Journal of the Australian Naval Institute

Winter 2004

AUSTRALIAN NAVAL INSTITUTE

The Australian Naval Institute was formed as a self-supporting and non-profit making organisation; incorporated in the Australian Capital Territory in 1975. The main objectives of the Institute are:

- to encourage and promote the advancement of knowledge related to the Navy and the maritime profession; and
- to provide a forum for the exchange of ideas concerning subjects related to the Navy and the maritime profession.

Membership subscription rates are located on the inside back cover of the *Journal*. Further information can be obtained from the Business Manager, Australian Naval Institute, PO Box 29, Red Hill ACT 2603, email: a_n_i@bigpond.com, or via the website at www.navalinstitute.com.au.

Journal of the Australian Naval Institute

The *Journal of the Australian Naval Institute* is published four times a year: at the end of January, April, July and October.

The Editorial Board seeks letters and articles on naval or maritime issues. Articles concerning operations or administration/policy are of particular interest but we will consider papers on any relevant topic. As much of the RAN's operational and administrative history is poorly recorded, the recollections of members (and others) on these topics are keenly sought.

Views and opinions expressed in the *Journal of the Australian Naval Institute* are those of the authors and not necessarily those of the Institute, the Royal Australian Navy or the Australian Defence Organisation.

Back copies of the *Journal* (where held) cost $5 for members and $15 for non-members. The Institute will take back old copies of the *Journal* if members no longer wish to hold them. A CDROM of the Journal covering the period 1975-2003 is available for $99; see the inside back cover for ordering information.

Pen Names. If a member wishes to publish under a pen name the Editor must be advised either in person or in writing of the identity of the individual that wishes to use the pen name. The Editor will confirm in writing to the member seeking to use a pen name that the name has been registered and can be used. More details are available on the Institute's website.

Style Guide. Articles and correspondence should be submitted electronically in Microsoft Word, with limited formatting. Relevant pictures or maps can be submitted electronically (if under 1 MB), otherwise they should be provided on CD.

Articles should ideally range in size from 3000-7000 words pages, but smaller one page articles will be considered, as well as the occasional much larger piece of work. Larger articles should be submitted to the Sea Power Centre-Australia for possible publication as a Working Paper (spca.seapower@defence.gov.au).

Area Representatives

A number of members based outside Canberra can provide advice on membership and the development of articles for the *Journal*. Their details can be found on the Institute's website, on the *Journal* page.

Seapower Centre Research Collection

The ANI recently donated its library to the Royal Australian Navy where it will be incorporated into the Sea Power Centre Research Collection, which numbers several hundred books on naval history and strategy, and more general defence matters. ANI members will continue to have access to this unrivalled and often unique selection of research material. The library is normally available for use 0900-1630 each weekday, but please ring to confirm this, particularly if visiting from outside Canberra. As this is a reference collection, it is not possible to borrow the books. The Institute will gladly accept book donations on naval and maritime matters (where they will either be added to the library or traded for difficult to obtain books).

With the impending relocation of the Sea Power Centre over the next few months, the best point of contact for access to the library in the first instance, or to make arrangements for book/journal donations is Mr Andrew Forbes on (02) 62655062, email andrew.forbes1@defence.gov.au.

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Front Cover: RAN *Super Seasprite* conducting flight trials. (RAN)
Back Cover: HMAS *Quiberon*

CORRESPONDENCE

Annual Dinner - 26 August 2004
2003 Iraq War Seminar 27 August 2004

Rear Admiral Mark Bonsor, AO CSC RAN will deliver the Vernon Parker Oration on *RAN Persian Gulf Operations in Perspective* at 1830 on Thursday 26 August 2004 in the Military Theatre, Australian Defence Force Academy. The annual ANI Dinner will follow at 1945 in the Officers Mess.

The ANI is pleased to announce a half day morning seminar on the RAN involvement in the 2003 Iraq War to be held at the Australian Defence Force Academy on 27 August 2004.

RSVP for the dinner and/or the seminar is required by 18 August. Please refer to the insert for further information.

Shiphandling Corner

CAPT Ray Griggs, CSC RAN recently posted to the US for twelve months, and while he has kindly agreed to continue managing this column, his opportunities to contribute directly with articles will be significantly reduced. There have been some good articles from members over the last couple of years, any other members with submissions or suggestions should contact CAPT Griggs direct at griggsr@ndu.edu.

Aircraft Carriers: indispensable and invulnerable

(See CMDR David Hobbs, pp. 5-10, Autumn 2004)

CDRE Alan Robertson, RAN (Rtd) - Thank you for the excellent article on aircraft carriers by Commander David Hobbs. It says a great deal about the utility of the carrier, a fact which was made obvious to me as a Joint Planner on the staff of Commander in Chief Far East (CinCFE) during Confrontation. A couple of examples might explain my affection for carriers.

Example One. Indonesian activities in Borneo were getting more aggressive during 1965 and DOBOPS (General Walter Waker) asked for CinCFE to provide aircraft to patrol the East Malaysian-Kalimantan border. We had three carriers in our assigned forces, so CinC asked the Navy Commander to take on the task until the RAF could provide the aircraft. Accordingly one of our carriers was assigned the task. It took up its station within 24 hours and provided day and night patrols of the border for the next five weeks. The RAF, meanwhile, set about providing land-based air in Labuan in the longer term. The force it assigned consisted of half a squadron of Canberra, and a squadron each of day fighters/ground attack and night fighters. Five weeks later they were on the ground and ready for operations, and the carrier was withdrawn. To keep the RAF element at Labuan logistically supported, a continuous convoy of five ships ran between Singapore and Labuan.

Example Two. In the 1960s, CinCFE had a plan to take out the Indonesian Air Force (Plan *Cougar*). Among other things it required a carrier south of Java to deal with aircraft on three airfields around Sourabaya. I might add that we planers did not like this plan because it had no political aim and we thought that destroying all the Indonesian Air Force planes would not be very effective in any case. For instance, the Soviet Union would be able to replace the *Badgers* and fighters pretty easily while we (the British) would have lost face internationally for our aggressive action. But from time to time we deployed a carrier south of Java. What this revealed was quite unexpected and surprising. A carrier running loose in the Indian Ocean neutralised the entire Indonesian Air Force. The *Badgers* had to be used on maritime reconnaissance and the fighters had to be brought up to Alert Status One, which they found very difficult to maintain. After a couple of days maintenance problems began to manifest themselves and reduced, markedly, the number of fighters available for air defence. In addition, the 12 *W* class submarines were fully extended proving a patrol line south of Java.

Not surprisingly I still get angry when I recall some of the outright lies told during the carrier debates of the 1970s. The *Sea Harrier*, it was said, was a 'once around the football field aircraft'. And when it performed so well in the Falklands War, all manner of excuses were offered for the Argentine Air Force's inability to deal with the *Harrier*. It was said at the time, that the Defence Budget could not cope with an estimated cost of $1.5b for a carrier and its aircraft, but, somehow, we managed to cope with $6b for six submarines. In fact, the anti-carrier arguments put forward were so false that they should be the subject of an official inquiry. At least, let the debate be revived in these pages.

The grounding of HMS *Nottingham* - the view from HQ1

Lieutenant Commander I.S. Groom, MBE RN*

Author's Note: *The ship is divided along its length into watertight sections which are labelled alphabetically from A (Foremost section) to R (Aftermost section). The section letter is generally preceded by a number, which gives the deck the compartment it is on. 1-Deck is the weather deck, and all decks below are numbered consecutively down with the lowest deck being 5. Any deck above the weather deck is preceded by a 0, and numbered up, eg 01, 02 and 03.*

In July 2002, HMS *Nottingham*, a Royal Navy type 42 destroyer, was conducting a Five Powers Defence Agreement deployment in the Far East, having left the UK in March of that year. The ship was in transit from Cairns, Australia to Wellington, New Zealand and had spent an afternoon at anchor off Lord Howe Island. After sailing from the island later that evening, the ship reduced her watertight status from Condition Y (intermediate state of watertight integrity) to Condition X (lowest state of watertight integrity). A short time later, at approximately 2203hrs when in State 3 (peacetime readiness state) and making 12 knots with a single Tyne gas turbine driving one shaft and with the second shaft trailing, the ship struck Wolf Rock. Simultaneously the bridge piped 'Emergency, emergency, standby collision forward'.

Establishing the picture

Immediately on hearing this call, the ship's company reactions were instinctive and there could be no doubt that *Nottingham* had hit something very large. As the ship's Marine Engineering Officer (MEO), the author, made his way directly to the permanently-manned HQ1, which is the focal point for all damage control operations, and heard the bridge pipe 'Close all red openings'. On his arrival in HQ1, there were flood alarm indications from C, D and E sections, and the crunching and grinding noises from the hull were still ongoing. The ship was brought to Emergency Stations and the general alarm was sounded. All spare hands were mustered in the Junior Ratings dining hall, which was clear of the incident and clear of the upper-deck, as it was night and the weather was inclement.

The machinery control room staff had started all fire pumps and generators as a standard operating procedure, but C-section fire pump was lost immediately. Full astern on both propellers had been rung on, the bridge having ordered the second engine to be started. The first report received from the forward fire and repair party post was a request to shut 2/3 E port and starboard hatches as the water was approaching the hatch level and there was concern that it would spill into the cross passage. As the water had reached this level in less than two minutes, it was clear that first-aid leak stopping was not going to be effective in E section. Therefore the 2-Deck hatches were dropped.

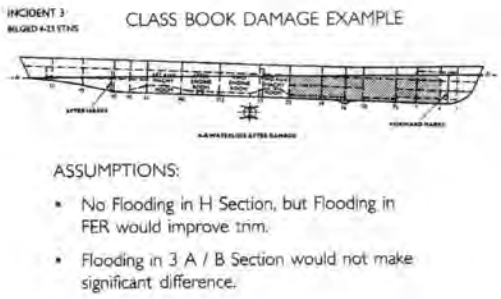
It was reported that 3/5 C hatch was shut but water was leaking through the hatch and fixed hatch waterwall into compartment 3C. The water level was rising, but the incident was being attacked by the Standing Sea Emergency Party (SSEP), which was attempting to shore the hatch. Compartments 2B and 2A were reported clear of damage. The 3D/4D hatch was also reported as being shut, but leaking severely with the water rising in 3D mess deck. This incident was being attacked by the forward fire and repair party post. A slow flood in the forward engine room was reported by the machinery control room and was believed to be coming from the starboard stabiliser. This ingress was being attacked by the emergency station machinery space crews who requested a salvage eductor which was then put into operation.

Shortly after these initial reports, the Executive Officer arrived in HQ1 and reported that there was also flooding in 4F and 4G. This was discovered after he had initiated a further overall search, as the forward fire and repair party post had initially concentrated on searching the E to A sections of the ship. The HQ1 camera was used to check the conversion machinery room, 4G, and this showed the water level to be approximately 2.5cm deep at this point. The aft fire and repair party post was instructed to attack the flooding in 4G and 4F.

During this period the author spoke to the Weapons Engineer Officer (WEO) on the bridge and reported the extent of known damage. The WEO for the command wanted to know if it was

* Lieutenant Commander Groom was appointed as the Marine Engineer Officer of HMS *Nottingham* in March 2000 and was recently appointed a Member of the Order of the British Empire in recognition of his contribution to saving her. He is currently serving on the Staff of Flag Officer Sea Training in Devonport.

safe for the ship to come off the rock, and whether it was stable. The author informed him that the ship was stable, and that it was imperative it should be taken off the rock. This information was based on the fact that the ship was still taking damage on the rock, and that with the flooding it had sustained at that time was well within the damage example shown in the ships' documentation as being survivable. This example showed flooding up to 2-Deck and back as far as H section. The author also knew that following the modification of *Nottingham*'s fuel tanks, she was in a better liquid state than shown in the Class book (excerpt below).



Initial priorities

It is not entirely clear how long it took to identify all the damaged compartments but it is estimated by the author that within 5-10 minutes an outline picture had been formed and there were damage control teams conducting initial actions. There was no way of knowing the extent of the underwater damage and those onboard could only deal with what was known, which meant establishing sealed boundaries to prevent further damage and flooding. The challenge was to prioritise equipment and effort to each of the incidents. Initially it was considered that the flood in 3C was containable and being addressed, as was the flood in 3D mess deck, while the flood in E section was contained. The author believed that the forward engine room flooding would be held using the salvage eductors and pumps, and therefore the priority incident should be 4G conversion machinery room - because of the effect it would have on the ship's communication and control systems - closely followed by 4F. He was confident that if all flooding could be held below 3-Deck level the ship would not sink, provided no further damage was sustained. A check of the damage and survivability data, confirmed that view.

As a result, both salvage eductors were started in the forward engine room and a portable eductor was rigged in 3C. In addition, WEDA submersible electric pumps, each with a capacity of about 100t/hr, were sent to 3D, 4F and 4G.

The Electrical Damage Control Officer (DCO (L)) was instructed that his priority was to make isolations to the conversion machinery room in order to safeguard the personnel there. The Propulsion Manager was dealing with the incident in the forward engine room whilst also ensuring the continued availability of propulsion to the command. Following the initial 'Command Huddle' in HQ1 and setting of priorities, *Nottingham* was taken off the rock and reached a safe anchorage, as with both engines now running and the primary steering available she was judged capable of this evolution.

Nothing is ever as straightforward as it sounds. Once the ship had come off the rock, and as the teams began attacking the flood in the conversion machinery room, it was necessary to isolate the 450V supplies to the space. Either during the isolations or as a result of the water ingress into the conversion machinery room, the following equipment power was lost:

- both gyro compasses
- main broadcast
- bridge services, including rudder angle indication and telegraphs
- electrical supplies to bot gyro compasses
- rationalised internal communication equipment (RICE) and the telex
- conning

Clearly, this added further complications and confusion particularly with regard to navigation. Due to the loss of rudder angle indication, the bridge assumed that there was a steering failure and, correctly, went to mechanical wheel operation. Unfortunately, on assuming mechanical wheel the Bosun's Mate, who was a first sea-draft operator mechanic, was not confident. He was unfamiliar with the use of the emergency conning, which was the only means of communications available to him and, because the tiller-flat rudder angle indicator was also defective, he stated that he had no control of the rudder in mechanical wheel. The Leading Regulator and the maintainer quickly resolved this problem, and steering control was re-established. A sound-powered telephone was rigged between the bridge and the tiller flat to safeguard communications.

Interestingly, despite the loss of telegraphs, RICE and conning, the link between the machinery control room and the bridge using emergency conning was established quickly and easily, proving that machinery breakdown drills do work! This was further demonstrated when, as the forward engine room water level rose, the throttle control of the engines was lost in the machinery control room, requiring local control of the engines to be effected from the plates, an

action that was swiftly taken without removing power from the command.

The loss of both gyro compasses meant that the pelorus on the bridge was inoperative, and radar and SatNav had lost their gyro inputs. The bridge had to try to navigate back to the anchorage, with no effective instruments, and no clear idea of ship's head. Innovation again came to the fore, and the Flight Commander began reporting ship's head to the bridge from the helicopter's magnetic compass, allowing the bridge team to use visual landmarks to estimate *Nottingham*'s position.

Between decks, the loss of all normal communications added complications, but hand-held radios were rapidly passed about, together with a sound-powered telephone rigged from HQ1 to the forward fire and repair party post. The recently fitted NBCD communications, (VCS 1005), which had been the source of much frustration previously, proved to be excellent and provided uninterrupted communications to the command team throughout.

From bad to worse

Meanwhile back below decks, things were taking a turn for the worse. The water level in 4F had risen rapidly and despite a WEDA pump and the best efforts of the damage control team, the space was quickly lost, requiring the hatch to be shut. This was done and shoring was rigged, however, slow flooding continued into 3F through cable glands, vent trunking and deck seals.

Similarly the fight to save 4G was not going well. The team believed that the water was coming in from a split in the starboard forward corner but it was situated behind a set of fitted cages and could not be accessed. Although two WEDA pumps were in operation, the water level was still rising and it was only a matter of time before this space was also lost. The incident manager, a Chief Petty Officer Marine Engineer Artificer, used the time he was fighting the flood to fully prepare the shoring for the hatch above, including the removal of the ladder above the hatch. He also recovered a considerable amount of stores from the cages, including virtually all of the Chief Stokers 'stash' of additional NBCD equipment. In 3D despite the team's best efforts to shore the magazine hatch and blow off plate (a form of soft patch used to reduce the effect of blast) and the use of a WEDA pump, the water level was still rising. The water level in the forward engine room was also still rising and it had become evident that this water was heavily contaminated with fuel/fuel oil.

In addition, as the water level in the machinery space continued to rise, so the threat to equipment was becoming the primary concern (photo below).

The fuel system had to be reconfigured to prevent saltwater contamination, and the freshwater cooling pump that provides cooling to most auxiliaries was lost. The priorities were re-assessed as: contain the floods forward in 3C, 3D, 3F and 3G, hold the 3-deck boundary, hold the boundary at G section by shoring-up 4H bulkhead, and concentrate on saving the forward engine room. To achieve this, four WEDA pumps were sent to the forward engine room, in addition to both salvage eductors. In order to get the pumps working in the forward engine room, extension cables and 'rabbit runs' (temporary cable runs) were needed due to the lack of portable pump sockets available, and discharge hoses were run back as far N section both port and starboard.

Approximately two hours after the grounding, the water level in the forward engine room was still rising, and K fire pump, which had run submerged for about an hour, stopped. The loss of this unit, given the salvage eductors and portable eductors that were in use, resulted in a reduction in the fire main pressure to about 50lb/in^2. The Godiva diesel-driven emergency fire pump was started but overheated, and was subsequently found to have a crushed suction pipe. The Rover gas turbine driven pump was started, and after some initial problems in getting a suction, ran for 36hrs continuously, supplementing the fire main and giving an increased pressure of about 60lb/in^2.

Meanwhile, the situation in 3D was not good as the water level was still rising slowly and the slow floods in 3F and 3G were by no means contained.

The turning point

It was then again time for the priorities to be assessed. Throughout the evening the ship's personnel had been fighting a losing battle and desperately needed a victory somewhere to raise morale. In addition, it was clear that it was not going to be possible to hold the forward engine room, and as the water level rose there was increasing concern about the aft engine room. Water was then flooding into the after engine room through the sullage system, the isolating valves of which were in the forward engine room only.

The decision was taken to leave the forward engine room, withdraw as many pumps as could be recovered, and re-deploy them to 3D mess deck. This would give the desired victory and safeguard the 3-Deck boundary. Also it freed up the manpower in the forward engine room to concentrate on the after engine room bulkhead. Protecting this bulkhead then became the priority for the main machinery space crews, and was the turning point of the evening. However, things were far from over. The water level in the after engine room continued rising and was threatening the controllable pitch propeller actuators in the bilge. The WEDA pump could not be lowered into the bilge to get a suction due to pipework, while the routine eductor in the after engine room was not keeping up with the flow of water, probably due to the reduced fire main pressure. To add to the problems, water started leaking through the forward engine room bulkhead soft patches.

Elsewhere the steady leakage of all cable glands, fixed-hatch water walls and other deck penetrations was still causing problems. There was a small fire in G electrical distribution centre due to capillary action of water up the cables from the conversion machinery room below, requiring complete electrical isolation. Small fires also broke out in the forward engine room as the fire pump starter and other fuse panels were submerged.

To assist with the pumping of the water, the electrically-driven pumps for sewage shore transfer collection were used; these required rabbit runs to rig them, but it was impossible to get the lift for them to discharge overboard. The same was true with the Hathaway (small Diesel pump). However, the advantage of these pumps was that their suction hoses could be lowered into the after engine room bilge and other inaccessible spaces. At about midnight some portable diesel pumps were received from ashore, and these were quickly deployed around the slow floods on 3-Deck.

By about 0230 the ship was approaching a steady state. The forward engine room had free flooded, with the water level settling about 90cm (3ft) below the deckhead, level with the top of the Olympus gas turbine main engine (see photo next page). The water level in 3D was dropping and that flood was under control. The water levels in all other 3-Deck compartments were steady or falling. The salvage eductors in the forward engine room had been isolated, which meant the water level in the after engine room could be controlled on the routine eductor and by the use of a small diesel pump discharging straight into the forward engine room hatch.

The ship had reached an anchorage, and although far from ideal, all the cable had been laid out and was holding and the weather was abating. Word had been received that a RAAF *Hercules* transport aircraft was en-route with assistance and should arrive by first light. At about that time, oil started to come out from the gearbox vents indicating that there was sea water contamination of the gearboxes, probably through the Olympus

power turbine shaft-line. Therefore, in order to safeguard the machinery and because the bridge was confident the anchor was holding and the wind was dropping, the decision was taken to shut down both engines.

Consolidation

It was time to start looking at priorities again. The ship's refrigerators were supplied from G electrical distribution centre, which had been lost and, because it was clear *Nottingham* would not be leaving Lord Howe Island for some time, it became a priority to re-establish supplies to these units. The DCO(L) did a rabbit run with electrical cabling and swiftly had these refrigerators back in operation. It also became necessary to rig portable fans to clear away the diesel fumes from the pumps operating in the passageways and again the electrical teams managed this in short order, as well as rigging lighting necklaces to areas affected by flooding. The Weapons Engineers managed to restore some communications and the telephone exchange was also recovered. The supply department issued action snacks and the caterers started to bake rolls for bacon.

A major concern at that time was the shortage of fresh water. The main fresh water tanks in G section were submerged and contaminated, and although there were three small tanks aft, because of the heavily bows-down trim of the ship, the use of this water could not be risked. Fortunately, there was about 5000 litres of bottled water on board, and this would suffice for drinking. However, there were going to be no showers or washing facilities available for the near future.

Once again it was time for the position to be consolidated and it was necessary to confirm the exact flooding boundaries, particularly with respect to the fuel and oil tanks and the forward part of the ship Furthermore, all the shoring around the flooding boundaries had to be reinforced, but by this stage *Nottingham* had virtually run out of timber.

Throughout the remainder of the night the weather had continued to improve, and morale was very high as personnel who had been involved in incidents, and were unaware of the extent of the damage, began to realise what had been achieved. However, thoughts quickly began turning to what was going to happen next.

At about 0330 the Commanding Officer and the author determined that it was necessary for them to get ashore to speak to the UK Ministry of Defence (Navy) Fleet to clarify the situation. The author also wanted to talk to the naval architects

to satisfy himself that his stability assumptions and estimates were correct. Not surprisingly, it was determined that the entire ship's company should not be informed that the Commanding Officer and Marine Engineering Officer were getting off, although the command team was fully briefed with the Executive Officer standing-in in HQ1 with a simple instruction to hold the after engine room bulkhead.

On arrival at the airfield in Lord Howe Island, the two officers were met by the Lord Howe Island Harbour Master, who was to become their main contact with the island and the island council. It was the Harbour Master who had been monitoring *Nottingham*'s situation by VHF and had arranged the supply of pumps earlier in the evening. The Harbour Master drove the Commanding Officer and the author to his house, where he had a small office with two telephone lines. The author telephoned the Fleet Operations Maintenance Officer who was able to confirm the view that the ship was stable and safe, provided that the after engine room bulkhead was held and the existing boundaries were maintained. The author expressed concern that water was going to be the biggest issue in the immediate future. He was relieved to hear that a salvage team, consisting of salvage master, naval architect and explosives expert, was on en route although they were not expected for a couple of days.

Both officers were extremely keen to return to the ship as quickly as possible, which they did, although not before the Harbour Master informed them that at least 20 different press personnel were arriving the next morning, and he wanted to know what should be done with them. The Commanding Officer at this point agreed that he would attend a press conference at 1100 at the airfield. Both the Commanding Officer and the author returned to the ship by 0400, to discover that the situation had not deteriorated, and the ship was still afloat!

During the absence ashore of the Commanding Officer and the author, *Nottingham*'s Executive Officer had begun to organise the watches and had sent one watch to bed, although not many had actually gone. The remainder of that night was spent moving about the ship, inspecting the shoring, consolidating equipment and chatting to the crew members, all of whom were very fired-up, but were also clearly tired. Some were clearly very frightened, and were sleeping in the hangar. This was largely confined to the young first sea-draft Operator Mechanics who had not been directly involved in the damage control efforts, and many of whom had lost all their possessions when 3D mess flooded.

The morning after

As ever, the new morning, which was bright and calm, lifted spirits onboard still further, and a further boost was the sight of a *Hercules* transport aircraft landing at the airstrip. *Nottingham*'s helicopter collected the Royal Australian Navy (RAN) clearance divers from the airfield together with their gear which included salvage equipment, underwater video, a number of additional diesel- and submersible pumps, and a limited amount of extra timber.

The diving team was excellent, and within an hour of arriving they had two divers in the water making an initial assessment of the damage. By about 1000hrs the first clear picture of the damage that *Nottingham* had sustained became available, and it was not good. Briefly, the front 6-7m (20-23ft) of the hull had been torn open and peeled back, and the hull had suffered severe damage along the keel and bottom plating all the way back to the sonar dome at F section. Half the sonar dome was missing. There was a very large hole estimated to be about 1.8m x 1.3m (6ft x 4ft) in E section with another hole in F section estimated to be about 61cm (2ft) diameter (photo next page).

Elsewhere there were multiple splits along the hull and significant plate distortion back to K section. The starboard forward stabiliser fin was missing. It was quickly determined that the divers could do nothing to the large holes (the bow section was too badly damaged). In addition, the hole at E section was too large to be dealt with and, because of the movement of the ship, the divers did not want to get close for fear of being drawn into the hole. The priority was the forward engine room hole, and so attention was concentrated on dealing with that one with the aim of reducing the ingress of water sufficiently so that the water could be pumped out.

Various options for plugging or covering the hole were discussed, including cutting off the stabiliser shaft, or boxing-in around the shaft. The main drawbacks with these were the amount of plate distortion around the shaft, which would prevent a seal being achieved, and the proximity of fuel tanks inboard. The divers suggested that as a temporary measure they would try and pack the holes around the shaft, and they proposed doing this by putting cordage around the shaft and allowing it to be sucked into the gap, where it would then swell and provide a seal. This would be a quick and easy repair and the decision was taken to try it. The results were impressive. Almost immediately it was found that the water level in the forward engine room could be lowered.

However it was decided not to empty the forward engine room without first fully exploring the effects such an action would have on stability and trim. Consequently the water level was reduced, but held at about 50%.

Simultaneously, the divers were being used to explore 3E from inside the ship. It was known that the water level in 3E port and starboard was level with the hatch, allowing the hatches to be opened. With this done, the RAN divers were able to swim down and shut the hatches 3/5E port and starboard enabling the ship's teams to shore the hatches underwater. This allowed 3E port and starboard to be emptied, which was done simultaneously so as not to induce list.

The operation was achieved by approximately 1600hrs when the author was requested ashore to speak with Major Warships Naval Architects (MWNA). The author briefed them on what was being done onboard *Nottingham* and explained that the plan was to empty the forward engine room and counter-flood 5Q cofferdams to adjust the trim. He anticipated that the removal of 450 tons of water from the forward engine room would effectively give the vessel a parallel rise, whilst the counter flooding aft would raise her bow. The MWNA, agreed with the theory, although the immortal words, 'It's your call' reminded the author that his responsibilities could not be offloaded quite so easily!

The recovery of the forward engine rooms and 3E port and starboard, marked the completion of the operation to recover all the spaces which were going to be recovered while *Nottingham* was afloat. Despite various suggestions and ideas, because of the damage to the hull beneath, there was no safe way of recovering any further compartments with the ship afloat. Unless there could be certainty of a seal around the damage, it would be impossible to take the head of water off the hatches. Also, the constant flow of water into the ship through glands, etc ruled out any notion of pressurising the compartments with air from below. Instead, efforts were concentrated on recovering systems and preserving what had been achieved. As previously stated, the major concern was the lack of fresh water, for while the adjustment of the trim meant that it was possible to use the water in the aft tanks, only about 15 tons of water was available. This amount could easily be used in an afternoon if the showers were opened, and there was no way of replenishing the tanks. The evaporators were working but were heavily contaminated with diesel, producing water that tasted and smelled foul!

It was decided that bottled water would

continue to be used for drinking and cooking and that the showers would be opened up for limited periods only, with the water supply replenished from the evaporators. This allowed the ship's personnel to wash, but the water being used was not good. However, the only way the evaporators could be recovered was to flush them through continuously. Another issue that required consideration was the fuel situation. The forward tanks were largely contaminated, and the fuel separators in the forward engine room, which would clean the fuel, had been lost. There was a small separator aft, but the aft tanks were virtually empty as the ship had been on passage for three days. Consequently there was only sufficient clean fuel to run the diesels and boilers for approximately 10 days. Furthermore, the fuel system was heavily contaminated with saltwater and the system needed to be managed as best as possible to prevent any further damage to machinery.

The main gearboxes had been flooded with sea water, and needed to be washed through with fresh water, as did all the flooded machinery in the forward engine room. However, as stated earlier in this paper, only a limited supply of fresh water was available.

The arrival of the two RNZN ships, *Te Mana* and *Endeavour* provided great relief to all, allowing *Nottingham*'s company to transfer across to them and have decent showers, have laundry done, and tell their stories, which was the best form of counselling they could have. At the same time these two vessels supplied *Nottingham* with jerry cans of drinking water each day, as well as some additional timber, and manpower. Their contribution cannot be overstated.

Throughout this period *Nottingham*'s personnel were constantly reviewing the ship's flooding boundaries, reinforcing shoring, and attempting more and more novel ways to stem the flow of water entering through cable glands. An additional 200m (656ft) of timber and other essential damage control materials, were also received which allowed the work onboard to continue.

The long road to recovery

On day three the Salvage and Mooring Organisation (SALMO) team arrived, led by the Salvage Master. Prior to the team's arrival very few people onboard were even aware of SALMO's existence, its capabilities or mode of operation. The organisation has a very different style from that to which the RN is accustomed and, in the author's opinion, it is fair to say that the SALMO personnel were not used to working closely with the RN on salvage. The first few days with the salvage team on board were used primarily to familiarise SALMO with the ship, its systems and current capabilities, and for the ship's company to understand the SALMO priorities. It was also during this period that the fundamental shift from being a rescue operation to a salvage operation occurred. This was fundamental in a number of areas but primarily because it meant that the level of acceptable risk in all evolutions suddenly reduced dramatically as the urgency of achieving tasks to safeguard life was significantly reduced. There was also a degree of debate about the exact nature of the relationship between *Nottingham*'s Commanding Officer, the Salvage Master and the assisting RNZN units.

SALMO's overriding priority in salvage is to reduce risk to zero whenever possible, whereas the RN tends to manage risk within acceptable limits that are determined by the urgency of the task. This difference in approach required close liaison and understanding on both sides and, on occasion, led to frustration on behalf of ship's staff due to the lack of progress and action.

The task of recovering the ship from Lord Howe Island was never going to be simple. The logistics chain was a nightmare. Not only is Lord Howe Island in the middle of an ocean, but there was no easy method of transporting items from the island to the ship. Because of the state of *Nottingham*'s bow and underwater condition, together with the prevailing weather which was blowing onto a lee shore, another vessel could not be secured alongside. Therefore the only means of transporting equipment to the ship was by helicopter, or small boat. The only access to load a boat was on the other side of the island inside the lagoon, and this was untenable at least 60% of the time the ship was at the island. Also the only means of lifting large items from a boat onto *Nottingham*'s deck would be to use the ship's rigid inflatable boat's (RIB) crane.

The problem with the helicopter was always going to be one of reliability. The *Lynx* had worked tirelessly for the first week, but then developed a fault that prevented it from flying. This meant that unless another helicopter could be found, the movement of equipment was going to be totally weather-dependent.

The alternative was to have all items delivered by sea from the mainland. However the problem with this was the timescale to procure the items, and then get a ship to Sydney and back. In addition there was an issue with how to transfer the large items, such as generators and steel girders, from the delivery vessel to *Nottingham*. It became obvious that a helicopter was required,

and therefore SALMO chartered one. However this in itself was not simple, as Lord Howe Island was out of range for most helicopters. Ultimately the one that arrived had been flown out with a jerry can and plastic hose in its cab as in-flight refuelling.

Once the decision had been taken that a helicopter was required to carry loads from the island to the ship, the best way of transporting equipment and supplies to Lord Howe Island would be by *Hercules*, rather than by another vessel. When this supply chain had been established, equipment began to flow in earnest. However the process of acquiring the helicopter and beginning to get the salvage equipment arriving in Lord Howe Island had taken at least two weeks, during which time very little was achieved materially apart from maintaining boundaries and re-enforcing shoring. Once the equipment started to arrive onboard, *Nottingham* began to look like a building site, with the upper-deck turned into a ready use store for salvage equipment and diving equipment. Over 20 submersible pumps, together with separate starters, were pre-positioned around all high-risk compartments. These pumps had their own power supply, provided by seven generators secured on the focsle, so they were independent of the ship.

Cupboards, lockers and a large amount of lagging had to be removed to allow for additional shoring and welding. This created further problems as there were very limited waste disposal facilities ashore, and the objective was not to leave any footprint on Lord Howe Island. To overcome this, the air intakes for the Olympus gas turbines were boarded-over and turned into storerooms. The initial stabiliser repair was holding up well, but there was concern that once the tow started, the repair may fail. Again various options for the permanent repair of this were looked at but, due to hot work concerns, it was decided the best way was to fill the well with concrete. This was done over a five-day period, using about a 1000 buckets of cement mixed on the upper deck and carried down below.

In addition to the constant effort required to stay on top of the existing shoring and leaks - the monitoring of which still required some 10 personnel constantly bailing and monitoring the eductors and hoses which were running - the ship's crew together with SALMO personnel had to carry out a number of preparations for the tow. These included the construction of a second towing point on the quarter deck, the construction of an aft breakwater, and the reinforcement of the transom, the hangar door, the F section and the focsle. A significant amount of welding was required to achieve this, and six contract welders were flown from the mainland so they could work around the clock to perform this work, which took about five days in total. Once the ship had been physically prepared, it became clear that the critical path to move from Lord Howe Island concerned the politics involved in obtaining permission for *Nottingham* to move and the preparation of a facility for de-ammunitioning at the Australian mainland. To further complicate matters the tow was weather-dependent.

Agreement was also required on who was required for the tow in terms of personnel. The Salvage Master's position was that only essential personnel should be on the ship, as this was unnecessary risk, and he was considering a figure of around 10-15 people in total. Ship's staff were looking at the minimum numbers required to deal with an emergency based on its normal procedures, and were looking at about 100! After much discussion, the figure agreed on was 50, comprising about 35 RN and 15 SALMO personnel, split into two watches. This arrangement would provide the ship with the personnel required to monitor the flood boundaries, a watch for the running machinery, galley staff, and an on-watch command and control team from which a basic emergency party could be made up.

The ship finally left Lord Howe Island some five weeks after the initial incident and arrived in Newcastle, New South Wales some four days later. The tow itself was uneventful, other than the ship rolling very heavily.

Lessons to be taken forward

Clearly there were a number of lessons to be learned from this incident, and a comprehensive list of these has been compiled by the ship and is being reviewed. Perhaps one of the most positive issues is that training works. Whether it concerned the basic damage-control techniques, the command and control training, machinery breakdown drills, leadership training or electrical party training, it was all used that night within the first few hours, and it was all carried out without a single casualty. This has to be a testament to the quality of the training that the RN gives to its people. Some of them were cold, very wet and frightened but, without exception, they were all confident in their ability to apply their training, and that is what saved the ship.

Another important point to draw from this incident is related to watertight integrity. The watertight subdivision below 2-Deck allowed the damage to be contained. Had there been no boundary at 3-Deck, the flooding would then have

reached 2-Deck, and there may have been a very different outcome. The subdivision is essential if ships have to be able to survive major damage, either in peacetime or battle. That said, the watertight boundaries were not fully effective because of the numerous deck penetrations that had been poorly fitted. The incident would have been contained faster and more easily had these penetrations held. Closer monitoring of enhancements and more attention to this important area is required if this is to be improved. This will reduce flooding damage to equipment and fittings and therefore reduce the overall impact of damage on the ship. With regard to carrying additional NBCD equipment such as timber and cement, there is certainly a case to be looked at. However there was sufficient material onboard to carry out the initial actions, with the additional timber and cement being used to reinforce the initial shoring. The author certainly advocates that ships carry as much timber as possible, and regularly replenished after it has been used for training periods, and that it should be spread around the ship to allow for more storage.

Clearly, the running aground of *Nottingham* was a deeply regrettable incident; however, from the point when the ship grounded, the reactions of her company were excellent, and certainly in keeping with the best traditions of the service.

What is important now is that as much benefit as possible is taken from this incident, and that experiences, observations and lessons are gripped and passed around as swiftly and accurately as possible. In this way, all can draw on those experiences, and the lessons can be applied to both current and newbuild ships.

Editor's Note: *One day short of two years after Nottingham ran aground, she returned to service (repairs cost A$98m).*

Sea power, grand strategy & the War on Terror*

Sub-Lieutenant Sam Fairall-Lee, RAN

There has been much debate recently on the roles of military forces in fighting the War on Terror. As military forces continue to face the demands of change forced on them by dramatic shifts in the nature of international relations over the past decade, the prospect of fighting a new enemy has placed even more importance on developing the right capabilities for the future. But what roles can the military play in fighting terrorism? And more importantly, what roles *should* it play? For navies and sea power, the contribution to the campaign has the potential to be of the utmost significance: not necessarily by changing the capabilities of navies, but by applying the versatile characteristics that are inherent in sea power to the new strategic environment.

Rather than simply defining these relevant capabilities, this paper seeks to provide a frame of reference for sea power in the grand scheme of the post-September 11 world. To do this, it is necessary to briefly outline the applicability of military force; and this in turn requires an understanding of the political and grand-strategic approaches and objectives. Only then do we have the necessary perspective to comprehend fully the role of sea power in this new conflict.

The nature of the threat

Terrorism, in various forms, is not a new strategy. The motives, objectives and means of Islamic fundamentalist terrorist groups such as Al Qaeda do, however, represent a new and challenging development. Traditionally, terrorist organisations have sought particular and limited objectives. The Irish Republican Army, for example, sought an independent Ireland. The objectives of Al Qaeda, conversely - although linked to the 'Palestinian question' - have evolved into far deeper and more ambitious goals. Al Qaeda represents a *visceral hatred and contempt for Western civilisation... and [a] resentment at its global ascendancy.*[1] This new terrorism seeks the destruction of Western democracy, even Western culture, as we know it - its objectives are on the grand-strategic level: it is a conflict not over territory or politics, but over ideas, values and fundamental power. Whatever the cause, the result is a threat to democratic liberalism the world over.

The response to such a conflict must also reflect this new development. Conventional military responses, in general, are not appropriate. It is not possible to fight a 'war' against ideas with 'overwhelming force' alone, not overwhelming military force at least. Such action can in fact bolster the 'enemy' by reinforcing notions of Western imperialism, and by undermining otherwise friendly Islamic governments. Conventional deterrence has worked against states in the past - and is likely to again in the future - because, in the end, most people do not wish to sacrifice themselves over such extrinsic concepts as the gaining of territory or the spreading of political influence, which they view as outside their daily control. Against this new threat, however, traditional deterrence only inspires further conflict because it is a direct representation of the forces the terrorists seek to defeat, and are even willing to die for. Ideas and emotions are intrinsic and central concerns to many, indeed to most, people.

Notwithstanding the grand-strategic consequences of a conventional military response, the military-strategic impediments would seem to make it unrealistic. As we have seen, the conflict is not fundamentally over territory; and in contrast to the tenets of traditional United States military planning, it is not represented by a limited number of large, identifiable 'fronts', but instead by small forces - sometimes a single individual - constituting a large number of potential threats over a protracted period of time.[2] Whilst there are exceptions to this principle, which will be outlined below, it is a central theme affecting how sea power should be utilised in the War on Terror and, indeed, why the characteristics of sea power make it perhaps the most important of the military resources available.

What is to be done? The political and strategic responses

Norman Friedman claims that September 11 resulted from a failure of US deterrence.[3] It is more probable, however, that September 11 resulted in part from the 'success' of deterrence, from too much deterrence or, in other words, from too much *innocent strength*. Whilst it is true that *there has been no time in history when the dominant power has not provoked envy, fear and*

* This article originated from an essay written whilst a student in the Naval History program at UNSW-ADFA.

dislike,[4] the overwhelming supremacy of the US in world politics and its association with capitalist liberal-democracy, combined with what is perceived as its sometimes outspoken rhetoric, make it an obvious target for Islamic fundamentalists in a war of ideas. In order to reduce the fundamentalist appeal, these causative factors must be minimised whilst simultaneously responding to the specific physical threat. The West must seek to prevent any appearance of a 'clash of civilizations'[5] and thus, by making the West appear as non-threatening as possible to the Muslim world, prevent growth in the popular appeal of, and support for Al Qaeda, if not a reduction in their goals or in the core leadership which is fundamentally opposed to Western values.

In order to achieve this on the political level, the West must respond to the threat in the context of a wide and inclusive alliance structure which sends the universal message that such terrorism is an attack on global interests, including Islam, rather than an attack on Western interests alone. Such an alliance structure would also act as a vital enabler to military force in those specific circumstances where it becomes necessary, it would be seen primarily as a fully anticipated, justified and global response to a specific threat, not as the reaction of one side in a battle of ideologies nor as a gratuitous demonstration of Western might and dominance. Such a cooperative response would obviously also aid the operational aspects of the fight against terrorism by increasing the resources available to it. Having said this, and notwithstanding that it is applicable only in specific circumstances, military force is still military force and elicits a certain psychological reaction; as only one of a number of elements in the fight against terrorism, such force should therefore be used only where necessary.

The primary security elements in the ongoing War on Terror should be foreign and domestic intelligence, police and immigration services, and Special Operations forces where necessary.[6] These groups are not only the most adept at the tasks required, but do not carry the same political connotations as conventional military forces. There are, however, certain occasions where such military force is appropriate, and here the focus of this article lies.

According to Sir Michael Howard, military force is necessary when action against terrorist forces is on too large a scale for a police response, when terrorists are established in a 'no-man's land' where they cannot be challenged by civilian security forces, or when terrorists are protected by a sovereign state.[7] The no-man's land scenario may be appropriate where terrorist organisations reside in failed states which do not possess the necessary capabilities to prosecute them, whilst the protection by a sovereign state scenario was the basis for the war in Afghanistan. Such wars, however, should be guided by the restraints outlined above - that is, they should have full international support, both politically and militarily; they should have specific strategic goals related directly to countering terrorist activity; and there should be a long-term plan in place for dealing with the consequences of the military action. The unilateral invasion of one state by another without a degree of such internationally recognised legitimacy has the potential to increase the appeal of fundamentalist groups such as Al Qaeda - in such situations the 'just war' principle must be applied: if the end result is likely to be worse than the present condition, the war is not justified.

All this produces a conundrum: an overt military presence is politically and ideologically counterproductive - it encourages what is arguably a case study of a clash of civilisations. At the same time, a military response is necessary, sometimes in large concentrations of force, in circumstances which may arise almost anywhere or any time, with little warning. In other words, what is required are forces which are highly ready, mobile, flexible, concealable, sustainable, withdrawable, capable of long-range power projection and a highly graduated force. What is required is sea power, especially sea power with organic power-projection-over-land capabilities. The importance of integration here is self-evident; a strategy such as this may demand amphibious operations of an extremely high tempo whilst allowing only minimal preparation and requiring clear C^3I channels between a number of units.

Military responses - the role of sea power

Following the September 11 attacks on the United States, the aircraft carrier *George Washington* (CVN-73) put to sea to provide combat air patrol over the US mainland. This type of 'close-in' homeland-defence role is rare for the United States Navy, yet it was one of many such missions which provoked questions about the role of the USN in the changed strategic environment - would the forward presence continue, or was the Navy's role closer to home? After the initial debate, however, the tradition of forward presence has continued. And it is here that the USN and allied navies, when the situation calls for it, can shape the strategic situation. Most importantly, because they do not necessarily require new land bases to perform their roles, and because of their

unique abilities in terms of access and mobility-in-mass,[8] their residual potential to act causes far less alarm in the Muslim world than an overt land or air-basing presence, such as that of the US in Saudi Arabia which arguably is a factor inciting anti-US sentiment in that area. This inherent potential is something Western armies and air forces can rarely, if ever, achieve. Navies, and navies alone, can appear quickly out of international territory with high levels of combat mass, project power ashore to achieve the task, and withdraw almost immediately.

In the War on Terror, sea power can not only achieve these tasks with a high degree of 'political invisibility', but when foreign governments are not forced to afford basing-rights to forces fighting terrorism, it is only natural that those governments find it much easier to join an alliance or at least lend diplomatic support to the operation. In these cases the 'not in my backyard' philosophy, enabled through sea power, lends confidence and stability to both alliance partners.

Many of the capabilities of sea power in the new strategic environment were proven during the war against Al Qaeda and the Taliban in Afghanistan. Indeed, that conflict was described by French commentators as *the sea attacks the land*.[9] With a lack of land-bases, the USN and Coalition allies dispatched several Carrier Battle Groups - complete with aircraft and *Tomahawk* cruise-missiles - to the area, along with two Amphibious Ready Groups and a further aircraft carrier, *Kitty Hawk* (CV-63), some of whose air group had been replaced by special operations troops and helicopters. Leaving aside the role of Naval Air Power (NAP), which will be discussed below, the force was able to destroy remote enemy infrastructure with *Tomahawk* missiles, and airlift ashore a fully-integrated fighting force in the form of the marines of the ARG, complete with their own organic fighter aircraft. It was this force, not army troops, which provided the *principle US ground force in southern Afghanistan*.[10]

NAP has its critics, for many years, arguments against NAP in the US have focused on expense, lack of combat mass, and duplication of roles with the United States Air Force. The utility of NAP - in its ability to project power over land - in the War on Terror, however, was proven during Operation *Enduring Freedom*; and its critics could not have been proven more incorrect by the Navy aircraft in the skies over Afghanistan. The statistics alone are confronting: 75% of combat sorties over Afghanistan were flown by carrier aircraft, dropping roughly one third of the bombs by number.[11] Some of this was due to the lack of basing-rights ashore for Coalition aircraft, whose bombers had to fly from Diego Garcia and return there in order to reload. Yet putting aside the land-basing issue for a moment, in the recent Iraq War of 2003 carrier aircraft still flew half of all coalition sorties,[12] despite much greater basing-rights for Coalition aircraft than in Afghanistan, NAP is clearly up to the task.

The War on Terror is a case study in role duplication. For political reasons discussed above, there are some over-land roles which NAP can achieve which USAF ground-based aircraft either cannot, or preferably should not, carry out. In regard to combat mass, whilst it is impossible for carrier aircraft to carry bombloads similar to those of ground-based bombers such as the B-1B and B-52, the increased accuracy of precision guided munitions, and their increased availability, is to some extent making up for the difference.[13] Whatever the technical advantages of ground-based aircraft over NAP, they mean very little when those aircraft either cannot obtain the necessary land bases, or in doing so create grand-strategic diplomatic costs so high as to potentially nullify the benefits. While the US did see fit to apply diplomatic pressure in order to acquire basing rights for the Afghanistan campaign, it is clear that *without carriers in the area, it is difficult to see how success would [have been] achieved*.[14]

Coalition navies have also undertaken operations relevant to the War on Terror which are specific to the maritime environment. One example is the leadership interdiction operation undertaken to capture Al Qaeda and Taliban leaders fleeing Afghanistan. From November 2001 until April 2002, the force undertaking these operations was quite sizeable, averaging 25 ships.[15] Perhaps more crucially, considering the threat represented by a number of 'missing' cargo freighters reportedly under the control of Al Qaeda, naval forces from a number of nations are being employed to keep watch on shipping in the Straits of Gibraltar, in the Suez Canal, in the Red Sea and Arabian Sea areas.[16]

The ability of naval forces to contribute to the War on Terror is obvious. Indeed, sea power has the potential to form the basis of a grand-strategic response which would be both militarily and politically effective.

Implications for Australia

I will also briefly consider the implications of Australian defence policy for the role of Australian sea power in the War on Terror.

Defence 2000 sets out defence policy in terms of five strategic priorities. Geographically centred

on Australia and moving outwards into areas portrayed as decreasing in strategic importance, the paper gave first priority to the defence of Australia through the protection of the northern approaches, moved through various regional objectives and finally referred to the objective of *support[ing] global security*.[17] It did this, however, with the assumption that *forces built primarily to defend Australia will be able to undertake a range of operations to promote our wider strategic objectives*.[18] This assumption, which dates from the Review of Defence Capabilities of 1986, proved overly optimistic.

Indeed, demands placed on the Australian Defence Force by commitments to the War on Terror required significant additional funding, equipment and training.[19] In the maritime dimension, the ADF simply lacks adequate power-projection capability, which, as has been demonstrated, is essential to the War on Terror. Thus, Australian maritime contributions to the War on Terror have been primarily in supporting roles. Whilst these supporting roles have in themselves been vital in contributing to overall mission success, should Australia in the future wish to respond to terrorism as a primary coalition partner - a possibility with regard to terrorist threats closer to home - our necessary capability would be somewhat lacking.

In terms of these issues, capability development relevant to each strategic objective is required, in effect bringing capability into line with *Defence 2000* - an otherwise sound policy. Other commentators, however, have called for more or less of a reversal of strategy, preferring a return to forward defence through land-power and a dependence on alliance structures over what they see as the currently unaffordable strategy of self-reliance.[20] The initial response to these issues: *Australia's National Security: A Defence Update 2003*, whilst offering some interim guidance, did not adopt either position. Instead, it confirmed that 'operations further afield' are 'somewhat more likely' and promised a 'rebalancing' around 'niche' capabilities. [21] *Defence 2000* seems therefore to have been at least temporarily set aside, and replaced with what amounts to a brief outline of near-term funding adjustments. As a result, Australian maritime strategy, along with defence strategy as a whole, has been in something of a strategic 'no man's land'. The recently released update to the Defence Capability Plan does, however, offer some solutions to the capability issues, if not necessarily clarification of the strategic approach.[22]

In terms of the War on Terror, the capabilities of the three Air Warfare Destroyers, the acquisition of which has been confirmed, will provide greater ability to gain and maintain sea control - the fundamental starting point in

exploiting sea communications and enabling amphibious operations, - greater capacity to secure and protect forces ashore, and provide much greater C^3I capabilities. The enhancement of the FFG Upgrade Project and generally the implied retention of fifteen major surface combatants adds to this capability to affect sea control and to protect forces whilst afloat and ashore. The major decision relevant to this study, however, is the acquisition of two 'larger' amphibious ships, from which it is hoped to vertically lift a battalion each. Such capability would increase the potential of Australian maritime forces to undertake amphibious operations to that not seen since the early 1980s. This ability, however, must be considered against the need for a 'fully-integrated fighting force' deployable from the sea discussed earlier. In that regard, so vital to maritime power projection ashore, this capability falls short through its lack of organic air power, whilst the capabilities of the Air Warfare Destroyers to control the airspace over the landing area and surrounds are invaluable, they do not extend much further than the coastal area; and the ships are limited in their ability to provide direct support to forces ashore.

Conclusion

In conclusion, this paper has argued for the potential of sea power to contribute to the War on Terror within a broader grand-strategic approach. Such an approach can rely upon the ability of maritime forces to affect events on land without leaving a political 'footprint' in states not centrally involved, and without being ideologically provocative, thus attacking terrorists and terrorist infrastructure whilst limiting any wider diplomatic consequences which would help to encourage the notion of an ideological war, would increase the emotional appeal of Al Qaeda, and could certainly help to undermine otherwise friendly Islamic governments. Such a strategy would rely upon the reach of maritime forces, their ability to conceal or sanitise their position and operations, their mobility-in-mass, sustainability, flexibility and withdrawability. Such a strategy would also be well matched to the nature of terrorism, where threats and opportunities to respond to it can arise at short notice and in variable ways.

Whatever the wider complexion of the strategy, however, maritime forces have a vital role to play. Whether the strategy is unilateral or multilateral, pre-emptive or reactive, maritime forces can pursue that strategy due to their capacity for adaptability. This is the true nature of sea power.

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Is there a place for an aircraft carrier in Australia's aerospace doctrine?

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Australia is a maritime nation. Our history, culture and national identity are all tied to the oceans. Seafarers discovered Australia, white settlers arrived by sea, all our major cities are on, or very near to, the coast, most of our national trade must traverse the oceans, and a significant proportional of our GDP derives from resources found in or under the oceans.

In order to survive as a nation we must ensure a level of control on, above and beneath the oceans. This can only be done effectively with a well trained and equipped military force, acting as a deterrent in peacetime and a fighting force in times of conflict. Additionally, in order to engage with our neighbours (as the ADF has increasingly been called upon to do) in a manner that satisfies our national aims of being a leading player regionally, we must be able to contribute high quality assets to any coalition, whilst maintaining the capability to operate independently if required.

Independent operations within the region require a balanced force capable of deployment, sustainment in theatre, force protection and, if required, power projection. All of these elements require access to a secure forward operating base for aircraft. If this secure airbase is not available, then three options present themselves. Firstly, operations must be limited to the operating radius of friendly combat aircraft, or alternatively, aircraft must be Air-to-Air Refuelled (AAR). A third option is to provide this secure operating base in the form of a floating air base.

This article will place the acquisition and operation of an aircraft carrier within the framework of Australia's defence and aerospace doctrine. It will then set out to compare the three options listed above, and explore the viability of the third option in more detail. It will finally discuss the feasibility of introducing this capability.

Doctrinal framework

As detailed in *Foundations of Australian Military Doctrine*, Australia's key long-term strategic objectives are:

- first, and most importantly, to ensure the defence of Australia and its direct approaches;
- second, to foster the security of our immediate neighbourhood;
- third, to work with others to promote stability and cooperation in South-East Asia;
- fourth, to contribute in appropriate ways to maintaining strategic stability in the wider Asia-Pacific region; and
- fifth, to contribute to the efforts of the international community, especially the UN, to uphold global security.

These objectives are achieved by military and non-military means. The non-military means are principally achieved through foreign policy and diplomatic efforts. The ADF provides the military means by which Australia pursues its strategic policy objectives. The size, disposition, capabilities and activities of the ADF should therefore be consistent with the objectives and priorities of Australia's strategic policy. In order to achieve the primary strategic objective of defending Australia and its direct approaches, the following principles are applied:

- **Self reliance.** The ADF needs, if necessary, to be able to defend Australia without relying upon the combat forces of other countries.
- **A maritime strategy.** In the event of an attack, it will be vital for the ADF to control the air and sea approaches to Australia.
- **Proactive operations.** The ADF would seek to attack hostile forces as far as possible from Australian shores (including home bases, forward operating bases and in transit).[1]

Air superiority (a favourable air situation over a limited area for a limited time)[2] would be an essential pre-requisite for the conduct of operations aimed at defending Australia. However, this cannot be assured if operations are conducted in a proactive manner, unless land based aircraft have access to foreign airbases. Therefore, the provision of organic air defence and strike assets associated with an aircraft carrier would be a solution to satisfy all three doctrinal principles.

The characteristics of aerospace power detailed in AAP1000 *Fundamentals of Australian Aerospace Power* apply similarly to aircraft operating from a land base or from a carrier. The

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aircraft carrier introduces some advantages, and some limitations, which will be detailed below. Therefore, from a doctrinal viewpoint, there is no impediment to the acquisition and operation of an aircraft carrier. This is hardly surprising, since doctrine is designed to be non-prescriptive. It does however give us a framework within which to examine the feasibility of the proposal, and to determine if there are smarter ways to do business.

Aerospace power options

In the event of proactive (forward) operations and in the absence of available land bases for aircraft, three options present themselves: limit operations to the range of Australian based aircraft, provide AAR or deploy a carrier. Whilst discussing these options, a relatively simplistic view will of necessity be taken. Understandably, there are many variables that will determine the detail of how effective each option is, however the substance of each option will not change. Before discussing in detail the various options, some general comments are required.

Weather. Captain Waite, Chief Staff Officer (Operations and Capability) to the RN's Flag Officer Naval Aviation, puts it thus:

> Land based air is not always available, and you don't have to be far from the fighter bases to make such provision very asset intensive, dependant upon weather at fixed bases, and therefore unreliable. The advantages of carriers include the fact that cloud bases are generally higher over sea than over airfields; you never have a crosswind and you can manoeuvre your carrier to areas of good weather, in particular running before weather fronts, then sprinting back through them to clear air on the windward side, thus minimising lost flying time. Finally if the weather is bad, it is also bad for offensive operations against you. The situation where you have no organic fighter capability; the weather over you is gin clear, but the airfield providing your fighter cover is socked out is a very uncomfortable one. The only way you can guarantee fighter cover at sea is to have it with you.[3]

In the Australian scenario, operations during 'the wet' may particularly be affected. In relation to operations of a very short time frame (hours or days) this problem can be ameliorated somewhat by prepositioning combat aircraft or tankers somewhere less prone to bad weather, although this will invariably increase transit time to the AO, with a subsequent reduction in combat radius or time on task for the fighters and available delivery fuel for the tankers. For operations of a longer-term nature, the effect of weather could be operationally significant.

Vulnerability of Fixed Bases. One of the characteristics of aerospace power is operating bases. These bases are vulnerable to conventional and unconventional attack. The physical security of an air base will usually require a substantial number of personnel. Furthermore, the high value of an air base makes them a focus of enemy intelligence and a focal point for attack. These risks can me reduced by various measures, all of which are reasonably expensive.[4]

- **Option One**. Limiting our operations to the operational range of combat aircraft based in Australia immediately limits our response options and surrenders much of the strategic initiative to an aggressor. The unrefuelled radius of action of the F/A18-A/B in a typical air defence configuration, allowing for a reasonable time on task, is in the vicinity of 250nm. This is whites-of-the-eyes stuff when talking defence of Australia. Option one is unacceptable.
- **Option Two**. Adding the force multiplier, air-to-air refuelling, changes the equation markedly. By effectively increasing the fuel load of combat aircraft, radius of action or on task time, or both, can be increased to a point where crew fatigue and ordnance become the major limiting factors. This increased endurance comes at a price. Procurement costs are high, over A$2b for 5 aircraft.[5] The addition of tankers to the order of battle requires the allocation of defensive resources in the form of force protection assets, or conversely the tankers are kept well clear of any anticipated area of combat, thus reducing their effectiveness somewhat. The latest generation of wide-bodied tanker aircraft also offers a strategic lift capability. Given the increased requirement for regional engagement and contribution to UN or coalition operations, this capability will be essential. Option two presents Australia with some significant operational advantages, but comes at a high price.
- **Option Three**. The aircraft carrier offers a significant number of advantages over land based combat aircraft, but it also comes at a price. The aircraft operated from the carrier can have the same, or similar, capabilities to those currently operated by or planned to be operated by Air Forces (the F/A18-A/B being a naval aircraft, and the JSF coming in a STOVL variant, F35B, with similar range and payload to the F35A and significantly in excess of the F/A18-A/B), and therefore will not be discussed in any detail. It is the advantages of manoeuvre and the politico-

strategic use of the carrier that will be explored.

The carrier option

The common argument by detractors of the aircraft carrier is that they are vulnerable to attack. Even though carriers have been heavily engaged in operations since 1945, the last carrier of any nation to be sunk was the Japanese *Amagi* on 24 July 1944. Carriers are robust because they can defend themselves in three dimensions and form the core fighting capability of any group of which they are a part.[6] Additionally, the argument goes that carriers require a large train of escorts and replenishment ships to defend and support them. In fact, all the ships in any battle group provide mutual support, with frigates, destroyers and support vessels receiving air cover from the carrier whilst providing defensive and logistic support to each other.

Carriers are able to operate unsupported in more benign conditions, as has been illustrated by operational deployments of Royal Navy carriers in the Adriatic in 1993-94. Moreover, a carrier's fighters are not merely defensive armament protecting the ship. They are an anti-air warfare capability that can be strategically offensive even whilst being operationally defensive.[7] One of the carrier's main operational advantages is that it can move, making it difficult to find and therefore more difficult to counter. This manoeuvrability will deny your opponent intelligence on your true capability, and unless it has a reasonably sophisticated at sea warfighting capability, will render you less vulnerable to attack. The possibility of unconventional attacks (terrorist, bio-chemical) is reduced to relative insignificance by this ability to move. Another significant operational advantage is the ability to remain in theatre, close to your opponent, for lengthy periods. This provides the Australian Government with a highly effective tool of coercive diplomacy, well positioned to escalate within the spectrum of conflict if required.[8] If escalation occurs, the time between decision and action can be very short indeed, thereby optimising the chance of success of operations against an opponent.

The fact that a warship can approach to within 12nm of a nation's coastline at any time, as agreed under the *United Nations Convention on the Law of the Sea* 1982 means that, when operating at the lower end of the spectrum of conflict, a highly visible and potent threat can be delivered to a potential opponent whilst still smiling and looking him in the eye. It is a politically low cost action that can be undertaken unilaterally. Additionally it is an incremental response, ranging from threat of deployment, to deployment in theatre, to positioning operationally, finally to operational use. This incremental response is not as apparent to a potential opponent when the combat aircraft involved are still in Australia. An aircraft carrier steaming within sight of your capital city will certainly capture the interest of your media and voting public more so than aircraft sitting on the tarmac 2000km away!

All of these significant political and operational advantages come at a price. Aircraft carriers are expensive to build and aircraft to equip them are also costly. Australia is in a good position today, however, to ameliorate much of the cost of acquiring this capability, due to the existence of a number of current defence projects.

How to introduce a carrier capability

Project Air 6000 seeks to purchase a replacement capability for both the F/A-18A/B and the R/F-111C/G with a common aircraft type. One of the leading contenders to date is the F35 Joint Strike Fighter. This aircraft comes in a number of variants, the F35A being a land based fighter, F35B a STOVL aircraft designed for USMC use and the F35C, a conventional (steam catapult/arrested landing) carrier variant. The B model aircraft enjoys all the benefits of the JSF, however has a lesser fuel load than the A model due to the vectored lift fan required for STOVL operations (combat radius nominally >450nm vs. >590nm for the A model). This is still well in excess of the F/A-18A/B, and the pure range of the aircraft has much less significance if you move your airfield. Australia therefore has the opportunity to acquire aircraft capable of operating from a carrier, yet still highly suitable for operations from fixed bases, within the scope of an existing project.

To replace its entire Amphibious and Afloat Support (AAS) ship fleet, the RAN will introduce the first of two large Landing Platform Dock/Helicopter (LPD/H) ships from 2010, representing a significant enhancement to the ADF's amphibious capability (an as yet to be defined sea lift ship will also be purchased). These ships (to displace at least 20000 tonnes based on current forecasts) will replace the 5800 tonne heavy lift ship HMAS *Tobruk* (under Phase 4 of JP 2048) and the two 8500-tonne amphibious transport ships, HMAS *Kanimbla* and *Manoora* (under Phase 4 of JP 2027).[9] Project Sea 1654 Maritime Operations Support Capability, the requirement to replace the RAN's Auxiliary Oiler, HMAS *Westralia*, and the Auxiliary Oiler Replenishment vessel HMAS *Success*, is in the

early planning stages, with final capabilities and options yet to be determined.[10]

The Defence Materiel Organisation's strategy to achieve optimum levels of commonality should see a common hull purchased for all three projects. There exists, therefore, an opportunity to purchase a sixth hull of the same design and modify it to the requirements of an aircraft carrier (similar to the requirements for the LPD/H). If commercial, rather than military, standards are applied to their construction, as is increasingly the case for support ships around the world, then these vessels need not be prohibitively expensive. Indeed, some economies of scale could be realised.

The colour of the uniform of the pilot and maintainers is irrelevant. The British initiative, Joint Force 2000, has comprehensively shown that Air Force personnel are fully deployable at sea, and history has shown that Naval personnel can effectively operate state of the art fighter/strike aircraft.

Conclusion

Australia's unique strategic and geographic circumstances dictate a defence doctrine that is focused on the maritime environment. Control of the air and the sea is essential if Australia is to pursue its long-term strategic objectives. Additionally, these objectives require the ability to conduct independent, self-reliant operations as far forward as possible. Air to air refuelling facilitates these operations somewhat, but still ties fighter, strike and tanker aircraft to fixed bases distant from the theatre of operations. In order to have a flexible fighter/strike force, capable of rapid deployment independent of other states, capable of providing politically acceptable coercive power that can be escalated or scaled down quickly, and that can remain in theatre for long periods, thereby providing rapidly implemented options, a carrier is essential. This capability can be provided at a reasonable cost, mostly from within resources already earmarked for future projects.

This proposal does not set out to replace land based combat aircraft, but supplements them and gives additional options that are currently not available. It does not set out to generate a turf war, but puts the requirements of the ADF at the forefront. Given that competition for resources and population pressures in the region will result in increased maritime activity, it is imperative that Australia positions itself to be a regional leader, politically and militarily.

[1] Department of Defence, *Foundations of Australian Military Doctrine*, Canberra, 2002, pp. 2-8, 2-9.
[2] Department of Defence, *Fundamentals of Australian Aerospace Power*, Canberra, 2002, p. 164.
[3] Captain Christopher Waite, 'Air Warfare–A Royal Navy Perspective' paper presented at an SMI Conference *Naval Force Protection*, 19 Jan 2000
[4] *Fundamentals of Australian Aerospace Power*, p. 129.
[5] Daniel Cotterill, 'Top up the Tankers', *Australian Defence Magazine*, July 2003
[6] Dr Eric Grove 'Medium Navies and Organic Air' published in D Stevens (ed), *Prospects for Maritime Aviation in the Twenty First Century*, Papers in Australian Maritime Affairs No 8, RAN Sea Power Centre, Canberra, 1999, p. 96.
[7] ibid, p. 97.
[8] *Fundamentals of Australian Aerospace Power*, pp. 92-93.
[9] Ian Bostock, 'Australia shifts focus to amphibious operations' *Jane's Navy International* 13 November 2002
[10] Ian Bostock, 'RAN to replace oiler ships' *Jane's Navy International* 09 November 2000

STOVL JSFs put teeth in Sea Basing

Major Andrew G. Shorter, USMC*

The Short Take-Off/Vertical Landing)STOVL) Joint Strike Fighter (JSF) is an ideal way to support the Navy's *Sea Power 21* concept of Sea Basing by enabling the use of unconventional aircraft carriers, allowing increased sorties per mission, and decreasing host nation logistical support. Adoption of STOVL JSFs by the Navy, Marine Corps, and Air Force would dramatically increase aviation capability and transform the nation's carrier air power.

Force transformation is mapping the way for U.S. military forces to wage *an American way of war*, as coined by leaders in the Department of Defense's Office of Force Transformation.[1] One of the transformational concepts being pursued by the Navy and Marine Corps is Sea Basing, part of the Navy's *Sea Power 21* strategy. Sea Basing generally is thought about in terms of logistics or as a managed provision of sustainment to units ashore from ships offshore.[2] These capabilities rest with the elements of the amphibious ready group, the maritime prepositioning force, and individual vessels such as the large medium-speed roll-on/roll-off ship.

Although sustainment may be an overriding aspect of how Sea Basing is perceived, Chief of Naval Operations (CNO) Admiral Vern Clark describes it instead as *a foundation from which offensive and defensive fires are projected - making Sea Strike and Sea Shield realities.*[3] In the future, the expeditionary strike group, an amphibious ready group augmented with surface warships and submarines, will prosecute Sea Strike missions in the lower-threat environments where the carrier strike group's robust Sea Shield competencies may not be required. The Navy has acknowledged that the new platforms being developed to support the expeditionary strike groups, which include maritime prepositioned groups as part of the sea base, should be designed to realize their warfighting potential.[4] Sea Strike as the prime generator for projecting decisive combat power within the Sea Basing concept will involve a large percentage of the joint force's combat power - its air power.

Of the aforementioned expeditionary strike group elements, only the amphibious ready group can employ manned combat aviation assets; this includes all rotary-wing aircraft but only one fixed-wing strike aircraft - the Vertical/Short Take-Off and Landing (V/STOL) Harrier. However, with the development of the STOVL JSF, a new breed of robust, stealthy, supersonic fighters will be able to use unconventional aircraft carriers (ships without catapults or arresting gear) to enhance the Sea Basing concept by increasing the number of aircraft available for Sea Strike missions. The Navy states that *as operational concepts evolve, and new systems like the Joint Strike Fighter deliver to the fleet, it will be advantageous to maximize this increased aviation capability.*[5] Implementing the STOVL JSF as a common tri-service (Navy, Marine Corps, Air Force) aircraft means the number of ship-capable, fixed-wing combat aircraft not requiring conventional aircraft carriers would increase dramatically, thereby supporting the transformation of carrier air power as it relates to Sea Basing. With the Air Force's participation, no longer would sea-based aviation be a unilateral naval aviation affair. There are reasons to field a large joint STOVL JSF force as a means to sustain Sea Bases' combat power.

The argument

The justification for replacing conventional aircraft at sea with V/STOL aircraft has been argued since the 1950s. Initially, vertical recovery was seen as a safer way to return aircraft to ships at sea. The Navy understood the intrinsic value of operating aircraft from warships other than conventional aircraft carriers *to apply the advantages of sea-based air across a broader spectrum of Navy ships.*[6] The early technology, however, could not provide comparable tactical performance, so the idea went dormant. By the late 1970s, it was given new life, this time in response to budget constraints being considered by Congress. The Navy was certain its large, expensive carrier force would be in jeopardy, so the Chief of Naval Operations, Admiral James L Holloway III, wrote, *The ability of the U.S. Navy to carry out its missions will depend on the use of manned, tactical, sea-based aircraft. To be able to afford them, the Navy will have to switch to V/STOL planes and carriers.*[7] If V/STOL aircraft were to be introduced fleetwide, Admiral Holloway would have to ensure they would be

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used from all types of ships and have comparable performance to their conventional counterparts.[8] One of the two advantages he deemed critical was that

> [t]he design of future carriers, required to operate only V/STOL aircraft, could be enormously more flexible without the requirement for angled decks, overhang, arresting gear, and high capacity catapults. Carriers could then be large or small and either nuclear or conventionally powered.[9]

By the early 1980s, the advocates of an all-conventional carrier force were back in control, as new funding had been allocated for more large carriers and the performance margin for the new fighters heavily favored conventional aircraft programs over the unfunded advanced V/STOL programs. As long as the performance (and funding) gap between conventional and V/STOL aircraft remained, the basic aircraft carrier design would revolve around the launch and recovery of tailhook-equipped aircraft, which require complex systems and extensive pilot training.

Enter the STOVL JSF, the aircraft that has closed the fighter performance gap and does not suffer from funding inequities, possessing all of the V/STOL flexibility previously desired. With a concept generated almost 30 years ago—and in consideration of future Sea Basing—not only can aircraft carrier design be modified to include less complex, multirole platforms, but shipboard aircraft training and employment also can be made much less challenging and cumbersome.

The new challenge

In the *Sea Power 21* concept of Sea Strike, the CNO created a framework for sustaining sea-based fires.[10] The sea base lays the foundation, beginning with its ability to build, project, and sustain combat power through fully networked, forward-deployed joint forces and assets.[11] This power can be maintained while virtually eliminating the footprint ashore. By operating from the maritime domain, double-handling of supplies and equipment is reduced and the self-imposed operational pause associated with buildup ashore is eliminated. The greatest potential benefit from Sea Basing and the elimination of the large permanent forward air base comes with the reduction of host nation support. This is a major step forward in embracing the concept of a fully noncontiguous battle space supported by joint forces capable of flexible strategic structuring and timely operational maneuver.

Limiting the footprint also reduces the logistics burden. By basing afloat a greater percentage of his joint fighter/attack assets, a commander is able to reduce the demand on available transportation and materials. This is not to say those air assets will not become forward based, but it gives the operational commander the flexibility to posture his forces as the situation dictates. Even in this context, the STOVL JSF gives the commander unmatched flexibility by dramatically increasing the number of existing runways available worldwide for his use, as STOVL operations require minimal runway length.[12] As retired Navy Vice Admiral Arthur K. Cebrowski, Director of Force Transformation for the Department of Defense, sees it, this flexibility to move forward falls in line with the concept of the sea base: *Forces that would come to that sea base—air, sea, or land forces—need to come in one smooth motion and then maneuver operationally from it.*

The benefits of change

Even after Admiral Holloway's edict in the 1970s was superceded, further studies compared the effectiveness of Conventional Take-Off and Landing (CTOL) and V/STOL aircraft at sea.[13] One study, conducted by the American Institute of Aeronautics and Astronautics (AIAA) in 1980, concluded that V/STOL aircraft provide better mission performance at sea with fewer aircraft.[14] This stems from the V/STOL's ability to generate a greater number of sorties for a given time period, primarily because it is unconstrained by the normal deck cycles of CTOL aircraft. The AIAA study points out that *the air platform from which V/STOL operates can be smaller than today's large deck carrier. The support costs, including logistics, maintenance, manpower, et al. are reduced for both the aircraft and the ship.*[15] This concept sets the stage for reducing the large overhead normally associated with sea-based tactical aviation to the point where it can be considered viable on many more seagoing platforms.

The STOVL JSF greatly reduces the training and currency requirement for fixed-wing operations afloat. This increases commensurately its ability to be adopted and employed jointly as the Air Force is no longer excluded from non-land-based operations. With the large power margins, enhanced stability control, and pilot augmentation systems the STOVL JSF will incorporate, safe and efficient landings at sea will become easy and straightforward.[16] This should lead to streamlined training and extended currency limits - so much so that non-naval-trained pilots could become ship-qualified in just a few days. Consider the flexibility of being able to jointly sea base all of the services' primary tactical air assets, not only in the context of the tenets mentioned earlier, but also in the form of indefinite

sustainment for the force structure. The STOVL JSF squadrons from any service, with minimal effort, could provide forces for surged or sustained sea-based maritime operations - a force planner's dream.

While a modern aircraft carrier can employ the STOVL JSF, we must examine new complementary designs that more fully would support the Sea Basing concept rather than merely providing platform space for short-term surge capability. By expanding the number of platforms available, maximum operational flexibility is attained. Because of the cost of a new ship, designing one with multiple capabilities should be a prerequisite. A suitable cost-efficient family of vessels focused on the objective capability of Sea Basing might be found with the combination of an aircraft carrier or amphibious-warfare ship and a maritime prepositioned ship. The CNO is convinced there is *unique and powerful* potential for maritime prepositioned ships once they are unloaded.[17]

One ship design agent, Naval Sea Systems Command/Advanced Marine Enterprises, has designed several such unique ships. Cost was the principal design driver, but current and evolving technology were leveraged to develop these designs to meet the maritime prepositioned group's Sea Basing capability.[18] One design incorporates the facilities of a maritime prepositioned ship, including cranes and a roll-on/roll-off ramp, along with the helicopter capability of an amphibious assault ship (general purpose), albeit with fewer operational spots. The aviation-capable design has a dedicated flight deck designed for helicopters and STOVL aircraft, which gives the impression of an aircraft carrier. However, most of the below-deck spaces are dedicated to roll-on/roll-off and cube cargo, along with aviation fuel and ordnance. This concept capitalizes on the AIAA finding that *V/STOL can provide equal or better [mission] performance with many less aircraft.*[19]

Fewer aircraft require less hangar space, fewer maintenance and support personnel, and for STOVLs, fewer ship systems to support them and a much smaller air department. STOVLs require 30% less deck space for operations, which leads to increased operating efficiencies.[20] Those efficiencies allow generation of more sorties given equal mission performance. For example, STOVL aircraft can generate 30% more sorties than CTOL aircraft for targets out to 400nm, and 15% more for ranges to 700nm.[21] The affordable combination of multiple missions within one hull design can become a reality based on our emerging technology.

That is not to say the aircraft carrier does not have its place within this concept; it probably will become the keystone of the sea base under certain threat levels. However, when we allocate funding for new vessels, we should choose wisely and purchase a family of ships capable of performing multiple roles dedicated to transforming our force in the face of the uncertainty that confronts us. Within this family, the carrier may be-come primary for most Sea Shield capabilities and long-range power projection, and the new class of vessels would enable the sea base by providing basing and force flow for a majority of Sea Strike's flexible and persistent offensive power.

A historical example

Although Sea Basing may be seen as a transformational concept, and the notion of using cargo ships as aircraft carriers while allowing Air Force pilots to fly from them seems to support transformation, there is a historical precedent. During the 1982 Falklands campaign, Great Britain executed a version of Sea Basing to support Operation *Corporate* and its retaking of the islands. It did not do this in answer to any new doctrinal concept, but of necessity. Operation *Corporate* highlights the two topics important to the STOVL JSF's support to Sea Basing. The first is the use of non-purpose-built ships as aircraft carriers. The *Atlantic Conveyor*, a commercial container ship, was pressed into service as a transport for Harriers, helicopters, spare parts, fuel, ordnance, supplies, and equipment.[22] The converted ship originally was not intended to launch operational missions, but it had two operational deck spots, one of which was manned by an armed Sea Harrier during transit from Ascension Island to the task force. Although there was no operational employment of the fighters from the Atlantic Conveyor, the V/STOL aircraft remains the only type of fighter aircraft that can, and did, self-deploy and redeploy to and from that type of vessel.

The second topic has been incorporated as part of Great Britain's strategy for projecting combat power. This concept involves using the Royal Air Force (RAF) as a member of the deployable sea-based air arm. (The concept is still in use today under the title *Joint Force Harrier*.) The RAF's early adoption of V/STOL aircraft was the critical element that allowed it to espouse this idea. V/STOL aircraft negate the greatest danger of fixed-wing shipboard operations - the speed at which the aircraft approaches the ship when landing - and can use normal land-based confined-area landing techniques to safely land on any suitably sized deck at sea. The RAF pilots proved

this point as many of them executed their first shipboard landings, embarking on board the two aircraft carriers of the task force en route to the South Atlantic. By supplementing its task force with container vessels and transporting V/STOL strike-fighter aircraft, operationally manned by squadrons from two different services, the United Kingdom provided an unprecedented, unforeseen, highly flexible power projection and sustainment capability.

The STOVL JSF is the single weapon platform that can provide enough flexibility to the sea base to ensure its tenets - to build, project, and sustain combat power - are realized and maximized. This aircraft can provide fire support for sustained combat power from a multitude of legacy and future maritime platforms with minimal initial and recurrent aircrew ship qualification training. With the Sea Basing concept, footprints ashore are reduced, force protection is much easier to manage, and a very high operational tempo can be initiated and maintained just as the force enters the joint operating area.

The design and composition of the Sea Basing family of vessels may be in flux, but the STOVL aircraft already is a funded requirement for the US Marine Corps and the United Kingdom. To maximize the return on investment for the Sea Basing concept in support of national security strategies, we should ensure a percentage of the STOVL variant is procured by the U.S. Navy and the U.S. Air Force. This aircraft has closed the CTOL fighter performance gap, and would provide each service an extremely flexible platform capable of expeditionary operations while based afloat or on shore. This flexibility may include mission-specific aircraft transformations to alter the aircraft's capability and performance at times when STOVL operations may not be required.

Understanding that *global joint operations against regional and transnational dangers* represents the CNO's emergent strategy, and acknowledging that area access and host nation support are by no means guaranteed, we must embrace Sea Basing and adopt a triservice acquisition strategy for the STOVL JSF.[23] Adoption and joint operational employment of the STOVL JSF will ensure that the capacity to enhance the Sea Bases' combat power through sustainment of airborne fires will be maximized.

[1] VAdm. Arthur K. Cebrowski, USN (Ret.), and Dr. Thomas P. M. Barnett, 'The American Way of War' *U.S. Naval Institute Proceedings*, January 2003, pp. 42-43.
[2] U.S. Marine Corps, Marine Corps Concept Paper, *Seabased Logistics*, http://www.fas.org/man/dod-101/sys/ship/docs/sbl.htm.
[3] Chief of Naval Operations Admiral Vern Clark, USN, 'Sea Power 21: Projecting Decisive Joint Capabilities' *U.S. Naval Institute Proceedings*, October 2002, pp. 32-41.
[4] U.S. Navy, Program Guide to the U.S. Navy, Washington, DC: Department of the Navy, 2003 ed., pp. 10, 120.
[5] ibid, p. 10.
[6] Adm. James L. Holloway III, USN, 'The Transition to V/STOL' *U.S. Naval Institute Proceedings*, September 1977, pp. 18-22.
[7] ibid, p. 20.
[8] ibid, p. 21.
[9] ibid
[10] Clark, 'Sea Power 21' p. 34.
[11] U.S. Marine Corps, 'Seabased Logistics'
[12] V/STOL and STOVL aircraft can operate from three to five times as many prepared airfields and unprepared expeditionary sites as conventional aircraft.
[13] Among the reports and studies conducted were the USS Franklin D. Roosevelt (CV-42) Postdeployment Report (October 1976-April 1977); Defense Science Board STOVL Task Force (1979); Naval Air Engineering Center Sea-Based Air Master Study (1980); and Center for Naval Analyses STOVL Strike Fighter Analysis (1990-1993).
[14] American Institute of Aeronautics and Astronautics (AIAA), Master Study, CTOL/V/STOL Comparison: A View from the Deck, AIAA-80-1812, August 1980, pp. 9-10.
[15] ibid, p. 10.
[16] *The JSF takes full advantage of current technology in digital flight control systems, thereby reducing the demands on the pilot during STOVL operations. The aircraft becomes easier to fly and does a better job at preventing the pilot from getting into a dangerous flight condition. This will result in reduced training requirements and reduced risk. The JSF will provide a STOVL aircraft that is as easy to fly as its conventional counterparts, while retaining all the operational flexibility that comes with a STOVL design.* Former X-35 test pilot LCol. Arthur Tomassetti, USMC, 'V/STOL to STOVL' *The Marine Corps Aviation Association Journal*, September 2002, p. 57.
[17] Chief of Naval Operations Admiral Vern Clark, USN, 'Persistent Combat Power' *U.S. Naval Institute Proceedings*, May 2003, pp. 46-48.
[18] Federation of American Scientists Military Analysis Network, *Seabase*, http://www.fas.org/man/dod-101/sys/ship/seabase.htm.
[19] AIAA, CTOL/V/STOL Comparison, p. 9.
[20] ibid, p. 1.
[21] ibid, p. 6.
[22] John Godden, *Harrier Ski Jump to Victory*, Brassey's Defense Publishers, Oxford, 1983, p. 4.
[23] Clark, 'Sea Power 21' p. 33.

HMAS *Quiberon's* 1948 deployment to Japan

Kev Gleeson*

In March 1942 agreement was reached that the RAN would take over and man the new British-built destroyers Quiberon (G81) and Quickmatch (G92), with the RAN paying for the crew and their allowances, and the British Admiralty meeting all refit and maintenance costs. (Another three 'Q' class destroyers, Quadrant (G11), Quality (G62), Queenborough (G70), were loaned to the RAN between 1942-46, and all five were transferred outright in June 1950.)

Joining *Quiberon*

On 19 August 1947 HMAS *Hobart* arrived back in Sydney from its final deployment in Japan as a unit of the British Commonwealth Occupation Forces (BCOF) and prepared for her decommissioning. At the time I was an Able Seaman Torpedo-man, had enjoyed serving in *Hobart*, and felt sad about leaving the ship and my mates, but I welcomed a draft back to a seagoing ship the *Q* class destroyer HMAS *Quiberon*. So it was a train journey to Melbourne, only to find that *Quiberon* had sailed around to Westernport Bay. So it was now another train journey to Flinders Naval Depot, where I picked up *Quiberon's* motor boat around midnight, at Stony Point. It was the liberty boat to pick up the sailors who had spent a great night up at the Flinders Naval Depot wet canteen (Murph's), and a few sailors who were broke and had gone to the movies in the depot drill hall. (The wet canteen at Flinders was at the rear of A Block. It had a general session at the lunch break, selective sessions for sporting teams (after the game). And the main session was in the evening. Pay nights were very vigorous, with all sorts of activities, including crayfish and chook raffles. Sunday nights were great, as some of the bandsmen put on a musical treat, that got better as the evening progressed, as the audience kept them well supplied with beer.) It was always a great experience to be stone cold sober and riding back to the ship, with a boatload of happy noisy Jacks fresh from a good alcoholic run ashore.

The motor boat took about half an hour to return to *Quiberon* out in Westernport Bay, so it was well after midnight when we arrived back on board. The bosun's mate kindly gave me a hand with my bag and hammock, down to the Torpedo-man's mess deck, and assisted me in finding a vacant set of rails to sling my hammock. This was not an easy task in a blacked out strange mess deck, already filled to capacity with sleeping sailors in hammocks. Next morning, everybody was surprised to find a stranger sitting up in a hammock, who was not there when they had gone to sleep. The young fellow in the adjacent hammock was Bert Hewitt from Kalgoorlie. It was our first meeting, and I am fortunate to still have him as a number one buddy today. I was soon made to feel at home in the Torpedo-man's mess, and had a great band of messmates, whose company I enjoyed, both on the ship and on runs ashore.

Life Onboard

Quiberon was a happy ship commanded by Commander Bath, RAN; the First Lieutenant (the Jimmy) was Lieutenant Duncan Stevens, RAN, who later lost his life on HMAS *Voyager*. The navigator was Lieutenant Ken Shands, RAN, who later commanded *Hobart* (II) on her second deployment to Vietnam (he retired as Commodore Ken Shands, OBE RAN, and passed away 21 January 2002). Other officers included Lieutenant John Golder, RAN and the Torpedo Officer, Commissioned Warrant Officer Reg Solley, RAN.

The *Q* class destroyers used a system of victualling called Repayment Messing, where the Navy allowed a certain cash allowance per day to feed the sailors. With repayment messing the victualling money was credited to the individual messes, on a per head basis.

In the Torpedo-man's Mess, two members were rostered to be Mess cook for 24 hours. Their duties included drawing food stores from the supply office, vegetables from the veggies deck locker, and meat from the beef screen. The mess cook took along a docket book to purchase the food supplies (like playing shops), so that the individual mess could be debited for the food obtained; if a mess overspent, they had to pay up on the day of reckoning. Good management was required in planning the menus. The leading hand of our mess, Fred Tooth was a great manager; he saw that we were fed with the best victuals available and kept us within our budget. The rostered mess cooks besides drawing the daily stores, had to prepare the meals in the mess,

* Kev Gleeson was honourably discharged as a Chief Petty Officer (E) in 1957 after 12 years service.

which when made up would be taken to the galley to be cooked, mainly supervised by the ship's cooks. Most mess members were pretty good cooks, and all had their specialties. If the food was not up to standard, you certainly got the message from your peers. The rostered mess cooks were also responsible for the setting up and clearing up before and after each meal, and a complete scrub out of all the mess gear, including the deck and any other housekeeping requirements, such as sand soaping the mess table, polishing the bright work, and paint touch up jobs. The mess deck was our home, and we were house proud. We had to be, as accommodation was crowded in the mess decks, with little room for our belongings. To store our gear we had a seat locker, into which all our gear had to be stowed. Often when you needed to have access to your seat locker, one of your messmates would be stretched out on the lockers having a sleep, or the Mah Jong players would be sitting on it.

A downside with repayment messing was that certain stores had to be drawn in bulk, and stored in the mess along with all the sailors that lived, slept and smoked in the confined space, that was their home, complete with oil tank breathers, and battery room full of charging batteries. Near the head of my hammock, hanging from a deck head hook, there was normally a side of smoked ham, from which we carved off slices of bacon, for breakfast. There were also crates of eggs and bags of flour and sugar; you can imagine the state of things, if the ship hit big seas during the night, and the mess cooks had not sufficiently secured the stores. The result would often be scrambled eggs for breakfast. This unhealthy set up, which then was the norm for life on the boats, would not be acceptable today.

Leaving Westernport Bay, *Quiberon*, visited Devonport and Beauty Point, in Tasmania before arriving back in Sydney on 23 November 1947, where she and *Quickmatch* tied up alongside each other moored to a buoy off Garden Island. That night a merchant ship *King Stephen*, lost steerage going up harbour and rammed *Quiberon* in the engine room, causing great damage and necessitating docking the next morning in Captain Cook Dock. As it was estimated that repairs would not be completed until the end of January 1948, it was decided that the ship's company should take leave due to them. So it was off home to the West for leave in the train. My mother decided it was a good opportunity to put on my twenty-first birthday party, as I would not be home for my actual birthday. It was at this party, that I met my wife who was not overly impressed with my *Quiberon* mates or me. But all good things including leave come to an end. We missed out on our family Christmas Dinner and joined a troop train going east on Christmas Day 1947, arriving in Sydney on New Years Day 1948 in the pouring rain, to rejoin *Quiberon* still in the Dock, with HMA Ships *Bataan* and *Australia*.

Repairs completed, *Quiberon* undocked, went alongside the Cruiser Wharf at Garden Island to store and ammunition ship, in preparation to sail south and rejoin fleet for exercises and a work up, prior to sailing north to Japan. An oil lighter came alongside to oil ship. Again things went wrong, the lighter rammed *Quiberon*, holing her side. *Quiberon* was listed to port, to raise damaged plates up above water line, for repair.

Departure for Japan

Eventually on 8 February 1948 *Quiberon* left Sydney to join the fleet and take part in exercises, prior to arriving in Hobart, during their famous Regatta. *Quiberon* and *Quickmatch* departed Hobart for Port Arthur for Captain D's inspection. On 25 February Captain 'Ginger' Morrow carried out the annual inspection. On completion *Quiberon* in company with *Quickmatch* departed Port Arthur for Sydney, arriving there on the 29th to finalise preparations for Japan. The following week was busy for the ship's company, storing, ammunitioning, and oiling ship. We were particularly busy in the Torpedo Party repairing electrical defects, taking torpedoes aboard and fitting them in the torpedo tubes, as well as the depth charges, which had to be loaded into the racks and rails. These were particularly heavy physical tasks, which sent us to our hammocks tired each night. The weekend before we sailed we all had a good farewell run ashore in Sydney, to prepare us for the months ahead.

On Monday 8 March *Quiberon* and *Quickmatch*, sailed for Japan up the eastern Australian coast, through the Great Barrier Reef, and oiled ship at Cairns before heading north to New Guinea. A highlight of the trip is the passage through the China Straits, on the eastern tip of New Guinea. It's like sailing up a lush jungle river, as the passage is quite narrow in places, which includes steaming past the entrance to historic Milne Bay.

The next port of call was Dreger Harbour, on the north coast of New Guinea, where both ships tied up at Buki Wharf, about a kilometre from the naval depot HMAS *Tarangau*. The depot kindly provided trucks to take a swimming party out to a jungle river pool at Lamanak. The pool was up river and well used by the sailors at *Tarangau*, but armed lookouts were always posted as saltwater crocodiles some times came up stream.

The first port of call in Japan on Tuesday 23 March was Yokosuka, formerly a large and important Japanese naval base, and now the principal American naval base in Japan. An Australian Army officer, who spoke fluent Japanese, joined us to act as an interpreter. Our duties in Japan included Japanese ship and installation inspections, as well as patrolling the sea between Korea and Japan. On these patrols any vessel large or small was stopped, boarded and inspected, anytime day or night.

On Thursday 25 March, we sailed from Yokosuka up Tokyo Bay to Takashima Docks, on the outskirts of Tokyo, for the Easter period. The docks were close to a little suburban railway station, so it was no problem getting into Tokyo Central Station, which still wore the scars of Allied bombing, as did the rest of Tokyo. In spite of the damage to this city, it was an interesting place. It was a must to visit the Imperial Palace, which was guarded by smart Australian Army soldiers, followed by a stroll down The Ginza, inspecting shops for souvenirs and a visit to one or more of the beckoning beer halls.

At Tokyo Central Station, there were fast trains to different parts of Japan, which was great for getting around and seeing the ordinary people and places. There was a special carriage for the Occupation Forces on the train, and travel was free. It was great to get off the train at a town that looked interesting, have a bit of a walk around, take a few photos, and rejoin another train, to travel to another attractive place that took your fancy. It was a good break from life aboard ship.

The Easter break over, it was back to business visiting various Japanese ports to carry out ship inspections, and other duties required in the early period of the occupation of Japan. At 0700 on Monday 5 April, *Quiberon* departed from Yokosuka and at 1530 arrived at Shimazu (the nearest sea port to Mt Fuji). Ship inspections and boarding parties were duties that the ship's company were rostered for, and were extra to normal ship and watch keeping duties. We made our way towards Kure, visiting the ports of Nagoya and Yokaichi along the way. This time it was a two day stay in Nagoya, which was always a good port to visit, and to have a run ashore.

On Sunday 11 April *Quiberon* arrived in Kure berthing at the floating wharf. The Japanese constructed these wharves to provide instant harbour facilities for their ships when they invaded islands in the Pacific campaign. Each unit was self contained, fitted with cranes, power generating equipment, workshops, accommodation and messing facilities. The units could be used singly or linked up with other units. The units were quite large, and were long enough for a cruiser to berth, on either side. It was fortunate that this facility was intact and available for our ships, as Kure was a principal Japanese naval base, and had suffered badly from heavy aerial bombing toward the end of the war. Sometimes the visit to Kure was brightened up by the arrival of HMAS *Kanimbla*, berthing the opposite side of wharf from us (*Kanimbla* was on the trooping and supply runs from Sydney to Kure, and so was a frequent visitor.)

Visiting Kure was always a pleasure, as it was in the area controlled by the BCOF and the Australian forces were prominent in the administration and control in this part of Japan. There was plenty in the Kure area to make shore leave attractive and there was also the opportunity to meet Aussie Army mates. It was always great to meet mates serving ashore in Japan, have a few or more beers, and spin yarns, that got more outrageous as the night progressed. An added attraction was the Occupation Forces Radio Station, which broadcast Australian news and enjoyable music.

Hong Kong

Leaving Kure on 15 April *Quiberon* sailed for Hong Kong (a four-day journey). It was always touchy going through the Formosa Straits, as the ship was passing through a passage of sea between the Chinese Communist Forces on mainland China and the Chinese Nationalists on Formosa Island. Aircraft from both sides inspected the ship. For the passage through the Formosa Straits, ship's company was closed up in the second degree of readiness, and the ship operated above normal cruising speed. After sunset the ship was lit up, with the Australian Flag and White Ensign well illuminated. Everybody looked forward to a trip to Hong Kong, as it had so much to offer. In common with most sailors, I always looked upon Hong Kong as being the Pearl of the Far East. It was great for shopping and had so much to offer at the right price. A bonus for Australian soldiers in Japan was to get leave and take passage on HMA Ships for the return journey Japan-Hong Kong. About twenty soldiers of various ranks took this trip to Hong Kong with us, living in the sailors' messes, and doing a few duties aboard ship, which they generally thought was a lot of fun, including chipping and red leading. It was a great opportunity and change for them away from normal Army routine, as their deployment in BCOF Japan was at least twelve months.

A stay in Hong Kong was never dull, as there were often typhoon alerts. If serious, it meant

going to sea to ride the typhoon out, fortunately on this visit this was not required. The Royal Navy command also had the habit of rostering the visiting Australian destroyers as Duty Destroyer; this could entail going to sea to do a rescue of any vessel in trouble. Sometimes the troubled vessel was a British merchant ship, which was being hassled by the mainland or Formosan Chinese, because it had been trading with one of the other Chinese powers or both. When a ship was Duty Destroyer, the ship's company ashore was subject to recall, and had to remain in a confined area in Hong Kong. If a recall occurred, mobile Shore Patrols from Royal Naval Depot HMS *Tamar*, combed the town, the bars and other sailor's haunts, extricating the liberty men, and returning them to the harbour landing to be picked up by ship's boats to be transported back to their respective ship, which would be under sailing orders.

Back to Japan

Leaving Hong Kong and all of its attractions, *Quiberon* steamed back to Japan, arriving in Sasebo (southern island of Kyushu) on 5 May to take up patrol duties. It was a good liberty port with many attractions, including the famous Casbah beer and dance hall. Sasebo was mainly the homeport of operation for allied naval ships, which were operating patrols and ship search and inspections in the straits between Japan and Korea, and the Sea of Japan. When on sea patrol all vessels large and small in the search area were stopped and searched by a ship's boarding party, no matter what time day or night. The boarding parties' duties were not always pleasant, moving and lifting cases of fish and squid in the middle of the night. The actual boarding operation was often hazardous when a good swell was running.

The vessels were searched and inspected, mainly for illegal persons coming across from Korea, and in particular North Korea, which was controlled by Russia after the war ended. Often whole groups were moved from North Korea, in fast boats to islands in the straits or the Sea of Japan. Then they were smuggled across to Japan on small vessels, including fishing vessels. The illegals were often found on fishing boats, in spaces underneath the fish crates. Our searching duties included visiting Cheju Island and Tsushima Island, which were approximately midway between Pusan, Korea and Fukuoka, Japan.

Leaving Fukuoka on 5 June after port inspections, we renewed sea patrols and the next day boarded a Korean ship not much bigger than a navy general purpose vessel. Below decks and in the hold, packed like sardines were over 130 Korean illegals, drugs and other goods being smuggled into Japan. Many of the illegals were in poor shape and suffering from seasickness in the confined space. The Korean vessel was secured alongside and the illegals brought aboard, and confined to a section on the after deck, as cholera and other diseases were rife in areas where these people had come from. A makeshift toilet was also set up over the stern. Due to health risks; the ship's heads were not available for their use.

With an armed boarding party aboard, the Korean vessel was taken in tow to the small Honshu port Taisha, where the US military were waiting to take charge of the vessel, its Captain and crew, and the illegals were taken away to face the consequences. The vessel would be confiscated, and it was common knowledge that the Captain and crew faced heavy penalties. After the illegals were cleared off *Quiberon*, the areas they occupied were thoroughly washed down and disinfected. It was then back to sea to continue the ship's duties, which took in Tsushima Island and the little Korean port of Chinhae, just south of Pusan. On visits to Chinhae, armed parties were sent ashore and were driven around the area in US Army trucks to project the military image, as the US forces were sparse in this area, and there were troubled rumblings in Korea as a prelude to the Korean War in 1950.

Besides the patrolling duties there were many lighter moments. As June is summer time in the northern hemisphere it was now hot at sea aboard ship. If the sea was calm at 1630 it was hands to swim. The ship would stop, and lower the ship's boats. Boat crews were armed with automatic weapons, and a couple of armed sailors were on deck to protect us from sharks. We used to wonder, who was in the greatest danger from our guardians, the sharks or us. When all was ready, hands to swim was piped. What a sight it was as we all dived over board into the sea, to have a good half hours cool down and skylark. The ship's buzz said that there were no sharks in the Korean Straits, but one afternoon after swimming had ceased, two sharks were sighted close to our port side.

Aboard ship at sea, the sailors occupied themselves in many diverse ways. There were the Mah Jong kings, who seriously played from the time the ship left Sydney to its return many months later. They played for one penny a hundred points and kept a book to record the winnings and or debts. On the return to Sydney the winnings/losses were toted up. Sometimes fellows would play for months to win the grand accumulated amount of a few shillings. Then there

were the card players. The favourite games in the Torpedo-men's mess were Rummy and Rickety Kate, or in sailor's parlance, Chase the Pisser. In between we wrote letters to mum or our Squareys and dreamed of our next leave and home.

Some days at sea, due to rough weather, the upper deck was either undesirable, or off limits. The sailors would clamour for a mess deck picture show. This was easy to arrange as Torpedo-men were also projectionists, and had control of the 16mm projector and films that had been in the ship for months; every body had seen them at least twice, but every show was like a premier. The word would get around, and before the pictures got rolling the mess deck was a full house. The old cowboy films were popular, with favourites like Hopalong Cassidy pursuing Indians across the screen, which was semi-obscured by cigarette smoke from the sailors duty free cigarettes. Then the love scenes in some of the old movies would provoke many wisecracks, and cat calls.

During our deployment to Japan, electric model trains appeared in some of the Japanese stores ashore. They were similar in size and design to the prewar English produced Hornby model trains. These trains were a great attraction to the sailors, and many train sets were bought for little brothers back home. Several styles of engines and carriages were available, and unlimited lengths of tracks, railway signals and rail crossings, could be purchased. This all had potential for laying out a fine comprehensive railway system

Several of the fellows in the Torpedo-men's mess had train sets, and we all wanted to try our train out. So we would all get our train sets out and design a real huge combined railway system round the mess deck. The hammock bin was in the middle of the mess, so the system circumnavigated it. There would be trains running every where. Train smashes, and derailments, were all order of the system, as engine drivers and signalmen controlling the railway points settled down, with railway operating experience. All would be going well, and trains burning around without disasters, and then the ship would give a great big roll, or a pitch resulting in massive derailments, throwing the system into confusion. When the train sessions got underway, the word would get out, attracting nearly as many spectators into the mess deck as the movie shows. Sailors at sea always appreciated unique entertainment.

On 15 June, returning to Sasebo with three US *Fletcher* class destroyers, we were directed to a buoy in Sasebo Harbour. The normal routine used for coming up to a buoy, was to lower the whaler to convey the buoy jumpers to the buoy and then secure ship's cable to the buoy. The USN normally did not use a whaler for buoy jumping, but instead used a ship's motor boat. As we were operating with USN destroyers, it was decided to use the ship's motor boat. Nearing the buoy the order was given to lower the motor boat in to the slip level just above water, so it could be slipped at the appropriate moment. The lowering of the boat had just commenced, when disaster struck. The forward fall gear failed, taking away the support for the motor boat's bows. The bows plunged into the sea, with the stern still suspended. The boat's crew were hurled forward under the canopy and trapped as we were still underway. Fortunately the canopy was dislodged by water force, resulting in boat's crew being ejected into the sea. The boat's coxswain and bowman had a lucky escape from being killed or injured by the ship's propellers, as *Quiberon* passed them. The buoy jumper, a three-badgeman who was the acting blacksmith, had a severe blow to his head. He floated to the top in a dazed state, and immediately started swimming as fast as he could go, to get away from ship's side. He was finally stopped and picked up by a Japanese fisherman, and brought back to the ship. When the accident occurred, two of the cooks and other sailors nearby climbed into the whaler and were lowered for rescue duties.

Towards the end of June, *Quiberon* had a break from the Korean Patrol, and visited more Japanese ports for inspections. Some of the ports included Fukuoku, Kagoshima, Nagasaki, Kobe and Osaka. Kobe was near to the town where the famous all girl Tarakazuki Opera was based. I had visited this opera before when serving in *Hobart*, I was fortunate to revisit and enjoy this great show again. During this stay a severe earthquake caused much damage and loss of life. In a nearby town, a movie house collapsed killing more than 200 people. This was followed by tidal waves, causing more damage, loss of lives, and flooding.

On 1 July we departed Yokosuka for Sasebo. Before arriving there on the afternoon of 3 July, we carried out depth charge drill, and fired our near use by date depth charges; I enjoyed this as my depth charge station was forward depth charge thrower, starboard side. After the shoot, the ship stopped, lowered boats and picked up the fish, which were on menu that night.

Return to Australia

At 0905 on 6 July, *Bataan* arrived in Sasebo to relieve us. *Quiberon*'s ship's company were all happy to catch up with their mates, and hear a bit

of news from back home. During the forenoon about 50 or 60 Australian soldiers and airmen came aboard for passage home to Australia - a convenient cheap method of moving troops. We also took aboard a party of ex-RAAF wartime aircrew officers who had sailed in *Bataan* for sea duties and nautical experience. The journey home to Australia with us was to be a continuation of their training. These experienced officers had joined the Navy to help man the infant naval flying service, and the aircraft carrier HMAS *Sydney*, when it commissioned. Several had been decorated during WWII for distinguished service.

With all the troops taking passage, accommodation was strained. The lower forward mess, which normally was not occupied as it was an uncomfortable mess to be in at sea (particularly in rough weather) was used, as well as squeezing extra personnel into the normal messes which already had a full complement of sailors.

We departed Sasebo at 1300, and on leaving harbour, encountered three USN destroyers. Signals were exchanged farewelling us and passing up-to-date weather information, including the possible presence of a typhoon. We carried on, as we were going home, but it was not long before the ship was into the edge of the typhoon. Conditions further deteriorated and the decision was made to return to Sasebo, arriving there at 1845 that evening, to await a favourable weather report concerning the typhoon.

It was a hot still evening and the water in the harbour at Sasebo was like a millpond. An up to date movie was borrowed from one of the US destroyers, and a movie show was set up on the upper deck for an evening's entertainment.

About 2345 a favourable weather report was received, the movie was returned to the US destroyer, and arrangements were made to prepare for sea. Again we departed from Sasebo. It was a still warm night, the sea calm, and as it was hot and stuffy in the lower forward mess, most of the occupants, brought their sleeping gear on the upper deck, and bedded down. All went well until about 0200, when we again struck rough weather. The bows dipped into the sea, and the decks were awash. The troops sleeping on the upper deck were swamped, and driven below to the discomfort of the hot pitching mess decks, where many were now going through the misery of seasickness.

By morning the ship was right into the typhoon, and taking terrible treatment, making it uncomfortable for all aboard. Very few of the troops taking passage showed much interest in eating breakfast, lunch or tea that day. All the joy and excitement of having a trip on a *Q* class destroyer had evaporated. The ship suffered the effects of the typhoon until it was south of Guam. The *Quiberon* was a good sea ship and took the pounding well.

On Wednesday morning 14 July we steamed into a calm picturesque Seeadler Harbour in Manus Island, much to the joy of the passengers who were glad to see land and stand on a steady deck again, if only for a few hours.

As there were a batch of pound and a quarter demolition charges in the magazine that were reaching their use by date, the Torpedo Gunner decided that it would be a good and appropriate time to safely dispose of these charges. The ship's Demolition Party, of which I was a member, prepared the demolition charges for disposal under the watchful eyes of the Torpedo Gunner, and the Petty Officer Torpedo Instructor. To prepare the charges we sat on the deck on a rubber mat in the Depth Charge Pistol Room. Two charges were strapped together, complete with fuses and detonators; when all charges were prepared, they were taken aboard both whalers. The Demolition Party, with some of the ex RAAF aircrew manning the oars, left the ship and moved out in to the middle of the vast anchorage of Seeadler Harbour. Manning the oars and pulling a whaler was a novelty for the ex-RAAF officers, and a bit more sea experience.

This is how we jettisoned the explosive charges over the stern. The coxswain encouraged the men manning the oars to build up to a maximum speed. Then when the Torpedo Gunner felt conditions were ideal, we would ignite and throw the charges astern, while the oarsmen maintained speed to get a safe distance from the subsequent explosion. The whaler would return to the explosion area, with the Demolition Crew diving into the sea to retrieve any stunned fish. This plan of operation continued, until all the demolition charges were disposed of.

The ex-RAAF flyers were enjoying the experience, and requested a go at the fish retrieval operation, to which the Torpedo Gunner agreed. So they joined in the fun in the sea, retrieving fish. But their enjoyment faded, when the final charge brought up a lot of marine creatures including several sea snakes that revived quickly after coming to the surface, and swam off among the fish retrievers. Both whalers carried enough fish to feed all aboard that night.

At 1300 we departed Manus for Dreger Harbour arriving there next morning and berthing at Buki Wharf, HMAS *Tarangau*. (HMAS *Tarangau* was de-commissioned at the end of 1949 and relocated to Manus.)

Swimming parties went ashore and were

transported by trucks from *Tarangau* to a river up in the foothills, above a couple of spectacular water falls. This spot was considered to be reasonably safe from saltwater crocodiles, but lookouts were maintained just in case.

At 1630, it was back to sea again, to steam east down the north coast of New Guinea, passing Milne Bay, and travelling through the beautiful China Straits. Mail was picked up for transport to Australia from the little island of Samarii (the administrative centre for Papua New Guinea).

Early on the morning of Sunday 18 July, we berthed in Cairns, to oil ship and take on bread and fresh vegetables. The sailors were happy to see a milkman arriving on the wharf on his horse drawn milk cart, all ready to sell milk and fresh eggs to the milk starved sailors, who bought up big and carried their spoils below to their mess decks. Happy sailors were soon drinking copious amounts of fresh creamy milk, or making big egg flips, building themselves up for their leave and home coming.

At 1300 we slipped for sea, on the last leg of the journey home to Sydney, and carried out speed trials all down the coast. Morale was high on board as everybody had channel fever. Some of the troops taking passage were eagerly counting the days to getting back on solid land, and having a good meal again, that they could keep down, after the journey home on our beloved lively destroyer. That night there was a rush to get a seat in the heads, as the rich diet of milk and eggs were too much for stomachs that had lived on more basic foods for several months. A sudden excess of milk and eggs gave many of the sailors a good dose of diarrhoea.

On Thursday morning 23 July, we steamed into Sydney Harbour, as always it was a welcome wonderful sight after a spell overseas. It was a sixteen-day journey home to Australia. Sadly the journey through Sydney Heads was the final homecoming for *Quiberon*, as she had come home to be paid off and go into reserve.

As we entered harbour, there was a RAAF Sergeant waiting near the gangway with his bags and gear aiming to be first off the ship at the instant of berthing. He claimed he had eaten very little food between Sasebo and Sydney and swore he would never ever take a sea trip again.

On arrival mail and draft notes came aboard, and many of the crew were drafted to other ships and depots. I was drafted to Flinders Naval Depot, to undertake a conversion course from Seaman Torpedo-man, to an Electricians Mate First Class, as the Torpedo rating was to be phased out. The Western Australians were booked to travel home to Perth for leave the next evening Friday 24 July, so they had to pack their bags and hammocks for dispatch to their next ship or depot before proceeding on leave. I left the ship with mixed feelings, happy because I was going home on leave, but sad because I was leaving *Quiberon* and my mates. And I did not want a draft ashore to Flinders Naval Depot. I was going to miss life on a destroyer, which I had grown to love.

Quiberon's Re-Birth as an Anti Submarine Frigate

Quiberon decommissioned in August 1948 after her third deployment to Japan, and was joined in reserve by *Quickmatch* when she paid off in May 1949. In November 1950 *Quiberon* commenced conversion to a fast anti-submarine frigate at Cockatoo Island Dockyard. After nearly eight years in dockyard hands she recommissioned on 18 December 1957, and commenced what were to become regular deployments to the Strategic Far East Reserve, where she served with distinction.

On 15 February 1972 *Quiberon* and *Quickmatch* were sold to the Fujita Salvage Co Ltd of Osaka, Japan. *Quiberon*, in company with the decommissioned Battle class destroyer *Tobruk* left Sydney under tow from the Japanese ocean-going tug *Sumi Maru No 38* on 10 April 1972 for the final journey to Japan. A sad chapter for two great ships that had served Australia with distinction in war and peace, and I had the honour and privilege to serve in both.

In *Quiberon* I had served as an Able Seaman Torpedo-man, and in *Tobruk* as Chief Petty Officer Electrician (E). *Tobruk* was my last posting 1955-57 and the completion of my engagement. I served on various types of ships, during my naval career, but in common with most ex-matelots I fell in love with destroyers; the old sailors cry was *give me the boats*.

HMAS *Quiberon's* Specifications

Builder:	J Samuel White
Laid Down:	14/10/40
Launched:	31/01/42
Completed:	27/07/42
Displacement (tons):	1,705 standard; 2,425 full load
Dimensions (feet):	length 358 ¼, beam 35 ¾, draught 9 ½
Armament:	4 x 4.7 sungle mountings, 1 x 2 PDR pom-pom 6 x 20mm, 4 depth charge throwers 2 depthcharge rails
Torpedo Tubes:	8 x 21 inch tubes
Machinery:	Parsons 2-shaft geared turbines, 40000 SHP
Speed:	34 knots
Range:	4680nm at 20 knots
Complement:	220

The SH-2G(A) *Super Seasprite*

Lieutenant Commander Ian T Parrott, RAN asq*

In 1995 the Australian Department of Defence issued a requirement for an intermediate sized maritime helicopter equipped with an air to surface missile for embarked operations from the new *Anzac* class frigates and the proposed Offshore Patrol Combatant (OPC). The program called for up to 27 helicopters with a two man crew and equipped with a modern combat system and sensor suite that was to include radar, Forward Looking Infra Red (FLIR), an Electronic Warfare suite and Link 11. The helicopter was to also have secondary roles that included Under Surface Warfare (USW) as a weapons carrier; Visit, Board, Search and Seize (VBSS), Naval Gunfire Support (NGS), Vertical Replenishment (VERTREP), Search and Rescue (SAR) and training.

The project became known as Project Sea 1411 (PS1411) and Sikorsky, Eurocopter, Westland and Kaman responded with proposals. The list of proposed helicopters was reduced to the Westland *Super Lynx* and the Kaman *Super Seasprite*. In January 1997 after a lengthy tender evaluation period it was announced that Kaman Aerospace International Corporation was the preferred bidder. After an intense contract negotiation period the contract was signed on June 26, 1997 for the purchase of 11 helicopters, a Full Mission Flight Simulator (FMFS) and a 14 year support contract for logistics and training with options for the acquisition of an additional three helicopters at a later date. The total contract price was approximately US$600m. The acquisition of the AGM-119B *Penguin* missile was made under a separate contract with Kongsberg Defence and Aerospace of Norway under Project Sea 1414 (PS1414). The number of aircraft purchased by the Commonwealth was reduced from 27 to 11 due primarily to the cancellation of the OPC.

The cost of the program was kept in check by deciding to re-manufacture ex-USN SH-2F *Seasprite* helicopters instead of manufacturing new airframes. This allowed for greater allocation of funds to the Integrated Tactical Avionics System (ITAS) and other aspects of the program. Whilst the oldest airframe was originally manufactured in 1963 as a UH-2B, all re-manufactured aircraft are guaranteed by Kaman for an additional 10,000 flying hours and twenty-five years of service. The Commonwealth of Australia considered the risk associated with re-manufactured airframes to be low since Kaman had re-manufactured *Seasprites* many times in the past and at the time of contract signature was re-manufacturing ex-SH-2F helicopters into SH-2G(E) helicopters for Egypt. At the same time as the Australian acquisition New Zealand chose to purchase newly built airframes for its SH-2G(NZ). Whilst equipped with new airframes, the aircraft retains the older Litton ASN-150 tactical system and has been equipped with significantly less capable sensors.

Integration Challenges

The heart of the SH-2G(A) is the ITAS, which has allowed the crew size to be reduced to two people, a pilot and a Tactical Coordinator. The ITAS is an open architecture based combat system manufactured by Litton Guidance and Control Division and is built around two Mission Display Processors (MDP) that utilise the PowerPC chip as its central processor. The MDP's are linked to four Colour Multifunction Display Units (CMFD) that form the primary cockpit displays and two Smart Display Units that are the principle devices for data entry and display of text based data. The aircraft's various sensors, weapons, communications devices, data links and navigation aids are then integrated with ITAS via three separate dual redundant MIL-STD-1553B databuses to form the Integrated Weapons System.

Like most Australian Defence projects, PS1411 is a fixed price project. At contract signature the agreed cost to the Commonwealth was approximately US$600m in 1996 dollars. Since that time the project has remained within budget and the only changes in cost to the taxpayer have been due to fluctuations in the exchange rate. Unfortunately the same can not be said about schedule. At contract signature it was acknowledged that significant schedule risk existed, principally because of the complex integration task facing Kaman and the very tight time lines associated with initial deliveries of a combat capable SH-2G(A) by April 2001. Noting that complex systems of similar complexity, such as the Sikorsky MH-60R *Seahawk* for the USN

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have taken ten years to introduce into service, a four year time line could only be described as optimistic. The ITAS was to be developed in three significant software builds known as Build 1, which consisted of the Electronic Flight Information System or *Glass Cockpit* and integration of all communications and navigation. This was to be followed by Build 2 that was the integration of all sensors and weapons and the fusing of this information into a Tactical Situation Display (TSD). The final piece to the puzzle was Build 3 that was made up of the flight director/auto pilot.

Within one year of contract signature the lead systems integrator, Litton Guidance & Control Systems Division, began to experience significant technical and programmatic difficulties. Unfortunately these difficulties were not able to be completely resolved which lead to Litton being removed from the program after the delivery of Build 1 software, approximately two years behind schedule. Within one year Kaman was able to secure the services of Computer Sciences Corporation (CSC) (Australia) and Northrop Grumman Integrated Technology (NG-IT) to complete the remaining two software builds with CSC(A) completing the integration of all software builds in Australia. The dynamic nature of the program led to a rationalisation of the software Builds deliveries as follows:

- CSC(A) - Build 2A (standalone sensors) and final integration.
- NGIT - Build 2B (TSD, Tactical Navigation & Link 11) and Build 3 (Flight Director/Auto pilot)

At the time of writing both integrators were making great strides in delivering the required capability by late 2004/early 2005. Whilst this is approximately four years late, the final system that will be delivered will be one of the most sophisticated and capable maritime helicopters in the world and remarkably for the taxpayer still within budget.

Interim Training Helicopter

There are many long lead time items associated with the introduction of a new combat system, not the least of which is the personnel that will support, maintain, fly the platform. To facilitate this, 805 Squadron was commissioned into the RAN on 28 February 2001 as the parent *Seasprite* squadron with an initial cadre of 26 personnel. Since forming as a RAN Fleet Air Arm squadron in August 1948, 805 Squadron has historically been associated with strike aircraft namely the *Sea Fury*, *Sea Venom* and *Skyhawk*, so it is fitting that the strike role continue with the *Seasprite*.

Due to the significant delays in schedule both Kaman and the Commonwealth felt that significant benefits could be gained by accepting SH-2G(A) helicopters with Build 1 software. The benefits ranged from early exposure of maintainers and aircrew to the basic air vehicle without being overwhelmed by the complex combat systems, sensors and weapons along with exercising the logistics and training system. After the Critical Design Reviews for both NG-IT and CSC(A) were completed in March 2003, a clear road map existed to deliver the SH-2G(A) as originally contracted with Builds 2 and 3 so it was decided to provisionally accept the SH-2G(A) into RAN service with Build 1 software.

In the Build 1 configuration the SH-2G(A) is known as the Interim Training Helicopter (ITH) with operations being confined to the training of the initial cadre of ten Squadron instructors and the conduct of essential trials, such as helicopter/ship dynamic interface testing (known in the RAN as First of Class Flight Trials) and VMC, IMC and utility certification testing.

With the numbers of 805 Squadron personnel ramping up to 65 officers and sailors, a provisional acceptance ceremony was held at HMAS *Albatross* on 18 October 2003. Flying operations for the training of contractor instructors and test aircrew under a Special Flying Permit commenced immediately thereafter. After the completion of initial training, harbour trials of the SH-2G(A) in HMAS *Warramunga* were conducted to assess the integration of the *Seasprite* with the flight deck, hanger and the Recovery Assist Secure and Traverse (RAST) system fitted to the *Anzac* frigates. Further flight trials are anticipated throughout 2004 with some embarked operations being conducted towards the end of 2004 to allow crews to gain experience on type.

Training of the initial cadre of five aircrew (three pilots and two observers) commenced in January 2004 and is ongoing with the second (and final) group of five ITH aircrew (two pilots and three observers) scheduled to commence flight training in April 2004. Initial impressions by the first cadre of aircrew are favourable, with crews finding the aircraft easy to fly, rugged and the HMI intuitive and simple to use.

Full Capability Helicopter

When the complete ITAS software suite is delivered in late 2004/early 2005, the initial cadre of ten aircrew will commence transition flight training. In this configuration the SH-2G(A) is known as the Full Capability Helicopter (FCH). When the full combat suite is delivered the SH-

2G(A) will be capable of performing all of its intended roles: Surface Warfare (SUW), USW, NGS, VBSS, VERTREP, and SAR. The aircraft has a Maximum All Up Weight of 14,200 pounds (6440 kg) and in the surface surveillance role it will have an endurance of 3 hours. The most significant capability that the SH-2G(A) will give the parent *Anzac* frigate is the ability to carry two large anti-surface weapons in the form of the AGM-119B *Penguin* missile. With one *Penguin* fitted the aircraft has an endurance of just over two hours which provides a useful range advantage for the *Anzac* system over potential adversaries. To allow the aircraft to effectively search, locate and prosecute potential adversaries the aircraft is equipped with a Telephonics AN/APS-143B(V)3 imaging radar. In addition to the normal search and weather modes associated with I band maritime radars, the B(V)3 is also equipped with ISAR, Strip Map (SAR), range zoom and range profile modes. In addition to the radar, the aircraft is equipped with the Raytheon AN/AAQ-27 three Field of View FLIR. This FLIR operates in the 3-5 micron band and is currently flying in RAN *Seahawks* and USMC *Osprey* tilt rotor aircraft with very good results. These sensors are complimented by an extensive Electronic Warfare suite, built around the Elisra AES-210 Electronic Surveillance Measures (ESM) that detects electronic emissions in the C to J band. The AES-210 is also equipped with an integral Radar Warning Receiver (RWR) which is linked with the AAR-54 Missile Approach Warning System (MAWS), LWS-20 Laser Warning System (LWS) and ALE-47 Counter Measures Dispensing System (CMDS). These systems form an integrated electronic protection suite to detect and react to emerging radar, UV and laser threats. The AES-210 and its associated equipment (except LWS-20) will also be integrated into all RAN *Seahawks*.

Associated Systems

To facilitate operation of the SH-2G(A) *Super Seasprite* a number of ground based systems have been acquired. The foremost amongst these is the Mission Preparation System (MPS), a PC based system that allows the crew to plan a mission without the need to manually enter data into ITAS. The MPS allows the crew to enter data such as navigation, communications, Link 11 and IFF settings, search areas, datums and restricted areas and to then down load the data on to a PCMCIA card for loading into the ITAS upon initialisation. Additionally a digital map in World Vector Shoreline (WVS) format on a scale of 1:250,000 and Jeppesen based navigation data can be loaded onto the same PCMCIA card as the tactical data. During flight all critical data is recorded onto a second PCMCIA card in the cockpit and this data can either be played back in flight or on the flight deck on the aircraft's CMFDs or in the ships operations room using a system known as the Mission Debrief Facility.

In addition to the mission planning and debrief tools a number of training and tactical development devices have been purchased under PS1411/PS1414. The most visible of these is the FMFS, a third generation daylight visual flight simulator manufactured by CAe and CSC(A) that will be used for flight and tactical training. Six Part Task Trainers (PTT) that are a PC based emulation of ITAS will compliment the FMFS. The intention is to use the PTT to introduce trainees to the complexities of ITAS operations without requiring the use of the FMFS or an aircraft. Perhaps the most important tool is a device being acquired under PS1414 known as the Tactical Missile Flight Analyser (TMFA), which is a PC based weapons effectiveness planning tool for the *Penguin* ASM and has been developed by Kongsberg Defence and Aerospace. The TMFA will allow crews to be trained in the employment of the AGM-119B as well as develop tactics. The TMFA will allow crews to perform "what ifs" in various conditions and environments. The TMFA will also allow for the automatic entry of PCMCIA data from the aircraft when operating in Penguin Training Mode and telemetry from actual AGM-119B firings. This capability will allow crews, headquarters staffs, DSTO etc to not only rapidly assess firings but to also model proposed tactics in widely varying environments.

The Future

Since contract signature in 1997, Project Sea 1411 and the *Seasprite* has experienced many difficulties, the most significant has been delay in the delivery of mission capable ITAS software due to difficulties during software development. Additionally the Defence Material Organisation has been criticised for acquiring second hand, 30-year old airframes. As has been described above adopting this approach made significant savings and the requirement for a 10,000 hour and 25 year airframe life has been maintained.

Today 805 Squadron is operating the SH-2G(A) in the ITH role and gaining valuable experience in operating the aircraft. This will make the transition to the FCH much easier when 805 Squadron commence flying operations of the SH-2G(A) in the FCH configuration in 2005. At that time 805 Squadron will be operating what will be one of the most advanced maritime

helicopters flying in the world. Whilst being delivered approximately four years late the aircraft would have been delivered within the budget set in 1996. Perhaps most significantly when the first FCH equipped SH-2G(A) *Super Seasprite* embarks for the first time, the *Anzac* frigate system will finally be complete and the SH-2G(A) with its capable airborne sensors and weapons will contribute significantly to the Navy's and ADF's capability.

Table 1: General characteristics of the SH-2G(A)

Manufacturer:	Kaman
Propulsion:	Twin General Electric T700-GE-401 turboshaft engines
Length:	52 feet 9 inches (15.9 metres)
Fuselage Length:	40 feet 6 inches (12.2 metres)
Rotor Span:	44 feet (13.4 metres)
Height:	15 feet (4.5 metres)
Basic Weight:	10,600 pounds (4810 kg) (empty)
Maximum Takeoff Weight:	14,200 pounds (6,440 kg)
Range:	360 nautical miles (414 miles; 666 km)
Ceiling:	10,000 feet (3048 metres)
Max Speed:	150 knots (172 mph; 277 kph)
Cruise Speed	120 knots (138 mph; 222 kph)
Crew:	2
Missions:	SUW, USW, VBSS, NGS, VERTREP, SAR, Utility
Sensors:	Telephonics AN/APS-143B(V)3 Imaging Radar Raytheon AN/AAQ-27 (3 FOV) FLIR Elisra AES-210 ESM/RWR EW Suite Northrop Grumman AN/AAR-54(V) Missile Approach Warning System Elisra LWS-20 Laser Warning System (LWS) BAe AN/ALE-47 Counter Measures Dispensing System (CMDS)
Armament:	AGM-119B Penguin Air to Surface missile Mk 46 torpedo Mk 11 depth charge 7.62mm door mounted machine gun
Communications:	Telephonics STARCOM ICS Dual Rockwell Collins RT1794/ARC-210 U/VHF radios (SATCOM Capable) Rockwell Collins HF-9000D HF radio(ALE Capable) Allied Signal APX-100 IFF Ultra Link 11 with embedded BID-2200
Navigation:	Dual Litton LN100G Inertial Navigation Systems with embedded GPS Rockwell Collins AN/ARN-147 VOR/ILS Rockwell Collins DME-442 DME Rockwell Collins AN/ARN-149 LF-ADF Rockwell Collins MDF-124 SAR-DF Honeywell AN/APN-194 RADALT
Miscellaneous Systems:	Hamilton Sundstrand Digital AFCS Computer Instruments Corporation ADC EAS-3000 FDR/CVR Indal Recovery Assist Secure and Traverse (RAST) NVG Class B compatible cockpit lighting

Table 2: SH-2G(A) *Super Seasprite* production details

RAN Production Number	RAN Side Number	RAN Serial Number	Kaman Build Number	UH-2A	UH-2B	UH-2C	SH-2D	SH-2F	SH-2G	SH-2G(A)	Remarks
1	840	N29-161656	206					X		X	In service 805 Squadron
2	841	N29-149773	75	X		X		X		X	US-based trials aircraft
3	842	N29-150156	106		X			X		X	In service 805 Squadron
4	843	N29-150160	110		X		X	X		X	
5	844	N29-151310	147		X			X		X	In service 805 Squadron
6	845	N29-151329	166		X			X		X	
7	846	N29-152205	189		X			X		X	In service 805 Squadron
8	847	N29-161913	224					X		X	
9	848	N29-161914	225					X		X	
10	849	N29-149024	28	X				X		X	
11	850	N29-163210	246					X	X	X	SH-2G(A) Prototype, ex-USN SH-2G

A brief history of the *Seasprite*

The *Seasprite* helicopter arose from a 1956 US Navy requirement for a utility helicopter able to proceed 200 miles at sea at night, unaided by external navigation aids, pick up eleven people from a hover and then proceed another 200 miles to its destination. The competition became an intense four-way contest between Kaman, Sikorsky, Bell and Vertol. Kaman submitted two proposals to the Navy, one an intermeshing rotor design similar to Kaman's previous designs and the other a single rotor format. Early in 1957, the Navy announced that Kaman had won the contract to produce the single engine HU-2 *Seasprite* series of utility helicopters based upon Kaman's new single rotor format. A full scale, detailed mockup of the HU-2K was completed in late 1957 and on 2 July 1959 the first flight of the new helicopter was made at Kaman's plant in Bloomfield, Connecticut powered by a single General Electric T-58 engine delivering 1250SHP. After an extensive flight testing program at the Naval Air Test Centre at Patuxent River, MD the first HU-2K-1 (later re-designated UH-2A) was accepted into naval service in December 1962. In March 1965 a twin T-58 engined variant known as the UH-2C was introduced, a number of which were modified for combat SAR operations in Vietnam know as HH-2C and equipped with a 7.62mm minigun in a nose turret, door guns and armour. Then in October 1970 the *Seasprite* was further modified as the SH-2D to meet the US Navy's requirement for a Light Airborne Multipurpose System (LAMPS) which was a program to provide an embarked Anti-Submarine Warfare (ASW) capability for frigates, destroyers and cruisers. The SH-2D was introduced with an increased maximum All Up Weight of 12750 pounds (5780kg) and equipped with a high power search radar, ESM, acoustics suite and Magnetic Anomaly Detector (MAD). The aircraft could also employ lightweight Mk44 and Mk46 torpedoes. The *Seasprite* was then upgraded with an improved rotor head, main rotor gearbox, more powerful engines (1350SHP) and an increased All Up Weight of 13500 pounds (6120kg) and given the designation SH-2F.

The SH-2F saw extensive service during the 1970's-90's and was to be replaced by the SH-2G *Super Seasprite*. The SH-2G was a significant re-design of the aircraft that saw the aircraft equipped with twin General Electric T-700 engines delivering 1723SHP, a new gearbox arrangement, a new combat system (ASN-150), new sensors and a MIL-STD-1553B databus. The YSH-2G prototype flew in April 1985 and this was followed by the full production prototype on December 28, 1989. However, with the fall of the Berlin Wall and the collapse of the Soviet Union, production orders for the SH-2G were drastically reduced with only 20 helicopters being delivered. The SH-2G subsequently entered USN service in February 25, 1993 and served with HSL84 at NAS North Island, CA and HSL94 at NAS Willow Grove, PA until withdrawn from service in 2002. From 1996 a small number of Willow Grove based SH-2G's were equipped with the Kaman Magic Lantern laser-based mine detection system.

The first foreign military sales of the SH-2G were announced in March 1995 with the sale of ten SH-2G(E)'s to Egypt for use from ex-USN *Knox* class frigates for a cost of US$150m. The first aircraft was handed over on October 21, 1997 with deliveries complete by November 1998. The aircraft differed from the standard USN SH-2G's

by the incorporation of a fully coupled Automatic Flight Control System (AFCS) and dunking sonar. These sales were followed by eleven aircraft to Australia (H-2G(A)) and five to New Zealand (SH-2G(NZ)). After the SH-2G was withdrawn from USN service four SH-2G's in the standard USN configuration were sold to Poland for operations from ex-USN *Oliver Hazard Perry* class guided missile frigates (FFG). The SH-2G(P) entered service with Poland in 2003.

Table 3: *Seasprite* variants

Variant	Entered Service	Comments
HU-2K-1 (UH-2A)	1962	IFR Utility variant, 88 aircraft manufactured
UH-2B	1963	VFR Utility variant (simplified UH-2A), 102 aircraft manufactured
UH-2C	1965	Twin engined variant of the UH-2A
HH-2C	1969	Armed variant of the UH-2C
HH-2D	1971	Further development of the HH-2C
NUH-2C	1971	Experimental *Sparrow* air-to-air missile equipped variant, 1 aircraft manufactured, later redesignated HUH-2D
SH-2D	1971	LAMPS version based upon the HH-2D, 105 aircraft manufactured
YSH-2E		Experimental version of the SH-2D equipped with a more powerful radar, 2 re-manufactured aircraft
SH-2F		Improved SH-2D, 205 re-manufactured and new aircraft
SH-2G	1993	Current version of the H2, 1 prototype with 20 production aircraft delivered to USNR Squadrons, 15 re-manufactured ex-USN SH-2F and 6 new aircraft
SH-2G(E)	1997	10 aircraft for Egypt equipped with dunking sonar, 2 re-manufactured ex-USN SH-2G and 8 re-manufactured ex-USN SH-2F
SH-2G(NZ)	2001	5 new build aircraft for New Zealand, based upon USN variant and equipped with *Maverick* Air to Surface missile
SH-2G(A)	2003	11 aircraft for Australia, equipped with advanced combat system (ITAS) and *Penguin* air-to-surface mssile, 1 re-manufactured ex-USN SH-2G and 10 re-manufactured ex-USN SH-2F
SH-2G(P)	2003	4 ex-USN SH-2G aircraft for Poland

RAN SH-2G(A) Super Seasprite helicopter

SEMAPHORE

The great amphibious invasion: D-Day, 6 June 1944

(Issue 4, May 2004)

One of the clearest demonstrations of sea power occurred on 6 June 1944, when the Allies landed in German-occupied Normandy in the greatest sea-borne invasion in history. Operation *Overlord* was the culmination of four years of maritime operations against the Axis forces in the European theatre. In the space of a day the Allied forces gained a foothold in occupied Western Europe that could not be dislodged, and which formed a bridgehead for subsequent operations that would drive German forces progressively back toward their ultimate defeat in 1945.

Following the Allied defeat in France in 1940, Adolf Hitler prepared his forces for Operation *Sea Lion*, the planned amphibious assault on Great Britain. German control of both the air and sea were imperative for the conduct and sustainability of such an operation. Due to the success of the Royal Air Force in the Battle of Britain and ongoing Royal Navy (RN) operations, Germany never gained sufficient command of the sea or air to hazard such a risky venture. The operation was cancelled on 12 October 1940 when Hitler's priority shifted to Operation *Barbarossa* and the invasion of the Soviet Union. As well as contributing to the defence of Great Britain from invasion the RN was responsible for ensuring the safe passage of convoys carrying vital supplies, men and equipment to the United Kingdom from America and the British Empire that allowed the war to continue against the Axis.

After Pearl Harbour and Hitler's declaration of war on America the armed forces and, perhaps more significantly, the industrial might of the United States joined the war in Europe. Shipyards in America were crucial to the war effort, as not only were they building and repairing warships of all types, but also constructing merchant ships and a variety of specialised amphibious craft. These amphibious craft would form the backbone of the future D-Day invasion force.

Planning for an Allied return to the continent had commenced in 1941, with Stalin pushing for a Second Front in Europe from 1942. The Casablanca Conference in January 1943 set 1944 as the year for the invasion of France. At the Tehran Conference in November 1943, Roosevelt and Stalin forced Churchill to commit to a firm invasion date of May 1944. General Eisenhower was appointed the Supreme Allied Commander for Operation *Overlord*. Once the invasion decision had been made planning commenced in earnest. The date subsequently changed to June 1944 after two invasion beaches were added to the plan, necessitating a month delay to obtain additional landing craft and transport aircraft.

Admiral Sir Bertram Ramsay, RN was appointed the Naval Commander and given responsibility for organising Operation *Neptune*, the naval element of Operation *Overlord*. This was no simple task, as sufficient forces had to be built up, equipped, sustained, and transported across the Channel to France. The movement of thousands of ships of various sizes had to be carefully choreographed to ensure that they arrived at the right time in the right place to perform their allotted tasks. Prior to the assault, minefields and other obstacles had to be cleared and channels marked for the landing craft. During the assault phase other warships were to bombard enemy forces ashore, and to protect the transports and support ships from enemy submarines, surface craft and aircraft. Still more warships were required to maintain a blocking force in the North Sea to prevent German surface units in the Baltic impeding the invasion, while other escorts would continue to protect convoys to and from the United States and Russia, and support operations in the Mediterranean and the Pacific.

After the initial landings the assault and follow-on forces required stores, ammunition, fuel, reinforcements, and casualty evacuation. Because most of Europe was still under Axis control, all logistic support to the invasion and follow-on forces had to be provided across the Channel from England. While very limited support could be, and was, provided to advanced land forces by parachute drop or glider, the massive size of the invasion force required the bulk of support to be provided from the sea.

Initial planning for the operation quickly identified problems with the obvious landing area of the Pas de Calais. Not only were the German defences much stronger, the landing beaches were too narrow and would only allow a force of two divisions in the first wave, increasing the vulnerability of the landing force. Following extensive analysis of possible landing sites the beaches of Normandy were chosen. These beaches allowed for the initial landing of five infantry divisions supported by three Airborne divisions[1] on a 50-mile front in an area where, though geography favoured the defenders, the

German defences were not very strong.

The amassing of the necessary ships, support craft and aircraft to move this force took time, as the Allied war effort was spread between Europe and the Pacific. Compromises on equipment allocation between theatres were necessary despite the 'Germany First' policy. The date of the assault was initially set for 5 June, to meet the requirements of a half tide at dawn, to allow landing craft to cross the German beach obstacles, following a night with a full moon, to allow for the pre-landing parachute drops of the Airborne divisions. The invasion was subsequently delayed for 24 hours to 6 June to take advantage of a gap in a storm front passing over the English Channel.

Once the executive order was given an armada of nearly 7,000 ships and small craft began to move, crewed by over 195,000 naval personnel. The force consisted of: 1212 naval combatants, ranging from battleships to motor torpedo boats; 4126 landing ships and assault craft; 736 ancillary ships and support craft; and 864 merchant ships. On the night of 5 June, 97 minesweepers commenced clearing channels for the invasion force. This hazardous task was made more difficult by the poor weather conditions. The assault forces passed down the swept channels and took up their allotted positions. At 0200 troops began to embark in the assault craft. The landings commenced at 0630 and achieved complete tactical surprise. German maritime and air operations against the invasion force were uncoordinated and ineffective, particularly in the face of overwhelming Allied air superiority and sea control.

During the assault phase 6 battleships, 2 monitors, 23 cruisers, 101 destroyers, 17 frigates, 21 corvettes, 6 sloops, 30 trawlers, 17 patrol craft, 228 specialised gun and rocket armed landing craft, and a host of coastal craft provided bombardment support to the soldiers ashore and protected the transports and support ships from enemy submarines, surface craft and aircraft. While over 12,000 Allied combat aircraft, including fighters, ground attack, tactical bombers, and heavy bombers, supported the landings, both before and during 6 June, naval fire support was crucial to overcoming the enemy defences, particularly the coastal guns. Eisenhower noted in his post battle report that *no instances were found of damage done by bombs perforating the covering shields. Such of the guns as were silenced had been so reduced by shellfire through the ports.*[2] The shore bombardments at Gold, Utah, Juno and Sword beaches were particularly effective, silencing the German counter battery fire and disrupting beach defences and troop movements behind the beaches. By the end of the day the German beach defences had been neutralised, around 133,000 troops had landed across the beaches, another 23,400 troops had landed from the air, and the greatest concern of the Allied command was the weather.

Allied naval and air units also strove successfully to neutralise German naval attempts to disrupt the landings and the resupply effort. In the days following the invasion eleven U-Boats, two destroyers, fifteen E-Boats, two torpedo boats and forty smaller craft were destroyed, and five U-Boats and a destroyer badly damaged. Allied losses in return comprised a destroyer, two frigates, three landing ships, three cargo ships and nine smaller vessels sunk.

Following the successful lodgement on the Normandy beaches the land forces had to be sustained and reinforced. During the period 7 to 30 June, 570 Liberty ships, 788 coasters, 905 Tank Landing Ships, 1442 Tank Landing Craft, 180 troop ships, and 372 Large Infantry Landing Craft arrived off France. By the end of June ships had transported 861,838 personnel, 157,633 vehicles and 501,834 tons of supplies to France. Coupled to this effort were the continuation of the Atlantic supply line from the east coast of North America to the United Kingdom and the convoys from the United Kingdom to Russia.

More than 2500 Australians took part in the D-Day operation, in the air, on land, or at sea. Although no Royal Australian Navy (RAN) ships were present, Australian naval personnel, mainly members of the RAN Volunteer Reserve (RANVR), did serve in or command landing craft, coastal craft and warships of the naval force. One notable individual was Lieutenant Ken Hudspeth, RANVR, who commanded the X-Craft (midget submarine) *X20*. Prior to the planned departure of the invasion force *X20* crossed the Channel to take up a submerged position off Juno Beach. On the night of 4 June *X20* surfaced to pick up a BBC broadcast, which contained a coded message that the invasion was postponed. This meant another 18 hours in the cramped, smelly, humid submersible.

On the night of 5 June the coded message indicated the invasion was to proceed. Hudspeth and his crew mounted and checked their equipment. As the pre-invasion bombardment commenced they turned on their radar beacon and shone a light to seaward to allow the assault craft to navigate to the correct beaches. For his part in the invasion Lieutenant Hudspeth was awarded a third Distinguished Service Cross. He had received the first award for his part in the attack on the *Tirpitz* in 1943 and the second in January

1944 for beach reconnaissance operations in preparation for the D-Day landings.

Meanwhile, half a world away, Australian forces in the South West Pacific were an integral part of amphibious operations in General Douglas MacArthur's drive toward the Philippines. These operations were complicated by being launched and sustained from farther away than simply 100km across the English Channel, as there was no significant industrial or logistic support closer than Australia. Harbours and repair facilities had to be created, logistics stockpiles, troops and naval units amassed in forward areas, and forward airfields captured or constructed.

Australian operations in the Solomon Islands

(Issue 12, 2003)

Operation *Anode* is the Australian Defence Force's current effort to assist the Government of the Solomon Islands in reversing the lawlessness that has plagued the country in recent years. However, it is certainly not the first such operation. Indeed, for more than 120 years Australian or Australian-based forces have been active in the region, assisting at first the British colonial administration and then independent local authorities with both good order and national development. The common thread throughout this prolonged period of involvement has been the deployment of sea power in either a constabulary or diplomatic role, and thereafter the use of the flexibility inherent in naval vessels to provide an immediately responsive and sensitive reaction to government direction.

As early as 1880, the Commodore of the Australia Station despatched HMS *Emerald* to Florida Island after the massacre and mutilation of five British seamen engaged in a survey operation. The case was of deep concern for the Navy because it represented not just an outrage, but also an affront to the institution itself, and *if the murderers are not severely chastised,[the Navy's] power for good, and as a deterrent to crime amongst the islands, will receive a great shock*.[3] Soon afterwards, as the British colonial efforts to secure free labour from Melanesian communities became more widespread, a cultural group called the Kwaio, from the eastern mountains of Malaita, resisted. Naval vessels maintained a constant, if tedious and dangerous, patrol, investigating incidents as they took place and taking punitive measures where necessary. Although most naval officers disapproved of the labour trade, they worked within a culture that had always placed great value on good order and discipline in human affairs, and ever hoped that their own sacrifice would in some way *improve the condition of the native races - or to help us establish better relations between them and the white traders and others who visit their islands*.[4] Despite these hopes, violent clashes remained common and continued into the next century.

By the 1920s the British colonial administration in the Solomons had introduced a 'head tax' on the Malaitan communities. The only way for locals to earn this money was to work on the European-owned plantations and, understandably, the tax was not very popular. On 3 October 1927 a District Officer, accompanied by a Cadet Patrol Officer and over a dozen local police, arrived at Sinalagu to collect the tax. A prominent Kwaio warrior named Bassiana lined up dutifully to pay his tax, but instead drew a concealed weapon and bashed the District Officer to death. Others in the crowd then drew spears and clubs and attacked the remaining police officers, killing ten. Upon hearing news of the massacre, and fearing an all-out island wide 'native uprising', the Resident Commissioner cabled the Colonial Office in London and demanded that they send a warship to crush the insurgency. By now, however, the Royal Navy was no longer responsible for the Solomons area. Instead, the Colonial Office contacted Australian authorities and requested that they respond.

The only ship available was the light cruiser HMAS *Adelaide,* which had just arrived back in Sydney from a 'showing the flag' cruise in the New Guinea area. She sailed on 10 October, the day after her captain was advised of the need to depart, and arrived off Malaita on 16 October, just 13 days after the massacre. Agreement had already been reached that *Adelaide* would provide logistic and communications support in addition to a significant show of strength, while her crew would supplement the local police force in mounting an expeditionary force. The 150 naval personnel put ashore were disciplined professionals, who performed creditably and provided a wide range of services from construction to catering, but the same could not be said of the remainder of the combined force. In a desire to wrap up the work quickly, the local police, some of who were traditional enemies of the Kwaio, arrested or shot some 20 innocent people before capturing the actual culprits.[5] By mid-November it had been decided that *Adelaide* was no longer needed and she returned to Sydney.[6]

Twenty years later, Malaita remained a focus for local challenge against colonial rule. The Japanese occupation during World War II had shattered the myth of European racial superiority,

as did the later arrival of Afro-American soldiers in relative positions of authority. Such factors combined to blur the horizontal distinctions between ethnicity and class, which had for decades been rigidly enforced by the British. As a result, a (limited) pan-Malaitan political movement known as the Maasina Rule developed, posing a challenge to the colonial administration. The movement formed its own island-wide political structure, complete with its own sub-district councils. Even though the non-violent political negotiations posed no immediate threat, the destroyer HMAS *Warramunga* was dispatched to Guadalcanal in 1947 to exercise a 'steadying influence'. The British authorities ordered the arrest of prominent Maasina Rule leaders on charges of sedition, and once again the mere presence of a warship was used to deter civil unrest.

RAN warships kept up a semi-regular program of visits to the Solomon Islands over the next three decades. These visits were symbolic rather than coercive, and primarily served to demonstrate Australia's continued interest in and support for the region's development. In a diplomatic sense they culminated in the destroyer HMAS *Vendetta*'s presence in the capital city of Honiara for Independence Day celebrations in July 1978. Thereafter, the RAN became more closely involved in nation building activities, including the provision of patrol craft for surveillance work, assistance with surveying, and an annual deployment by a heavy landing craft and clearance divers to undertake wharf construction and reef channel clearance projects. In 1986 the RAN sent four warships to transport food supplies and reconstruction equipment after Cyclone *Namu* ravaged the islands. The larger ships were used as self-contained workshops in the Honiara area, while the landing craft resupplied remote localities utilising their beach landing capability. Commenting on the breadth of the RAN's activities and the skills delivered by his sailors, the Chief of Naval Staff, described the naval involvement as an 'aid scheme'; one moreover, that fostered *personal goodwill which could never be achieved through any amount of diplomacy or aid dollars*.[7]

Despite these achievements there were practical and political limits to Australian influence. Exactly fifty years after the demise of the Maasina Rule, and two decades after independence, ethnic conflict erupted on Guadalcanal. The indigenous inhabitants (or Isatabu people) increasingly saw Malaitan migrants to the island as the new political and economic colonists. Malaitans controlled much of the government and business of Honiara and even the police force was 70% Malaitan. Some Guadalcanal indigenes formed a militant group, the Guadalcanal Revolutionary Army (later called the Isatabu Freedom Movement) and began raiding police armouries, harassing Malaitan businesses, and threatening and attacking Malaitan homes. Malaitans retaliated in kind, forming their own para-military force – the Malaita Eagle Force (MEF). Since the police force was already compromised, and in many cases collaborated with the MEF, the central government had no practical means to halt Guadalcanal's spiral into lawlessness. In 2000 a coup ousted the then Prime Minister and installed a new government, which proved to be even less capable of restoring state authority. In June the heavy lift ship HMAS *Tobruk* was dispatched from Sydney at short notice to evacuate Australian and foreign nationals from Honiara, eventually transferring 486 people to Cairns.

The evacuation of civilians did not mean the abandonment of the people of the Solomon Islands and over the next two years a succession of Australian major and minor fleet units were deployed to the area to provide a stabilising presence, monitor cease-fire agreements and further promote the peace process. RAN warships provided not only logistic, transportation and medical support to the International Peace Monitoring Team (IPMT), but also a neutral safe haven where the warring parties could meet and negotiate. Yet again, there were limitations on what could be achieved without direct intervention, and in June 2002 the IPMT withdrew from the Solomons leaving an indigenous Peace Monitoring Council to continue the process.

Law and order, however, remained problematic, with clan rivalries persisting and ex-militants pursuing agendas based on self-interest and consolidation of their local power and influence. Finally, in July 2003 at the request of the Solomon Islands leadership, Australia decided to embark on a regional assistance mission along with contributions from Fiji, New Zealand and Tonga. Although chiefly a criminal issue, and hence led by the Australian Federal Police, the operation to help the Government of the Solomon Islands restore good governance and re-invigorate its economy still required a significant ADF presence. Again it has been the role of RAN warships to act as enablers, transporting personnel and materiel and providing essential support to forces ashore. But more than this, warships have acted as a highly visible presence, an unmistakable demonstration of the power that backs Australian participation in the ongoing

crisis.

Australian warships and personnel have a long history of involvement in the Solomon Islands and the remainder of the South-West Pacific region. The inherent capacity of a warship to easily change its posture and apply graduated, disciplined force is obviously the foundation on which this association rests. Yet, depending on circumstances, reassurance can be as important as compulsion and, rather than a tradition of assertive gunboat diplomacy, the flexibility of maritime forces has more often allowed the RAN to work towards the maintenance of a positive security environment through a program of constructive regional engagement. In this endeavour, the professionalism, competence and adaptability of a ship's company has made them extremely effective and welcome ambassadors, particularly when humanitarian intervention or civil aid is required. *The RAN*, as Professor Peter Edwards noted at a recent SPC-A conference, *has had a more significant role in the South Pacific than has often been understood or portrayed.*[8] Operation *Anode* simply provides the latest example of this role, and in the uncertain world of the future it is one that seems likely to continue.

Australia's absent maritime national identity

(Issue 13, 2003)

The Australian national identity is immature when compared to most other nations. We are still a very young nation and struggle in all kinds of ways not only to understand our collective identity, but also what it is that we want that identity to be. This is exemplified in the changing concepts, ideas and values that Australian's have accepted as defining features of their culture over the years. These include the colonisation of Australia and the 'man versus nature' ethos, the notion of Australia as the 'child of Mother Britain', the bush myth, and the ANZAC legend, to mention only a few. A national identity is an important intertwining of past, present and future and comprises a myriad of images, feelings, collective and individual actions and responses, values, institutions, misconceptions and interactions with other nations. The confusion and ambivalence that is present in Australian society today can possibly be attributed not only to our youth and relatively short history, but also to our incomplete understanding of the significance of our origins.

To adopt a truly meaningful and mature national identity for Australia, we must learn more from our unique heritage. Heritage is more than simply the preservation of the past (our 'official' history); it is 'profoundly symbolic: how and what we value in the past says something about how we see ourselves as a community today and how we project ourselves into the future'[9]. That is, we are able to choose which aspects and lessons of our past we want to bring with us into the future. It is particularly important to note that while the notion of heritage is much more than a simple historical account, history provides a strong basis upon which our heritage is built. The collection of historical information itself, and the way it is conveyed (ie. the degree to which we suffer from 'historical amnesia'[10]), can unintentionally blur and distort the meaning and symbolisms of a nation's heritage, and thus its culture and definable identity.

Given that 'we', as in those who came in 1788 to colonise Australia, came by ship, and the greatest influence of our early beginnings came from the Royal Navy, one may be forgiven for assuming that Australia's national identity is largely supported by a significant attachment to, and affinity with, the sea. Moreover, all immigration came by sea until the late 1960s, and the focus of illegal immigration since the early 1970s has been on the arrival of 'boat people' from Vietnam and the Middle East. Since federation almost seven million people have arrived in Australia, the majority by sea. The sea is a great deal more than a coastline and a beach for recreation, but a necessary part of life that supports trade, provides a variety of important resources and, for Australia, defines a unique strategic environment.

Take, for example, the mythology surrounding British penal colonisation, which has largely displaced a primary maritime strategic driver for the colony's creation. While the closing down of America as a penal destination as a result of the Revolutionary War (1776-1783) required a new focus for transportation, there were closer areas in the Empire to which convicts could be sent at far less cost. However, by the early 1780s Britain was also at war with France, Spain and Holland, all of which had a growing presence in the South Seas. *Australia sat astride three great ocean basins - the Indian, Pacific and Southern - Australia was too large a land mass to ignore and would inevitably become of some strategic importance.*[11] A port in Australia would provide a strategic location to replenish and refit Royal Navy ships operating against Britain's enemies in the south. Botany Bay presented a site protected by distance, and therefore relatively easily defended by a small naval and military presence. Convicts would provide a source of cheap labour to build the colony. Ancillary benefits of the new settlement

would be the reduction of the overcrowded jails and hulks in Britain, and the opening of new sources of materials, such as timber and flax, on the southern continent.[12]

The early colonies had much to do with the sea, in particular for resources and trade. Stories of our early history are filled with evidence that the maritime and naval focus persisted, at least, within the more privileged members of the colony. Indeed, John Hunter, the second Governor of the Colony, began very early to build a 'Naval Department' and supplied the colony with many of its first vessels. However Phillip had left instructions that Hunter should under no circumstances allow any type of sea craft to be built for the use of individuals.[13] This might provide at least part of the puzzle as to why the majority of Australians even today understand very little about our maritime heritage and dependence, while the Government has focused to one degree or another since colonisation, on the development of naval power, merchant shipping and the necessary expansion of seaborne trade.

What this may suggest, is that for the wider population our maritime heritage hasn't been 'lost', but that it was never really acknowledged. Early colonisation and the practices of the Governors may have had a direct bearing on this, when the implications of the colony being populated largely with convicts are considered. Many convicts had spent months or years in the foetid prison hulks, all ex-Royal Navy warships, awaiting trial. This was followed by the approximately eight-month long voyage chained below decks. The sea and the Navy thus formed the convict's first experience of prison. Secondly, Phillip's mandate that no convict be allowed to build and use any type of sea craft once in Australia (obviously with the possibility of escape in mind) turned the sea into the bars of an even greater prison. While few convicts were transported for life (most sentences were six years), the sea would remain a barrier to return to the home country.

Further than that, the First Fleet arrived in Australia expecting a bountiful land that would easily support their needs, but found the land to be largely inhospitable. This at least for a time, turned the convict's perspective continental, as the new struggle was against the harsh Australian landscape and in so many ways their livelihood relied upon its being conquered. Add to this the fact that as time wore on many sailors deliberately deserted their ships in Sydney and headed inland. As a result they were unlikely to admit their method of arrival in the colony and deliberately left their maritime knowledge and background behind.[14] There is some anecdotal evidence that suggests that they too turned to continental pursuits, and worked on railway construction and the building of other infrastructure[15]. It may also be fair to say that as the colonies grew and infrastructure expanded people were gradually moved, physically and psychologically, further and further from the sea, until in their knowledge and memory supplies and other resources came by land and from the land.

The ANZAC legend is another example of how history can be interpreted. For all intents and purposes it has provided Australians since 1915 with a set of collective values, beliefs, sentiments and approaches to life. Since its 'birth'[16] it has been one of the greatest defining elements of our nationhood and is referred to as the primary point of reference for our national pride and spirit. However, it also upholds a continentalist perspective in terms of military engagement, and a skewed perspective of Australia's full contribution to World War I. Historically, we know that the majority of our troops were deployed to the Western Front, and that the campaign at Gallipoli was the first involvement in the conflict by the Australian & New Zealand Army Corps (ANZAC). Gallipoli was neither the first Australian operation of the war (that occurred in German New Guinea in 1914) nor the most costly. In seven months Australia suffered some 27,000 casualties, including 8,000 killed or missing. During its seven *weeks* on the Somme in Jul-Sep 1916 (covering the battles for Fromelles, Pozieres, Moquet Farm and Thiepval), the 1st ANZAC Corps suffered over 28,000 casualties, including 8,600 killed or missing. The ANZAC legend exemplifies the power of history in the creation of a strong national identity. However, it also represents the kind of historical amnesia that can impact on national identity in the longer term, if other important events in our national history lose their visibility. The question for Australia is what part the ANZAC legend should play in our national identity into the future. The recent campaign to give greater visibility to the 'Battle for Australia' in WW2 alongside the ANZAC legend is an example of the move to broaden our national identity based on an expanded historical base.

Finally, very few Australians are employed directly in seagoing activities. The Royal Australian Navy has some 18,300 personnel, including reserves. The pool of Australian owned shipping is small and overall employment in the water transport industry is approximately 15,000, not all of whom are seagoing.[17] The commercial fishing industry employs approximately 28,000 in

the resource capture process. In all, in an island nation with a population of 20 million, less than 0.3% go to sea for a living. It is an indication of how Australia views the sea, which is its trading lifeline, that the Australian Bureau of Statistics, the Government's official demographic collection and analysis agency, does not maintain distinct statistics on seagoing employment.

These are just a few potential keys to understanding how the maritime focus in Australia might have shifted to a continentalist one. If a continentalist perspective is not what we want to take with us into the future, then we must collectively re-examine the significance of the maritime environment within which Australia has always operated, and arrive at the conclusion that Australia's *maritime* heritage is a substantial and undeniably important aspect of *Australia's* heritage. For Australia to be a truly effective maritime nation within existing and future world orders, we must learn as a nation all of the relevant lessons of our past and draw on our significant resources, not the least of which, is our maritime experience and heritage.

Considerations in maritime barrier operations

(Issue 2, May 2004)

Maritime barrier operations are designed to prevent unauthorised incursions into maritime areas subject to Australian sovereignty or sovereign control, such as the Exclusive Economic Zone and Australian Fishing Zone. Activities that may be the focus of barrier operations include illegal immigration, weapon and drug smuggling, illegal fishing, piracy and maritime crime, maritime terrorism, and quarantine infringements. Barrier operations incorporate actions designed to: prevent unauthorised access activities from commencing, deter access through overt patrolling, respond and intercept prior to a barrier breach, and pursue and intercept following a breach.

These operations are traditional roles with which the Australian Defence Force (ADF) can expect to be involved on behalf of the Government. They have a long history, but were seen as peripheral to the defence of Australia by many during and after the Cold War. However, the reality of Australia's maritime environment meant that by 2000, when the world stood uncertainly between nation states, international organisations, and non-State movements (eg religious, ethnic, criminal), barrier operations began to receive limited attention. This was an indication to some that security and certainty were two items missing in the New World Order. This was highlighted by the terrorist attacks in the US on 11 September 2001, which served to galvanise Western interest in border protection issues.

A month prior to 11 September 2001 most Australians were focused on only one aspect of barrier operations - border protection. MV *Tampa's* actions brought the long-running maritime barrier operations against illegal immigration, smuggling and fishing to the full attention of the nation. The RAN, the RAAF and Coastwatch had been conducting a barrier operation against illegal activities in Australia's maritime resource zones for at least the previous quarter of a century, however, these were seen as 'low level' sovereignty issues. The terrorist attacks of 11 September 2001 served to make barrier operations a more central pillar in the defence of Australia's security interests and geography.

The developing uncertainty of the 21st century will in all probability continue to highlight issues of barrier operations, particularly those associated with border protection. This is because issues of oceans governance, disease, poverty, hunger, religious extremism, transnational crime, and disputes over resource exploitation and legal jurisdiction will continue to grow. Unless the causes of these issues are redressed, and there is little evidence they will be, the movement of people, the smuggling of illegal substances, and other illegal activities on and around Australia's borders will most likely increase over time.

Barrier operations will continue as a requirement for the ADF in response to these issues, with almost all barrier operations conducted at sea. This is a considerable advantage for Australia, as it removes the complex problems of concurrently managing an extensive and permeable land border. The India/Pakistan and Israeli/Palestinian border issues are extreme examples of such complex challenges. International maritime law permits significant control over maritime borders out to 200 nautical miles and beyond, thereby providing a buffer zone that few countries with land borders enjoy.

Warships are fundamental to successful barrier operations, due to their inherent capabilities. Based on the fact that border protection will be a long-term requirement for the RAN, warships with good range, endurance, sea keeping, speed of response, and accommodation for embarked personnel will be required. Noting the open ocean nature of Australia's maritime zones,[18] and the distances involved, maritime characteristics such as poise, persistence, response, flexibility and adaptability are required.[19] Australia's maritime zone extends from the Antarctic regions through

to the tropics, and is characterised by extremes of weather, sea state and temperature. No single ship design would be optimised to operate in all areas. However, certain principles are common.

It is important that a vessel utilised for barrier operations be functionally suitable for Australian requirements. Such a vessel should be capable of accommodating the ship's company plus additional personnel as necessary for specific operations, such as security elements or extra boarding party personnel. A degree of excess domestic services such as air conditioning, food services, amenities, and logistics will be necessary to support additional personnel. This additional capability would provide flexibility for a number of response and patrol operations at long range, a reality given Australia's extensive maritime zones. This spare capacity could be utilised for survivors recovered during a search and rescue mission, humanitarian workers, police and customs agents, or illegal immigrants. In times of tension it would provide for special forces insertion teams, reconnaissance and raiding parties, or evacuees from a country under threat.

Patrol and response vessels suitable for Australia may, where appropriate, be significantly enhanced by a capability to operate a helicopter and/or an uninhabited aerial vehicle (UAV). Over a vast maritime zone aerial surveillance is a force multiplier that permits the vessel to respond very effectively to cuing information from either its own aircraft or other external sensor systems. An organic aviation capability may also provide additional options for executing successful operations under Australian and international law. Legal compliance with issues such as 'hot pursuit' could be simplified if the continuous pursuit requirement were supplemented by an organic air capability. A helicopter also permits boarding operations in higher sea states where the use of the response vessel's boats may be deemed too risky.

Vessels optimised for barrier operations should also be technologically advanced. Simple navigational radars may detect a small, wooden vessel at approximately 8-10 nautical miles in sea state 3. This may be adequate in some coastal areas, however, the size of Australia's maritime zones highlights the benefits of high technology combat system radars, which permit detection and tracking of such a vessel at greater than forty nautical miles. Advanced sensor technology provides a quantum leap in capability and efficiency for the task. Such systems must be supported by integrated detection and tracking equipment, with a computerised digital command and control system to provide comprehensive real-time information to the on-scene commander.

Other technological elements necessary in vessels required for barrier operations include, but are not limited to: electronic support systems to detect radar and communications emissions; electro-optical surveillance systems for low light conditions; fast watercraft operable in adverse sea states, potentially fitted with radar, communications and navigation systems for operations over the horizon from the parent vessel; maritime command, control and support systems that may include command decision aids, data links, automatic charting, and navigational and automated recording capabilities; satellite compatible secure communications capabilities including real-time video; and a weapon system that can be utilised in inclement weather and low light conditions.

Barrier operations exhibit the flexibility inherent in a maritime strategy, and should be seen as protecting interests rather than geography. Each major surface combatant or patrol and response vessel has the potential to exert influence over a vast sea area by using maritime manoeuvre. A modern surface craft has the ability to loiter at sea for upwards of thirty days without the need for refuelling or resupply. In this period it can cover some 500–600 nautical miles per day, and search a vast area, which can be further increased with an organic aviation capability. The primary challenge is to ensure that a suitable intelligence and surveillance organisation is in place that permits advanced warning of an illegal activity taking place, to allow a patrol and response vessel in the vicinity to respond in an effective manner.

As an example, a surveillance and response line could be established to counter an identified threat. Given a 200 nautical mile sea gap between the territorial seas of the adjacent nation, a threat craft travelling at about six knots would take some thirty-three hours to cover the distance from the time it sailed. If the threat vessel was not detected before sailing a patrol vessel could be some 500 nautical miles away and still be effectively utilised in a barrier operation. However, at times the surface response vessel could be even further away, perhaps conducting training with other assets and still respond effectively. This naturally depends on the accuracy of intelligence and the frequency of surveillance. If intelligence, weather or aircraft defects/availability are adversely impacting the situational awareness, then the patrol ship can be surged closer to the actual geographic position and threat as necessary. This is a manoeuvre-based philosophy which best maximises the advantages of operations in a maritime environment.

Manoeuvre at sea also has the advantage of keeping an adversary guessing. A criminal or terrorist organisation in the 21st century will have access to a vast amount of intelligence information, and will focus its smuggling efforts in a location where the vessel or aircraft involved in a static barrier operation is not. If defending geography is the ADF's objective in a particular maritime barrier operation, then the inevitable objective of the opponent will be to operate where the defensive assets are absent. Only by optimising the access and adaptability of maritime forces will Australia be able to defend its borders and resource interests adequately when faced with well organised transnational crime or terrorist syndicates.

This manoeuvre-based philosophy is alien to those more attuned to the holding of territory and the defence of geography ashore. It will remain a challenge to convince some that a surface vessel can monitor and patrol a region as large as 500–600 nautical miles, and that perhaps it is misused if restricted to a small geographic patrol box. Given Australia's vast maritime area of interest we will always have a limited number of assets, and thus the characteristics of poise, persistence, response, flexibility and adaptability, flowing from sea-based manoeuvre, need to be exploited to maximise the long-term effectiveness of barrier operations.

[1] 1st US Infantry Division (including elements of the 29th US Infantry Division), 4th US Infantry Division, 3rd British Infantry Division, 50th (Northumbrian) Infantry Division, 3rd Canadian Infantry Division, 82nd US Airborne Division, 101st US Airborne Division, 6th British Airborne Division.
[2] Report by The Supreme Commander To The Combined Chiefs of Staff On the Operations in Europe of the Allied Expeditionary Force 6 June 1944 to 8 May 1945, p. 21.
[3] See J Bach, *The Australia Station*, NSW University Press, 1986.
[4] ibid
[5] Some sources place casualties at 70 or more. See S Alasia, *State, Society and Governance in Melanesia: Party Politics and Government in Solomon Islands*, Australian National University Discussion Paper 97/7.
[6] See G Swinden, 'HMAS Adelaide and Malaita', in D Stevens (ed), *Maritime Power in the 20th Century*, Allen & Unwin, 1997.
[7] See D Stevens (ed), *The Royal Australian Navy*, Oxford University Press, 2001.
[8] P Edwards, 'The RAN in Australian Diplomacy', Third King-Hall Naval History Conference, July 2003.
[9] I Ang, *Intertwining Histories: Heritage and Diversity*. Paper presented as the Annual History Lecture for the History Council of NSW, 2001.
[10] ibid, p. 1.
[11] T.R. Frame, *The Garden Island*, Kangaroo Press, 1990.
[12] ibid. See also G Blainey, *The Tyranny of Distance: How Distance Shaped Australia's History*. Pan Macmillan, 1983.
[13] L Hadley, *From Jack-staff to flagstaff: Australia under Navy Rule*. Paper presented to the 2003 King-Hall Navy History Conference, p. 5.
[14] B Nicholls, *Sailors to citizens, citizens and sailors, citizens to sailors: Naval Men and Australia - First Settlement to 1914*. Paper presented to the 2003 King-Hall Navy History Conference, pp. 1-2.
[15] ibid, p. 2.
[16] For a theory of how the ANZAC legend was deliberately fostered by the media, see for example J Williams, *ANZACS, the Media and the Great War*, UNSW Press, 1999.
[17] Includes international sea transport, coastal water transport and inland water transport.
[18] Australia claims one of the largest maritime areas of all States, with an Exclusive Economic Zone and continental shelf covering an area of 16 million km^2, and over 20 million km^2 when the features of the extended continental shelf are included.
[19] See *Australian Maritime Doctrine*, Chapter 6.

BOOK REVIEWS

Living by the Sword, The Ethics of Armed Intervention
Tom Frame
UNSW Press, 2004
softcover, 278pp, index, photographs
RRP $34.95

As a Christian Naval Chaplain for some 15 years, I have been questioned from time to time by those within the Defence Force and the church who question the legitimacy of war given the proscription 'thou shalt not kill' in the Bible. At worst, the question presupposes that serving in the military as a Christian or drawing a wage as a Chaplain is wrong.

Dr Tom Frame's latest book *Living by the Sword: The Ethics of Armed Intervention* will give cold comfort indeed to those who hold a pacifist viewpoint or who question the need for armed intervention of any kind, and the participation in conflict of those with religious convictions. On the other hand, the book does not accept uncritically that the interventions that Australia has been involved in have always been ethical.

The book is not particularly long (274 pages) but it is dense, and while it is not technically difficult, the reader will find that he is rereading many passages for clarity. The material on the ethics of war has been thoroughly researched, and in some ways Dr Frame acts as the editor of literally hundreds of contributors in this area over the centuries, as well as of a sprinkling of passages from the Bible and church leaders from the early centuries of the Common Era and beyond. There are historians, political leaders, military thinkers and modern strategic commentators such as Hugh White. Dr Frame brings to the book his own perspective as an ex-serving officer in the RAN and as the current Anglican Bishop to the Defence Force.

The book's content is well supported by appendix on ADF interventions since 1950 and a comprehensive notes and index section.

There have been a number of publications on the ethics of war and *Just War* theory. The uniqueness of this book for Australians is that it combines an historical summary of attitudes towards war from the beginning of the Christian era with a summary and critique of the just war theory and detailed analysis of the interventions of the ADF at war. It also looks at Australia's involvement in peacekeeping in recent years with reference to the theories of Pacifism, Just War and Militarism. Dr Frame, thoughtfully and energetically, tackles the issues of church/state relationships, the place of interventions short of all-out war, conscription and conscientious objection. He also has an intriguing chapter on the possibilities of an international constabulary.

The unmistakable hand of Dr Frame the historian is imprinted in this book, and there are useful summaries of the events leading up to - and the conflicts in - East Timor, Bougainville Rwanda, Iraq, Afghanistan, Somalia and Bosnia amongst others. In addition there are potted summaries of the conscription and conscience objection debates that were part of our national scene last century.

The incident in the Garden of Gethsemane where Peter slices off the High Priest's servant's ear and earns a rebuke from Jesus, just before Jesus' arrest, serves as an introduction to most of the chapters and the book is set in a Christian context. In a world of moral relativism it is refreshing to see the intertwining of a modern ethical dilemma with teachings from the Bible. Given that some of our conflicts have involved other cultures and religions I found myself considering the reality of other theories of and motivations for war in the market place of ideas from a non-western, non-Christian perspective. These could be compared and contrasted with our understanding of the Christian scriptures and Just War Theories. This is the raw material for another book perhaps.

Ultimately, the myriad dimensions of war and the ethics of intervention are brought squarely to the reference point of the *Just War* theory, which is the author's preferred option. For those readers who think they intuitively know the rightness of any given military intervention this book reveals the complexity of the application of any theory of the morality of war. The book defines the concept of sovereignty and the chapter entitled *interventions* carefully analyses the grounds upon which intervention could be justified; many of the UN interventions and non-interventions, such as in Rwanda, are cited as test cases.

In most churches of our country, on any given Sunday, prayers are offered up for peace in the world. The pessimist would be inclined to say that those prayers are depressingly ineffective given the world situation. The optimist might say how much worse it would be without the prayers of the faithful. In any case, history demonstrates that the reality of armed intervention by Australian forces

at war or in peacekeeping operations is going to continue. The utility of Dr Frame's book is that it is a well-researched and practical resource for those wishing to think through the ethical implications of particular interventions by the ADF in the past and in the future.

Reviewed by Principal Chaplain Eric Burton, RAN

Drake: The Life and Legend of an Elizabethan Hero
Stephen Coote
Simon and Schuster
Hardcover, 384 pages, illustrated
RRP: $49.95

Sir Francis Drake and his legendary ship the *Golden Hind* have captured the imagination of all those interested in exploits at sea for over 400 years. Drake was the most active of the Elizabeth I's sea dogs who were involved state-sponsored raids on the Spanish Empire combining both profit and strategic power-play. To date there are nearly thirty books dealing with Drake; in the latest offering the prolific historian Stephen Coote has written a modern and searching treatise.

By chance I had just read an old copy of *Sir Francis Drake* by George Malcolm Thomson (1972) before receiving this review copy. The contrast was fascinating. On balance Coote's book is the more searching in its analysis. Coote, for example, punctures the myth that Drake's father was religiously persecuted and that this accounted for Drake's strong Protestant fervour. He argues instead that Edmund left the West Country before the Catholic Revolt due to a financial scandal.

Coote's *Drake*, however, is less appealing than that of Thomson. Coote highlights the ambition, greed and at times callous disregard of human life that characterised the deeds of Drake. It comes across as an accurate portrayal. His narrative, however, does not have Thomson's flow, nor does it have his more extensive endnotes. The narrative pace of the book is affected by Coote's attempt both to chronicle Drake's exploits as well as analyse his influence on the English psyche and English literature. Such analysis, while of interest, would have been better placed towards the end of his work. The flow is also affected by the jarring use of contemporary cliches.

The strength of the book is its account of the unrelenting progress of the Spanish Armada. Arguably the ensuing battle was just as much a clash of technologies as the Battle of Jutland. Coote rightly shows that Drake, by virtue of his wealth of operational experience, was incomparable in his aggressive and confident execution of naval warfare.

There was another aspect to Drake's naval warfighting at this time. It was his strategic understanding of when and how to engage the Armada. He firmly advocated engaging the Spanish fleet off Spain rather than waiting for battle in the English Channel. Drake wrote in 1588: *The advantage of time and place in all martial actions is half a victory*. There is much in that thought and it goes to the heart of notions such as sea control and maintaining the initiative in a sea battle. (Suffice to say Drake would not be a fan of the sea-air gap that has so dominated Australia's strategic policy in recent years). Coote touches on this aspect of Drake but he could have gone further. A curious aspect of *Drake* is that the luminous and peerless classic *The Defeat of the Spanish Armada* by Garrett Mattingly (1959) does not appear in the bibliography. Those who want to further explore Drake's strategic contribution to the Armada's defeat should find and read it.

I found *Drake* a thought-provoking assessment of Francis Drake. It is also the most attractively produced nautical book I have seen for some time. I recommend it with one proviso. It should not be the only volume on this important naval figure on your bookshelf. Mattingly, Thomson or Nicholas Rodger's *The Safeguard of the Sea* would provide the balance.

Reviewed by CDRE Peter Jones, DSC AM RAN

A War of a Different Kind
Stephen M Duncan
US Naval Institute Press 2004
Hardcover, 288 pages
RRP: US$28.95

A former naval officer with a doctorate in law, Stephen Duncan is a former US Assistant Secretary of Defense (Reserve Affairs) in the Reagan and first Bush administrations. He also served as the Pentagon's Coordinator for Drug Enforcement Policy and Support. He is presently a distinguished fellow at the National Defense University.

This book examines many of the questions concerning the role of armed forces in homeland security and the more general war on terrorism. Not surprisingly, given the author's background, it focuses particularly on transformation, the role of reserves and the National Guard, and the legal problems in and constraints upon employing the military in homeland defence and the war on terrorism. The middle chapters, which cover these issues, make interesting reading for students of

such questions, although they don't offer too many solutions to the undoubted legal and organisational challenges faced by the United States as portrayed in the book. Nor is much light shed upon the contentious issue of transformation. One has to sympathise with the author however. This is a dynamically changing environment as demonstrated by the inclusion of a 33 page postscript to the book.

I found the introduction and first three scene-setting chapters annoying. They are little more than a Republican apologia dressed up as an academic treatise attacking the Clinton administration and its apparent lack of determination to deal with the developing terrorist threat. The arguments are supported by very selective use of evidence, often from op-ed newspapers columns for all of which contrary pieces could probably be found. There is no acknowledgment of the fact that no administration could have done much until the theoretical major terrorist attack on United States soil became a reality.

The book suffers from the use of endnotes rather than footnotes. All too often the reader is forced to interrupt the flow to delve into the former (78 pages of them) to ascertain who exactly said what. The text contains statements such as *Some shared the concerns expressed by a Washington journalist.....* and *said another journalist* and one has to go to the endnotes to ascertain that it was Robert Novak and Wesley Pruden respectively - neither entirely objective commentators. Organisations are referred to similarly: *a conservative research and educational institute* is the Heritage Foundation. In addition much, if not most, of the evidence consists of quotes from newspapers when more authoritative sources such as transcripts from Congressional hearings would be available. There are also some howlers. *Illicit* is substituted for *elicit* (p. 61) and the Bab el Mandeb Strait becomes the Bal el Mandeb Strait (p. 68).

The only people likely to get much out of this book are students of the impact of terrorism and homeland security on politico-military issues as they concern the United States. For them there is some very good material on matters such as civil-military relations, the role of regular and reserve forces, force structures, the disappearing of the distinction between internal and external threats, and the blurring of the difference between peace and war. It is a shame that Duncan did not chance his hand more at proposing more solutions to the problems he identifies.

Reviewed by RADM Simon Harrington, AM RAN (Rtd)

Dark Victory: America's Second War Against Iraq

Jeffrey Record
US Naval Institute Press, 2004
256 pp, hardcover
RRP: US$24.95

It is often said that the Germans have a word for everything. My favourite at the moment is *schadenfreude*, or 'shameful joy'. Schadenfreude is a feeling of pleasure or satisfaction we get when something bad happens to someone else, especially when the particular misfortune is something they have brought upon themselves. It's a sentiment I'm sure we have all experienced at one time or another. What I don't understand, however, is the increasing sense of *schadenfreude* in the media and the public domain with every bomb, every scandal, and every setback the US suffers in Iraq. These are the sorts of people, I suspect, who will look to publications such as *Dark Victory* for such titillation and delight.

Jeffrey Record is a well-established member of the US defence academic community. His *Dark Victory* offers a critical examination of the origins, objectives, and conduct of the recent war in Iraq, from the 'unfinished business' of 1991 until late 2003. Record describes *Dark Victory* as 'essentially a sequel' to his *Hollow Victory: A Contrary View of the Gulf War*, which was highly critical of the failure to remove Saddam in 1991. *Dark Victory* is just as critical of the 2003 war, even though Saddam was removed from power, labelling it as unnecessary and damaging to long-term US security interests. However, unlike *Hollow Victory*, *Dark Victory* offers no alternative proposals and provides few answers. This is my frustration with the book. Record's excellent monograph for the US Army War College's Strategic Studies Institute *Bounding the Global War on Terrorism* had some persuasively argued alternative approaches to dealing with Iraq, but they don't appear in *Dark Victory*.

Perhaps I'm being unfair. It is a challenge for anybody to attempt to write about events of this magnitude while they are still unfolding. This is why books written either during or immediately after such events are rarely incisive or memorable. But Record does acknowledge that while *it is too early to judge the lasting political and strategic consequences of the war...it is not too early to examine its origins*. It is here that the book stands out.

Record pays particular attention to the neoconservatives' 'primacist' vision of America's

role in the post-Cold War world and their influence on the post-9/11 policies of President George W Bush. I have been keen to learn more about the neoconservatives in Bush's war cabinet and their beliefs ever since I saw Anthony H Cordesman appear before the US Senate Foreign Relations Committee and say: ... *it is simply too late to deal with the most serious problem we now face: the fact that a small group of neoconservative ideologues were able to substitute their illusions for an effective planning effort by professionals using the interagency process.* Record tackles these neoconservatives throughout *Dark Victory*, from the origins of their beliefs to how they *propose to use military supremacy aggressively, unilaterally, and universally to assure the triumph of American political values*, to how they *view Iraq as the key to wider Middle East transformation.* Record's book gets one into the heads of the neoconservatives, who include officials such as Donald Rumsfeld (Secretary of Defense), Paul Wolfowitz (Deputy Secretary of Defense), Richard Perle (Chairman of the Defense Policy Board) and Dick Cheney (Vice President) as well as other 'luminaries' such as Robert Kagan and Lawrence Kaplan, and explains their assumptions, beliefs and the consequences of their policies. I could not help but reflect on the implications for Australia, particularly given the similarity between Bush's statements on pre-emption and those of Senator Hill, which are very interesting to say the least.

Those who read *Dark Victory* to indulge in *schadenfreude* will be easily identifiable - they'll be the ones standing around at morning tea describing the book as 'hard-hitting', 'devastatingly persuasive', and 'a seminal contribution'. Those seeking to understand the strategic and political underpinnings of the war will also find much of interest in *Dark Victory*, but they will tend to be less flamboyant in their praise. Recommended.

Reviewed by Doug Steele

HMAS Stuart in the Gulf (RAN)

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