

THE NAVY

THE MAGAZINE OF THE NAVY LEAGUE OF AUSTRALIA

NLA 2015 WHITE PAPER SUBMISSION

**THE LPA
LEGACY**

**THE JAPANESE
SUBMARINE
OFFENSIVE**

TAFFY 3



ISSN 1322-6231



9 771322 623000

AUSTRALIA'S LEADING NAVAL MAGAZINE SINCE 1938

\$5.95
INCL. GST



STRANG ENGINEERED LOGISTICS

is the tailoring of **purpose-built logistic solutions** which deliver the most effective, efficient and sustainable outcomes for our clients. Our engineered approach is built on STRANG's **90 years** of experience, expertise, dedication and innovation.

STRANG engineers world-leading solutions encompassing Supply Line Logistics, Project Freight Forwarding, Advisory Services and Port and Terminal Operations.

We Engineer these Logistic Solutions globally, for example at Port Ehoala Madagascar depicted above, where we provide cargo handling, logistics, stevedoring and port services.

Contact us

www.stxgroup.com.au

+61 2 9669 1099





Volume 77 No.2

FEDERAL COUNCIL

President: Graham M Harris, RFD

Senior Vice-President:
John Jeremy, AM

Vice-Presidents:

LCDR Roger Blythman, RFD,
Mark Schweikert

Hon. Secretary: Philip Corboy
PO Box 128, Clayfield, Qld 4011
Mob: 0421 280 481
Email: prc@prcorboy.com

NEW SOUTH WALES DIVISION (Incl. Australian Capital Territory)

Patron: His Excellency,
The Governor of New South Wales.

President: R O Albert, AO, RFD, RD

Hon. Secretary: Elizabeth Sykes
GPO Box 1719, Sydney, NSW 2001
Telephone: (02) 9232 2144
Email: lsykes@albertmusic.com

VICTORIA DIVISION (Incl. Tasmania)

Patron: His Excellency,
The Governor of Victoria.

President: LCDR Roger Blythman, RFD

Hon. Secretary: Ray Gill JP

Correspondence:

PO Box 2340, Mt Waverley Vic 3149
Email: ausnavyleague@me.com
Web: www.netspace.net.au/~navyleag

QUEENSLAND DIVISION

Patron: His Excellency,
The Governor of Queensland.

President: Harvey Greenfield

Correspondence:

GPO Box 1481, Brisbane Qld 4001

State Branch:

Cairns: A Cunneen,
PO Box 1009, Cairns, Qld 4870
Telephone: (07) 4054 1195

SOUTH AUSTRALIAN DIVISION (Incl. Northern Territory)

Patron: His Excellency,
The Governor of South Australia.

President: Dean Watson, RFD

Hon. Secretary: Miss J E Gill
PO Box 3008, Unley, SA 5061
Telephone: (08) 8272 6435

WESTERN AUSTRALIAN DIVISION

Patron: Her Excellency,
The Governor of Western Australia.

President: Mason Hayman
33 Keane Street
Peppermint Grove, WA 6011
Telephone: (08) 9384 5794
Mob: 0404 949 282

Hon. Secretary: Trevor Vincent,
3 Prosser Way, Myaree, WA 6154
Telephone: (08) 9330 5129
Mob: 0417 933 780
Fax: (08) 9330 5129
Email: chebbie_rjnt@primus.com.au

CORPORATE MEMBERS

The Australian Shipowners' Association
Hawker De Havilland Limited
Strang International Pty Ltd

THE NAVY

THE MAGAZINE OF THE NAVY LEAGUE OF AUSTRALIA

06 THE 2015 NAVY LEAGUE OF AUSTRALIA DEFENCE WHITE PAPER SUBMISSION

10 LPA LEGACY THE VALUE OF LEMON AND LIME

By Greg Swinden

20 THE JAPANESE SUBMARINE OFFENSIVE MAY - JUNE 1942

By Murray Dear

25 TAFFY 3 - USING A WALNUT TO CRACK A SLEDGEHAMMER

By Jamie McIntyre

REGULAR FEATURES

- 02 From the Crow's Nest
- 04 From Our Readers
- 05 The President's Page
- 14 Flash Traffic
- 31 Hatch, Match, Dispatch
- 32 League Policy Statement

All letters and contributions to:

The Office of The Editor

THE NAVY

Navy League of Australia

GPO Box 1719

Sydney, NSW 2001

E-mail to: editorthenavy@hotmail.com

All Subscriptions, Membership and Advertising enquiries to:

The Hon Secretary

Navy League of Australia, NSW Division

GPO Box 1719, Sydney NSW 2001

Deadline for next edition 5 May 2015

The opinions or assertions expressed in *THE NAVY* are those of the authors and not necessarily those of the Federal Council of the Navy League of Australia, the Editor of *THE NAVY*, the RAN or the Department of Defence. The Editor welcomes correspondence, photographs and contributions and will assume that by making submissions, contributors agree that all material may be used free of charge, edited and amended at the Editor's discretion. No part of this publication may be reproduced without the permission of the Editor.

Front cover: HMAS SYDNEY enters Sydney Harbour for the last time flying her decommissioning pennant. SYDNEY will stay alongside Garden Island as a training ship until her eventual decommissioning at the end of the year. (RAN)



THE JSF DEBATE – WHY IS LOGIC SO HARD

Since Prime Minister Tony Abbott hinted that the B model F-35, the STOVL (Short Take Off and Vertical Landing) version of the Joint Strike Fighter (JSF), was being included in the capability options for the new Defence White Paper for use on the Canberra class ships, naysayers, such as the Australian Strategic Policy Institute (ASPI), have been out in force with the usual unenlightened arguments. ASPI's most recent assault on the B model JSF was a paper entitled "Jump Jets for the ADF". The title itself serves to highlight how out of touch the authors are as no one has used the term "jump jet" for over 30 years. Even then, it was only used to describe the early developmental Harriers at air shows. Simple fact is that the Harrier could not hold a candle to an F-35B.

The naysayers first attack concerns the need/strategic justification; "we will never be in a situation that will require that sort of capability". The point of war is that it is episodic and unpredictable – we know only that it will occur and so we need to prepare and to strategize. The lesson of history is if you want peace then prepare for war and learn to expect the unexpected. And this has industrial and economic implications – in war we would be designing and utilising commercial and civil vessels to a much greater extent to re-capitalise Navy. If we are at war now – and there are those who consider we are but have yet to articulate what this war is – we would be doing this. The lesson is not simply to prepare for war but to do in peace what you would do in war; not vice versa!

After the 'strategic' attack they then attack the aircraft; "it's not common to the land based A model the RAAF is buying". Actually its commonality is better than that of the RAAF's current Hornet vs. Super Hornet fleet. From the outset all JSF versions were designed to share avionics, weapons, airframe components etc. In fact, the JSF's maintenance concept is for any F-35 to be maintained in any F-35 maintenance facility in the world and that nearly all F-35 parts in all bases will be globally tracked and

shared as needed. Hence the 'Joint' in Joint Strike Fighter.

The next argument is "the B model doesn't have the range of the A model". True, but, deploying a B model onto a ship means it takes the air base (and logistics support) with it thus the aircraft's range is less of an issue. STOVL also makes it usable for forward basing on rough strips (something utilised in both recent Gulf Wars to great effect).

Sea-based aircraft also have historically experienced higher sortie rates than their land-based cousins, so return rates to the target area are higher, thus providing a combat multiplier effect to the user.

"The B model can't pull 9G so it can't dog fight". Sort of true. Its limit is 7G. However, if you need to pull high G in the battle area then you are in deep trouble. Fifth generation off bore-sight imaging infra red anti-aircraft missiles mean the pilot can fire 'over his shoulder' and still kill the opposing aircraft, even if going the other direction. In any event, the RAAF's A model JSF cannot dog fight the modern canard fitted 4th - 5th generation fighters like the European Typhoon and Su-30 Flanker so it's a moot point anyway.

It is worth noting though that the JSF, regardless of version, is still a supersonic stealth aircraft designed specifically to conduct strikes. It is most adept against defended enemy air bases and hitting aircraft on the ground where they are most vulnerable. Strike is thus a legitimate form of offensive air defence.

Another argument aimed at the aircraft is that "too many ISR (Intelligence, Surveillance and Reconnaissance) assets are required to fully exploit the JSF's capability, so it would be a waste of money". Actually the JSF is classified as an ISR asset. No aircraft in history has ever been more situationally aware than the JSF.

So after the naysayers are through with attacking the aircraft they then turn to the ship, in this case the Canberra class. "Fixed wing and rotary wing can't work together on the Canberra class. There's not enough room". In fact ships of the 27,000 tonne Canberra class are much larger than the previous 19,000 tonne aircraft carrier MELBOURNE, which had fixed and rotary wing. The USN also operated six Harriers with 15 USMC helicopters on their 18,000 tonne Iwo Jima class LPHs, and still had over 2,000 marines on board.

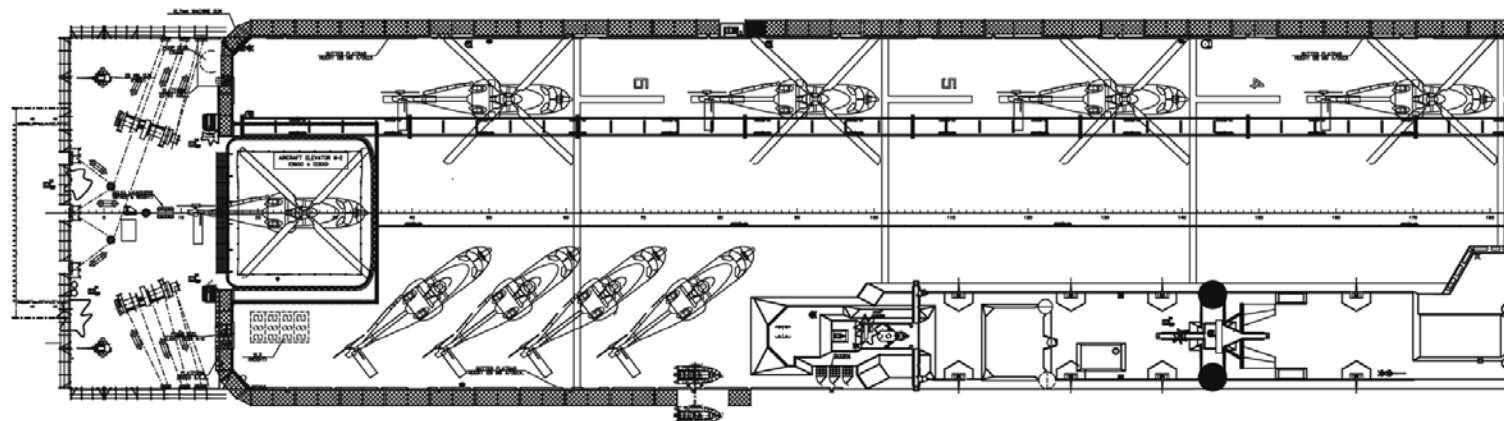
"JSFs on board will mean the ship can't do the amphibious role". The Spanish Navy designed the Juan Carlos/Canberra class to use JSFs and embarked troops together. The ship's design has its origins in the 1970's USN Sea Control Ship concept with amphibious capabilities added.

The Canberra class can comfortably accommodate 13 MRH-90 helicopters on the flight deck alone (seven with blades unfolded – see image) leaving the hangar free to easily accommodate six-eight JSF aircraft.

However, even if it were the case that JSFs would disproportionately impact the ships total amphibious capability, then just one of the Canberras being turned into a dedicated strike/sea control carrier would still represent a



The flight deck of the Canberra class showing 13 MRH-90 helicopters on deck (seven with blades unfolded) and with room for more storage on deck and in the hangar. The 27,000 tonne Canberra class are bigger than the RAN's last aircraft carrier in every way.





An F-35B on the deck of the USN LHD USS Wasp. Note the different deck coating to cope with the heat of the engine exhaust. (USN)

quantum leap in battlefield effects beyond what a light infantry battalion could achieve. The USN experimented with this in the 1980s on the smaller Iwo Jima class and then employed it in both Gulf Wars using amphibious assault carriers with great success.

In this argument about loss of amphibious capability the point that both a second Canberra class ship and the LSD HMAS CHOULES (which can carry a significant number of armoured vehicles and troops) are still left in the amphibious role seem to be forgotten.

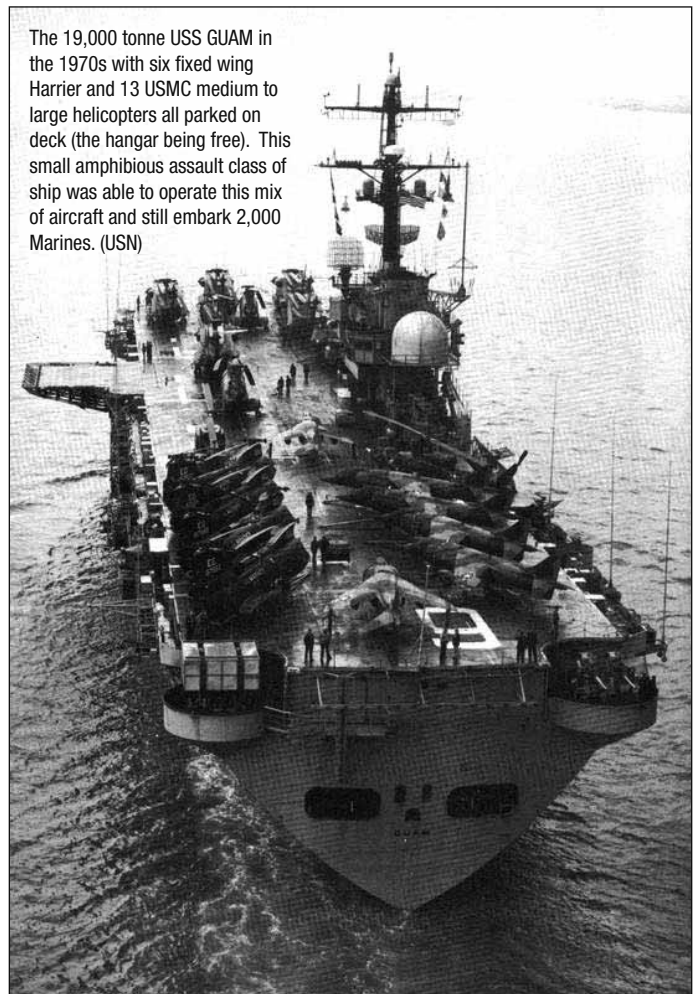
The next argument is "the deck of the Canberra class can't take the heat of the JSF's engine". Currently, possibly not. However, the USN has already designed, developed and successfully tested a new deck coating to deal with this. Further, the RN has developed a new vertical rolling landing method for B model JSFs which sees the heat spread out over a length of the deck.

So after the ship has received a jolly old flogging with a wet newspaper next comes the stupid and desperate arguments about how "we don't do Normandy style landings anymore and thus don't need fire support for future ADF amphibious operations". Those that use this argument obviously have never been to Normandy and walked the battlefields, or studied this most quintessential of amphibious operations. Despite the bloody start to the operation, the beach obstacles and Atlantic wall were actually breached very quickly, compared to how long it took to break out of the area beyond. Normandy was a combined air and amphibious assault. Much the way we would do it today, only the scale, ranges and methods would be different. The reasons for and the tactical and operational goals of an amphibious operation however, are still the same. But ignoring the lessons of history appears to be the modus operandi of the naysayers.

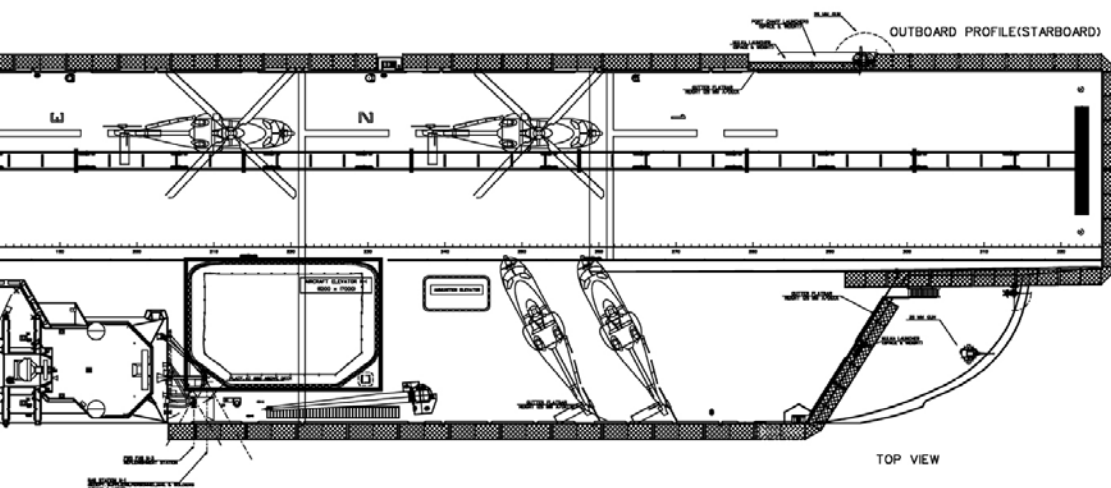
Resistance to any future ADF amphibious operation will occur at some point. Whether it be on the beach or 100km inland. So air support will be

required. To gauge the modern requirement for air support one need only look at the air power effort that was used in Afghanistan against a non-state actor, and what is being thrown at ISIL today in Iraq, even without our troops in contact calling for air support.

So with the naysayers on the back foot they now have taken on a new direction which we haven't seen before in Australia. The current strategy is to follow the martial arts tactic of using the energy and momentum of the enemy. In this case they argue for a dedicated aircraft carrier to properly support B model JSF operations, knowing full well this is beyond the budget and manning capabilities of the ADF. This misdirection confirms the B model and Canberra class combination is actually a winner.



The 19,000 tonne USS GUAM in the 1970s with six fixed wing Harrier and 13 USMC medium to large helicopters all parked on deck (the hangar being free). This small amphibious assault class of ship was able to operate this mix of aircraft and still embark 2,000 Marines. (USN)



MAIN CHARACTERISTICS

LENGTH OVERALL	230.820 M
LENGTH BETWEEN PERPENDICULARS	207.200 M
LENGTH ON WATERLINE	207.200 M
MAXIMUM BEAM	32.000 M
MOULDED BEAM	29.935 M
MOULDED DEPTH TO 02 LEVEL (FLIGHT DECK)	27.500 M
MOULDED DEPTH TO DECK 1	20.000 M
MOULDED DEPTH TO DECK 2	17.000 M
DESIGN DRAUGHT	6.800 M
SPACING FRAMES	0.700 M
SPACING WEB FRAME	2.100 M
SPACING LONGITUDINALS	0.640 M



Dear Editor,

F-35B Food For Thought

Your article "JSF CHALLENGES FOR AUSTRALIA'S LHDs" so succinctly described the challenges of supporting a flight of F-35B's from our LHDs that it provoked the following broad-brush Q&A from me: The most pressing questions are; "Will the F-35B's to be permanently deployed onto the LHD's and what is the negative impact of adding additional F-35B support infrastructure to the LHD on the effectiveness of the LHD's original design brief?"

The answer arises from the presumption that flexibility is optimum and therefore one must seek to make any F-35B support infrastructure on the LHDs as portable and modular and removable as the flight of F-35 aircraft themselves. This way the aircraft along with their support systems can be optionally deployed on board instead of their support infrastructure becoming permanent barnacles attached to all LHD mission requirements including those that do not deploy F-35Bs. Containerise the F-35B's support infrastructure and use the existing cargo handling infrastructure of the LHD to readily manage these containers. Such containers may, in the case of munitions, be hardened, fireproofed, and even fitted with castoring wheels for ease of hard-deck-surface relocation, but still retain the size, form and generic handling aspects of regular shipping containers; with footprints and fully loaded mass no different to truck or an Abrams tank. These containers can also include versions fitted with aviation fuel storage bladders where required to supplement the LHD's own fuel storage systems.

Where the F-35B's go, the containers are able to go with them. For example the containers can reside on the LHD's lower vehicle deck where they can be used to dispense weapons and spares to the flight deck or hangar deck OR with direct access to the landing craft, they can be deployed ashore to forward basing in the field with the F-35B's in the manner of MARINE VTOL aircraft if that is required, OR they can be wharf-stored when no F-35B's are deployed on the LHD; for example on a humanitarian relief mission.

During war-fighting missions, two or three of these specialised containers can even be located on the flight deck; occupying the footprint of one parked aircraft and allowing direct flight deck access to munitions etc. The combined roof area of these adjacent containers stowed on the flight deck, if so designed, could at a pinch, provide a slightly elevated parking space for one aircraft, thus offsetting the loss of flight deck parking space taken by these containers themselves.

I offer this as food for thought, since the greatest apparent impediment for any marriage of LHD and F-35B is the argument that such a union will diminish the planned capacity of the LHD's for their original mission requirements. By making the F-35B support infrastructure modular and deliberately removable along with the aircraft, it both resolves this argument as well as adhering to more modern notions of warship mission-modularity.

Dale Duguid

Noosa QLD

Dear Editor,

Maritime Domain Awareness

I congratulate you and the authors and contributors on a most interesting, relevant and informative issue of *The Navy* Volume 77 number 1 (Jan-Mar 2015)

I refer to the prize essay 'Defending our neighbourhood: can we guard Australia's maritime frontier?' by George Galdorisi on pp 22-25 of that issue.

Whereas the author makes a cogent argument for the essentiality of Maritime Domain Awareness [MDA] to achieve the goals of Australian national security and defence missions and objectives, he unfortunately limits his discussion on pp24-25 to the intelligence gathering, surveillance and reconnaissance [ISR] capability of airborne assets alone.

He should have considered the full set of (six) national security domains in his discussion: space, air, land, sea, subsea and cyber. Had he done so he would have acknowledged that MDA is most effective when the information available from all available domains is fused as is now possible in distributed command and control environments.

I am especially concerned that the essay omits any mention of subsea surveillance possible with long-range, stealthy submarines and underwater uninhabited vehicles [UUV]. This ISR capability is feasible and practised in areas that are not accessible by air other tangible means with serious international incident. The declaration of air defence identification zones [ADIZ] in many countries is pertinent, for example the recent declaration by China of such a zone in the East China Sea. These inherently limit the use of airborne systems in many areas of national interest.

MDA is critical for the full range of tasks in defending national interests and those include the maritime resources and trade shipping routes on which our economy and lifestyle depend. The necessity of a maritime strategy that extends beyond a frontier stance has been accepted throughout the Australian Defence academic and professional community. Aircraft systems based solely on home ground do not meet these needs sufficiently and the ADF must be structured accordingly employing all available assets in the six domains mentioned above.

Christopher J Skinner

Sydney, NSW

INDONESIA'S MARITIME STRATEGY

Readers of *The Navy* will be familiar with the concept of an Australian maritime strategy. It is a strategy which has been much discussed and is now accepted as the basis of our national defence.

Australia is not the only nation to have a maritime strategy. Since coming to power the new Indonesian President has spoken out strongly about an Indonesian maritime strategy. He has talked of Indonesia as a global maritime nexus.

There are a number of facets to this newly assertive Indonesian maritime strategy. There is a clearly stated desire to ensure the nation's sovereignty and to secure its maritime borders. There is the need to adequately police its waters. Illegal fishing, piracy and smuggling are all significant problems in Indonesia's maritime domain.

At a meeting in Myanmar in October, President Joko Widodo outlined his policy. He included in his statement: a revival of Indonesian maritime culture; improved management of Indonesia's oceans and fisheries with the development of the nation's fishing industry; improving port infrastructure; working with partners to eliminate conflict over illegal fishing, territorial disputes, breaches of sovereignty and piracy.

Indonesia intends to boost defence spending. New ships and submarines are to be acquired for the navy. A new Coastguard has been created. Plans for the construction of 24 deep sea ports have been announced.

The Indonesian Foreign Minister has said that the first priority of foreign policy will be to maintain Indonesia's sovereignty by firmly responding to any intrusions and settling maritime borders.

Despite the President speaking of working with partners to eliminate conflict over illegal fishing Indonesia has taken a strong unilateral approach. Indonesia has adopted a "sink the boats" policy. To date Vietnamese, Thai, Malaysian and PNG fishing boats have been sunk.

There are reports of Chinese vessels being arrested. It is not clear that any have been sunk. ASEAN partners may accept Indonesia's right to police its waters as it chooses. China may not. In addition to the matter of illegal fishing China and Indonesia have an unresolved maritime border question, as China's South China Sea claims overlap part of Indonesia's EEZ north of Natuna Island.

It is early times in the life of President Joko Widodo's administration. We will have to wait to see how his maritime policy develops.

Certainly, from Australia's viewpoint, it is highly desirable that a strong and stable Indonesia is able to police the waters of its vast archipelago.

NUCLEAR – EVENTUALLY?

On the 8th February 2015 the Premier of South Australia announced that there was to be a Royal Commission to consider what role that State should play in the fuel cycle for the peaceful use of nuclear energy. This is a development that the Navy League welcomes.

The League has for some years argued for nuclear propulsion to be considered for future submarines. We included such proposals in our submissions to the 2009 and 2013 Defence White Papers.

In our submission to the current 2015 Defence White Paper we accept that work has to be done before Australia can move to nuclear propulsion. In our submission we suggest, among other steps, that it is necessary to:

- gain political acceptance
- decide on base location and complete all environmental & security assessments
- define the nuclear specific facilities required for the build location
- achieve local acceptance of a nuclear presence
- commence a training programme for civilian and naval nuclear engineers.

(Our full submission to the 2015 Defence White Paper appears elsewhere in this edition of *The Navy*.)

The Premier of South Australia in making his announcement said that the Royal Commission would create the foundations for a considered and informed discussion with the community. The Premier said that "it is now time to engage in a mature and robust conversation about South Australia's future role in the nuclear industry."

The Premier added that "We believe South Australians should be given the opportunity to explore the practical, financial and ethical issues raised by a deeper involvement in the nuclear industries. We need to understand all these issues so that the community can make an informed judgement"

It is to be hoped that the South Australian Royal Commission will assist in developing that public awareness the League believes to be necessary before the RAN will be able to consider the move to nuclear propulsion.



Four new Indonesian Navy Sigma class corvettes. Indonesia seems to be undergoing a refocussing on maritime security.

THE NAVY LEAGUE OF AUSTRALIA SUBMISSION TO THE DEFENCE WHITE PAPER 2015

The following is the Navy League's submission to the Government's call for input into the 2015 Defence White Paper.

AUSTRALIA IN THE WORLD

Any analysis of Australia's defence task must take into account its geography and its history.

The fundamental fact of geography is that Australia is an island nation. It is an island which nowadays has extensive ocean and seabed interests stretching well away from the shoreline.

Australia is a trading nation exporting very large quantities of commodities and importing important volumes, particularly manufactures. The greater proportion of this trade moves by sea. Because of the location of our island nation almost all this trade has to be transported over considerable distances. We have long and vital sea lines of communication.

Throughout our history Australia has always depended for its defence on our own, or friendly, control of the seas around us. From 1788 Australia has depended for its ultimate defence on the power, primarily maritime power, of Britain and the United States.

Our maritime defence in World War I depended on the Royal Navy with assistance from Australia. In World War II we again depended to a large extent on sea control by the Royal Navy assisted by our own naval and air forces until 1942, when the United States Navy assumed the role in American and our interest.

Times have changed. Britain and other European powers have withdrawn from South East Asia.

The United States remains a constant in Australia's defence picture and is likely to remain so. It is too soon to say whether the US "pivot" to the Pacific means anything different or extra. Moving 9,000 US Marines out

of Okinawa, with 5,000 moving to Guam, some to Hawaii and eventually 2,500 on rotation to Darwin does not represent a net addition of US forces in the Pacific. It may be that in the end the "pivot" will in reality be maintenance of force strength in the Pacific as opposed to reductions in the NATO area.

The US Government is facing considerable financial constraints. It is now increasingly engaged in the Middle East and Africa. It is inevitable that as a major power the US will always find it has obligations elsewhere, as well as in the Pacific. Since the Guam Doctrine it has been understood that allies of the US are expected to be more self reliant.

It can be argued that the more it is clear that Australia can defend itself the more our voice will be listened to in international forums and the more valuable we will be seen to be by allies and friendly nations.

DEFENCE IN A TROUBLED WORLD

It is hard to think of a Defence White Paper which has been prepared against such a backdrop of actual or threatened conflict.

In Africa there are wars of various levels of intensity in Nigeria, the Central African Republic, the Sudan, South Sudan, Somalia and Libya. Some of these conflicts might be described as civil wars, though in many instances there is at least some external involvement.

In the Middle East the Israel/Gaza conflict is ongoing. In both Syria and Iraq major conflict continues. Syria and Iraq are both civil wars with external involvement.

In Eastern Europe the situation in Ukraine is unresolved. The situation

The Italian Navy Bergamini class frigate CARLO BERGAMINI. The SEA 5000 warship should not be a lesser carbon copy of the Hobart class Air Warfare Destroyer. A purpose designed and built warship to provide the necessary ASW and amphibious support capability, such as the Bergamini class, is preferred.





Four Chinese mobile DF-21 intermediate range anti-ship ballistic missiles. The appearance of the DF-21 means an anti-ballistic missile capability in the RAN's capability set is now vital for ship self protection.

in eastern Ukraine can be described as a civil war, but there is very clear external involvement. The occupation and appropriation of Crimea by Russia, however it might be dressed up, was an invasion by a more powerful state into a less powerful neighbour.

In our part of the world conflict is more threatened than actual. North Korea, of course, comes to mind but perhaps of more concern are the disputes between China and Japan, Taiwan, the Philippines and Vietnam. There have already been incidents in the South China Sea. Vietnam is seeking to resist China's assertion of its right to drill for oil and gas. This may yet prove to be another example of a more powerful state and a less powerful neighbour.

To look forward 30 years with clarity is impossible. It is instructive to look back to 1985 and consider how many of the conflicts and crisis that have occurred since then, or are occurring now, could have reasonably been forecast at that time. Australia cannot be certain of a benign future.

A MARITIME STRATEGY

Given the matters outlined above the Navy League considers that Australia should move to a higher level of capability – a capability consistent with our history and our geography - a maritime capability.

The Maritime Strategy as enunciated in the 2009 Defence White Paper has gained wide acceptance. It is a strategy perhaps most eloquently

expressed by LTGEN David Morrison, Chief of Army, in his address to the Sea Power Conference in October 2013 (see *THE NAVY* Vol 76 No 4).

The League believes that Australia can be defended against attack by other than a major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around our island and to contribute to defending essential lines of sea and air communication with our allies.

The League believes that the Government should budget to maintain defence expenditure through economic cycles. That level of expenditure should be at least 2% of Gross Domestic Product (GDP).

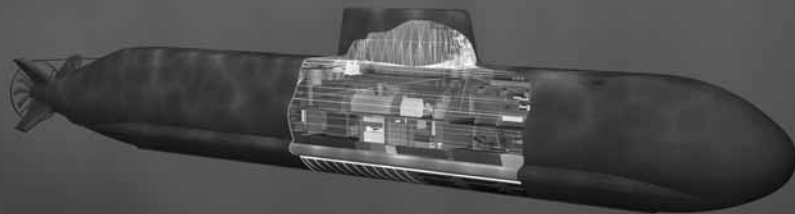
It is appreciated that there are other expenditure commitments made by government. It is understood that with policy to have the budget in surplus it will not be possible to immediately raise defence expenditure from its present level of approximately 1.6% to 2% of GDP. Nevertheless the League believes that provision should be made to bring defence expenditure back to the 2% level. Without such expenditure it will not be possible to build, maintain and sustain an adequate defence force. In determining what Australia requires as a defence force the League believes the following factors should be considered.

- The armed forces primary role is warfighting.
- This does not preclude other roles; stabilising fragile states; combating terrorism; assisting the security capacity of regional countries; supporting Australians caught in conflict overseas; humanitarian missions; securing borders and resources and support for emergency services.
- When it is possible, these other roles should be treated as the responsibility of other, non-warfighting organisations, such as police, customs, emergency services and law enforcement agencies. Defence resources devoted to these roles should not diminish the ADF's capacity to provide for the defence of the nation.
- The better the ADF is trained and equipped for its primary role the better it will be able to assist when called upon for one of the other roles.
- Though the ADF can and should be able to assist in these other roles, any consideration of the size and shape of the ADF must be based on ensuring that it is capable of carrying out its primary role.

The Spanish F-100 frigate ESPS ALMIRANTE JUAN DE BORBON, very similar to the RAN's new Hobart class destroyers. The League supports the proposals made in the 2009 White Paper to provide these ships with the SM-6 long range anti-aircraft missiles and Cooperative Engagement Capability (CEC). Consideration should also be given to acquiring long range precision standoff land attack missiles for the ships. (Armada)



A cutaway computer generated image of the German Type 216 submarine being offered for the SEA-1000 Collins class replacement project. The League supports the acquisition of 12 submarines, quickly.



PROPOSALS FOR THE WHITE PAPER

The League believes that the proposals set out in the 2009 White Paper were and remain essentially correct. The League welcomed the emphasis on maritime power in that Paper and with few qualifications welcomed the proposals for Navy.

The League believes that the level of both the offensive and defensive capabilities of the RAN should be increased and is concerned to see that the substantial surface and sub-surface capability enhancements contained in the 2009 Defence White Paper should survive the review of defence capability and in particular; a substantially strengthened submarine force; three Air Warfare Destroyers; eight new frigates (Anzac class replacements); two landing ships (LHDs) and a large strategic sealift ship; twenty offshore combatants; six heavy landing craft and substantial numbers of naval combatant and ASW helicopters.

THE DESTROYER / FRIGATE FORCE

The next shipbuilding programme has the potential to provide long term security to our sovereign warship building capabilities provided that there is a continuous construction programme. A constant construction programme should be maintained with a warship launched every two or three years.

Batch building should involve a batch of three to four ships with successive batches being an improvement on the previous batch. At the launch of the tenth hull the first ship should be decommissioned and either scrapped or sold and a new class begun.

With a constant drumbeat of warship building we can not only sustain jobs but also build skills and capabilities which are not currently available. Such ships will be built for Australian conditions and Australian requirements. Buying other designs is essentially acquiring a solution to somebody else's problem.

Use of existing technologies such as the CEA Radar is paramount, not

only to provide a sovereign capability but also to maintain a world class and world leading technology.

The SEA 5000 warship (Anzac replacement) will need to have an emphasis on ASW (Anti-Submarine Warfare). It must also be capable of supporting large amphibious operations.

The acquisition of the two LHDs and HMAS CHOULES mean that the RAN will be required to support the littoral battle as well as the high seas battle.

The SEA 5000 warship should not be a lesser carbon copy of the Air Warfare Destroyer. Experience has shown that the adaptation of an existing design can be as technically risky as the development of a new design. A purpose designed and built warship to provide the necessary ASW and amphibious support capability is preferred.

As to the Air Warfare Destroyers (AWDs/Hobart class) the League supports the proposals made in the 2009 White Paper to provide the ships with the SM-6 long range anti-aircraft missile and Cooperative Engagement Capability (CEC). The RAAFs E-7 AEW&C aircraft should also be provided with CEC to fully exploit the SM-6 capability for over the horizon anti-aircraft anti-cruise missile interceptions. Consideration should be given to providing the AWDs with the long range precision strike capabilities of the Tomahawk cruise missile. Thought should also be given to a Theatre Ballistic Missile Defence capability given the growing proliferation of anti-ship ballistic missiles (namely the Chinese DF-21).

A POWERFUL SUBMARINE SQUADRON

The acquisition of a new class of submarine is strongly supported. The 2009 White Paper proposed that Navy acquire 12 submarines. It was contemplated that they would be Australian built and possibly Australian designed. Whichever option is now chosen time is pressing.

The Collins class submarines were completed between 1996 and 2003. Even with a life extension it is doubtful that their life can be extended much beyond 30 years, which means they will go out of service from 2026. The lead time available for the first of a new class to enter service, assuming a Government decision to proceed by the end of next year, is at least 10 to 12 years. This calculation is based on the assumption that a Collins derivative is selected.

In addition to a "son of Collins" option, consideration should be given to those submarines which are available "off the shelf" or "off the shelf with modification". It is possible that the 10 to 12 year timetable could be bettered if the decision was made to have the submarines built overseas. However, given the requirement for US weapons and combat systems, fit out will have to occur in Australia.

The new submarines capability should include land attack cruise missiles and mines.

As is well known, the Navy League has argued for nuclear propulsion for the submarines. The League accepts that before nuclear can be a viable option for Australia the following must occur:

- Gain political acceptance,
- Negotiate a deal with the US or UK for nuclear technology transfer,
- Establish a Naval Nuclear Regulatory framework for Australia,
- Decide a procurement strategy –import complete or part build in Australia,
- Decide on a base location and complete all environmental and security assessments,
- Define the nuclear specific facilities required for the build location,

The Royal Bruneian Navy corvette KDB DARUSSALAM. This size of vessel, and capability, is supported for the offshore patrol function.



The Spanish AOR CANTABRIA in Sydney harbour. The RAN's current at sea replenishment capability needs urgent replacement. Unfortunately this would suggest an off the shelf overseas build for expediency. (RAN)



- Achieve local acceptance of a nuclear presence,
- Commence a training programme for civilian and naval nuclear engineers.

The Navy League considers that these tasks should be progressed in parallel with the construction of the Collins replacement submarines so as to provide the option for a future nuclear submarine squadron.

AMPHIBIOUS CAPABILITY

HMAS CANBERRA and HMAS ADELAIDE, the two LHDs mentioned in the 2009 White Paper, are about to join the Fleet. They will provide Australia with a greatly enhanced amphibious capability.

The acquisition of RFA LARGES BAY – now HMAS CHOULES - was welcomed by the League. The requirement for the large strategic sealift ship has been met by HMAS CHOULES.

All three ships need to be provided with the necessary self defence measures, both hard and soft kill, to enable them to operate in all possible scenarios.

THE OFFSHORE PATROL FORCE

The patrol boat or offshore patrol vessel (OPV) force must be capable of operating in all Australian waters.

Whilst the OPVs as conceived in the 2009 White Paper were deleted in the 2013 White Paper, the Navy league believes that the Armidale class patrol boats should be replaced in due time by rather larger robust vessels of greater sea-keeping ability and range. Sufficient size to operate a helicopter is desirable, suggesting a ship of about 2,000 tonnes as envisaged in 2009.

AORs

The League believes that there is an urgent need to replace HMAS SUCCESS and HMAS SIRIUS.

While it is the League belief that as far as practicable we should build the ships the RAN needs in Australia, it accepts that there are cogent reasons for placing orders overseas for two support ships.

In its submission to the Senate Economic References Committee the League said that “extending facilities at great cost and harnessing resources to build a limited number of ships of considerable size is likely to be an expensive and time consuming exercise of little benefit to the long term industry capability objective. The decision to construct the hulls of the two 28,000 tonne LHDs in Spain therefore made sense, the decision of the Government to call restricted



The Navy League believes that a proportion, perhaps 16 – 18, of the projected purchase of the F-35 Joint Strike Fighter (JSF) should be the STOVL (Short Take Off and Vertical Landing) version, seen here landing aboard USS WASP. (USN)



tenders for the construction of the two ships to replace HMAS SUCCESS and HMAS SIRIUS appears essentially pragmatic. It is a decision which faces the reality of shipbuilding in Australia”

THE ROYAL AUSTRALIAN AIRFORCE

P-8A Patrol Aircraft

While eight aircraft, combined with UAVs, may be adequate for ocean surveillance, it is not clear that eight aircraft will be sufficient to replace the previous 20 P-3s in the anti-submarine role. The League supports the acquisition of additional aircraft to enhance this capability.

Maritime UAVs

The acquisition of seven MQ-4C Tritons is welcomed.

STOVL aircraft

The Navy League believes that a proportion, perhaps 16 – 18, of the projected purchase of the F-35 Joint Strike Fighter (JSF) should be the STOVL (Short Take Off and Vertical Landing) version. Such an acquisition would greatly enhance the operational flexibility of the RAAF. The inclusion in the JSF purchase of a number of STOVL aircraft would provide the RAAF with much needed options, including the ability to operate from small airfields or from the LHDs entering service with the Navy.

THE FORCE POSTURE REVIEW

The proposals in the recent force Posture Review for:

- The upgrade of wharves and facilities at Fleet Base West;
 - The enhancement of Cairns, Broome and Darwin as Naval bases;
 - A supplementary east coast base in Brisbane for AWD & LHD;
- are welcomed by the League and strongly supported.

It is recognised that the cost and personnel implications will mean that these developments will have to be spread over many years. ■



A USN P-8 Poseidon maritime patrol aircraft at the recent Avalon Airshow. The League believes more than the current 8 Poseidons earmarked to replace the 20 or so AP-3 Orion aircraft should be acquired.

LPA LEGACY THE VALUE OF LEMON AND LIME

By Greg Swinden

The RAN's two LPAs, KANIMBLA and MANOORA, while much maligned actually provided the RAN, and ADF, with a positive legacy that will last at least another 30 years. Without their service the RAN of today would be very different indeed.

In 2011 HMA Ships KANIMBLA and MANOORA were decommissioned with much hand wringing over the sea worthiness issues that had arisen concerning both vessels. When the ships were purchased from the United States in 1994 there was also much angst and concern regarding the materiel state of both ships. The media soon dubbed them 'rust-buckets', nick-named them 'lemon' and 'lime' and predicted that neither would be of any use to the RAN.

On 28 November 2014 the first of the new LHDs, CANBERRA was commissioned with much fanfare and rejoicing. Construction of her sister ship, ADELAIDE, is currently well under way at Williamstown, Victoria. These substantial amphibious vessels are each capable of carrying in excess of 1,000 troops and operating up to six helicopters simultaneously from their large flight decks which have been lauded as the panacea for all the ADFs ills.

Much work has been done, and will continue to be done, to bring these vessels into full service. However, how did an RAN that lost its last

aircraft carrier in 1982 and whose only major amphibious capability, up until 2000, was the venerable HMAS TOBRUK, with limited aviation capability, build the skills, ability, doctrine and most importantly the mindset to conduct multi-spot aviation and large scale amphibious operations at and from the sea. Did the much maligned LPAs provide the essential stepping stone, from the RAN of the early 1990s to now? Put simply could the RAN really have made the quantum leap from TOBRUK to LHD without the LPAs?

PURCHASING KANIMBLA AND MANOORA

The decision not to replace the aircraft carrier HMAS MELBOURNE in 1983 coupled with the Dibb Review of 1986 lead to the Defence White Paper of 1987 commonly known as Defence of Australia 1987 (DOA 87). The White Paper saw little requirement for the ADF to deploy away from the Australian mainland and focused firmly on defending

HMAS MANOORA departing Garden Island Sydney. (RAN)

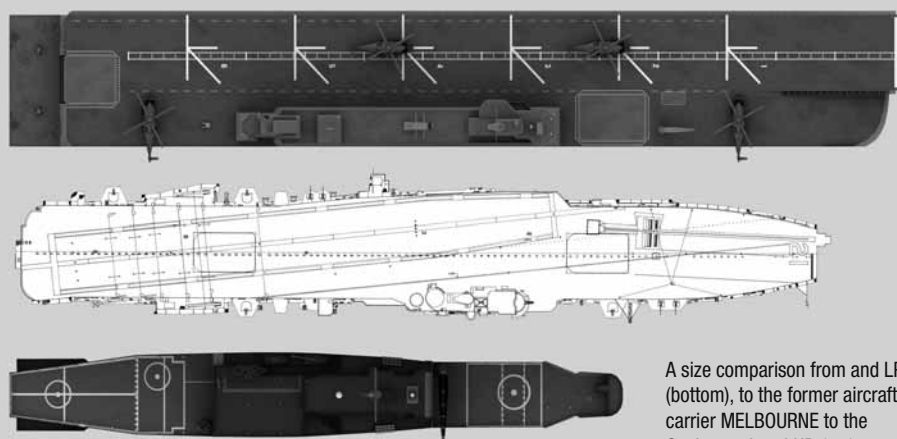




HMAS KANIMBLA newly arrived from the US in Jervis Bay pre-modification into an LPA with landing craft, hospital, aviation facilities and HQ's capabilities. (RAN)

the sea - air gap using submarines and land based strike aircraft.

This flawed concept was soon put to the test with the 1987 Fiji Coup (Operation Morris Dance) and disturbances in Vanuatu the following year (ADF Operation Sailcloth) which revealed significant weaknesses in the RAN force structure. Of major concern was the paucity of amphibious capability and the inability to operate multiple aircraft from afloat platforms. At this stage the RAN guided missile frigates were only operating the French built Squirrel light utility helicopter (as the first S70-B Seahawks did not enter service until 1988) and STALWART, TOBRUK, SUCCESS and JERVIS BAY, while able to operate the larger Wessex and Sea King helicopters, had limited landing spots and basic or no hangar capability. The Hydrographic vessel MORESBY operated a single Kiowa helicopter for survey duties but otherwise naval aviation in the late 1980s was at a basic level compared to the previous decade.



A size comparison from and LPA (bottom), to the former aircraft carrier MELBOURNE to the Canberra class LHD (top).

As a result of the Fiji crisis, JERVIS BAY had its flight deck rapidly extended in 1987 by the removal of the Elephant Hut storage structure thus increasing her flight deck size. The flight deck was also strengthened to allow a Sea King to operate from it but more extensive upgrade plans to enable a flight of six Sea Kings to be embarked were shelved as too costly and time consuming in the short time available.

Amphibious capability in the RAN was equally poor with only TOBRUK capable of amphibious operations augmented by JERVIS BAY's sea

lift capability. JERVIS BAY's primary role, however, was to facilitate the seamanship and navigation training of midshipmen with the sea transport role to move troops and equipment a secondary task.

In late December 1992 TOBRUK and JERVIS BAY deployed to Somalia (Operation Solace) carrying troops and equipment of the 1st Battalion Royal Australian Regiment and B Squadron of 3rd/4th Cavalry Regiment. The Australian task force was part of the US led Operation Restore Hope to provide humanitarian assistance in war torn Somalia. JERVIS BAY conducted the sea lift phase of the deployment of Australian units and then returned to Australia while TOBRUK, with a single embarked Sea King, remained on station off the coast until May 1993 when the Australian units were withdrawn. JERVIS BAY returned to Somalia in May to backload vehicles and equipment to Australia. This was the first major deployment of Australian forces offshore since the Vietnam War and showed that the DOA 87 concept was well and truly in tatters – regrettably so was the ADF's amphibious and aviation capability after years of neglect.

STALWART was decommissioned in 1990 and soon after the RAN initiated a procurement project to replace JERVIS BAY with a dedicated training and helicopter support ship. Thus the Training and Helicopter Support Ship (THSS) project was born. The vague specifications of the project required a purpose-built vessel at an approximate cost of A\$500 million. This high cost led to cancellation of the purpose-built vessel proposal, in mid-1993, by Robert Ray; the Minister for Defence. The minister also gave the navy instructions to find a cheaper alternative.

And a cheaper alternative was found. In 1994 the United States Navy (USN) began to decommission 15 of their 20 Newport class tank landing ships (LST) and offered them for purchase by Allied navies. The Newport class had been commissioned into the USN during 1969

– 1972 and were worked hard around the globe. By the early 1990s they were ready to be disposed of and were offered for sale. At A\$61 million (US\$40 million) they were a much cheaper and more importantly readily available option. The decision was made to purchase two for use as combined helicopter carriers, training ships and amphibious warfare/sea transport vessels. Prior to their purchase JERVIS BAY was paid off (on 18 April 1994) and disposal of TOBRUK in 1994-95 was also proposed.

The plan was for USS SAGINAW to decommission in the US, and be recommissioned into the RAN as HMAS KANIMBLA. She was then to sail to Australia with an RAN crew, while USS FAIRFAX COUNTY was to travel to Australia with a USN crew before decommissioning and recommissioning as HMAS MANOORA.

Prior to SAGINAW's decommissioning the RAN crew was sent to Norfolk, Virginia for training. SAGINAW was decommissioned on 28 June 1994, but instead of being immediately recommissioned as KANIMBLA, it was announced at the decommissioning ceremony that the United States Congress had decided not to release the ships into foreign service.

This last-minute move was part of a sale blockage for the 15 surplus Newport's to nine nations (Australia, Brazil, Chile, Malaysia, Mexico,



Blackhawks and Seaking (background) on an LPA. The LPA enabled the ADF to get to sea again and see the value of at sea aviation for a variety of missions. They truly were the trail blazer for the LHD capability coming into service today. (RAN)

Morocco, Peru, Spain and Taiwan) and was caused by the United States Senate Committee on Armed Services in an attempt to put pressure US President Bill Clinton on the perceived running-down of the USN's amphibious warfare capability. Additionally one US Senator called into question the sale of vessels to Morocco over human rights issues within that country. The sale to Australia was not approved until the start of August and SAGINAW eventually commissioned as KANIMBLA on 29 August 1994 and arrived in Sydney on 18 November. FAIRFAX COUNTY was delivered to Australia by its USN crew in September but did not commission as MANOORA until 25 November 1994

In the meanwhile another offshore operation for the ADF occurred in October 1994 when the Australian led South Pacific Peace Keeping Force was deployed to Bougainville. Code-named Operation Lagoon the maritime force consisted of the tanker HMAS SUCCESS, TOBRUK and three embarked Sea King helicopters to provide the sealift, amphibious and aviation support to the operation. While the operation was short lived and failed to solve the crisis (leading to Operation Belisi I in 1997) the RAN's ability to effectively operate helicopters from its current platforms was shown to be limited. The marinised Sea Kings could operate from SUCCESS or TOBRUK, without hangar facilities, for short periods but the embarkation of the Army, non-marinised, Blackhawk and Iroquois helicopters was beyond the ADF's capability.

CONVERSION FROM THSS TO LPA

The bargain basement price paid for the two Newport class vessels did however come with a caveat, and that was the materiel condition of both vessels was poor. The USN had ceased all but essential maintenance and both vessels were riddled with corrosion. After a short period of service in Australian and South East Asian waters both vessels were dispatched to Forcacs Dockyard, in Newcastle, in late 1995 for much needed restoration work and conversion to Landing Platform Amphibious (LPA). The planned sale of TOBRUK to the Portuguese Navy was cancelled.

During their conversion at Newcastle the bow horns (used for tank landing operations) were removed and the bow door sealed. The forward flight deck was flared to support helicopter operations forward and a helicopter hangar constructed aft. A 70 tonne crane

was installed, in front of the bridge, to allow the embarkation of two Army LCM-8 Landing Craft and an embarked forces hospital known as the Primary Casualty Receiving Facility (PCRF) was built in the port side superstructure with eight high dependency and an additional 32 low dependency bed spaces below decks. By early 2000 the work was completed and MANOORA was first to emerge from refit in February 2000. By May of that year she was operating in northern Australian waters including a visit to East Timor to offload humanitarian aid and backload surplus ammunition. KANIMBLA departed the Forcacs dockyard in December 2000 and was operational by May 2001 and took part in exercise Tandem Thrust.

The conversion of the two ships to LPAs had however come at a massive cost. The Australian National Audit Office report (Audit Report No 8, 2000-2001) was scathing of the cost (estimated at A\$395 million, including the purchase cost, in 2000 and still increasing) and the time delay of over four years from entry into refit to the release of the first vessel. The report makes interesting reading and is readily available on the web.

With the benefit of hindsight the purchase of the LSTs had serious flaws, however, could the RAN have procured two suitable new helicopter capable amphibious vessels for less than A\$500 million? In the early 1990s the Australian shipbuilding industry was struggling to stay afloat with Newcastle State Dockyard closed in 1987 and Cockatoo Island Dockyard closed in 1991. The Australian Submarine Corporation facility in Adelaide was concentrating solely on building the Collins class boats (with the first submarine laid down in 1990) and

HMAS MANOORA with two LCH tied to the ports side, an LCM-8 to starboard and a Seaking taking off. They were very flexible ships. (RAN)



Williamstown Dockyard was fully focused on ship refits and preparing for the build of ten Anzac class frigates with the lead ship laid down in 1993. Other dockyards around the country were either moribund or concentrating on ship repair and minor vessel construction only.

Construction of a suitable vessel overseas was considered but had to meet a Government imposed price limit of A\$250 million. The RAN was very much in a 'two speed budget' with substantial money being invested in the Collins class submarines, Anzac class frigates and Huon class minehunters – yet at the same time the commercial support program was seeking to cut manpower costs and base closures were also in progress (with ENCOUNTER, HUON, MORETON and NIRIMBA all closed in 1994). So in fairness to the navy it had to find two suitable ships with limited funds and in a short time frame - so perhaps the ex USN LST's were the best that could be achieved.



1 July 2013, MANOORA being towed out of Sydney Harbour for a breakers yard in the US. No fanfare or sad farewells. Not even notice that she and her sister ship KANIMBLA were leaving for the last time, despite their legacy to the RAN/ADF being massive. (Chris Sattler)

OPERATING THE 'FAT SHIPS'

Between 2000-01 when the LPA's returned to service and their eventual decommissioning in 2011 the two vessels were worked hard. Both ships served, at various times, on operations in the Solomon Islands, Persian Gulf, East Timor (Timor Leste), South Pacific and Operation Relex II border protection patrols. Additionally KANIMBLA deployed to Banda Aceh in 2005 following the devastating Boxing Day tsunami to provide humanitarian assistance and disaster relief. On top of this was the regular round of amphibious exercises such as Sea Lion, Tasmanex, Tandem Thrust, Croix de Sud and Rimpac. Frequently Sea King helicopters were embarked and multi spot flying from the two spots aft, and one forward, were common place. At other times Army Iroquois and Blackhawk helicopters were also embarked for operations and exercises.



11 October 2013, the last image of KANIMBLA arriving in the US for scrapping.

Over 450 soldiers and their vehicles and equipment could be embarked and this was frequently exercised with both Australian and foreign forces. The landing of the embarked forces using both landing craft and helicopters was also a key facet on both operations and exercises. Another capability often used but rarely acknowledged was the 'mother ship' concept where the LPA would provide logistic support to smaller vessels such as patrol boats, landing craft and survey vessels deployed on various operations/exercises.

While squat and unglamorous and often considered the 2nd XI by their frigate contemporaries it was the LPA's that deployed more frequently and with an economical speed of 14 knots and a range of over 14,000 nautical miles the ships had the legs to go far and carry the goods.

This constant round of operations and exercises was draining both on the ships company, and the materiel state of the ship, but over time it built up a strong core of amphibious and multi spot flying capability that would in time be readily transferrable to LHD operations. This hard won expertise and knowledge was directly transferred when HMAS CHOULES was acquired in 2011 with the bulk of her crew coming from the recently decommissioned MANOORA and KANIMBLA.

Ultimately the hard operational service proved too much for the 40+ year old ships as their crews good order. Corrosion was also a significant issue throughout both vessels. Ultimately it was the engine room fire onboard KANIMBLA, on 21 September 2010, as she was proceeding to sea from Sydney Harbour that caused the two vessels seaworthiness to be closely examined. Both ships entered a period of operational pause and then finally decommissioned in 2011.

LPA LEGACY

In May 2013 both LPA's were sold to Southern Recycling based in New Orleans. They left Sydney quietly and with little fanfare, under tow, on 2 July 2013 and arrived in the United States, via the Panama Canal, in early October and were soon cut up for scrap.

The ships may be gone but their legacy lives on in thousands of trained ADF personnel who served in both vessels on operations and exercises over an 11 year period. Much work remains to be



The RAN's two LPAs operating together in the Pacific during happier times. (RAN)

done in getting the LHD's ready for operations. Some skills such as well dock operations and the movement of aircraft from between deck hangars to the flight deck were never practiced in the LPA's and the RAN has had to learn or re-learn these from scratch. The hard won amphibious and multi spot flying operation skills, however, learned onboard the LPA's by both Navy and Army personnel and the now ingrained amphibious/expeditionary mindset throughout much of the ADF owes much to the two rust buckets (supported ably by their younger sister TOBRUK). Without 'Lemon' and 'Lime' the RAN could not have transitioned as easily to LHD operations as it has. The road ahead for the LHDs might be hard and unpaved but at least it's a road - a road that the LPAs blazed. ■



TENDER ANNOUNCED FOR PACIFIC PATROL BOAT REPLACEMENT PROJECT

On 5 March, the Government announced a Request for Tender (RFT) for the replacement of the Pacific Patrol Boats, made and gifted to many South Pacific nations by Australia, under the Pacific Maritime Security Program, Project SEA3036 Phase 1.

The project represents a significant investment in Australian defence industry with the Australian-made patrol boats worth \$594 million in addition to through life sustainment and personnel costs estimated at \$1.38 billion over 30 years. The current Pacific Patrol Boat Program is the centrepiece of the Australian Government's engagement in the South Pacific.

As part of Australia's continued commitment to maritime security in the Pacific region, this project involves the construction in Australia of up to 21 steel-hulled replacement patrol vessels.

With the existing Pacific Patrol Boats soon approaching their end of service life, the Government has committed to replacing the fleet with new Australian made vessels. This will assist Pacific Island countries to continue to take an active part in securing their own extensive Exclusive Economic Zones.

The replacement vessels will be larger and more capable than the current fleet. They will also have greater seakeeping ability, habitability and endurance, and will be updated for the contemporary operating environment.

Replacement patrol boats have been offered to all current participating states including Papua New Guinea, Fiji, Tonga, Solomon Islands, Tuvalu, Kiribati, Samoa, Vanuatu, Federated States of Micronesia, Palau, Republic of Marshall Islands, Cook Islands, as well as new member Timor-Leste.

These vessels will also continue to be complemented by a comprehensive program of training, maintenance and operational support for our regional partners.

The RFT will be an open tender for both the procurement and sustainment of the replacement vessels, along with sustainment of the current Pacific Patrol Boats until their end of life, as well as the new Tongan Landing Craft Medium.

Under the essential requirements of the RFT, the replacement vessels will be built in Australia, and be of steel hull construction. The key requirements are:

- designed and constructed to commercial standards;
- simple and cost-effective to own, operate and maintain;
- weapon systems will not be fitted, but allowance made to military standard;
- speed of greater than 20 knots in top of Sea State Four;
- range of greater than 2,500 nautical miles at 12 knots with 20% burnable fuel remaining;
- mission duration of 20 days;
- length up to 40 metres;
- capable of operating to top of Sea State Four;

- accommodation for 19 crew with 23 berths; and
- the embarked Seaboat will be capable of speed of greater than 20 knots, operating to top of Sea State Four, and with a crew of 6 (8 crew 'Desirable').

Following this tender process, the Government is likely to make further decisions about this project nearing the end of 2015.

01 NAVANTIA DELIVERS SECOND BATCH OF LCM-1E

Spanish state-owned shipbuilder Navantia has delivered the second batch of four LCM-1E landing craft to the RAN for its two new Canberra-class LHDs.

A company press release announced that the landing craft arrived in Sydney on 5 February 2015 and were delivered to HMAS WATERHEN. The craft left Navantia's Bay of Cadiz yards, where they were built, on 27 December 2014.

According to the shipbuilder, the 23m LCM-1E has a top speed of more than 20kts and a range of 190nm at full load. The waterjet-fitted craft is powered by two 809 kW diesel engines.

Australia approved the purchase of 12 landing craft from Navantia in December 2011 under project JP2048 PH 3. The initial batch of four was delivered in May 2014.

01

A new RAN LCM-1E during acceptance trials. (RAN)



02

A mock up of the JSM on an F-35 JSF.



02 NORWAY AND AUSTRALIA TO COOPERATE ON ADVANCED MARITIME STRIKE WEAPON

Australia will cooperate with the Norwegian Ministry of Defence to develop an advanced maritime strike weapon for the F-35A Joint Strike Fighters, the Minister for Defence, Kevin Andrews announced during February. Mr Andrews said Australian cooperation on the Norwegian Joint Strike Missile, under development by Kongsberg Defence and Aerospace, would ensure the weapon capability would be available for Air Force's future fleet of F-35A Joint Strike Fighters.

"This agreement builds on the countries' long-standing bilateral cooperation on research and development of Defence equipment, and acknowledges the importance of a robust maritime strike capability to Norway and Australia.

"Participating now in a cooperative JSM development program with Norway will maximise the cost effectiveness of Australia's contribution, and ensure the weapon capability is developed and integrated onto the F-35A in the timeline required by Australia, should the Joint Strike Missile be ultimately considered for acquisition by Government later this decade.

"Australian industry will participate in the development of the JSM by providing specialist expertise in missile guidance and control technology," he said.

Norway intends to procure up to 52 F-35A aircraft to enhance the ability of its Armed Forces to meet future security challenges, and will field the Joint Strike

Missile early in the next decade.

Australia has committed to procuring 72 F-35A aircraft, out of a planned 100, aimed at developing the next generation of Australian air combat power.

Australia's first two F-35A aircraft were delivered in 2014, and are now based at the F-35 International Pilot Training Centre at Luke Air Force Base Arizona where they will be used to support the training of Australian pilots later this year.

03 TOMAHAWK DEMONSTRATES 'SYNTHETIC GUIDANCE' IN MOVING TARGET TEST

On 27 Jan 2015, the USN demonstrated the ability of a 'synthetically guided' Tomahawk cruise missile - leveraging the existing Tomahawk Strike Network communications network - to hit a moving ship target. That is without its own onboard sensor to see the target such as guidance radar.

The test a Tomahawk Block IV missile - launched from the Flight IIA Arleigh Burke-class destroyer USS KIDD (DDG-100) - altered its course in-flight after receiving 'third party' position updates from a surveillance aircraft.

The demonstration was a joint test between the Naval Air Warfare Center Weapons Division (NAWC-WD) China Lake, the Naval Air Systems Command's Tomahawk Weapons System programme office (PMA-280), and Raytheon Missile Systems, with additional support provided by the Office of Naval Research Advanced Sensors Technology Program, and the Naval Surface Warfare Center sites at Dahlgren, Virginia, and Port Hueneme, California.

Following launch from KIDD, the Block IV missile initially flew a pre-planned mission until a surveillance aircraft sent real-time target information to the Joint Network Enabled Weapons Mission Management Capability (JNEW-MMC) located at NAWC-WD China Lake. The JNEW-MMC provided updated information to the missile in flight, which subsequently impacted a mobile sea target on the Point Mugu sea range.

In a subsequent test, performed on 29 January, a Block IV missile - again launched from KIDD - demonstrated a reduced mission planning time in a 'call for fire' scenario in support of shore-based Marines on San Nicolas Island. Using GPS navigational updates, the missile performed a vertical dive to impact on the island, scoring a direct hit on the target designated by the Marines and yielding data for the Marine Expeditionary Force to evaluate and evolve their 'call for fire' capability.

04 MARINES RECEIVE FIRST F-35C

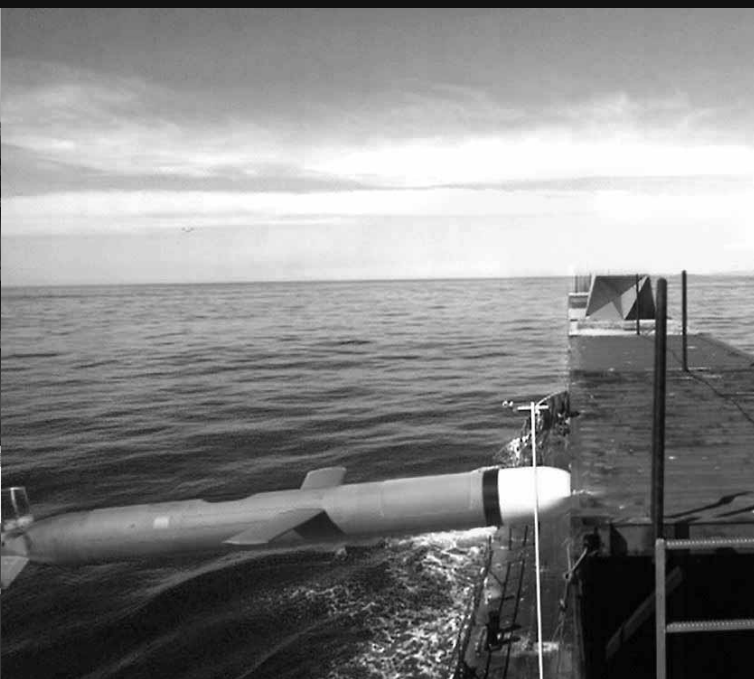
U.S. Marine Lt. Col. J.T. "Tank" Ryan, Marine Fighter Attack Squadron 501 detachment commander and F-35 pilot, delivered the first new F-35C to Strike Fighter Squadron 101, the US Navy's only F-35 fleet replacement squadron on January 13th. This aircraft is the first of five Marine Corps F-35Cs that will be delivered to VFA-101 on Eglin.

Marine F-35 pilots primarily fly F-35Bs - the short take-off vertical landing (STOVL) variant designed to deploy to austere locations and operate aboard amphibious ships

"This is a big day for the Marine Corps

03 A Tomahawk missile being used against a moving ship target using 'synthetic guidance' from the Tomahawk Strike Network communications network. (USN)

04 U.S. Marine Lt. Col. J.T. "Tank" Ryan delivering the first new F-35C to Strike Fighter Squadron 101. (USMC)





tactical air community and a huge honour to be able to deliver our first F-35C," said Ryan. "It marks the beginning of our training in the carrier variant and puts us that much closer to standing up our first F-35C operational fleet squadron."

The F-35C model brings 25% more range and a bigger weapons bay. It also allows the Marine Corps to fly aboard Navy aircraft carriers, which continues an effective and long-standing tactical air integration programme between the Navy and Marine Corps.

"In the past, Marines have been trained to fly the Navy's F-18 Hornet to share the load of deployment cycles," said Ryan. "Now, Marine pilots will be flying the F-35C with the Navy's Carrier Air Wings while deployed aboard aircraft carriers."

The first operational Marine Corps F-35C fleet squadron, VMFA-115, is scheduled to stand up at Marine Corps Air Station Beaufort, South Carolina, in 2019.

"It's exciting to be on the ground floor of the F-35C and an enormous honour to be the first F-35C Marine pilot," said Ryan. "I look forward to being a part of VFA-101 and the future of what this aircraft will bring to the fight for our Marines."

US NAVY LEAGUE SUPPORTS JONES ACT

The Navy League of the United States has said that it opposes the "McCain Amendment" which would gut the U.S. shipbuilding industry by striking the U.S. build requirement provisions of the Jones Act.

The Jones Act requires vessels in domestic waterborne trade to be owned by U.S.

citizens, built in the United States and crewed by U.S. mariners. It is believed that these provisions keep American shipping companies, shipyards, mariners, maritime academies and thousands of people working. It is a critical component to the long-term sustainability of the U.S. fleet and the health of the U.S. shipbuilding industry. The Jones Act aids in controlling shipbuilding costs for the Navy, the Marine Corps and the Coast Guard by ensuring the health of the industrial base. The Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act of 2015 demonstrates the national security importance of the Jones Act, stating that "coastwise trades laws [such as the Jones Act] promote a strong domestic trade maritime industry, which supports the national security and economic vitality of the United States."

The League said "the loss of the American-built provisions in the Jones Act would have devastating ripple effects on all the sea services. Its immediate impact would be a reduction in the number of ships built in U.S. shipyards, which would result in a loss of jobs, a loss of industrial knowledge and skills, and a loss in America's edge in shipbuilding quality and technology. This would mean all ships used by our U.S. Navy, Marine Corps and Coast Guard, which of course will be built in the United States, would have a higher cost per ship due to increased overhead costs, and would have a less reliable industrial base. A strong industrial base is necessary for innovation and quality. This amendment would increase costs for the sea services

during a time of sequestration and tightening budgets, when each dollar our sea services spend must go farther. The impacts would be extremely detrimental to the sea services."

AUSTRALIA TO DONATE HEAVY LANDING CRAFT TO PHILIPPINES

The Government has announced that it is donating two recently decommissioned Balikpapan-class heavy landing craft (LCH) vessels to the Philippines.

The last three 364-tonne, 45 m LCHs were decommissioned on 20 November 2014 (see *The Navy* Vol 77 No 1).

The vessels - HMAS BRUNEI, HMAS LABUAN, and HMAS TARAMAN - were commissioned into RAN service in 1973. Following decommissioning, LABUAN was gifted to the Papua New Guinea Defence Force Maritime Element.

TARAMAN and BRUNEI will be handed over to the Philippine Navy in May after being refurbished with new safety and navigation equipment.

The Government said the LCHs would help the Philippines' humanitarian assistance and disaster relief (HADR) capabilities, which were tested in 2013's Typhoon Haiyan.

05 INDIAN NAVY TO RETIRE CARRIER VIRAAT IN 2016

The Indian Navy has announced that it will retire INS VIRAAT, the 56-year old 24,000-tonne former HMS HERMES, in early 2016.

The carrier's increasing maintenance costs

05 INS VIRAAT, the 56-year old 24,000-tonne former HMS HERMES, at sea. The ship will be decommissioned in early 2016.



and the depletion of its Sea Harrier air arm - now down to just 10 aircraft - had prompted the navy's decision to de-commission VIRAAT ahead of schedule. The carrier will decommission after the International Fleet Review in Vishakhapatnam in February 2016.

It is understood VIRAAT has undergone four major refits and one minor refurbishment since joining Indian Navy in 1987.

Its most recent INR70 million (US\$1.1 million) overhaul took place in November 2012. Though due for another refit in late 2014, this work was cancelled in view of the carrier's impending retirement.

06 SUCCESSFUL RBS-15 MK-3 TEST FOR POLISH ORKAN FAST ATTACK CRAFT

Defence and security company Saab and the Polish Navy have conducted a successful commissioning and sea acceptance test of the RBS-15 Mk3 anti-ship missile onboard an Orkan-class fast attack craft. The tests were part of Saab's 2006 contract with Poland for the delivery of RBS-15 Mk-3 missiles, and their installation on the Orkan-class ships.

The tests, with the lead-vessel-in-class ORKAN, validated all the ship's interfaces with the necessary power, combat management and navigation systems. Testing included a simulated missile firing exercise, and concluded with sea trials when the ship carried its full complement of eight missiles. The customer has now demonstrated its ability to equip and operate these vessels

with their maximum missile load.

"We have successfully completed the sea acceptance tests for the first of three ships within the Polish Orkan-class. With the RBS-15 Mk-3, Poland now has an anti-ship missile that can defeat targets at a range of more than 200 km, in all weather conditions. It is an impressive offensive capability by any standard", says Stefan Öberg, head of business unit Missile Systems within Saab business area Dynamics.

CANADIAN SUBS UP AND RUNNING

The Victoria-class submarine fleet is now operational with three out of four submarines available for operations. HMC Submarines WINDSOR, VICTORIA and CHICOUTIMI were all at sea in December 2014 and spent a cumulative total of approximately 260 days at sea in 2014. HMCS CORNER BROOK is currently docked at Victoria Shipyards to undergo its Extended Docking Work Period (EDWP) under the Victoria In-Service Support Contract with Babcock Canada Inc. It is scheduled to remain in EDWP until 2017. Canadian submarines generally operate in an operational cycle in which each vessel is available to the fleet for six years, referred to as the "operational period", followed by two years in deep maintenance during an EDWP.

VIETNAM'S THIRD KILO-CLASS SUBMARINE ARRIVES IN COUNTRY

The People's Army of Vietnam (PAVN) Navy has taken delivery of its third Improved Project 636 Kilo-class diesel-electric

submarine (SSK) at Cam Ranh Bay.

The vessel, HAIPHONG (HQ 184), joins two other boats of the class HANOI (HQ 182) and HO CHI MINH CITY (HQ 183); the last two were commissioned in April 2014.

Vietnam has orders for six Improved Project 636 Kilo-class diesel-electric submarines.

07 INDIA ASKS JAPAN TO OFFER SORYU SUBS FOR PROJECT 75I REQUIREMENT

It has been reported in *Jane's Navy International* that India has recently forwarded a proposal to Tokyo asking it to consider participating in its Project 75I tender with its 4,200-tonne Soryu-class submarine.

Australian readers will be aware that the Soryu class is currently under consideration by the RAN as a replacement for its six Collins-class boats.

India's offer to Japan to join Project 75I is part of Indian Prime Minister Narendra Modi's effort at forging closer strategic and defence ties with Tokyo and formulating a wider maritime quadrilateral grouping that would include Australia and the United States.

India is also in advanced negotiations with Japan to acquire 12 ShinMaywa US-2i amphibious search-and-rescue aircraft for around USD1.65 billion, a deal that is likely to be concluded in early 2016.

The Project 75I tender, delayed by nearly seven years, was approved by the Ministry of Defence (MoD) in October 2014 and is likely to be dispatched later this year. It is aimed at boosting the IN's underwater

06 A Polish Navy Orkan-class fast attack craft fitted with eight RBS-15 Mk-3 anti-ship missile launchers. (SAAB)



07 The JMSDF Soryu class submarine JS HAKURYU arriving at Pearl Harbor. India is taking a great interest in the Japanese Soryu design, much like Australia. (USN)





assets, which at 11 submarines is 13 fewer than their sanctioned strength.

Project 75I envisages licence-building a submarine shortlisted from multiple contenders, including DCNS (France), TKMS subsidiary HDW (Germany), Navantia (Spain) and Rosoboronexport (Russia), under a joint venture (JV) with an Indian shipyard.

MORE SM-6 JOIN USN

The USN has approved the deployment of the Standard Missile-6 (SM-6) extended range area air-defence missile on additional Aegis ships following certification of the Aegis Combat Weapon System baselines 5.3 and 3.A.0 series to operate with SM-6. The move, announced on 14 January, expands the missile's use from five ships to more than 35. Raytheon has, to date, delivered over 130 missiles to the USN from its production facility in Huntsville, Alabama.

Developed and manufactured by Raytheon Missile Systems, the SM-6 is an evolutionary development that combines SM-2 Block IV missile propulsion, airframe, and ordnance with the active radar seeker of the AIM-120C-7 AMRAAM air-to-air missile to provide an extended range anti-air warfare (AAW) capability over sea and land areas. Designed to be employed from Aegis cruisers and destroyers, it has been conceived as the effector for a new over-the-horizon AAW network known as Naval Integrated Fire Control - Counter Air (NIFC-CA); SM-6 will also be employed by Aegis ships in the sea-based terminal defence (SBT) role.

08 LCS NOW A FRIGATE

The much derided littoral combat ship programme is here to stay, US Navy Secretary Ray Mabus announced during January, and it's getting an upgrade: a name change.

"Going forward, new Freedom- and Independence-class ships will be christened under the frigate designation that's more suited to the ship's missions", Mabus said in a speech at the annual Surface Navy Association symposium outside Washington, D.C.

"We are going to change the hull designation of the LCS class ships to FF," Mabus said, as frigates have been designated. "It will still be the same ship, the same programme of record, just with an appropriate and traditional name."

The change will take the tarnished LCS designation out of the lexicon, but it will also settle a matter of tradition that Mabus said has been on his mind recently.

"We've started designating ships with some interesting acronyms that seem to have come out of the Pentagon instead of our naval traditions," he said.

Ships like the joint high speed vessel (JHSV), the mobile landing platform (MLP) and the afloat forward staging base (AFSB) all buck Navy tradition, where the first letter in an acronym describes what kind of ship it is.

For instance, CVN denotes a nuclear-powered carrier. Similarly, the 'L' in a designation connotes an amphibious ship.

"It's not an L-class ship. I hear 'L,' I think amphib. Everybody else does," he said. "And I have to spend a good deal of my

time explaining what littoral is."

Mabus said the remaining ships on the LCS building plan will be designated FF, and he's deciding whether to rename the current ships with another acronym.

The announcement came days after USS KAUFFMAN, the Navy's last Oliver Hazard Perry-class frigate, left Norfolk for its final underway. That ship fell under the FFG acronym, for guided-missile frigate.

While the LCS programme has been thought of as a replacement for the frigate fleet, the littoral part didn't square up with the frigate's role as a small surface combatant.

The LCS can do the job, Mabus told reporters after his speech.

"They don't look like traditional Navy ships sometimes, and I think that's one of the issues that traditionalists have, but if you look at the missions — if you look at what a frigate is supposed to be able to do — that's what this ship does," he said.

Describing it as a "fast" frigate could refer to its top speed or a smaller crew size, down from the 17 officers and 198 enlisted on the FFG.

SINGAPORE RETIRES TWO SUBMARINES

On 11 March Singapore's Ministry of Defence (MINDEF) announced that the Republic of Singapore Navy (RSN) had retired two Challenger (ex-Sjöormen)-class submarines.

The vessels, RSS CENTURION and RSS CHALLENGER, were originally in service with the Royal Swedish Navy (RSwN) as HMS SJÖORMEN and HMS SJÖBJÖRNEN and re-launched in May 1999 and

08 The former LCS, now frigate, USS FREEDOM at sea with the frigate USS MCINERNEY in the background. In USN circles LCS stood for "Little Crappy Ship" and not Littoral Combat Ship. How the name change will affect perceptions only time will tell. (USN)



September 1997 respectively for the RSN. Singapore acquired four Type A 12 Sjöormen-class submarines in the mid-1990s to give the RSN its first experience of submarine operations.

To replace the subs, the RSN is expecting the delivery of two new state of the art Type 218SG submarines from Germany's ThyssenKrupp Marine Systems (TKMS). The vessels are scheduled to be delivered from 2020.

09 SEASPRITES FORMALLY HANDED OVER TO NZDF

The New Zealand Defence Force (NZDF) officially accepted ownership of the new Seasprite SH-2G(I) helicopters from Kaman Aerospace in a ceremony at Royal New Zealand Air Force Base Auckland on 6 March 2015.

There are three new Seasprites at Base Auckland and the remaining five will be delivered by September. The new SH-2G(I) replaces the SH-2G model that is presently being used.

Chief of Navy, Rear Admiral Jack Steer said the handover marked a significant milestone for the Defence Force's maritime aviation capability.

"The Seasprites perform a vital function for the Navy, and enhance the roles of our ships at sea, by undertaking a range of tasks including maritime surveillance, search and rescue, counter-terrorism and utility lift. We've operated Seasprites since the 1990s and they have proven to be a great capability for us.

"We deployed a Seasprite on HMNZS

TE MANA to the Gulf of Aden in 2014 in support of the multi-national Combined Task Force undertaking anti-piracy activities in the region. The Seasprite flew over 120 hours and was used for surveillance and reconnaissance adding substantial value to the operation. We currently have a Seasprite embarked on HMNZS TE KAHA who is on operational deployment until May and the helicopter is an integral part of this mission," said Rear Admiral Steer.

Operation of the Seasprites is a joint effort between the Navy and Air Force. Seasprites are flown by Navy personnel and maintained by Air Force engineers and technicians who form No.6 Squadron at Whenuapai.

10 ADVANCED HAWKEYE MAKES MAIDEN DEPLOYMENT

Five E-2D Advanced Hawkeyes assigned to Carrier Airborne Early Warning Squadron (VAW) 125 embarked upon their maiden deployment March 11, 2015, as part of Carrier Air Wing (CVW) 1 aboard aircraft carrier USS THEODORE ROOSEVELT (CVN-71).

The Advanced Hawkeye's technology makes it a multi-mission platform through its ability to coordinate concurrent missions which may arise during a single flight. These missions can include airborne strike, ground force support, rescue operations and managing a reliable communications network capable of supporting drug interdiction operations.

Along with advances in equipment, the Advanced Hawkeye's all-glass cockpit boasts an entirely digital display, an

upgrade that allows the co-pilot to assist in performing many of the duties of the crew's Naval Flight Officers while in flight.

"It's not like before when everything was pressure gauges," said Trent. "Now everything is digital. This makes for a stronger ability to process information, and allows the co-pilot to change his display and access acquired data".

With the first five going out to sea, the Navy plans to continue procuring the Advanced Hawkeye to replace the Hawkeye through 2023

"This aircraft has been in development for almost 20 years," said Trent. "Now that we're set for our maiden deployment, and we get set to integrate with craft like the Growler and the Hornet, we're going to become the most efficient carrier strike group in the fleet".

The E-2/C-2 Airborne Tactical Data System Programme Office (PMA-231) continues to develop software and other upgrades for the E-2D Advanced Hawkeye, to maintain the platform's technological lead over opposing forces. Future upgrades to the E-2D being developed at NAS Patuxent River include aerial refueling capability, which will enable E-2D Hawkeye aircrews to remain on mission longer. ■

09 The RNZN's new SH-2G(I) Seasprite (ex-RAN) at its handing over ceremony. NZDF



10 An E-2D Hawkeye in flight. (USN)





THE JAPANESE SUBMARINE OFFENSIVE MAY - JUNE 1942

By Murray Dear

This second place professional essay from Murray Dear looks at a critical time in World War II in the Pacific and Indian Oceans, concentrating on Japanese submarine operations.

The months of May and June 1942 were two of the most critical during the Pacific War. This period is mainly remembered for two major naval battles, Coral Sea and Midway, which essentially halted the inexorable Japanese advance southward and eastward. Japanese submarines were included in the order of battle for both actions but, with one notable exception, they achieved little. Conversely, American submarines did have some modest success even though there was a major fault with their torpedoes. In addition to providing support to Japanese fleet operations, two significant submarine operations were also undertaken during this period, in the Indian Ocean and the Tasman Sea.

At the start of the Pacific War in December 1941, the Imperial Japanese Navy had sixty three operational submarines; 48 of the large I-type and 15

of the smaller RO-type. Another 29 submarines were under construction at the outbreak of hostilities and a further 38 more were approved for construction but not yet commenced. The tactical concepts employed by Japanese submarines were initially as follows:

Phase 1 – December 1941 to April 1942: Submarines operated with the surface fleet; their major role was reconnaissance and attacks against warships.

Phase 2 – April 1942 to November 1944: Submarines concentrated their efforts on attacking merchant shipping.

The Sixth (Submarine) Fleet under the command of Vice Admiral Mitsumi Shimizu was based at Kwajalein and included the 1st, 2nd and 3rd



The Japanese midget submarine HA-19 run aground on a beach in Hawaii after the Pearl Harbor attack. Her captain became the first Japanese POW of the war.



A tactic employed by Japan to mixed success was for submarines to rendezvous with maritime patrol float planes to refuel them and thus increase the plane's reconnaissance range.

Submarine Squadrons comprising 30 of the most capable long range submarines. The primary mission of the Sixth Fleet was to destroy the U.S. Pacific Fleet based at Pearl Harbor and at other naval bases on the West Coast of the United States.

EARLY OPERATIONS OFF HAWAII

The 7 December 1941 attack on Pearl Harbor included 30 submarines of which five C1 Type Attack boats (I-16, I-18, I-20, I-22 and I-24) carried two-man midget submarines. The midget submarine attack on Pearl Harbor was singularly unsuccessful with all five midgets lost. In the four days following the attack, I-9, I-10 and I-26 each sank a merchant ship. These losses were avenged on 10 December when a SBD Dauntless bomber aircraft operating from the carrier ENTERPRISE sank I-70. By late December most submarines had been withdrawn having made practically no contribution to the attack on Pearl Harbor.

The few boats that operated off Hawaii in early 1942 achieved only modest successes. I-6 torpedoed the carrier SARATOGA on 10 January putting it out of action for five months. The badly damaged carrier was to miss both the Coral Sea and Midway battles. The US Navy Oiler NECHES was sunk on 23 January however retribution occurred on 27 January when I-73 was sunk by the US submarine GUDGEON. This was followed by the operational loss of I-23 north of Hawaii during February. By this stage most Japanese submarines had been deployed to other areas ranging from the Indian Ocean to the West Coast of the United States. It is pertinent to note that there was no concerted attempt to sustain submarine attacks on the sea lines of communication (SLOC) between Pearl Harbor and ports on the United States West Coast.

CORAL SEA AND MIDWAY

Japanese plans to seize Port Moresby (Operation MO) and Midway Island (Operation MI) were also intended to bring to action and destroy the US Pacific Fleet. In support of these objectives, secondary operations were planned to seize Tulagi in the Solomon Islands, Nauru and Ocean Islands in the Central Pacific and Attu and Kiska Islands in the Aleutians. This continuum of operations was expected to result in decisive victories for the Imperial Japanese Navy.

Six submarines were committed to Operation MO with I-22, I-24, I-28 and I-29 deployed 400 kilometres south east of Guadalcanal Island to guard against attacks by allied warships, while the RO-33 and RO-34 were

stationed off Port Moresby. A further two B1 Type Scouting submarines, I-21 and I-27, sailed with the Guadalcanal group to undertake reconnaissance operations. After surviving an attack by a SBD Dauntless from the carrier YORKTOWN on 2 May, I-21 sank two merchant ships near Noumea.

None of the submarines committed to Operation MO made any meaningful contribution to the Battle of the Coral Sea between 4 and 8 May 1942. Following the retirement of Japanese forces after the battle, the American submarine S-42 sank the cruiser/minelayer OKINOSHIMA on 11 May while the S-44 sank the salvage vessel SHOEI MARU on 12 May. The submarine TAUTOG was instructed to intercept the damaged carrier SHOKAKU but while this attempt was unsuccessful, the American boat did sink the I-28 on 17 May while it was returning from the Coral Sea.

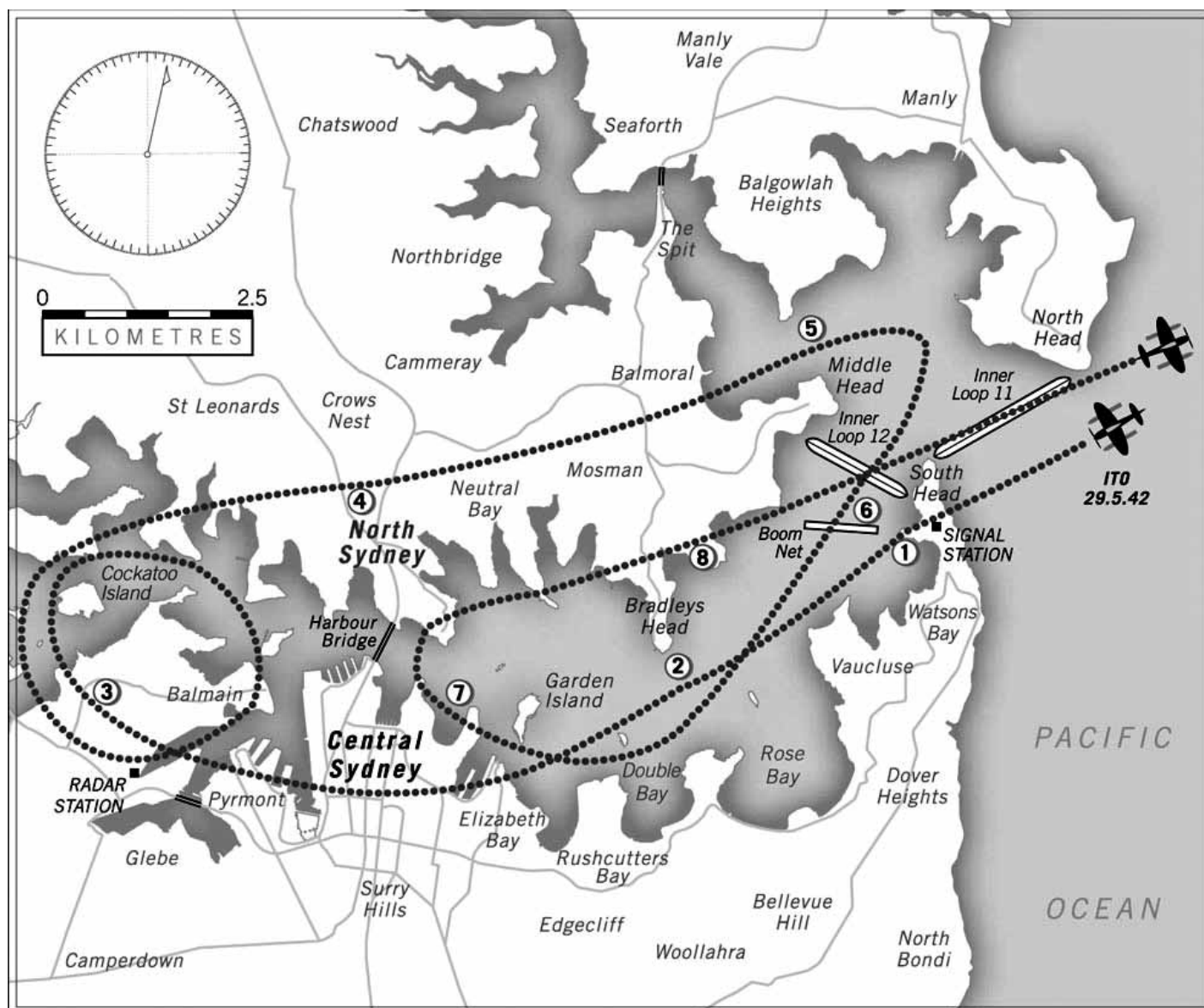
While the Japanese Navy's tactical concept regarding the use of submarines had shifted from attacks on warships to merchant shipping, it was still the strategic concept to force the US Pacific Fleet into a major sea battle. Fifteen submarines were allocated to the Midway operation and a further six would support the Aleutians campaign. One other submarine allocated to Operation MI, I-64, was sunk off the coast of Japan by the US submarine TRITON on 17 May. The 3rd Submarine Squadron comprising I-169, I-171, I-174 and I-175 were stationed to the west of Hawaii while the 5th Submarine Squadron comprising I-156, I-157, I-158, I-159, I-162, I-165 and I-166 were stationed to the north-west. It was planned that these submarines would intercept the U.S. Fleet when it sailed from Pearl Harbor, but due to good intelligence the American carrier task forces were already at sea before the Japanese submarines were on station.

It was intended that two Kawanishi H8K Emily flying boats would make a reconnaissance flight over Pearl Harbor beforehand and these were to be refuelled by the submarines I-121, I-122 and I-123 at the French Frigate Shoals. This operation was cancelled on 31 May when American ships were sighted in the area. Only I-168 under the command of Lieutenant Commander Yahachi Tanabe was to make a meaningful contribution. This submarine briefly shelled Midway on the night of 4 June and was then directed to sink the damaged carrier YORKTOWN. On the morning of 6 June I-168 located the crippled carrier and at 1.30pm Tanabe fired four torpedoes of which two struck YORKTOWN and one struck the destroyer HAMMANN alongside. The destroyer broke in two and sank immediately while the carrier lingered until sinking the following morning.

The submarine survived an intense depth charge attack and provided the only bright Japanese note to the otherwise disastrous Battle of Midway. The six boats of the 1st Submarine Squadron sent to the Aleutians saw little action. Only two merchant ships were sunk with I-25 and I-26 also undertaking some minor coastal bombardments.

INDIAN OCEAN OPERATIONS

In early April 1942 Japan's formidable aircraft carrier strike force, the Kido Butai, attacked Ceylon (now Sri Lanka). The result was a disaster for the Royal Navy; the heavy cruisers CORNWALL and DORSETSHIRE, the aircraft carrier HERMES, the Australian destroyer VAMPIRE and the corvette HOLLYHOCK were all sunk by carrier aircraft. At the same time a smaller Japanese carrier force attacked merchant shipping in the Bay of Bengal. After this setback, Vice Admiral Sir James Somerville's Eastern Fleet retired westward to support the invasion of Vichy French controlled



The track flown by a Japanese float plane over Sydney Harbour to inform the midget subs that would later attack the targets and where to find them.

Madagascar to ensure that the island did not fall into Japanese hands.

The newly formed 8th Submarine Squadron under Rear Admiral Noboru Ishizaki, comprising I-10, I-16, I-18, I-20 and I-30, sailed from Penang in late April 1942 to attack shipping off East Africa. Three boats carried midget submarines while two carried floatplanes. Operating in support of this operation were the armed merchant cruisers AIKOKU MARU and HOKOKU MARU. Following raiding operations in the South Pacific, these two ships had undergone a refit at the Kure Navy Yard where their obsolete main armament was replaced by eight modern 5.5 inch (140mm) guns.

Admiral Ishizaki had a wide brief and his first objective was to locate major units of the Eastern Fleet and launch a midget submarine attack. Reconnaissance flights were made over Aden, Durban, Djibouti, Dar-es-Salaam and Diego Suarez, Madagascar where on 29 May a battleship and other ships were located. Based on this information a midget submarine attack was mounted on 30 May. One midget submarine failed to launch due to engine problems and another was lost shortly after launching. The midget submarine launched by I-20 entered the harbour and with its two torpedoes damaged the battleship RAMILLIES and sunk the tanker BRITISH LOYALTY. The two crew members abandoned their craft and were later killed in by British troops when they refused to surrender.

After this attack, the five submarines operated off the east coast of Africa where they sunk 21 merchant ships totalling 92,498 tons between 5 June and 13 July. A further three ships totalling 21,836 tons were victims of the armed merchant cruisers. The Dutch GENOTA was captured on 9 May, the British ELYSIA was sunk on 5 June and the Union Steam Ship Company's motor vessel HAURAKI was captured on 12 July. Ishizaki's force, minus I-30, returned safely to Penang conducting reconnaissance operations en route. Ordered to sail for Occupied France, I-30 rounded the Cape of Good Hope in early July and arrived at the Lorient U-Boat pens on 5 August.

TASMAN SEA OPERATIONS

Concurrently with the Indian Ocean foray, a further five submarines of the 8th Squadron were ordered to undertake operations off Australia and New Zealand. Captain Hanku Sasaki was in command of the floatplane carrying I-21 (flagship) and I-29 plus the midget submarine carrying I-22, I-24 and I-27. It had been intended that I-28 would also be part of this group, but as mentioned earlier this submarine was lost on 17 May.

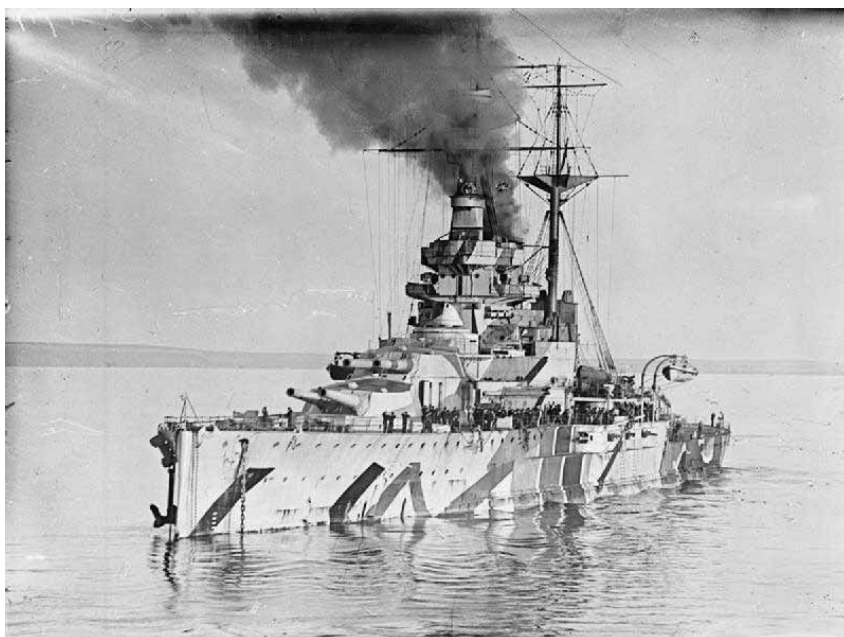
While sailing between Wellington and Newcastle, the Russian steamer

WELLEN was shelled by I-29 on 16 May. An intensive search for the submarine was unsuccessful and the attack was regarded incorrectly as an isolated incident by the officer in charge of Sydney and Newcastle harbour defences, Rear Admiral Muirhead-Gould. A reconnaissance flight was undertaken over Sydney Harbour at dawn on 23 May by I-29's floatplane which reported three large cruisers or battleships, four destroyers and many small naval vessels.

On 24 May, I-21's floatplane flew unobserved over Auckland where the armed merchant cruiser MONOWAI was in port. On receiving news of I-29's floatplane report, Sasaki immediately sailed westward to join his other four boats off Sydney. His progress was monitored by Radio Direction Finding and this information was passed on by the New Zealand Naval Board to the Naval Intelligence Centre in Melbourne. These warnings were disregarded.

On his arrival off Sydney, Sasaki ordered a further reconnaissance flight by I-21's floatplane over the harbour. An attack was ordered on the "battleship and cruisers" sighted for the night of 31 May/1 June and all three midget submarines were successfully launched. Despite the element of surprise, the attack achieved little. The first midget went off course and got caught in the boom net where it was sighted by James Cargill, a Marine Services Board watchman. His report of a submarine was initially disbelieved but commonsense eventually prevailed and it was attacked by the harbour defence craft LOLITA. Realising their position was hopeless, the two man crew fired the scuttling charge which blew off the forward section of the submarine.

The second midget entered Sydney Harbour through the eastern gate of the boom net and was sighted by an alert seaman on the American heavy cruiser CHICAGO. After eluding gunfire from CHICAGO, the midget sailed further up the harbour before returning to make a torpedo attack on the big cruiser. Both torpedoes missed with one exploding against a harbour wall underneath the accommodation ship KUTTABUL. The requisitioned harbour ferry sank with the loss of 21 lives and the Dutch submarine K9 rafted outboard of KUTTABUL was damaged. The ultimate resting place for this midget was a mystery for many years before the



The RN Battleship HMS RAMILLIES. She was damaged by two torpedoes from a Japanese midget submarine in May 1942 and didn't return to service till June 1943.

wreck was recently discovered off Sydney Heads. The third midget was initially sighted and attacked by the patrol vessels LAURIANA and YANDRA. This attack was not successful but some six hours later the submarine was sighted and depth charged again by the launch SEA MIST. More depth charges were dropped by the patrol craft YARROMA and STEADY HOUR and with their small craft badly damaged, both crew members committed suicide.

Attacks on merchant shipping commenced following the unsuccessful midget submarine attack. On 3 June, I-21 shelled the unarmed steamer AGE which ran for safety. Shortly after this attack, I-24 torpedoed and sank the steamer IRON CHIEFTAN with the loss of twelve lives. At dawn on 4 June, I-27 attacked the BARWON with gunfire off Gabo Island but the steamer escaped by outrunning the attacking submarine. Later that day I-27 was to sink the IRON CROWN with the loss of 37 crew members. As a consequence of these attacks, the Australian Naval Board suspended all



The Japanese submarine I-168 on the surface.



The destroyer USS HAMMANN sinking alongside the crippled aircraft carrier USS YORKTOWN. I-168 fired four torpedoes of which two struck YORKTOWN and one struck the destroyer HAMMANN alongside. The destroyer broke in two and sank immediately while the carrier lingered until sinking the following morning.

merchant ship sailings from eastern and southern ports on 4 June.

On the night of 8 June, Sydney and Newcastle were shelled by I-24 and I-21 respectively. While little damage was caused, a secondary objective to frighten the local population was remarkably successful. Many panic stricken residents of Sydney's eastern suburbs fled to the Blue Mountains and even further inland. Following the shelling, I-24 and I-21 again turned their attention to attacks on merchant shipping. I-24 shelled the British *ORESTES* south of Sydney on 9 June but despite being set on fire, the merchant ship safely made Melbourne the next day. Not so fortunate was the Panamanian merchant ship *GUATEMALA* which was torpedoed and sunk by I-24 on 12 June. This was the last attack on merchant shipping off the east coast for some six weeks, effectively ending this phase of Japan's submarine offensive against Australia.

CONCLUSIONS

While the Indian Ocean and Tasman Sea operations were modestly successful, they were of only peripheral value and contributed little to Japan's strategic objectives. There was no concerted effort to use submarines to isolate Hawaii by attacking the SLOC with America's West Coast. Conversely, by the end of World War II, American submarines had destroyed Japan's merchant marine and were operating with impunity off the coast of Japan. In summary, the Japanese submarine offensive of May-June 1942 lacked strategic vision and suffered from poor tactical direction.

Following the Battle of Midway, the Imperial Japanese Navy had one last chance to seize victory from the jaws of defeat. As the American and Japanese fleets retired following the battle, a convoy of ten U.S. Navy tankers sailed from San Pedro, California. The objective of this strategically important convoy was to replenish the U.S. Navy tank farm at Pearl Harbor. The convoy escort comprised five RNZN anti-submarine minesweepers and two U.S. Navy patrol vessels.

A concerted submarine attack against this tanker convoy could well have seriously disrupted the American naval offensive which commenced in August. But there were no Japanese submarines stationed to the east of Hawaii and the convoy arrived at Pearl Harbor without incident on 22 June. With full bunkers, Vice Admiral Frank Jack Fletcher was to sail from Pearl Harbor with a battleship, three carriers plus cruiser and destroyer escorts to support Operation Watchtower, the invasion of Tulagi and Guadalcanal in the Solomon Islands. For Japan, the war was now irretrievably lost.

On a comparative basis, Japanese submarines were much less effective than their American counterparts during the Pacific War. The following table details warship losses with the number attributed to Japanese and American submarines respectively in brackets. Warships sunk by other Axis and Allied submarines have been disregarded. In summary, American submarines accounted for 24% of Japanese warship losses, but Japanese submarines sank only 8% of their American equivalents.

World War II Warship Losses

	American	Japanese
Battleships	2 (0)	11 (1)
Aircraft carriers	11 (3)	26 (8)
Cruisers	10 (2)	41 (13)
Destroyers	70 (4)	134 (42)
Submarines	52 (2)	129 (18)

While Japanese submarines were expected to make a major contribution to victory over America and its Allies, their actual performance was so poor they were a significant factor in Japan's eventual defeat. ■



TAFFY 3

USING A WALNUT TO CRACK A SLEDGEHAMMER

By Jamie McIntyre

Jamie McIntyre's 2014 second place non-professional essay details the Battle off Samar, which was the centremost action of the Battle of Leyte Gulf, one of the largest naval battles in history, which took place in the Philippine Sea off Samar Island in the Philippines on October 25, 1944. As the only major action in the larger battle where the Americans were largely unprepared against the opposing forces, it has been cited by historians as one of the greatest military mismatches in naval history.



Admiral Nimitz (left) with Admiral Halsey.

With victory in the Solomons only a matter of time by mid-1943, the Allied forces in the Pacific devised Operation Cartwheel for the continued advance towards Japan. To the north, a predominantly US Navy force with a relatively small US Marines landing contingent under Admiral Nimitz would advance via the Gilbert Islands, Marshall Islands and Marianas Islands, whilst to the south a mainly Army force with a small supporting naval element under General MacArthur would advance eastwards along northern New Guinea. There would be some cross-pollination of course, with larger naval forces supporting MacArthur's troops as required, and MacArthur's forces also included Australians. By August 1944 the Marianas and New Guinea were secure, leading to competing strategies for continuing the advance. Nimitz and his superiors favoured capturing Formosa (modern-day Taiwan) and Okinawa, isolating the Philippines

and providing bases for attacking the Japanese home islands, whereas MacArthur advocated taking the Philippines and Okinawa. After much heated debate, which included President Roosevelt himself, MacArthur's plans found favour. Nimitz and the Navy initially considered this wasteful of resources that could be directed at Japan itself much earlier via their plans, and attributed the choice of the Philippines more to the General's inflated ego rather than military strategy.

Whilst it is true that MacArthur longed to fulfil his promise to return given upon his hasty departure from a Corregidor dock on 11 March 1942, there was significant military reasoning behind the decision. Conquest of the long Philippine archipelago would give the Allies command over the sea-lanes from resource-rich areas such as Sumatra and Borneo to Japan, depriving the Japanese war machine of vital oil & rubber. Access to these had been one of the driving forces behind the Greater East Asia Co-Prosperity Sphere that led to war in the Pacific, as deprived of them Japanese industry would quickly grind to a halt. The Japanese also had considerable air power amassed in the Philippines, making bypassing and isolation dangerous.

The first step in liberating the Philippines was the capture of Peleliu in the Palau Islands, secured by November after weeks of brutal fighting. Next stop, Leyte.

Amphibious forces and close support were to be provided by the US Seventh Fleet under Vice Admiral Kinkaid, which included units of the Royal Australian Navy under Commodore Collins. Distant cover and support was provided by the US Third Fleet under Admiral Halsey Jr, including the powerful Fast Carrier Task Force 38 (TF 38) under Vice Admiral Mitscher. This was to lead to crisis and very nearly disaster later, as Seventh Fleet came under MacArthur and Third Fleet under Nimitz, with no single American Admiral in overall command.

Seventh Fleet's close support units mainly comprised small escort



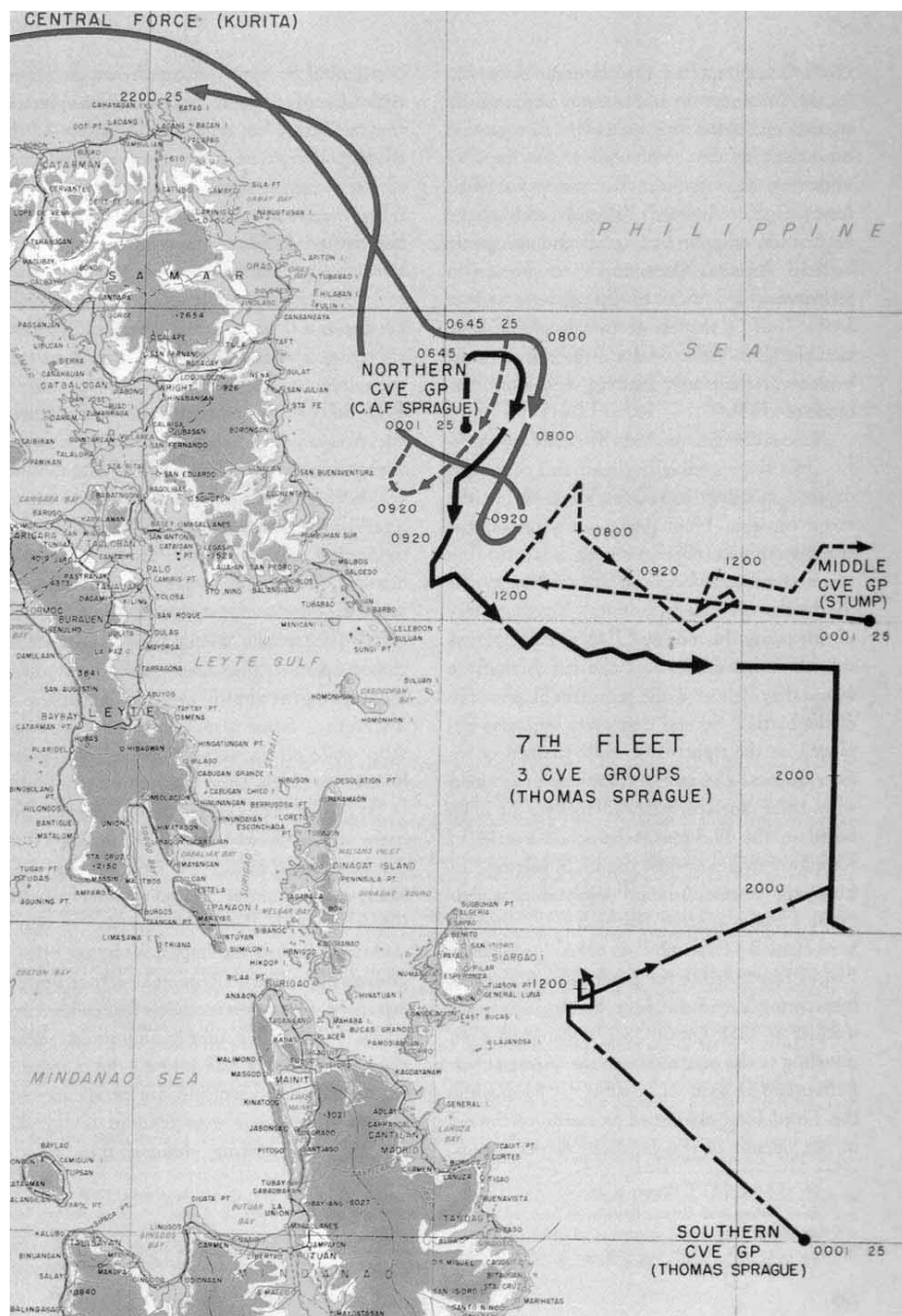
CVE-73 USS GAMBIER BAY underway. She has the dubious distinction of being the only USN carrier sunk by gun fire. (USN)

carriers, destroyers and destroyer escorts. The escort carriers were small ships that could carry up to 30 aircraft, and unlike earlier classes that had been modified from merchant hulls the Casablanca class that predominated at Leyte, were the first to be purpose built. They had only minimal splinter protection for armour, and defensive armament was limited to a single old 5 inch gun aft and numerous 40mm and 20mm anti-aircraft guns. Maximum speed was 18 knots, and they could travel over 10,000 nautical miles at 15 knots. Their designation was CVE, standing for Aircraft Carrier, escort, but to their crews it wryly stood for Combustible, Vulnerable, Expendable.

In the Atlantic CVE's were doing sterling work defending convoys against the U-Boats and Luftwaffe under numerous flags, but in the Pacific they had become maids of all work, from close support to ferrying replacement aircraft all across the Pacific. One thing they did not do, and were never intended to do, was to take part in major fleet actions. Their mainly reservist aircrews thus became proficient in supporting ground troops in close contact with the enemy, and defending same troops against incursions by Japanese aircraft, but had little to no equipment, training or skills in attacking large surface vessels.

The landings at Leyte were preceded by TF 38 raids against Formosa and the Ryukyu Islands, to ensure that aircraft based there could not interfere with the landings and also to keep the Japanese guessing about the next move. The Japanese launched waves of aircraft against the carriers under "Victory Plan Sho-Go 2", but the cream of Japan's aviation was severely depleted by this time, they lost 600 aircraft in 3 days. With the landings at Leyte they transitioned to "Victory Plan Sho-Go 1" to defend the Philippines.

Sho-Go 1 called for Vice Admiral Ozawa's Northern Force to lure the main US covering forces away from Leyte. His force was led by the Fleet Carrier ZUIKAKU, the last remaining from the 6 in the Kido Butai ("Mobile Force") that had left a path of destruction from Pearl Harbor to the Indian Ocean in the first months of the Pacific War. She was accompanied by 3 Light Carriers, 2 WW1 Battleships converted into Seaplane Carriers by the removal of their after turrets (neither carried any aircraft at this time however), 3 Light cruisers and 9 destroyers. On paper it was a decent force, but crippling losses of aircraft and aircrew meant that only 108 aircraft were embarked by the entire force, not much more than the usual complement of ZUIKAKU alone. So as a striking force it was woefully deficient, but in its intended role as bait it was to prove remarkably efficient. Success by Northern Force would leave the way open for the



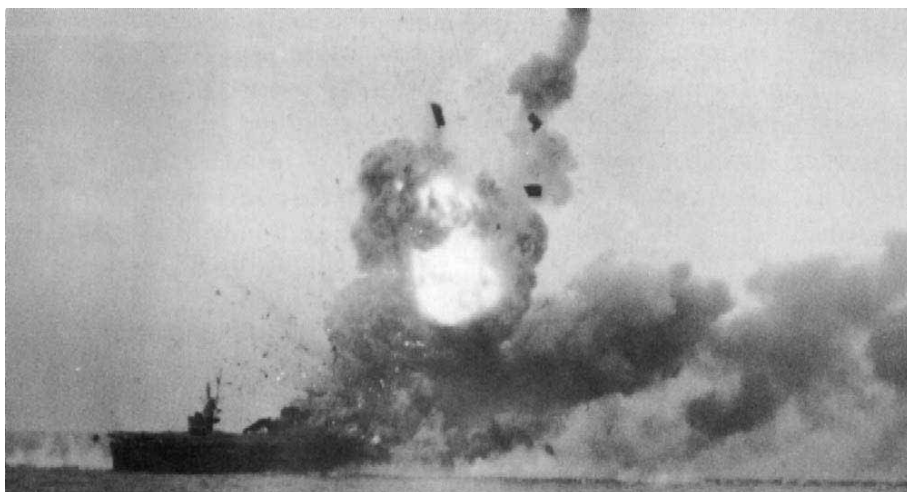
A map showing the fleet dispositions and events of the battle.

powerful Centre Force under Vice Admiral Kurita and the Southern Force under Vice Admirals Nishimura and Shima to attack the Seventh Fleet amphibious forces massed off the landing beaches at Leyte.

Centre Force sortied from Brunei on 22 October 1944. Amongst its 5 Battleships were the mighty YAMATO and MUSASHI, the largest in the World at 71,000 tons with 9 18.1 inch guns, accompanied by 10 heavy cruisers, 2 Light cruisers and 9 destroyers. Kurita's flag was in the heavy cruiser ATAGO. As the force passed Palawan Island that night it was spotted and reported by the US Submarines DACE and DARTER, which sank the heavy cruisers MAYA and ATAGO and damaged TAKAO. The

swimming Kurita was plucked from the sea by a destroyer and transferred his flag to YAMATO. As the depleted force entered the Sibuyan Sea the following day, it was attacked by the aircraft of TF 38. MUSASHI was sunk by at least 17 bombs and 19 torpedoes from 3 waves of aircraft, proof yet again of the emerging dominance of aircraft over undefended Battleships, no matter how large and powerful the latter. Her sister YAMATO and the older battleship NAGATO were damaged and the heavy cruiser MYOKO was crippled.

After suffering such significant losses Halsey considered Centre Force nullified as a threat, so when Northern Force was belatedly detected that afternoon he took his entire Third Fleet



USS ST. LO suffers a large explosion after being hit by a Kamakazie. She later sank.

north to intercept. Kinkaid and indeed Nimitz assumed that he would leave TF 34's 6 modern Battleships behind to guard the San Bernardino Strait, influenced by confusing lead-up messages from Halsey. But such was his blood lust for what he assumed to be the primary Japanese threat the Strait was left wide open, with not even a picket destroyer guarding it. He did find and destroy Northern Force, but of course this helped rather than hindered the Japanese plans.

Shaken but undaunted, Kurita took his still powerful force through the Strait that night. 3 tiny CVE units were all that now stood between one of the most powerful surface raiding forces ever assembled and the vital, vulnerable landing forces. The success or failure of the invasion now hung in a decidedly lopsided balance!

Southern Force sortied from Brunei after Centre Force, Nishimura with 2 old Battleships, the heavy cruiser MOGAMI and 4 destroyers and Shima with 2 heavy cruisers, a Light cruiser and 4 destroyers. They were attacked by aircraft on 24 October, but suffered only minor damage. Nishimura entered Surigao Strait at 0200 on 25 October, but due to strict radio silence Shima was 25 miles behind him and Kurita was still in the Sibuyan Sea, negating any chance of coordination.

Once in the Strait Nishimura had to run the gauntlet of continual torpedo attacks by 39 PT Boats for over 3 hours. Although none of his ships were hit, the PT Boats provided a running commentary on his whereabouts to the approaching Seventh Fleet Support Force, led by Rear Admiral Olendorf. This force was made up of 6 old Battleships, 5 of which had been salvaged from the devastation of Pearl Harbor and were about to extract their revenge.

They were backed up by 4 heavy cruisers (including HMAS SHROPSHIRE), 4 Light cruisers and 28 destroyers.

As Nishimura's force cleared the PT Boats they were set upon by the US destroyers with a devastating torpedo attack, which sank the battleship FUSO and 4 destroyers and damaged the remaining battleship YAMASHIRO and another destroyer, which later sank.

Continuing on, Nishimura's severely depleted force was now set upon by the old battleships WEST VIRGINIA, CALIFORNIA and TENNESSEE, which had been modernised with radar fire control that allowed them to rain 16 and 14 inch shells upon the Japanese ships before the latter

could even see them in the pitch black night. After YAMASHIRO was sunk the remaining Japanese ships turned and fled southwards, including the heavily damaged MOGAMI and destroyer SHIGURE. In the closing stages of this engagement the radarless MISSISSIPPI (the only non-Pearl Harbor survivor) fired only one salvo of her 14 inch guns, the last time in history a battleship would fire its main armament at another heavy ship.

In the confusion Shima's approaching flagship, NACHI, collided with the damaged MOGAMI, which was left trailing behind to be found and sunk by US aircraft the following morning. Of Nishimura's 7 ships, only the damaged SHIGURE survived.

Rear Admiral Clifton Sprague's Task Unit 77.4.3 ("Taffy 3") was the most northerly of the 3 CVE units guarding the landing beaches. It comprised 6 CVE's, 3 destroyers and 4 small destroyer Escorts. Busy supporting the forces ashore, the last thing they

expected to deal with was Kurita's armada steaming over the horizon. The first warning came just after 6am, when a TBM-1C Avenger Torpedo Bomber pilot from ST. LO spotted what he at first assumed to be part of Halsey's Third Fleet whilst on an anti-submarine patrol. Upon closing he identified them as Japanese, when questioned on this by an incredulous Sprague he replied, "I can see pagoda masts. I see the biggest meatball flag on the biggest battleship I ever saw!" This was YAMATO, now the sole



Combat footage the escorting destroyers laying down a smoke screen during the battle. Three shell splashes can be seen in front of the destroyer closest to camera.

holder of the World's biggest battleship title, displacing more than all of the Taffy 3 units combined, and only 17 miles to the north. In a display of aggressive courage that would typify this remarkable day, the TBM pilot bounced anti-submarine depth charges, his only offensive armament, off the bow of a cruiser before beating a hasty retreat.

Taffy 3's lookouts saw the anti-aircraft fire directed at the TBM on the horizon, and units started detecting large contacts to the north via radar and Japanese radio communications. At 7am YAMATO opened fire, launching immense 18 inch shells designed to punch through thick

hardened armour plate at puny vessels less than an inch thick. Japanese Battleships used different coloured dye in their shells so that the fire of individual ships could be spotted and adjusted visually, even with many ships firing at the same target. The American sailors were therefore amazed to see massive, brightly coloured geysers towering above their miniscule vessels as shells rained down upon them.

Unable to find the silhouettes of the CVE's in his recognition manuals, Kurita assumed he had come upon the Fleet Carriers of Third Fleet. Perhaps unable to believe his luck, he ordered a "General Attack", which called for his fleet to split up and attack individually, rather than coordinating their efforts. Sprague directed his carriers to turn to launch their aircraft and then withdraw towards a squall to the east, hoping that bad visibility would reduce the accuracy of Japanese gunfire. Forced to chase, the Japanese ships could only bring their forward guns to bear. He then ordered his destroyers to generate smoke to mask the retreating carriers.

With the smoke laid the destroyers and destroyer Escorts began making desperate torpedo runs, tiny "tin cans" racing towards the largest

JOHNSTON was hit by 3 14 inch shells from a vengeful KONGO. They disabled her portside engine room, reducing her speed to 17 knots and cutting power to her after guns. Moments later 3 6.1 inch shells, possibly from the secondary armament of YAMATO herself, struck the bridge, injuring the Captain, destroying her search radar and damaging her fire control radar. Sanctuary in a rain squall allowed some running repairs, and 5 minutes after being struck the plucky little ship was reengaging cruisers and destroyers at 5 miles with 4 of her 5 guns. Without her search radar long range accuracy was reduced, but the hastily-repaired fire control radar still allowed her to hit hard at closer ranges.

Closing on the heavy cruiser TONE in support of a torpedo attack by her fellow tin cans, JOHNSTON registered numerous hits before evading in and out of rain squalls. During this she put at least 15 rounds into the towering pagoda mast of KONGO, escaping out of sight before the battleship could return the favour once more. She traded blows with the heavy cruiser HARUGO for 10 minutes, buying time for the ultimately doomed CVE GAMBIER BAY. She narrowly avoided a collision with her



The destroyer USS HEERMANN.

warship in the world and her many powerful cohorts. Such was their aggressiveness that the Japanese thought they were being attacked by cruisers and Fleet destroyers. Initially the Japanese used armour-piercing shells, which passed right through the thin American ships without exploding, before they realised and switched to high explosive. Although the American destroyer's 5 inch guns could not penetrate the thick armour of the larger Japanese vessels, they did have the advantage of excellent radar-directed fire control. This enabled them to hit the Japanese ships repeatedly, whilst the latter struggled to find the range of the fast-moving little ships amongst the rain squalls and smoke with outdated optical fire control methods.

Fletcher class destroyer JOHNSTON hit the superstructure of the heavy cruiser KUMANO 45 times at the maximum range of her 5 inch guns of 10 miles, causing extensive damage. At 9,000 yards she unleashed all 10 of her torpedoes, knocking the bow off KUMANO, causing the battleship KONGO to turn away from the chase to avoid being hit and taking the heavy cruiser SUZUYA out of the fight as she stopped to assist KUMANO. Not bad for one little tin can! The confused Japanese thought they were being attacked by a squadron of cruisers, and taking advantage JOHNSTON retreated under a smoke screen.

But her luck could not last, and 30 minutes after she began her mad dash

sister HEERMANN before "crossing the T" of 7 Japanese destroyers making a torpedo run against the CVE's. Although struck numerous times, JOHNSTON scored a number of hits on the two leading Japanese ships, her aggressive action forced them to turn away before launching their torpedoes at 10,000 yards, all of which missed or were detonated by gunfire from aircraft overhead and the CVE's themselves.

With all ships now stuck in a huge confused jumble JOHNSTON's incredible luck could not hold, and she found herself surrounded by four cruisers and numerous destroyers. Two hours and 20 minutes after her battle began her injured Captain was conning her by shouting orders down from the fantail to men manually controlling her rudders below decks, the bridge being untenable due to exploding 40mm ammunition forward. 20 minutes later she was dead in the water, with the pack closing in on her for the kill. In doing so, they allowed the vital CVE's to continue to flee to safety. Within 5 minutes she was going under, and the Captain ordered abandon ship. She took another 25 minutes to finally disappear, taking with her 186 of her crew, including her brave Captain who was awarded the Medal of Honor posthumously. As she slipped below the waves the survivors in the water were amazed to see the Captain of a passing Japanese destroyer saluting the brave little tin can that had done all that could be asked and expected of her, and so much more.



The destroyer USS HOEL.

Her fellow escorts had similar short, sharp actions. Her sister HOEL, flagship of the escorts, was struck in the bridge by YAMATO's secondary 6.1 inch shells shortly after completing the initial smokescreen, wounding her Captain and the Screen Flag Officer as well as knocking out her radios. Despite this she lead a torpedo attack with HEERMANN and destroyer escort SAMUEL B. ROBERTS, as JOHNSTON provided covering fire against TONE. HOEL launched half of her torpedoes against the leading heavy cruiser HAGURO, who evaded them all successfully but lost her place in the formation in doing so. Seconds later HOEL was hit by a mix of shells that disabled all of her aft weapons, stopped her port engine and knocked out her radars and bridge steering. Emergency steering allowed her to attempt to rejoin Taffy 3 to the South at a reduced 17 knots, peppering the closest Japanese ships with her 2 forward 5 inch guns as she went, but an 8 inch shell stopped her remaining engine and she began to list to port. Abandon ship was ordered, but her forward gun crews continued trading blows with closing cruisers and destroyers for a further 10 minutes until HOEL finally rolled over and sank 1 hour and 55 minutes after battle was joined, taking 253 of her crew with her.

HEERMANN passed right through Taffy 3 twice during the confused action, narrowly avoiding numerous collisions including with JOHNSTON as described above. During her mad charge with HOEL and SAMUEL B.

ROBERTS she fired her last 3 torpedoes at the heavy cruiser HARUNA, which avoided them leaving the weapons running on parallel courses on either side of YAMATO. The big battleship was forced to remain on course for 10 minutes to avoid being hit, taking her and Kurita out of the pursuit of the CVE's. HEERMANN traded blows with the battleship NAGATO before switching to the heavy cruiser CHIKUMA which was pummeling the CVE GAMBIER BAY. HEERMANN now came under fire from the bulk of the



The destroyer USS SAMUEL B. ROBERTS.



The destroyer USS JOHNSTON.

Japanese fleet, with the coloured splashes of at least 3 Battleships all but obscuring her from view. 8 inch shells from a heavy cruiser flooded her bows and other hits destroyed her wheelhouse and one gun. 2 hours after the battle began HEERMANN traded final blows with TONE before rejoining Taffy 3 heading south as the Japanese disengaged to the north. Although heavily damaged HEERMANN had survived, the only destroyer to do so.

After her torpedo run with the destroyers, during which she scored one damaging hit on the heavy cruiser CHOKAI, little SAMUEL B. ROBERTS returned to close screen the CVE's with her 3 fellow destroyer escorts. As she approached the heavy cruiser CHIKUMA appeared through the smoke and rain, firing at the little flattops. For 35 minutes, from as close as 5,300 yards, SAMUEL B. ROBERTS expended almost all of her 5 inch ammunition at her much larger opponent, over 600 rounds. Due to the close ranges CHIKUMA struggled to hit the tiny DE, and with HEERMANN also raking her from the other side the Japanese cruiser took tremendous punishment, with numerous fires started and an 8 inch gun turret out of action. But CHIKUMA was not alone, and SAMUEL B. ROBERTS was soon bracketed by the fire of 4 Battleships and many cruisers. Despite avoiding action she was hit by cruisers and KONGO, leaving her dead in the water and sinking fast.

Destroyer Escorts RAYMOND, DENNIS and JOHN C. BUTLER also fired their torpedoes, which although they missed helped slow the Japanese chase. DENNIS was hit by cruiser shells and JOHN C. BUTLER ran out of ammunition, but all 3 survived the battle.

During their 17 knot escape to the South, the CVE's launched all of their aircraft before concentrating on evading shellfire. It wasn't until just over an hour later that KALININ BAY was hit by 8 inch shells, which being armour piercing passed right through the thin little ship without exploding. Five minutes later CHIKUMA had closed to within 5 miles, and began hitting GAMBIER BAY with deadly high explosive 8 inch rounds. She was soon dead in the water, and despite the efforts of the escorts to draw fire away from her she finally capsized and sank an hour after first being hit. She remains the only US aircraft carrier to ever be sunk by naval gunfire. ST. LO scored 3 hits on a Tone-class heavy cruiser with her single 5 inch gun, fired over open sights with no fire control, but almost 2 hours after the battle ceased she was struck by a Kamikaze aircraft in the first such attack of the war and sank with the loss of 114 men. KALININ BAY hit a Nachi class heavy cruiser with 5 inch rounds, forcing it out of the chase. She also hit a destroyer amidships, but took another 10 hits from 8 inch

shells which destroyed all of her radar and radio equipment. WHITE PLAINS hit CHOKAI with a single 5 inch shell that detonated her 8 deck-mounted torpedoes. The resulting explosion knocked out her rudder and engines, and after a bomb hit from an aircraft she was scuttled by torpedoes from the Japanese destroyer FUJINAMI. Only WHITE PLAINS and KITKUN BAY escaped the battle undamaged, but FANSHAW BAY was the only one to escape being hit during the Kamikaze attack later.

The Wildcat Fighters and Avenger Torpedo Bombers launched by the CVE's kept up constant attacks against the Japanese ships throughout the battle, assisted by the aircraft of the other 2 Taffy's. Although as explained earlier they lacked the skills and weapons to take on large, heavily defended and armoured surface vessels, the 400 aircraft available echoed the efforts of their countrymen on the surface by throwing everything they had at Kurita's force. Strafing runs with .50 caliber machine guns, high explosive bombs that detonated on armoured decks without penetrating, anti-submarine depth charges laid alongside hulls and even mock attacks long after ammunition was exhausted harried the Japanese from beginning to end. One Wildcat pilot even emptied his .38 calibre service pistol over the side of his opened cockpit into the massive superstructure of YAMATO as he raced past! Their efforts helped convince Kurita that he was facing a major fleet, and that remaining in the area for too long would place his force in grave danger.



The Japanese battleship YAMATO and a Japanese heavy cruiser, possibly TONE or CHIKUMA off Samar being attacked by aircraft during the battle with Taffy 3.

So they had done it. A tiny force of hostilities-only reservists trained and practiced in supporting ground troops – had forced an Admiral aboard the world's most powerful warship to turn his overwhelming but poorly handled force around and run after suffering disproportionate losses. A combination of favourable weather, highly aggressive tactics, superior gunnery, doubt in Kurita's mind and sheer bloody-minded courage had achieved the impossible, and stamped a bloody but proud page in US Naval history. The invasion continued unabated, leading eventually to the recapture of the entire Philippines. Numerous US Navy ships have been named after the brave ships and men who fought and died that day, and Taffy 3 was awarded a Presidential Unit Citation. ■

DISPATCH: HMAS BUNDABERG DECOMMISSIONED

By Ms Natalie Staples (Navy News)

HMAS BUNDABERG was decommissioned from Royal Australian Navy service at a small ceremony at her home port, HMAS CAIRNS, on 18 December 2015.

The Armidale Class Patrol Boat sustained extensive internal and external damage as a result of a fire during routine maintenance in Brisbane in August.

At the ceremony hosted by Commander Australian Fleet, Rear Admiral Stuart Mayer, the Australian White Ensign was lowered on the Cairns

quarterdeck, to signify the end of BUNDABERG's service life.

Chief of Navy, Vice Admiral Tim Barrett said the boat made an important contribution to the nation's maritime security.

"During her seven years in service, BUNDABERG was primarily employed on Border Protection Operations. She patrolled Australia's northern approaches conducting surveillance and response tasks including fisheries protection, immigration, customs and drug law enforcement operations," Vice Admiral Barrett said.

Commanding Officer of one of the crews assigned to BUNDABERG, Commanding Officer Ardent Two, Lieutenant Commander James Edmondson said the ceremony was an important occasion for those who served in the boat.

"While it is sad BUNDABERG's operational service ended due to an unfortunate incident, the decommissioning provides a chance to reflect on the contribution made by the ship and the crews who served in her," Lieutenant Commander Edmondson said.

BUNDABERG was built by Austal Ships, Fremantle and commissioned into the Royal Australian Navy on 3 March 2007 under the command of Ardent One. While most of her time was spent force assigned to Operation RESOLUTE, BUNDABERG also took part in regional exercises.



The symbolic decommissioning ceremony for HMAS BUNDABERG, minus the boat. (RAN)

HMAS BUNDABERG in Sydney Harbour while in service. (RAN)



The Navy League is intent upon keeping before the Australian people the fact that we are a maritime nation and that a strong Navy and capable maritime industry are elements of our national wellbeing and vital to the freedom of Australia. The League seeks to promote Defence self reliance by actively supporting defence manufacturing, and the shipping and transport industries.

The strategic background to Australia's security is changing and in some respects has become less certain. The League believes that Australia should pursue the capability to defend itself, paying particular attention to maritime defence. Through geographical necessity Australia's prosperity, strength, and safety depend to a great extent upon the security of the surrounding seas and island areas, and on unrestricted seaborne trade.

The Navy League:

- Believes Australia can be defended against attack by other than a major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication with our allies.
 - Supports a continuing strong alliance with the US.
 - Supports close relationships with all nations in our general area and particularly New Zealand, PNG and the island States of the South Pacific.
 - Advocates the acquisition of the most capable modern armaments, surveillance systems and sensors to ensure that the ADF maintains technological advantage over forces in our general area.
 - Advocates a significant deterrent element in ADF capability enabling powerful retaliation at significant distances from our shores.
 - Believes the ADF must be capable of protecting commercial shipping both within Australian waters and beyond, recognising that this means in conjunction with allies and economic partners.
 - Endorses the control of coastal surveillance by the ADF, and the development of the capability for the patrol and surveillance of all of Australia's ocean areas, its island territories and the Southern Ocean.
 - Welcomes Government initiatives concerning the recovery of an Australian commercial fleet capable of supporting the ADF and the carriage of essential cargoes to and from Australia in times of conflict.
- As to the RAN, the League,** while noting the vital national peacetime tasks conducted by Navy, including border protection, flag showing/diplomacy, disaster relief, maritime rescue, hydrography and aid to the civil power:
- Supports the concept of a Navy capable of effective action in war off both the east and west coasts simultaneously and advocates a gradual build-up of the fleet and its afloat support elements to ensure that, in conjunction with the RAAF, this can be sustained against any force which could be deployed in our general area.
 - Welcomes the announced increase in Defence expenditure to 2% of GDP over the next 10 years.
 - Believes that the level of both the offensive and defensive capabilities of the RAN should be increased and is concerned to see that the substantial surface and sub-surface capability enhancements contained in the 2009 Defence White Paper should survive the forthcoming 2015 Defence White Paper; in particular a substantially strengthened submarine force, 3 Air Warfare Destroyers (AWDs), 2 landing ships (LHDs), 8 new frigates (Anzac class replacements), 20 offshore combatant ships, 6 heavy landing craft and substantial numbers of naval combatant and ASW helicopters.
 - Strongly supports the acquisition of large, long range and endurance, fast submarines and, noting the deterrent value, reliability and huge operational advantages of nuclear powered submarines and their value in training our anti-submarine forces, urges the consideration of nuclear power as an option for those vessels.
 - Notes the potential combat effectiveness of the STOVL version of the JSF and supports further examination of its application within the ADF.
 - In order to mitigate any industry capability gap following the completion of the AWD program, recommends bringing forward the start date of the planned future frigate (Anzac replacement) program, recognising the much enhanced capability projected for these ships.
 - Urges that decisions to enhance the strength and capabilities of the Army and Air Force and to greatly improve the weaponry, and the intelligence, surveillance, reconnaissance, cyberspace and electronic warfare capabilities of the ADF be implemented.
 - Supports the development of Australia's defence industry, including strong research and design organisations capable of the construction and maintenance of all warships and support vessels in the Navy's order of battle, and recognises the fundamental importance of a stable and continuous shipbuilding program for the retention of design and building skills and the avoidance of costly start up overheads.
 - Supports the efforts by Navy to rebuild the engineering capability to ensure the effective maintenance and sustainability of the fleet.
 - Advocates the retention in preservation (maintained reserve) of operationally capable ships that are required to be paid off for resource or other economic reasons.
 - Supports a strong Naval Reserve and Australian Navy Cadets organisation.
 - Advocates a strong focus on conditions of service as an effective means of combating recruitment and retention difficulties.
- ## The League:
- Calls for a bipartisan political approach to national defence with a commitment to a steady long-term build-up in Australia's defence capability including the required industrial infrastructure.
 - While recognising budgetary constraints believes that, given leadership by successive governments, Australia can defend itself in the longer term, within acceptable financial, economic and manpower parameters.



THE NAVY LEAGUE OF AUSTRALIA

EIGHTH ANNUAL MARITIME AFFAIRS ESSAY COMPETITION 2015

The Navy League of Australia is holding the eighth maritime essay competition and invites entries on either of the following topics:

TOPICS

- 20th Century Naval History
- Modern Maritime Warfare
- Australia's Commercial Maritime Industries

CATEGORIES

A first, second and third prize will be awarded in each of two categories:

Professional, which covers Journalists, Defence Officials, Academics, Naval Personnel and previous contributors to *THE NAVY*; and

Non-Professional for those not falling into the Professional category.

Essays should be 2,500-3,000 words in length and will be judged on accuracy, content and structure.

PRIZES

- **\$1,000, \$500 and \$250** (Professional category)
- **\$500, \$200 and \$150** (Non-Professional category)

DEADLINE

20 September 2015

Prize-winners announced in the January-March 2016 issue of *THE NAVY*.

Essays should be submitted either in Microsoft Word format on disk and posted to:

Navy League Essay Competition
Box 1719 GPO, SYDNEY NSW 2001

or emailed to editorthenavy@hotmail.com.

Submissions should include the writer's name, address, telephone and email contacts, and the nominated entry category.

THE NAVY reserves the right to reprint all essays in the magazine, together with the right to edit them as considered appropriate for publication.



HMAS CANBERRA sailing through Sydney Heads during her operational test & evaluation stage. The image shows just how large this 27,000 tonne ship is. She can comfortably accommodate 13 MRH-90 helicopters on her deck alone, seven of those with blades unfolded with six being able to land and take off in those spots. (RAN)

