver

The high level of skills, fitness and dedication required by clearance divers means that selection and training is one of the hardest roads to follow in the Australian Defence Force. Sailors, Soldiers and Airmen can apply to become CDs either by transferring service/category, or new recruits can apply to join as a CD on recruitment into the RAN. Having successfully completed the SCUBA Air Diving (SAD) course candidates commence a gruelling two-week CD acceptance test. On average this course has a 50% pass rate. On completion trainees attend a 25 week Basic Clearance Diver course at HMAS PENGUIN. On the successful completion of this course, which about 30% of volunteers fail, the Divers are then posted out to either AUSCDT ONE or AUSCDT FOUR. CDs who have met the minimum requirements for promotion are given the opportunity to participate and advance through the Intermediate Clearance and Advanced Clearance Diving Courses.

Similarly, Officers are able to undertake a CD Officers Selection Test on successful attainment of a bridge watchkeeping certificate on a major fleet unit and completion of the SAD course. Officers then undertake a 43 week diving and EOD course followed by a 12 week Mine Warfare course to qualify as Mine Warfare and Clearance Diving Officers. On completion of the course Officers serve in AUSCDTs followed by the new Mine Hunter Coastal.

CD training undertaken focuses on the three main areas:

- Maritime skills such as advanced diving, underwater navigation, underwater medicine and salvage,
- EOD and MCM training related to locating, raising and rendering safe mines, and explosive ordnance disposal, and
- Maritime Tactical Operations training such as small unit infantry tactics, patrolling, survival, the tactical use of insertion craft, and weapons handling.

CDs learn reconnaissance, communications, photography, roping, sabotage, escape and evasion finishing with resistance to interrogation. CDs train in helo-casting and fastroping from RAN helicopters.

On the job training in each team improves these skills further, and is tested on many combined exercises with other ADF units and overseas with forces such as the US EOD Divers, SEALs and Singapore Naval Diving Unit.

Conclusion

The role played by Australian Clearance Divers in support of maritime and joint operations in peace and war means that these units are at the highest levels of training and readiness. Putting CDs into dangerous waters - either exposed to enemy troops or enemy mines - demands the best people. Fortunately it appears we have them in place.

It was recently announced by Brigadier Phil McNamara, Commander ADF Special Forces Group, that the CDTs will be used in the Counter Terrorist role during the 2000 Olympics, making any terrorist use of the water highly problematic.

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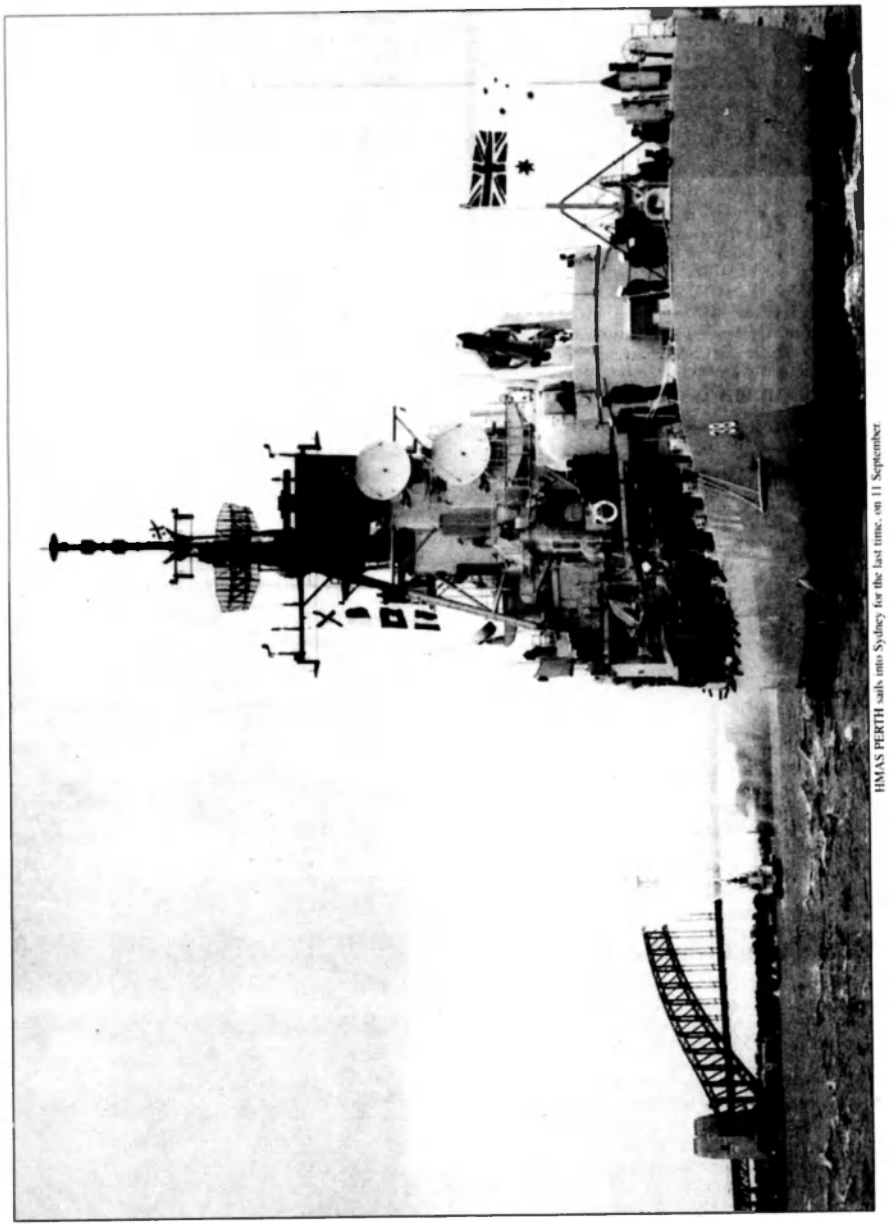
The hazards are not only underwater but above it. A Clearance diver takes aim with his 9 mm Browning pistol. (RAN)



HMAS PERTH sails into Sydney for the last time, on 11 September.

The RAN's Sea Training Group... The Vital Damage Control Link

By LEUT J.W. GOEDECKE, RAN

The USS STARK after being hit by two Iraqi Exocet missiles in 1987. The list is from the crew using too much water to fight the fire. (USN)

The arrival of The Royal Australian Navy's Sea Training Group aboard HMAS MELBOURNE was accompanied by a sense of foreboding from those on board.

At 0630, universally clad in green coveralls, the 45 strong group boarded the Frigate in Jervis Bay. The Ship's Company knew too well they were about to be subject to a gruelling 36 hours of Warfare, Damage control and boarding operations to determine their Operational Level of Capability...

"Hands to Minefield action stations, Hands to Minefield action stations..." rang out over 1MC, MELBOURNE's main broadcast system. The PWO explained to the Ship's Company that shortly they would be conducting a minefield transit to exit the bay and all Self-Protective Measures were to be put in place. All of MELBOURNE's Ship's Company should by now be well versed in these requirements, designed to reduce the likelihood of accidental actuation of a mine in a mine danger area as well as minimising the effects of injury to personnel and damage to the ship, should a mine strike eventuate.

This of course is an exercise, though with Sea Training Group on board, events are very real to MELBOURNE's Ship's Company. Sea Training Group (STG) comprises up to 60 sea-riding personnel made up primarily of Lieutenant Commanders and Warrant Officers. It is a daunting prospect for many to be under the scrutiny of such a qualified team of trainers and this provides the basis of STG's reputation. Each member of the group is experienced and highly proficient in their area of expertise, be it tactical operations, engineering, logistics or medical. Despite the general perception to the contrary, STG have adopted the catch-cry "we're here to help", providing assistance, advice and evaluation of ships' teams in every department on board.

All RAN major fleet units are subject to workup training guided by Sea Training Group. This is typically a five-week period following post refit sea trials and the combat system qualification period. Ships are "worked up" in a graduated series of exercises that build up from relatively low-level, stand-alone serials, and graduate to more complex, whole ship scenarios incorporating warfare and damage control. This process is designed to develop, improve and hone the efficiency of individual ship's departments and to inspire the ship to operate as a team. The ships' teams are critically evaluated twice in this period, the first towards the end of Week Two in a Work Up Progress Evaluation (WUPE). The WUPE is designed to identify, at an early stage, which areas the ship will need additional STG coverage to eventually achieve the

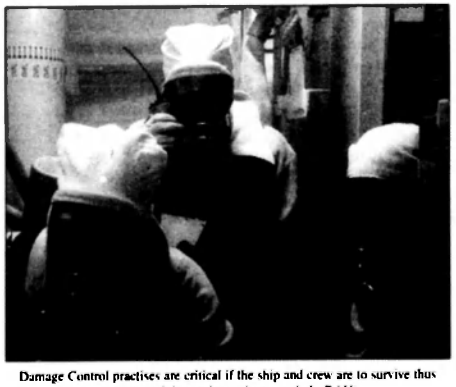
required standard. The Operational Readiness Evaluation (ORE) is the final assessment for the ship to determine if they have achieved an appropriate level of operational capability. All ships are also periodically "Sea-checked" by STG during their operational cycle to ensure they maintain their proficiency.

Fleet Concentration Periods and major exercises provide the most efficient forum for STG to visit and evaluate the most number of ships in one period. The group will frequently be split into specialist teams and transfer to and from ships by helicopter, jackstay or boat transfer. Generally, personnel are transferred by boat 8-10 at a time, often in difficult seas. Even the most seasoned of STG members look toward the hazards of boat transfers on the high seas with some trepidation!

When not at sea, the STG reside primarily at Maritime Headquarters. Focussed on improving efficiency and maintaining standards for the RAN fleet, the responsibility and workload entrusted to the STG members is extremely demanding. The little time spent ashore is consumed with paperwork, conferences and meetings necessary to keep the training doctrine current. This ensures the RAN's sea going fraternity are receiving the most efficient guidance and advice on developing technologies and improvements.

Earlier this day, Commander Sea Training briefed his team of sea-riders on the programme for the next 36 hours of the ship's ORE. MELBOURNE's Commanding Officer knew only that the ship was to conduct an operational patrol in fictional Beulahn waters, to support that country against acts of aggression from the zealot Avalonians, enforcing UN sanctions as required. Avalon is an historical rival believing Beulah should be under their administration. Another regional military power is Hesperides, a neutral country who have military and political links to Avalon.

As the ship entered the swept channel, an intelligence report was received indicating a possible raid of Avalonian Mirage F-1 fighters, carrying the Exocet anti-shipping missile, preparing to take off. The ship's Anti-Air Warfare teams were brought to a higher state of readiness looking for further indications of the potential fighter attack. The



Damage Control practises are critical if the ship and crew are to survive thus constant training and exercises are vital. (RAN)

The STG also test operations in anti-air and ASW drills. (RAN)

next event was not what the command team expected. Shattering the silence and concentration was a pipe from the Officer of the Watch: "Mine on the starboard bow, all positions BRACE BRACE BRACE." Unfortunately the ship manoeuvred too late. "Explosions" were heard forward, then shortly after, frantic damage and casualty reports began flooding into the Operations Room and Damage Control Central (DCC).

The component of STG who orchestrate the DC scenarios are aptly known as the 'wreckers'. They comprise mainly Warrant Officers who initiate engineering casualty scenarios, and umpire the damage control and firefighting events in the affected compartments. Smoke "bombs" are used to add realism to the fire scenarios and a host of other training aids are used to simulate damaged equipment and fittings. The "mine strike" set the wreckers to work with smoke billowing out of the forward Junior Sailors' mess deck and a fast flood in the Auxiliary Propulsion Unit room. Initial attempts to extinguish the fire were unsuccessful, necessitating the two sailors dressed in breathing apparatus and protective clothing to withdraw from the compartment and secure the hatch on the deck above. Their only option was to cool the compartment boundaries until a full support team arrived to enter the compartment and attack the fire. Meanwhile, personnel were working desperately in the APU room to contain a fast flood caused by a large hole in the hull. They will have to erect shoring (which must remain assembled throughout the ORE with a sentry present) to stop the ingress and then pump the water out of the compartment. Further complicating these problems were casualties resulting from the mine detonation. Five sailors were 'killed' and a further seven injured, with afflictions ranging from gashes and burns, to concussion and smoke inhalation. They all have to be evacuated from the damaged and smoke filled compartments and attended to promptly.

The focus of STG has changed somewhat in recent years. Training, rather than intimidation, has become the core business of the group, utilising the vast knowledge base of the experienced officers and senior sailors within STG to provide the best possible guidance to those at sea. This corporate knowledge and experience is in great demand with most elements of STG at sea nearly every week between February and May this year, having already visited 11 major fleet units for training and assessment. Though classed as a 'shore' posting, it is not uncommon for STG personnel to spend more time actually at sea than many serving in sea going ships. Whilst they do accrue some extra leave due to time spent at sea, STG are not currently entitled to sea going allowance.

Compartment searches forward found another spot fire in the Bosun's Store. As personnel were spared to attempt to control that development, the PO Medic reported two casualties required urgent medical assistance and required a medevac. The decision was made to recall the S-70B-2 Seahawk from a surface search mission, to land on, and evacuate the casualties.

During their temporary stay on board, STG are accommodated in the empty hangar that quickly resembles an Army-like 'tent city'. They are provided sleeping bags on canvas stretchers that lie close to each other in what little room there is for over forty people. This space is also used for STG briefings prior to major "incidents", as well as a working area for report writing and discussion. In non-air capable ships, the accommodation quandary is more complex, with Executive Officers necessarily scattering STG throughout the ship in any available lodgings.

MELBOURNE's Ship's Company managed to control the minefield incidents and maintain their operational posture but they had only survived the first ninety minutes of their ORE. The long day and night ahead saw the ship called upon on several occasions to board and search merchant vessels for contraband cargo, while being mindful of the ever present mine danger, as well as reacting to the continual probing and surveillance by Avalonian aircraft. As the threat would seem to ease, complications specific to the ship would keep the crew busy with machinery breakdowns, toxic hazard incidents and occasionally a "man" falling overboard, all of which was designed to test the ship's organisation to the limit.

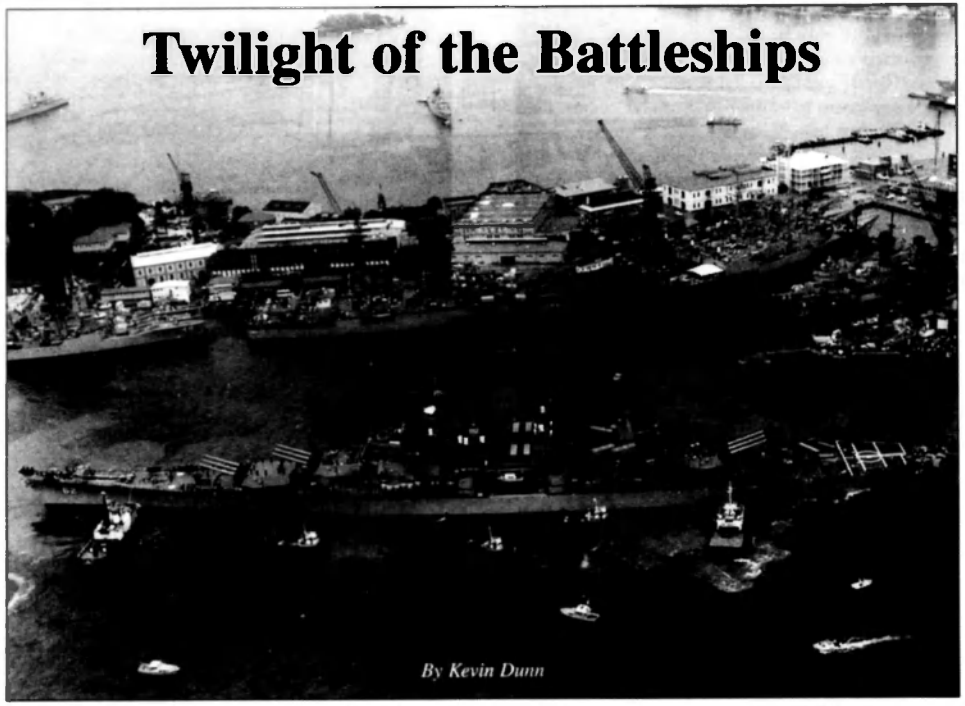
With tutelage and guidance from the STG, MELBOURNE passed their ORE. Despite the anxiety and fatigue resulting from the scrutiny of the green-clad troupe, the Ship's Company responded with enthusiasm and applied themselves assiduously to the challenges and opportunities offered. With the evaluation over and a sigh of relief, the ship finally farewelled STG – until next time. Armed with the knowledge that the sea trainers are not quite as pernicious as rumour would tout them, they should welcome their next encounter – after all, Sea Training Group is here to help.

Shortly after this workup, MELBOURNE deployed to the Middle-East in support of the multi-national interdiction operations in the Persian Gulf. Meanwhile Sea Training Group continued the post work up cycle of major fleet units and was actively involved in the major international KAKADU 99 exercise.

Spartan conditions for the members of the STG when aboard ship. Here the STG are accommodated on army style camp beds in HMAS MELBOURNE's empty helicopter hangar. (Jeff Goedecke, RAN)

A view of the damage suffered by the USS STARK. Note the extent of the damage by the officer off to the left on the main deck. Damage Control exercises are vital to ship and crew survivability. (USN)

Twilight of the Battleships



By Kevin Dunn

The USS NEW JERSEY is manoeuvred into position at Sydney's Garden Island during the 1988 Naval Bicentennial review. (RAN)

Launched in the midst of World War II as a direct counter to the Imperial Japanese Navy's super battleships Yamato and Musashi, the Iowa class battleships have been used repeatedly over the intervening years in every major conflict up to and including the Gulf War. What now for these veterans, which having been placed in reserve since 1992, cause many an emotive discussion amongst naval circles, veterans and the public?

Originally planned as a class of six, weighing in at 45,000 tons a piece (57,000 full load displacement), all the Iowas were laid down between June 1940 and December 1944. They were USS IOWA (BB-61), USS NEW JERSEY (BB-62), USS MISSOURI (BB-63), USS WISCONSIN (BB-64), USS ILLINIOS (BB-65) and USS KENTUCKY (BB-66).

The ILLINIOS was scrapped while on the slipway in August 1945. KENTUCKY was finished up to the bare hull stage which enabled her to be launched unceremoniously in January 1950. The latter's bow becoming very handy as a replacement when USS WISCONSIN damaged hers colliding with USS EATON (DDE-510) in 1956. KENTUCKY was eventually scrapped in 1958 her engines being utilised in the building of the fast replenishment ships SACRAMENTO and CAMDEN.

The Iowas are powered by eight oil fired boilers powering through four double reduction geared turbines, rated at 53,000 shaft horsepower each. Four propellers drive these vessels at a reported speed of up to 35 knots, the fastest battleships ever built. The boilers also power eight turbo generators providing electrical power (10,000 kw) to over 900 electric motors aboard.

Protection aboard consisted of 12.2 inches of armour along the belt (17.3 inches of armour on the turret faces), angled to increase resistance to incoming shells. It is hotly debated whether this armour could withstand the 18 inch shells from their chief WW II adversary. The comparative lightness of the armour being a direct trade for speed, which was considered more valuable across the expanse of the Pacific.

The Iowas are crammed with the most impressive statistics ever assembled in a fighting ship. All for one purpose, to mount nine massive 16 inch/50 calibre guns, the most powerful guns ever mounted on a US ship, able to fire 2,700 lb projectiles over a distance of 22.8 miles (36 kms) every 30 seconds. Combined with this are sixteen 5 inch/38 guns as secondary armament as well as numerous 40 mm and 20 mm mounts for air defence.

As history shows these ships never went head to head with their expected foes as airpower soon became the deciding factor in the Pacific war. As refitted in the eighties all the 40 mm and 20 mm mounts were removed, air defence being carried out by the secondary armament and four Vulcan Phalanx, as well as losing two twin 5 inch/38 mounts as a space saving measure upon the addition of the Tomahawk Armoured Box Launchers.

In the almost sixty years since their launch these impressive vessels have seen action regularly in every armed dispute involving the USN; Korea, Vietnam, Desert Storm and also in the shelling of Lebanon.

However, they have spent far more time laid-up in reserve than in operational use. This is primarily due to the heavy manning levels required which varied throughout their careers from nearly 3,000 in World War II to just over 1,500 in the eighties. During peacetime they were used primarily in the training role. In times of conflict, escort and more importantly the shore bombardment role.

Their most recent use was during "Desert Storm" where MISSOURI and WISCONSIN were used as platforms for the launch of Tomahawk cruise missiles, though only carrying 32 Tomahawks each, they played a very active part in the conflict by way of conducting shore bombardment. The two ships fired a combined total of 976 16 inch projectiles (a mixture general purpose and armour piercing) on Iraqi targets.

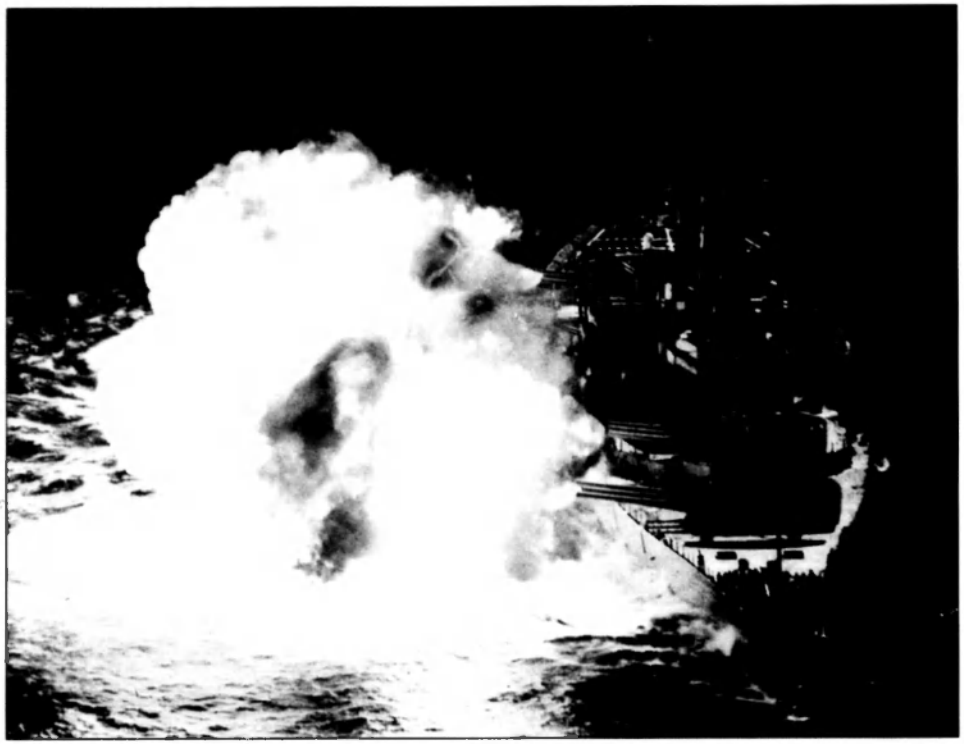
With the ending of the cold war came the scaling down or "rightsizing" of the USN. It was decided that their time had come to retire gracefully, de-commissioned, placed in reserve with the rest of the mothball fleet. They were to be disposed of quietly, not into razorblades like so many of their kind but donated to maritime museums at various locations throughout the States. The most notable plan being to place USS MISSOURI in 'Battleship Row' at Pearl Harbor joining USS ARIZONA. The symbology evident, attesting to the commencement of the war in the Pacific and the end of the war, the formal 'Instrument Surrender' having been signed on USS MISSOURI's fore-deck in Tokyo Bay. These decisions having been made, all four Iowas were struck from the Naval Vessel Register in January 1995.

The ensuing outcry from various battleship proponents commenced when it was realised this was more than just "being placed in reserve". This was the end of the line for the four giants, their re-activation would be near impossible after this step was taken.

Concurrent with the debate were the voices of the many cities and veteran societies around the US, which wished to obtain all four for preservation. Two Senate committees turned their attention to these emotive arguments. The Senate Armed Services Committee (SASC), which must formally approve Pentagon decisions, argued that they should be retained and be placed back into the reserve fleet. The other being the Senate Defense Appropriations Subcommittee, these being the keeper of the purse strings, opposed the use of ever dwindling Navy funds, should the Navy wish to return the ships to the mothball fleet and retain the logistics support required by the battleships (spare parts, ammunition storage, etc).

Concurrently with this was a flurry of peripheral activity mostly dealing with ways of justifying and retaining these ships, searching for other roles, new ways

A Iowa class battleship with two Spruance class destroyers either side and a Ticonderoga class cruiser to the stern. (USN)



A full nine gun broadside demonstrates the firepower these ships possessed and why they will be retained for a little while yet. (RAN)

to keep them from their eventual fates. One of the more radical being to convert them into STOVL (Short Take Off and Vertical Landing) platforms by building a hangar over the rear turret position with lifts to its roof to enable helicopters and/or AV-8B Harriers to take off.

Another suggestion being to convert their hulls to resemble the ill-fated 'Arsenal Ship' project as a massive mobile Tomahawk launcher. As far fetched as these seemed, they all contained some validity. With the USN's adoption of "From the Sea" and "Forward from the Sea" with its associated concentration on littoral warfare as its doctrine, it was very apparent to the USMC that the Navy was incapable of providing adequate fire support for their amphibious operations. The Marines demanded that the Navy retain the 'big guns' as the standard US naval gun, the Mk-45 5 inch gun of the Spruance and Ticonderoga class ships was discovered in the Gulf War, unable to get close enough to shore (due to minefields) to be effective in the bombardment role.

Another factor being the newer ships are very vulnerable close to shore to missile attacks, as proponents are quick to add the battleship's armour protects them from almost all expected missile types in use.

Eventually around July 1995, it was suggested a compromise be reached, retain the two in best condition (MISSOURI and WISCONSIN) in ready reserve and dispose of the two in poorer condition (NEW JERSEY and IOWA). This became the official stance of the SASC. This was followed very quickly when the Defense Appropriations stated in their funding policy for the USN in November 1995 "None of the funds provided by this act shall be available to either return or to support logistics to return Iowa class battleships to active service". In direct opposition to this Congress directed through the National Defense Authorisation Act for Fiscal Year 1996, that the Navy was to:

- List and maintain at least two Iowa class battleships, those, which were in the best condition on the Naval Vessel Register.
- Retain the existing logistical support to keep these two battleships in active service, and
- Keep them on the register until the Navy certifies that it has within the fleet a surface fire support capability which equals or exceeds that capability that the Iowa class battleships would be able to provide to the USMC.

The above requirements were however, amended to read instead of "best condition" to "good condition". This was to allow the Navy to continue with the preparations to donate USS MISSOURI due to her historical value.

It was declared however, at the time of their de-commissioning that all four were fit for further service. The material condition of USS IOWA was considered bad and that combined with the damage from the April 1989 turret explosion ruled her out. The decision was made to re-instate both USS WISCONSIN and USS NEW JERSEY to the register. This is despite NEW JERSEY'S poorer condition and the fact the Navy had already commenced demilitarisation, having already welded down the training mechanisms of her 16 inch guns.

It took a further two years for the Navy to re-instate both WISCONSIN and NEW JERSEY to the register. Due in part to the earlier prohibition of funds. Upon the prohibition expiring the following year the Navy did little other than suspend demilitarisation and disposal of parts. Upon re-instatement in February 1998 the chosen two were to receive the highest reserve maintenance category ("B") which includes limited weather protection, de-humidification of the interiors, the installation of fire and flood alarms and electrical protection of the hull to help prevent corrosion. The cost to the US taxpayer comes to about $US200,000 per ship, per annum.

The second requirement, retaining logistical support for the battleships, is often overlooked. This consists of both technical manuals, spare parts, repair facilities, manufacturing capability of expendables (i.e. ammunition) and a thousand other considerations. Some reservations were expressed regarding the availability of the giant hammerhead cranes needed for repair work (the IOWA turret). As a result the majority of spare parts and the technical manuals have been consolidated and stored within the climate-controlled hulls of both NEW JERSEY and WISCONSIN. Other additional parts are being stored at various naval facilities across America, primarily California, Washington and Crane Indiana.

Of interest are 26 16 inch gun barrels (in Nevada and Virginia) and 15,000 rounds of ammunition and propellant charges being stored by the Army (Indiana and Nevada). The Nevada facility still maintains a 16-inch ammunition repair and renovation capability with operable propellant mixing and stacking machinery. Production of the projectile bodies could re-commence within a couple of months if needs arose at an estimated cost of $US7,000 per item. Add to that the expected cost of the explosive pressing and fusing (another $US3,000). The storage of current reserves of these munitions runs out to about $US431,000 per annum.

The third requirement may prove even more interesting, how long does the Navy plan to hold the remaining Iowas in reserve? Just last year MISSOURI was towed to Pearl Harbor. In January this year the status on NEW JERSEY was altered to de-list her and re-list IOWA as one of the two being held. The reason, there are moves afoot to donate NEW JERSEY to her home city.

Future NGS

Since the instruction that they must be retained until such time as the fleet can provide sufficient fire support to amphibious operations, we need to examine what is happening in this direction. The USNs primary effort in this area is to assist in the development of an improved method of delivery of ordinance on target from their ships. This has concentrated on the ERGM program (Extended Range Guided Munition).

Back as far as the mid 80s experiments were carried out at the Army range in Yuma Arizona, where a functioning 16 inch/50 gun is located, with a radical 13 inch projectile fired through the gun with use of a discarding sabot. This proved highly successful in extending the range from 22.8 miles to over 36 miles. Not only that but 13 inch projectiles using two sabots can fire out to the 75-100 mile mark with great accuracy utilising a variety of guidance systems, GPS, infra red and laser designation.

These systems originally designed for use on the Iowas have now developed into the solution the Navy needs to finally dispose of the battleships.

Raytheon Systems Co. together with the Navy Surface Fire Support Office is specifically developing ERGMs designed to operate with the USNs new range of 5 inch/62 calibre guns. They are precision guided projectiles with a range of 41-63 nautical miles, in essence a rocket assisted shell, complete with GPS as well as internal navigation. They will be fitted with a variety of warhead types, from armour piercing to anti-personnel submunitions.

This new ordnance is destined to be adopted by many navies worldwide, the RAN is awaiting developments with a view to adoption of the system for its vessels. This technology is expected to come on line sometime in 2002-2003. In conjunction with this is the development of the Land Attack Standard Missile.

With these new weapons, combined and adopted, Navy officials consider this will meet the needs for fire support that the USMC seek and as such fulfilled the requirements of the initial directive. The USN expects to make the required certification between 2003-2008, then will remove the two remaining Iowas from the NVR.

Conclusion

These magnificent vessels have been occasional visitors to our waters and cities, both USS MISSOURI and USS NEW JERSEY having visited Fremantle, Hobart and Sydney prior to their final decommissioning. One cannot but be impressed with their sheer size and beauty, the likes of which we will certainly not see again in an Australian port.

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

The Australian Submarine Squadron celebrated the Royal Australian Navy's 88th anniversary of its formation in the finest possible way with the commissioning of HMAS WALLER (SSG-75) on Saturday, July 10.

Commissioned beneath sunny skies at HMAS STIRLING, WALLER becomes the third COLLINS-class submarine to join the Fleet and marks the half way point of this massive Australian industrial undertaking.

Guest-of-honour for the Commissioning was Mrs Diana Waller, wife of Michael, the eldest son of the late Captain H.M.L. (Hec) Waller, DSO and Bar, RAN, who along with his younger brother John was present at the commissioning.

Among the VIPs attending were Senator Eric Abetz representing the Minister for Defence, Leader of the Opposition Mr Kim Beazley, new CN VADM David Shackleton, Commissioning host MCAUST RADM John Lord, and COLLINS Project Leader RADM Peter Briggs.

Fittingly a number of HMAS PERTH survivors who sailed with Captain Waller were in attendance.

The ceremony commenced with WALLER's CO, CMDR Mel Jones, reading the commissioning order before Senior Chaplain Brian Rayner, and Chaplains Robert Hosken and Graham Pitman conducted the commissioning service and the blessing of the submarine.

Mrs Waller and the youngest sailor serving in HMAS WALLER, ABCK Braddon Cooper (17) cut the traditional commissioning cake. Ironically the day was the 60th anniversary of the Commissioning of the light cruiser HMAS PERTH I (ex-HMS AMPHION) at Portsmouth, England, on July 10, 1939.

Captain Waller was lost with PERTH in the Battle of Sunda Strait in a gallant action on the night of February 28/ March 1, 1942 when in company with the US heavy cruiser USS HOUSTON.

There was little rest for the newly commissioned HMAS WALLER as it sailed from Fleet Base West on July 13 for a five month south east Asian deployment, leaving from the same waters from which Captain Hec Waller departed when HMAS PERTH sailed from Australia for the last time.

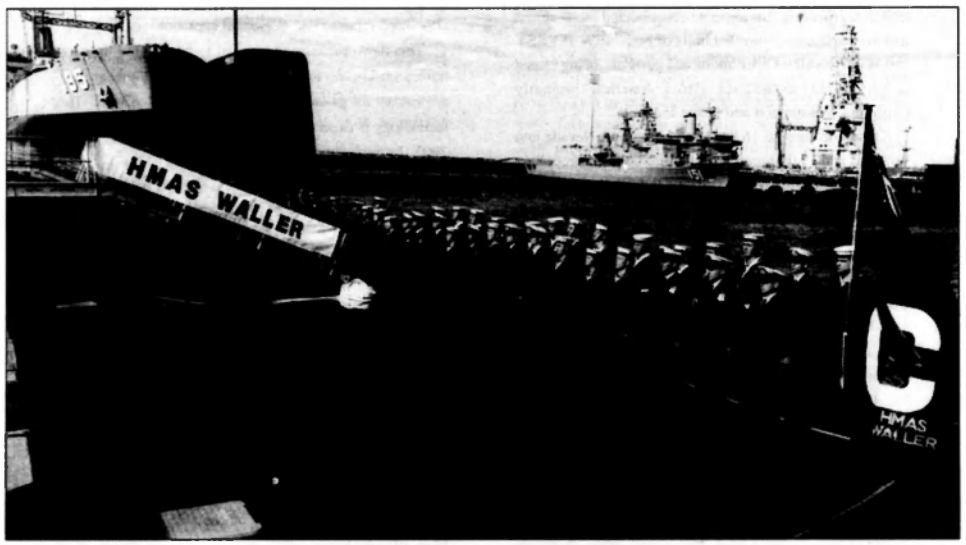
Captain Waller sailed from Victoria Quay in nearby Fremantle Harbour at 0030 on February 14, 1942 (thus avoiding sailing on the 13th). Two weeks later after surviving the Battle of the Java Sea, the ship, hit by four torpedoes and countless shells, went down with Waller and many of his gallant crew in the Sunda Strait.

by Vic Jeffery

In our next edition of Hatch, Match & Dispatch

MANOORA re-joins the fleet.

PERTH decommissions.

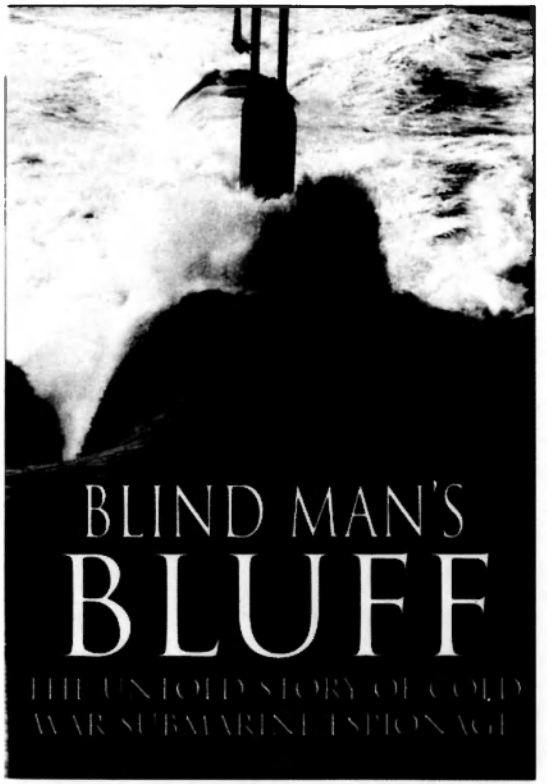


Australia's third Collins class submarine, HMAS WALLER, during the commissioning ceremony at HMAS STIRLING. (LSPH Darren Yates)

Book Reviews

Blind Man's Bluff

Review by Mike James



The Untold Story of Cold War Submarine Espionage

Sherry Sontag and Christopher Drew with Annette Lawrence Drew

It has been said that the difference between a fairy tale and a submarine story is that a fairy tale begins with "once upon a time" while a submarine story begins with the words "no shit, but...".

Many of the stories contained within this book could well be mistaken for fairy stories, or the latest techno-thriller from Tom Clancy, except for the detailed references and notes at the end of the book in which the authors outlined how they obtained their information.

Blind Man's Bluff relates many of the most secret operations of the US Submarine Service during the long cold war, from the first, tragic mission in 1949 (leading to the loss of the USS Cochino) through to submarine collisions in the 1990's, after the fall of the Berlin Wall.

The details of some of these missions fall almost into the realm of comic opera, such as the case of the failed CIA attempt to raise a sunken Golf class ballistic missile submarine using the infamous Hughes Glomar Explorer. Others are tales of desperate peril or triumphant seamanship such as the ultimately successful search for the wreck of the USS Scorpion, located in the depths of the Atlantic Ocean.

One chapter deals with the first successful trialing of the then-new Russian Yankee class ballistic missile submarine by an American submarine. In an epic feat of seamanship the USS Lapon maintained contact with the most silent submarine the Soviet Navy had yet to put to sea for an amazing 47 days, most spent less than 3000 yards astern.

The chapters dealing with the tapping of Soviet undersea telephone cables in the Sea of Okhotsk span eleven years from 1971 to 1982, and reveal the dangers associated with this blackest of submarine operations, together with the almost unbelievable secrets that were snatched from under the Soviet Navy's nose. The operation was eventually compromised by the actions of the Walker spy ring, which alerted the Soviets to the undersea wire-tapping.

A welcome addition is a chapter on the view from the Russian side, including interviews with submariners who faced the technologically superior US boats in the world's most unforgiving battleground, year after year.

Blind Man's Bluff is a fascinating expose into a world that was once amongst the blackest of "Black Ops", revealing many operations for the first time outside the closed worlds of intelligence and submarines. If there is a complaint it is that the book only whets the appetite for more. A number of operations and incidents are relegated to footnotes, and many could make the basis for further chapters in their own right.

BLIND MAN'S BLUFF. Random House Australia, 352 pages, $24.95

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:

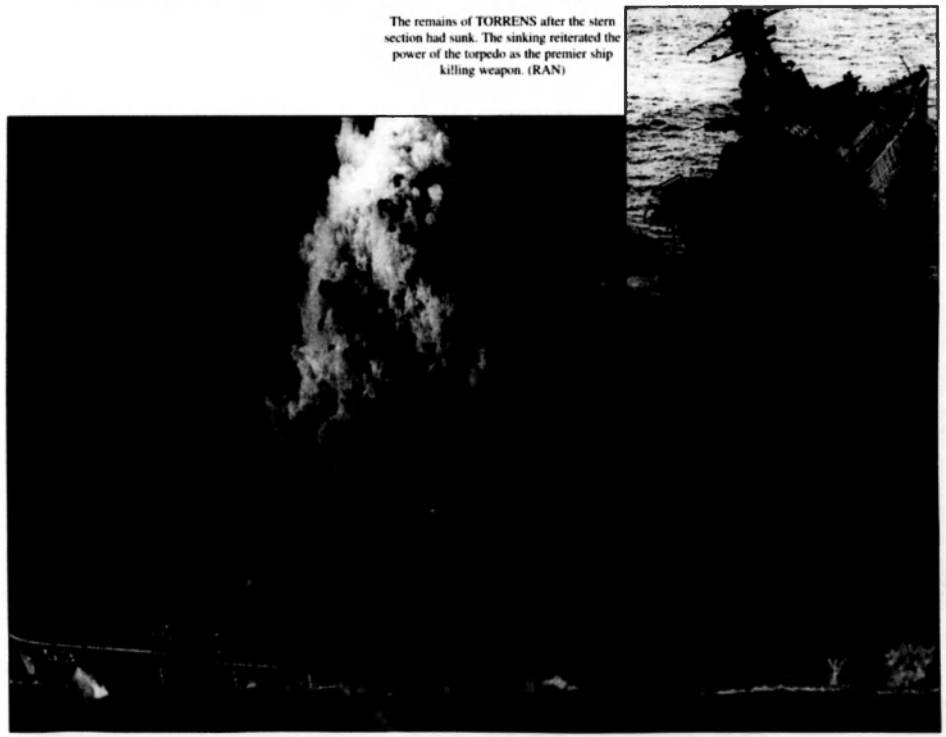
Calls for a bipartisan political approach to national defence with a commitment to a steady long-term build-up in our national defence capability including the required industrial infrastructure.

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.

The target ship TORRENS. This image shows the torpedo's shock wave lifting the vessel out of the water and weakening the ship's back. (RAN)

With the shock wave dissipated the pressure wave follows penetrating and cutting the ship in half through the already weakened hull. (RAN)

The remains of TORRENS after the stern section had sunk. The sinking reiterated the power of the torpedo as the premier ship killing weapon. (RAN)



The full blast effect of the torpedo's warhead acting through the pressure wave breaks the ship in two. (RAN)

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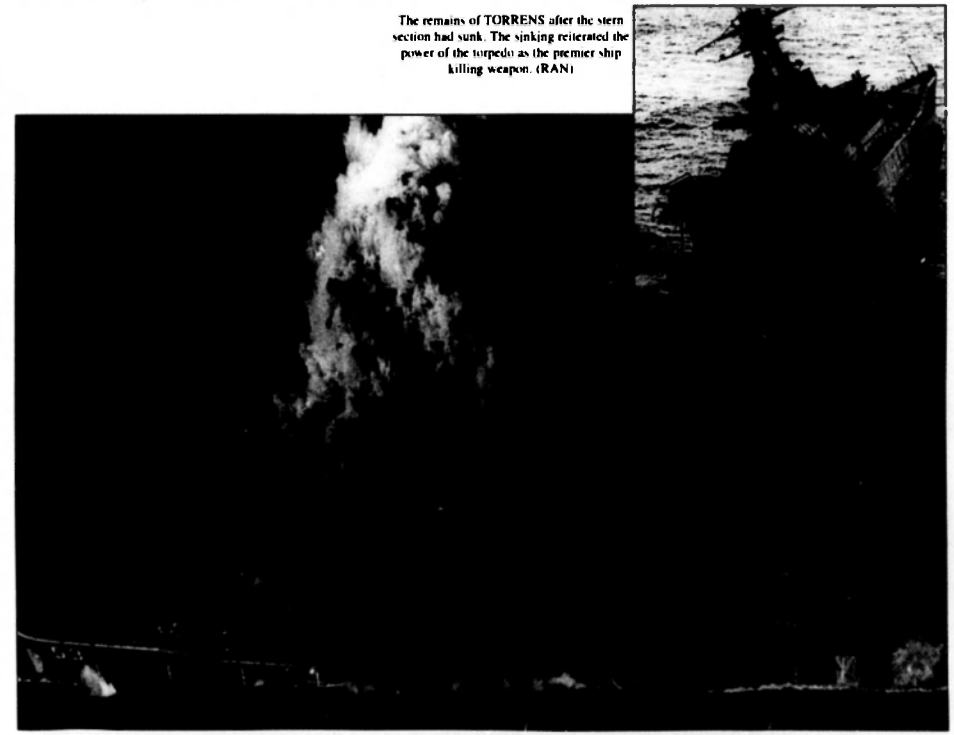

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