

THE NAVY

Registered by Australia Post Publication No NBP 1482

\$3.50

July-September 1994

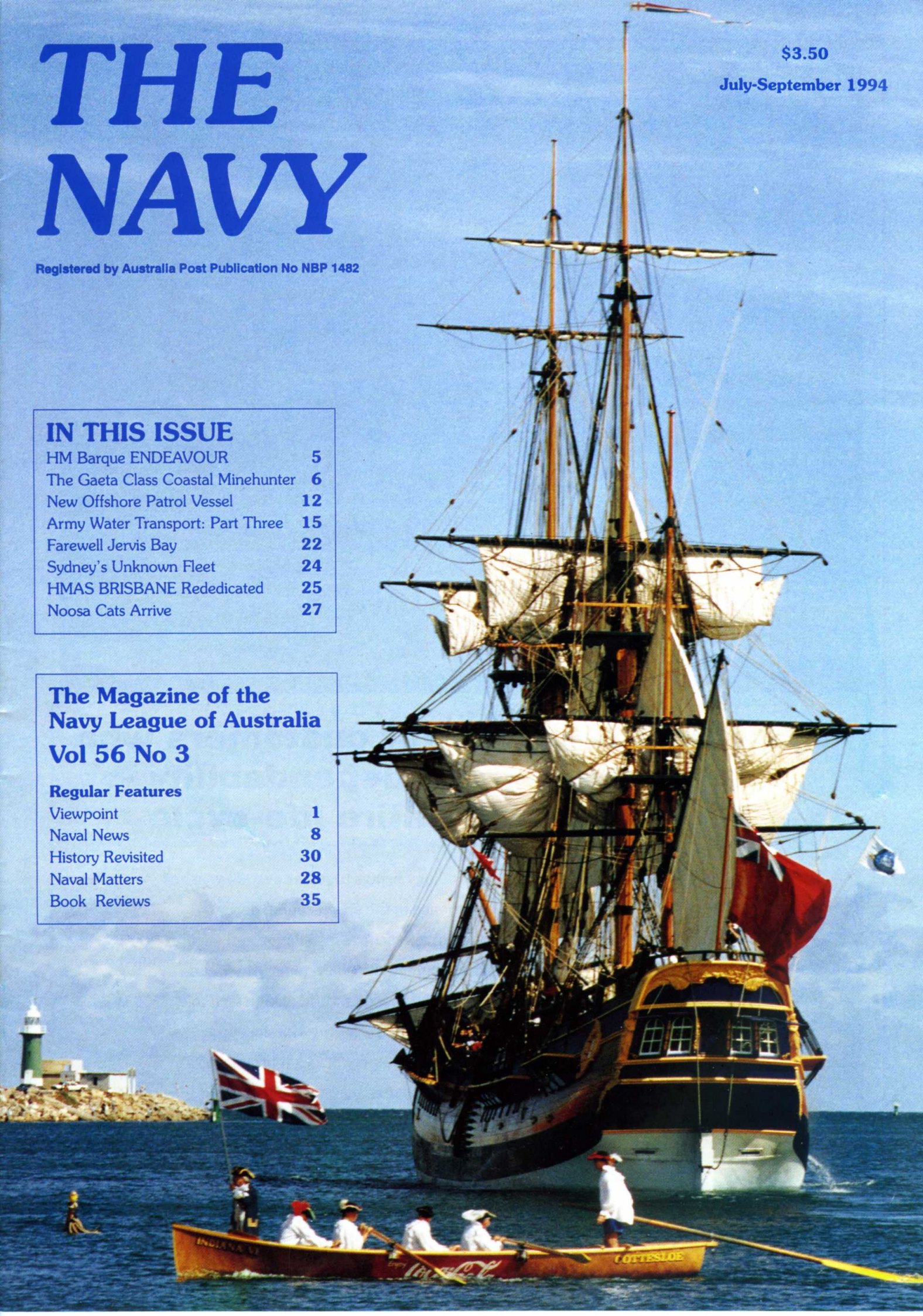
IN THIS ISSUE

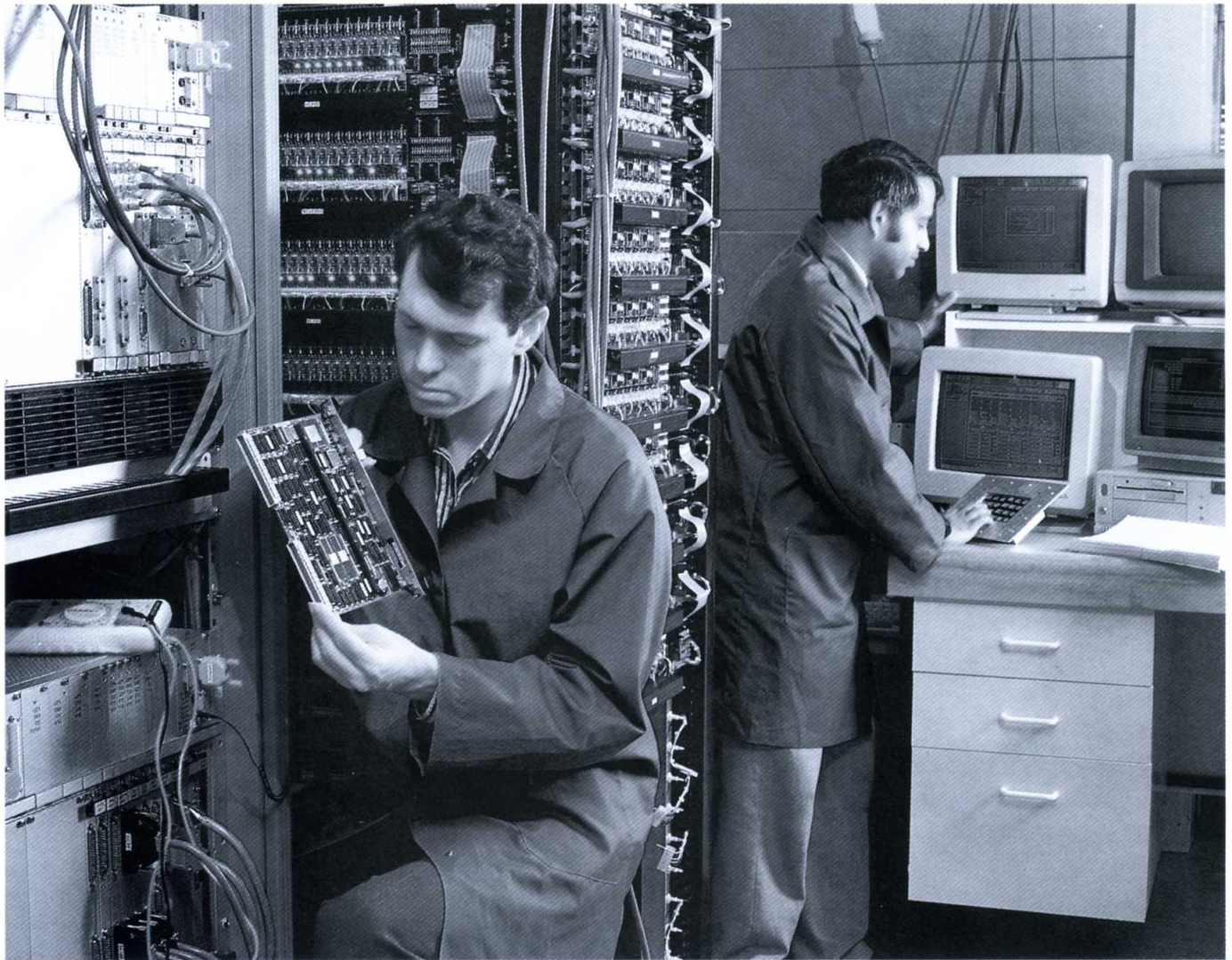
HM Barque ENDEAVOUR	5
The Gaeta Class Coastal Minehunter	6
New Offshore Patrol Vessel	12
Army Water Transport: Part Three	15
Farewell Jervis Bay	22
Sydney's Unknown Fleet	24
HMAS BRISBANE Rededicated	25
Noosa Cats Arrive	27

The Magazine of the Navy League of Australia Vol 56 No 3

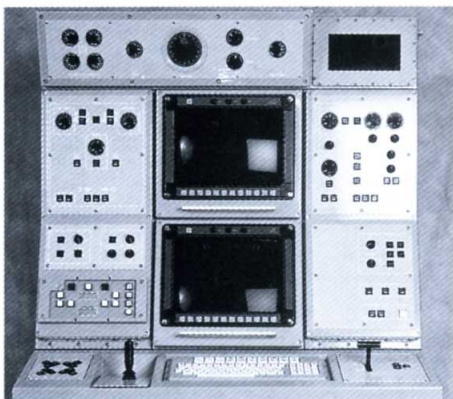
Regular Features

Viewpoint	1
Naval News	8
History Revisited	30
Naval Matters	28
Book Reviews	35





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KEEP WATCH

Those familiar with the badge of the Navy League of Australia – it is displayed quite prominently in the centre of this magazine – will have noted the inscription "Keep Watch".

The motto, which was inherited from the Navy League in Britain and is shared with that country and New Zealand, is generally assumed to mean that members of the keep a watchful eye on the state of the navy.

The motto was certainly appropriate when the League was formed towards the end of the 19th century; indeed concern at the time about the capabilities of the Royal Navy was the reason a Navy League was established in the first place; naval power was all-important not only to Britain and the British Dominions, but to other major countries which subsequently formed Navy Leagues or their equivalent to support their own naval forces. While this was the situation 100 years ago, are Navy Leagues still needed or specifically, does Australia need a Navy League as the 21st century draws near?

In a previous "Viewpoint" titled "The Changing Times" (January-March 1993) the writer stated:

"Naval power, or perhaps in Australia's case better described as naval capability, continues to be important, indeed vital, but it is only a part of the means of ensuring national security. Today its not enough or indeed sensible for the Navy League to simply advocate more warships, or this or that type of ship, or to seek more funds for the Navy and support naval policy in general as it has done in the past; today, the elected government's foreign policy, the role and state of the Army and Air Force, the industrial back-up available to the armed forces; these and many other factors must be understood if the Navy League is to have a meaningful role in our community".

"Viewpoint" went on to outline ways in which the League was adjusting to changed circumstances, e.g. by expanding its Youth-education role, and then referred to other factors to be taken into account if its national security objectives were to be achieved:

- public apathy
- media disinterest – reflecting rather than leading public attitudes
- changes in the defence organisation including the expansion of public relations facilities, reducing the need for the Services to have an "outside" or civilian voice to promote Service interests.

Public apathy towards defence matters is probably a natural result, so far as Australia is concerned, of a long period of peace. Certainly elements of the armed forces have been sent to war zones and incurred risks, but apart from the families and friends of the personnel involved, the greater part of the community has been untouched. Public attitudes could change in the event the forces suffered even moderate casualties and could well place pressure on the government of the day to refuse to take part in peacekeeping/peacemaking operations.

With occasional exceptions the media shows little interest in defence issues and the ability of the Defence Force to protect Australia's interests. This is understandable in the absence of a perceived challenge to Australia's territorial security. This situation would undoubtedly change if anything resembling a "real threat" arose but by then of course it would be too late to remedy any deficiencies in the country's defence arrangements.

Changes in the structure of the Australian Defence Force (and in the Forces of most other countries) due in part to breathtaking advances in technology, appear to the writer (who has been observing the defence scene at fairly close quarters for the best part of 25 years) to have created an atmosphere of "separateness" in the Armed Forces while at the same time the government, for economic reasons, is endeavouring to civilianize the ADF as

Continued on page 3

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The replica of HM Barque ENDEAVOUR. (Photo - ABPH Simon Poynton).

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THE NAVY

All enquiries regarding The Navy Magazine, subscriptions and editorial matters should be sent to:

The Hon. Secretary, NSW Division

NAVY LEAGUE OF AUSTRALIA

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Copy Deadline for next issue: 29th July 1994

KOORONGA

Dear Sir,

In reference to the mystery ship berthed behind HMAS VAMPIRE at HMAS CERBERUS in 1938 (photograph shown in April-June issue) it would appear to be the 'KOORONGA'.

In the publication Australian & New Zealand Warships 1914-1945, by Ross Gillett, she is referred to as a Training Ship constructed as a small tug, was renamed 'CERBERUS 11' 6/6/24 and operated as a tender to Flinders Naval Depot, Victoria.

During the Second World War carrying the name 'KOORONGA' she provided training for RANR ratings.

She had a displacement (tons) standard 60. LOA 70 feet, Beam 14 feet, Draught 4.2 feet. Machinery. Allen diesel, 126 b.h.p. Speed 9 knots. She was built at Williamstown Vic, completed in 1917 and was sold in 1948.

Yours sincerely,
Gordon Stirling
Seaholme Vic 3018

BLACK BESS

Dear Sir,

Re Graham Andrew's photograph, page 3 Viewpoint in the Navy April-June 1994.

The small vessel with the tall funnel berthed behind HMAS VAMPIRE is a tug named BLACK BESS.

Yours truly,
P.J. Walke
Hampton Vic 3138



The launch MARS in Port Phillip

MARS

Dear Sir,

In reference to the mystery ship photographed behind HMAS VAMPIRE at Westernport in the 1930s in the current issue of *The Navy* magazine, I enclose a copy of the personnel launch MARS which was well known around Port Phillip Bay earlier this century.

MARS was used to ferry stores and personnel from Queenscliff to Point Nepean and the South Channel Fort but I have never been able to ascertain who built the vessel, who owned it nor its ultimate fate.

The mystery ship bears a resemblance to MARS so I hope the attached photo may assist you in your research.

Yours sincerely,
Tim Ryan
South Melbourne Vic 3205

ARMY

Dear Sir,

I was reading the latest publication of *The Navy* League magazine, and read the article on Australian Army Watercraft and noticed these (some) vessels were powered by "Gray Marine Diesels" 64HN9.

I would like to know more about these engines if you can help me, or give me the address of somebody that may be able to.

I am a marine engine driver on the vessel which looks after the locks and weirs on the River Murray. I am a member of the Navy League.

Yours sincerely,
J.A. McCulloch
P.O. Box 61,
Moorook,
River Murray SA 5332

MILANG

Dear Sir,

I am writing to you on behalf of the museum that I am involved with.

We are a totally non-profit museum committed to the restoration, conservation and preservation of our river heritage (Murray/Darling River system). In particular we are interested and involved in the vessels that plied these rivers, from the paddle steamers, barges, small fishing boats, the sailing ships (that are unique to our end of the river) and the wide variety of small craft that were used for both work and recreation.

We have recently completed the salvage of our first paddle steamer, P.S. INVINCIBLE and restoration of her is progressing well

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with the intention that she be returned to operational (steam) condition, in as an original configuration as is possible. Additionally we have been given another paddle steamer P.S. ALFRED for which the salvage and the restoration costs are being substantially subsidised by private industry here in Adelaide (this vessel when restored will be the oldest steam paddle vessel in Australia and second oldest worldwide).

Of interest to the readers of your magazine is that we have several ex RAN boats including a 32 foot ex Royal Australian Navy motor cutter (complete with Kitchener Gear) which was built we believe in one of the British Dockyards and in the final process of securing one of the "whalers" that belonged to HMS TERRIBLE (later HMAS SYDNEY).

We are writing in the hope that some of your readers may be interested in assisting in the restoration and the upkeep of these two vessels either with labour or financially (we are a tax deductible group for all donations over \$2).

We can be contacted at the mailing address provided below and hope that you can be of assistance in retaining these vessels in operating order.

Yours sincerely,
D.K. Dunk
Milang Historic Steam
& Shipping Museum,
P.O. Box 91,
Milang SA 5256

TS VENDETTA

Dear Sir,

Following the inspection of TS VENDETTA last August it has been announced that TS VENDETTA (LEUT F. King NRC) has won the Navy League Efficiency Trophy as the Best Unit in Australia.

The trophy was presented to the Unit by the Chief of Naval Staff, VADM I. McDougall RAN on Sunday 27 November 1993 following a spectacular 'Naval Weekend' in Coffs Harbour.

On Saturday morning 27 members of the Queensland Naval Reserve Band gave a public recital in the Coffs Harbour Mall, followed by an afternoon recital at TS VENDETTA.

Saturday evening saw a Civic Reception attended by CNS, Mrs C. McDougall, the Mayor and Councillors of Coffs Harbour, the Qld Naval Band, WO P. Marsh RAN, Command Gunery, Staff and Cadets from TS VENDETTA and over 100 other invited guests.

During the Civic Reception Ceremonial Sunset was performed outside the Council Chambers by 45 Cadets of TS VENDETTA and the Band. Saturday concluded with a Dance at the Bowling Club attended by CNS and his wife and many other invited guests.

At 1000 on Sunday TS VENDETTA and the Band formed up and marched to the Coffs Harbour Civic Centre where, at a ceremony witnessed by CNS, VIPs and

the public, the Freedom of Entry to the City of Coffs Harbour was bestowed on TS VENDETTA by the Mayor of Coffs Harbour. TS VENDETTA then exercised the right by marching to the Cenotaph, being halted and challenged during the Street Parade by the local Police Inspector. On presentation of the Freedom of Entry Scroll the Parade moved on to the Cenotaph for a short

service followed by the presentation by CNS to TS VENDETTA of the Navy League of Australia Efficiency Trophy for the Best Unit in Australia. On completion of the Parade a BBQ lunch was provided at TS VENDETTA.

Yours truly,
V.C. Williams
Commander NRC
HMAS WATSON

viewpoint

KEEP WATCH

Continued from page 1

much as possible without privatising it completely. It is certainly a difficult time for Service leaders faced with a variety of competing pressures.

Given the present climate of public opinion it is clear to the writer that the Defence Force needs all the support it can obtain. Defence's own public relations organisation can only go so far; it can publicise ADF activities and explain when necessary incidents which attract public attention; it cannot however under any circumstances criticise policies of the reigning government no matter the harm the policies may be causing.

Rules prohibiting defence personnel from criticising or commenting on policy are of course perfectly legitimate and apply in most organisations. It might be expected that members of the Parliament would draw attention to policies perceived to be harmful but regretfully only a small number of parliamentarians appear to have made themselves familiar with intricacies of defence and foreign affairs.

The Navy League in Australia and sister Leagues in other countries have proved by their activities over the years that a group of citizens, reasonably well-informed on defence and related issues are capable of making their own judgement on those issues, can make a worthwhile contribution to national security. Our own Navy League has not hesitated to draw attention to deficiencies in its particular area of interest – maritime affairs – nor to criticise policies it believes to be wrong and it will continue to do so. We will continue to "Keep Watch".



Geoffrey EVANS
Federal President

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HMAS STUART off WA coast
HMAS VENDETTA as plane guard to HMAS Melbourne
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Replica of HM Bark Endeavour Launched in Fremantle

By Vic Jeffery, RAN Public Affairs Officer (West Australia)

Six years of battling against overwhelming odds came to fruition when the replica of HM Bark Endeavour was launched in Fremantle's Fishing Boat Harbour in Western Australia on 9 December 1993.

Launched the traditional way with wedges being driven to transfer weight to the cradle, then keel blocks, bilge blocks and side shores being removed before the ship and cradle were released by cutting rope lanyards.

Once free and with floating debris and poppets removed by the naval work boats Nos 1230 and 1260, the replica was towed around to the inner harbour by the Royal Australian Navy tugs QUOKKA and TAMMAR with the patrol boat HMAS BUNBURY assuming the role of guardship.

The \$15.5 million (Australian) replica of Captain James Cook's ship on his voyage of discovery to Australia was conceived in Australia's Bicentennial year, 1988 and after a series of financial setbacks has finally come to fruition.

With great detail being paid to authenticity, skilled craftsmen using original shipwrights' tools have crafted a magnificent replica of the original Endeavour, originally the Whitby Collier Earl of Pembroke, built at Fishburn's Shipyard in 1764.

Following sea trials in March, the ship was commissioned on April 17 before making her maiden voyage to Sydney, New South Wales where it will be shown at the Australian National Museum.

Registered for an unlimited international range as a sailing cargo ship, Endeavour is programmed to retrace



Launch of HM Barque ENDEAVOUR. (Photo - LSPH Scott Connolly)

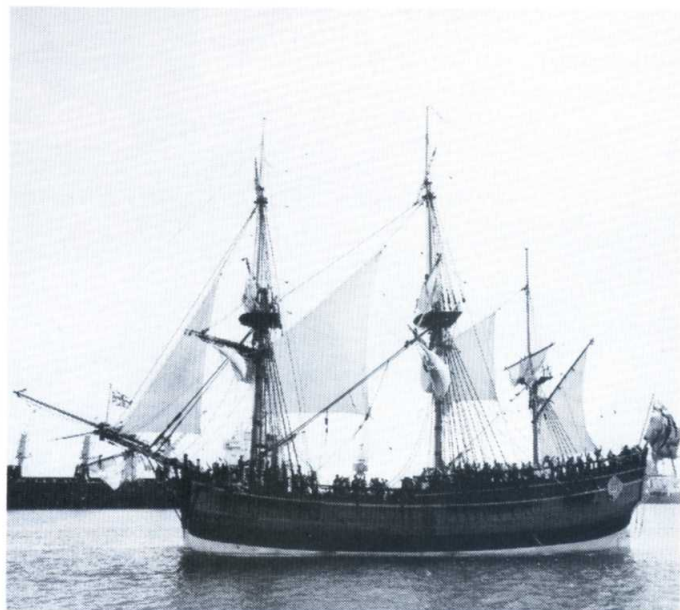
Captain Cook's voyage to England in the next few years.

Plans include a likely visit to Whitby in Yorkshire – the original Endeavour's

home port – and then Plymouth from where it will set out to re-enact Cook's voyage of discovery in 1770 to the Pacific and Australia.



ENDEAVOUR under charge of an RAN tug.
(Photo - LSPH Scott Connolly).



Port broadside of the new barque.
(Photo - ABPH Simon Poynton).

ADI PREFERRED FOR MINEHUNTER CONTRACT

The Minister for Defence, Senator Robert Ray, announced on 2 June, the selection of Australian Defence Industries (ADI) as the preferred tenderer for the construction of six coastal minehunter vessels.

The contract is expected to be signed in July, subject to the satisfactory conclusion of contract negotiations.

Senator Ray said, "The contest between Australian Defence Industries, the Australian Submarine Corporation and Transfield Shipbuilding for the \$1 billion minehunter contract has been extremely close."

"All three tenders were of excellent quality, offered high levels of Australian industry involvement and met the Navy's stringent requirements", Senator Ray said.

"ADI has offered the Italian designed Gaeta class minehunter, variants of which are in service in Italy, Malaysia, U.S.A. and Nigeria. The Australian

Submarine Corporation's tender was based on the Landsort minehunter with Transfield Shipbuilding offering a variant of the Sandown class."

The Chief of Naval Staff, Vice Admiral Rod Taylor said that the Gaeta class had proven and impressive minehunting characteristics and the Navy was looking forward to the vessel's introduction into service.

Senator Ray said, "The vessels will be constructed in a purpose built facility in Newcastle, New South Wales. All tenderers had offered the Newcastle region as the construction site for these vessels".

"With approximately 70 per cent Australian industry involvement in this project, several hundred new jobs expect to be created within the Hunter region and throughout Australia", the Minister said.

Construction will begin in the latter part of this year with the first minehunter planned for delivery in 1998 and the last in 2002.

The Gaeta Class Coastal Minehunter

By John Mortimer

For well over a decade the Royal Australian Navy has been assessing ways and means to meet Australia's mine countermeasures needs.

Because of the high cost of conventional minehunters and minesweepers, Australia sought low cost innovative solutions. This resulted in programs for the development of auxiliary minesweepers employing indigenously designed influence and mechanical sweeps, together with associated systems, and an inshore minehunting catamaran (MHC).

Trials with the MHC highlighted the problems associated with deploying such a small vessel over the extended distances of Australia's maritime approaches, seakeeping limitations in the conditions



Above:
The Italian minesweeper TERMOLI
of the Gaeta Class.



Left:
TERMOLI.

frequently experienced in coastal waters, particularly in southern waters, and the advantages offered by new technology, non-hull mounted sonars. Consequently, it was decided to pursue the construction of six coastal minehunters of a proven design, fitted with a variable depth sonar.

GAETA CLASS COASTAL MINEHUNTER

An evaluation of proposed designs resulted in a short list of the UK Sandown, Swedish Landsort and Italian Gaeta designs.

Australian Defence Industries and Intermarine Spa of Italy are sponsoring a derivative of the Italian Gaeta class. This vessel is an improved version of the Italian Lerici class design of which some 30 variants are either in service, or an order for the Italian, Malaysian, Nigerian and US navies.

The overall design philosophy adopted by Intermarine is based around providing a ship with optimum performance under sudden shock loadings. The hull has no ribs, frames or stiffeners to act as local stress risers that might lead to separation under shock conditions. In addition, the elastic properties of GRP, coupled with its good hull strength properties provide good overall hull shock and strength characteristics.

The Gaeta design also has machinery mounted on cradles suspended from bulkheads and deckheads. This advanced construction technique, together with the non-integral tanks and machinery foundations, results in significant acoustic isolation and enhances shock damage resistance. Gaeta also has separate propulsion plants for cruising and minehunting, which is particularly important in the Australian environment because of the significant distances involved in transiting Australian coastal waters.

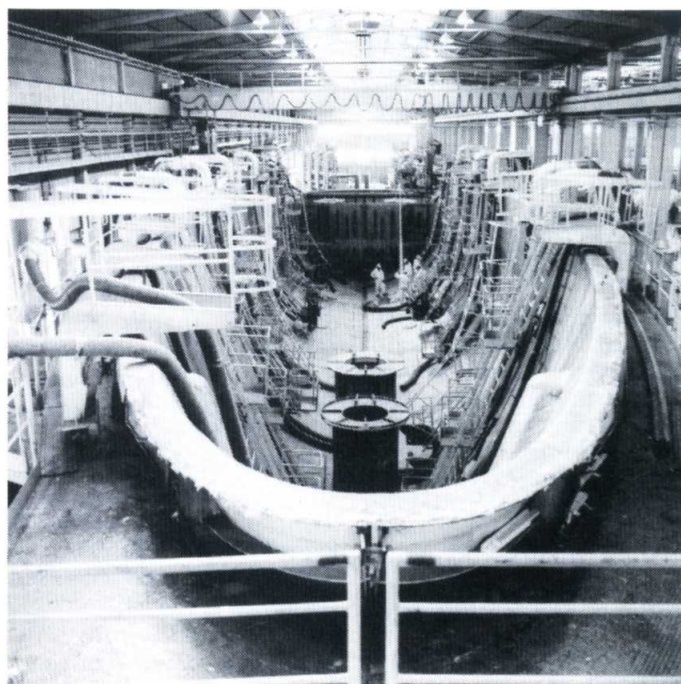
The Italian Navy operated its Lerici class successfully in the Persian Gulf in 1987-88 and again in 1990-91.

There is considerable flexibility in the design. The original Lerici design was some 50 metres length overall, displaces 502 tonnes full load and is fitted with a hull mounted sonar. At the other end of the spectrum the USN Osprey class is over 57 metres length overall, displaces 895 tonnes full load and is fitted with the SQQ32 variable depth sonar.

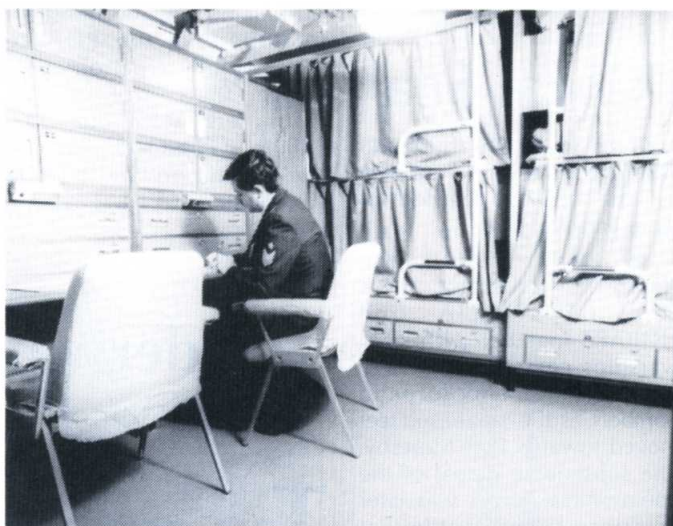
The Gaeta variant selected by the RAN has the following broad characteristics:

Dimensions

Length – 52.5 metres.
Beam – 9.9 metres.
Draught – 3.0 metres.



Gaeta class unit under construction



Senior sailor's accommodation.

Displacement – 720 tonnes.
Speed – maximum continuous in excess of 14 knots.
– minehunting using auxiliary propulsor units 0-6 knots.

Technical

Endurance at 12 knots – 1600nm (30% fuel remaining).
Propellor – single controllable pitch.
Propulsion plant – 1 x 1460kw Fincantieri GMT diesel.
Manoeuvring – 3 x 124kw electro-hydraulic motors driving Riva Calzeni retractable/rotatable thrusters.

Auxiliary diesels – 3 x 430kw Isotta-Fraschini auxiliary diesel.
Electric power – 3 x 350kw Ansaldo alternators.

Weapon System/Operational

Sonar (variable depth) – either GEC Marconi type 2093 or Raytheon Thomson AN/SQQ32.
Combat system – either GEC Marconi Nautis M or Paramax.
Mine disposal vehicle – either 2 x Pluto Plus or 2 x PAP 104 Mk5.
Minesweeping – lightweight double Oropesa.
Armament – one 30mm single barrel gun.
Recompression chamber – one two-man chamber.

Capacities

Fuel oil – more than 50 tonnes.
Fresh water – more than 13 tonnes.
Dry provisions – more than 20 days.



Bridge deck

Moreton Pays Off

HMAS MORETON has decommissioned after more than 30 years of dedicated service to the Royal Australian Navy.

The decommissioning took place at the base at 1200 on 11 May.

Chief of Naval Staff, Vice Admiral Rod Taylor, said MORETON's stalwart service throughout the 30 years had ensured that the RAN had been represented and supported in southern Queensland to the highest standards.

"In particular, there has developed a strong, hard working and enthusiastic naval reserve force in Brisbane," VADM Taylor said.

"For some time MORETON also provided the professional focus and home for the

Australian Amphibious Squadron.

"Most importantly, MORETON has rendered outstanding administrative and logistic support to the RAN over the many years of service.

"On behalf of the RAN I offer my thanks to all personnel who have served in, or been associated with, HMAS MORETON over the years," VADM Taylor said.

Despite the decommissioning the White Ensign will continue to fly in Brisbane in the newly formed Navy support office at Bulimba Barracks and at the PSO cell in Victoria Barracks.

Both organisations will continue to provide efficient service and the high standards which MORETON has in the past provided.

Battle of the Coral Sea

Representatives from the Royal Australian and United States Navies gathered at the Cenotaph, Martin Place, in Sydney on Monday, 2 May.

Run in conjunction with the Australian American Association, the service included a wreathlaying, Last Post and Reveille, prior to the parade marching off.

Leading the RAN contingent was Rear Admiral Tony Hunt, Naval Support Commander

with Mr Edwin Dorn, the US Assistant Secretary for Defence as the USA Presidential representative.

In May 1942, the Australian cruisers, HMA Ships AUSTRALIA and HOBART together with USN warships came under heavy attack from enemy torpedo bombers as the Japanese Fleet moved towards Port Moresby. The subsequent defeat of the enemy naval forces was later described as the "battle that saved Australia".

Anniversary of Cook's Landing at Kurnell

On 29 April, the Royal Australian Navy, in conjunction with Sutherland Shire Council, commemorated the 224th anniversary of the landing of Lieutenant James Cook, RN at Kurnell.

An estimated 1000 primary students from local schools witnessed the event.

The ceremony was held at Captain Cook's Landing Place Historic Site, Kurnell, taking the form of a parade by an

RAN Guard and Band, with the highlight being the flying of the "Middlesborough" Jack at the masthead.

The Middlesborough Jack was presented by the Shire of Middlesborough, Cook's birthplace in England, to Sutherland Shire in recognition of the close links between the two areas. It is identical to the Union Jack that was raised by Cook when he landed at Kurnell in 1770.

Joint Patrol Vessel for Malaysia

The Minister for Defence, recently announced that Cabinet had agreed to proceed with a proposal by the Australian company Transfield Shipbuilding Pty Ltd, to undertake a Project Design Phase (PDP) to construct patrol vessels for the Royal Malaysian Navy (RMN), and possibly the Royal Australian Navy under collaborative arrangements.

The Minister said, "A joint project with Malaysia will have significant strategic, political, industry, cost and employment benefits for both countries.

"The Government would assist a proposal by the Australian company Transfield to undertake the PDP, to develop fully a patrol vessel design. The cost of the PDP, estimated at about \$16 million, will be met jointly by the Commonwealth and Transfield.

"Australia is also planning to replace its 15 Fremantle Class Patrol Boats with more capable patrol vessels. Further consideration would be given to the Transfield proposal to build a common patrol vessel for both countries under collaborative arrangements.

"Transfield is the only Australian shipbuilder bidding for the multi-billion dollar Malaysian contract for up to 27 new patrol vessels to replace the RMN's existing fleet of patrol vessels, many of which have been in service for over 30 years. About 30 shipbuilding companies have submitted bids for the construction of the Malaysian patrol vessels, including from Germany, France, United Kingdom, Sweden and Denmark.

"A Malaysian decision on the preferred supplier for its patrol vessel, will probably be known later this year."

Underwater Tracking Range

The Royal Australian Navy accepted into service a new \$30m Under Water Tracking Range (UWTR) at HMAS STIRLING on 2 May.

The range, located some 80 nautical miles off the WA coast due west of HMAS STIRLING, was acquired primarily to support the sea trials of the new Collins-class submarines.

The range has the scope and size to be utilised as a Fleet Operations and Training Range in a similar fashion to the Barking Sands Underwater Range off Kauai in the Hawaiian Islands which was previously used by the RAN.

Underwater tracking is achieved by seabed

hydrophones locating and tracking 'pingers' fitted to submarines and torpedoes, whilst surface ships are tracked via a differential Global Positioning System provided by the Range Operations Centre.

The UWTR design and installation was a combined effort between the Naval Undersea Warfare Centre of the United States Navy as lead designer and program manager, SAIC Maripro - the US company responsible for the in-water system design and installation and the New Submarine Project.

This \$30m project has been completed on time, within budget and has provided a range tracking area almost twice as great as originally desired.

"RIMPAC"

Five of the Royal Australian Navy's major Fleet units sailed from Sydney in mid April to participate in RIMPAC 94, a five nation naval exercise held around Hawaii in May/June 1994.

Leading the RAN task group from Sydney were the guided missile frigates, HMA Ships SYDNEY and DARWIN with the guided missile destroyer HMAS HOBART and fleet oiler HMAS SUCCESS. Also participating in the exercise was the submarine HMAS OVENS.

The Australian ships, manned by more than 1,000 officers and men, were joined by more than 50 other warships and auxiliaries as well as elements from the US

Coast Guard, Air Force, Army and Marine Corps.

RIMPAC 94 was the 14th in a series of naval exercises, conducted every second year since 1971. The exercise is designed to enhance the tactical capabilities of the ships and personnel in major aspects of maritime operations at sea.

This year the exercise ran from 23 May through to 23 June and involved the Navies of Australia, United States of America, South Korea, Japan and Canada. For the RAN, RIMPAC provides the only real opportunity to secure the skills needed to operate in a hostile environment, well demonstrated in the Gulf War.

marked the occasion with a cake prepared by FLINDERS' chefs. Other activities, including a ship's ball, will be conducted in future months to commemorate the ship's "coming of age".

FLINDERS was built at Williamstown Naval Dockyard and commissioned on April 27, 1973, under the command of Lieutenant Commander I. Pullar.

After a series of trials in Port Phillip and Bass Strait the ship undertook a passage to her home port of Cairns, arriving in February 1974.

Since commissioning, FLINDERS has carried out 51 major surveys and numerous minor survey tasks.

The ship's surveys have met both defence and commercial requirements. They have included investigations of alternative routes through Torres Strait and Great North-East channel, intensive surveys of deep-draught shipping passages north of Cairns and examinations of proposed submarine exercise areas.

Of equal significance,

however, have been FLINDERS' ongoing surveys of the waters within the Great Barrier Reef to update charts that are still based, in many areas, on leadline soundings.

FLINDERS is best known for the role she played in opening a new shipping route through the Great Barrier Reef east of Mackay.

This route, which is appropriately named Hydrographers Passage, is now used regularly by merchant vessels carrying coal from Queensland to Asian and European ports.

Many of FLINDERS' other notable deeds have received much less publicity.

Twice the ship has been called on to render aid to the civil community, the first occasion being in Darwin in the wake of Tropical Cyclone Tracy.

FLINDERS undertook a critical echo-sounder and sonar survey of the harbour and approaches.

FLINDERS has steamed almost a half million miles in her 21 years in commission.



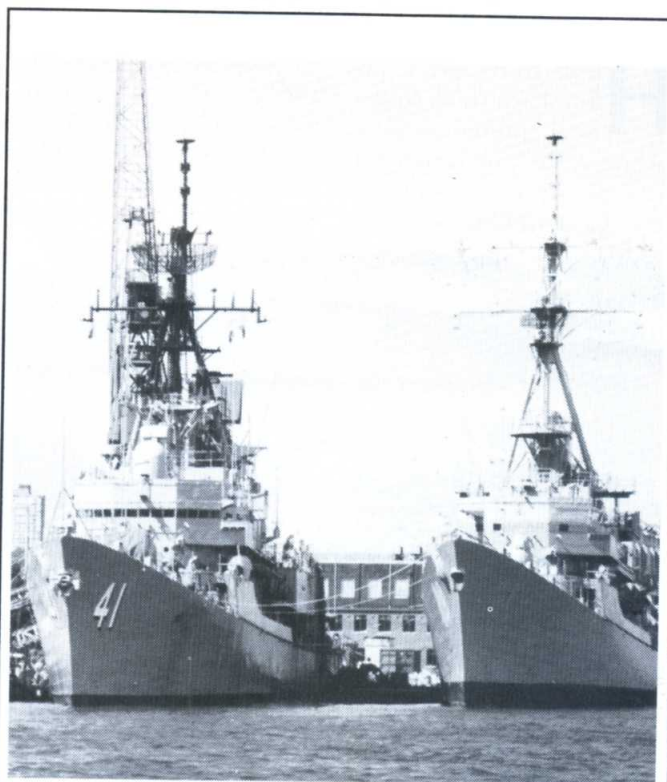
*An April 1994 view of the new frigate ANZAC, on the building slipway in Williamstown, Victoria.
(Photo - Tim Ryan).*

Survey Ship Comes of Age

On Wednesday, April 27, the hydrographic survey ship HMAS FLINDERS celebrated 21

years of sterling service to the RAN and Australian maritime industry.

The ship's company



*HMAS BRISBANE (left), completing her major refit at ADI in Sydney, with the former USS GOLDBOROUGH alongside.
(Photo Brian Morrisson).*



VADM McDougall is farewelled by HMAS SUCCESS. (Photo - RAN).

Final Salute for Top Admiral

Eight Royal Australian Navy ships, manned by more than 1800 officers and sailors, conducted a ceremonial entry to Sydney Harbour on 3 March 1994. In doing so, they also honoured the outgoing Chief of Naval

Staff, Vice Admiral Ian McDougall who retired on 9 March.

Admiral McDougall, aboard the submarine HMAS ONSLOW in Taylors Bay, took the salute with the participating ships in "line astern" formation, led by

HMAS HOBART.

The Fleet had just completed a ten day exercise off the NSW South Coast designed to test and evaluate the operational readiness of crews in a "high pressure" environment.

Missile Trials

HMAS NEWCASTLE, the Royal Australian Navy's new guided missile frigate (FFG), conducted her first missile firing trials off Jervis Bay on 23 March.

Commanded by Commander Rowan Moffitt, NEWCASTLE launched missiles from her forward Mk 13 missile launcher, completing a series of qualification trials begun in

early February. The FFG is now fully outfitted for her Fleet role and is expected to participate in her initial operational deployment, to Asia later this year.

NEWCASTLE's first port visit, (other than Sydney for homeporting and Newcastle

for commissioning), was Hobart in February, when the frigate conducted a four day goodwill stopover. Other activities planned for the ship during 1994 included continuing the work-up and a return voyage to Williamstown for final modifications by the builders.



HMAS NEWCASTLE launches her first Standard missile. (Photo - RAN).

Top Navy Ship

The heavy landing ship HMAS TOBRUK was awarded the Navy's top award for 1993 when the Governor General, His Excellency The Honourable Bill Hayden AC attended a shipboard ceremony on Monday, 28 March.

HMAS TOBRUK received the Gloucester Cup for the most efficient ship in the Fleet during 1993. The ship's contribution to Operation Restore Hope, the Australian operations in Somalia, was taken into account in the decision to grant the award.

Her Commanding Officer, Commander Kevin Taylor, accepted the Cup on behalf of the 130 plus officers and crew. During the year, the landing ship was active around Australia and overseas, supporting both Naval and Army operations in her role as an amphibious ship for the Australian Defence Forces.

For the remainder of 1994, TOBRUK is expected to participate in a number of exercises, prior to the major Exercise Kangaroo 95 in northern Australia.

Navy Mine Warfare Ships Protect Newcastle

Five mine warfare vessels of the Royal Australian Navy arrived in Newcastle on Monday, 9 May as part of a deployment to the city which lasted until 20 May 1994.

As part of Exercise Hunter 94, the ships, including the minehunter HMAS SHOALWATER and four auxiliary minesweepers, BANDICOOT, WALLAROO, BROLGA and KORAAGA, undertook training in the approaches to the port. The ships practised those skills necessary to keep a major port, such as Newcastle and its maritime approaches, open in time of conflict.

During the exercise, a Forward Support Unit, comprising 24 containers was established at Newcastle's No. 5 Lee Wharf, to provide all communications, operations, stores, workshop and galley facilities required to support the deployed ships. Accommodation for the duty watch was also included.

Currently, the RAN's mine warfare comprises both purpose-built catamaran minehunters, as well as former tugs and fishing vessels purchased by the Navy and converted to auxiliary minesweepers.

Navy to Acquire Mine Computer System

Defence has signed a \$28 million contract with CelsiusTech Australia (CTA) for an information system which will enable planning, coordination and training of personnel to protect approaches to Australian ports from mines.

Called the Mine Warfare Command Support System (MWCSS), it will be located within the RAN's mine warfare complex at HMAS WATERHEN on Sydney's lower North Shore.

The computer and purpose-designed software will bring information technology to bear on the task of keeping Australian ports such as Darwin, Port Hedland and Sydney clear of mines as well as protecting Australia's valuable offshore assets such as the North West Shelf and Bass Strait oil rigs. Ninety per cent or about \$25 million of the contract price will be spent in Australia.

The MWCSS will be used in conjunction with mine counter-measure vessels, and will:

- automate the planning, tactical development, conduct and information

processing aspects of mine warfare operations;

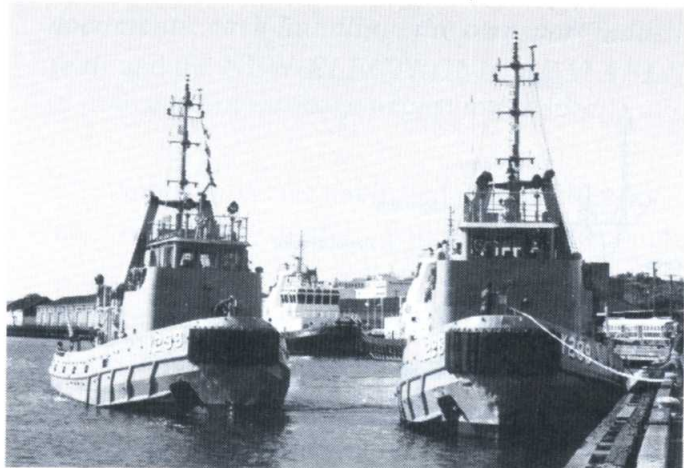
- maintain mine warfare weapons system software and technical support; and
- provide computer-based tools for the development and implementation of mine warfare related training.

The contract provides for design, development, integration, installation, setting to work, testing and acceptance of the System, logistic support for it and training packages. Work on the MWCSS will be carried out in Sydney and Adelaide. Training and operations will be conducted in Sydney and specific system development activities conducted at CelsiusTech's Adelaide headquarters.

The System will act as a 'force multiplier' ensuring that best use is made of mine warfare vessels and personnel.

It will facilitate effective strategic planning and judicious tactical employment of people and ships.

The three-year contract provides for acceptance of the system by mid-1997.



The auxiliary minesweepers WALLAROO (left) and BANDICOOT in Newcastle, 11 May 1994. (Photo - Brian Alsop).



Mine Warfare Ships in Darling Harbour, Sydney during their April open day. (Photo - RAN).

New Offshore Patrol Vessel

Federal Cabinet has given approval to proceed with the design of the Offshore Patrol Combatant – a new class of patrol vessel optimised for sustained patrol, response, surveillance and defensive operations in northern Australian waters.

As required by the 1991 Force Structure Review, the OPC will be more combat capable with better seakeeping qualities than the Fremantle Class Patrol Boat it replaces.

The delivery of the Offshore Patrol Combatants was originally planned for early next decade following a Life of Type Extension to the Fremantles.

Work to produce the detailed operational requirement and a suitable design has now been advanced to match a Royal Malaysian Navy project to acquire similar patrol vessels.

During a 1992 visit to Transfield Shipbuilding, the builder of the Australian Frigates and ANZAC ships, Defence Minister Ray and his Malaysian counterpart Minister Najib agreed that a collaborative program might offer advantages to both countries and should be investigated.

Following this, Force Development (Sea) branch of HQADF and the RMN commenced discussions on the development of a Joint Top Level Requirement.

Over the past 12 months those Joint Top Level Requirements have been agreed by both countries; and, in fact, a Joint Detailed Operational Requirement has also been negotiated by our Force Development (Sea) staff.

At the same time, Transfield entered the already well-advanced competition to supply patrol vessels to Malaysia.

Requirement

The Australian requirement is for up to 12 vessels with helicopters.

The Malaysian program approved last September is for 27 ships but with the initial build likely to be six to 12.

The helicopter for the Australian OPC will have a demonstrated performance in small ship operations and is expected to come from the intermediate size range (3 to 6 tonnes).

Helicopters in this class include the Westland Super Lynx and Eurocopter Panther (military version of the civil Dauphin and US Coast Guard Dolphin).

Malaysia intends building its ships at the Naval Dockyard facility at Lumut and Transfield has proposed a comprehensive Malaysian industry involvement program in line with Malaysia's industrialisation plan – Vision 2020.

The nature of the marketing into Malaysia and the possibility of sales to other countries convinced Transfield to produce its own vessel design.

This approach also avoids the high costs of paying expensive licence fees to an overseas ship designer.

To match the pace of the Malaysian program and development of the joint requirement, a project office headed by CAPT Chris Chamberlain was formed in July 1993 to fast track development and implementation of an acquisition strategy and to manage the project through the acquisition approval process.

The project officer provided the focus for the evaluation of a formal proposal from Transfield in September 1993 to develop a Joint Patrol Vessel ship design and associated commercial, industry and support packages.

Following consideration within Defence, the proposal was endorsed by Cabinet in March this year.

Benefits

Potential benefits of a collaborative project include lower acquisition costs because of the larger numbers involved and reduced operating costs from common support such as equipment overhaul, training and possibly spares pooling.

Transfield's sole source situation for the vessel design was accepted because it is the only Australian company (amongst 30-40 international contenders) bidding for the Malaysian program and because collaboration with Malaysia is the basis for advancing the Australian Project's schedule.

A similar sole source arrangement is likely for the construction phase, if approved, but a major consideration in awarding the project to Transfield would be that 70-80% of

75m Patrol Vessel

Propulsion

4 main engines — diesel
Twin shafts, 7000kW per shaft

Aviation capability

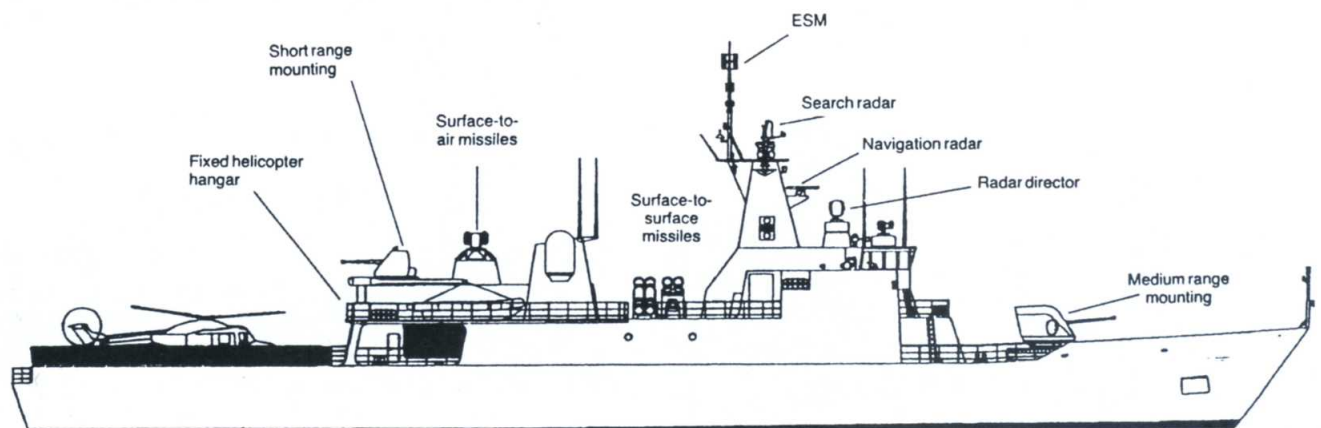
Operate, support and maintain
intermediate sized helicopter

Sensors

Surveillance radar
Fire control radar
Navigation systems
Electronic support measures
Electro-optic devices

Integrated systems

Command and control system
Communications system
Control and monitoring system
Administrative system



NEW OFFSHORE PATROL VESSEL

prime contract value would be competitively subcontracted by the company.

This subcontracting would include the construction of ship modules and the supply of ship equipment and systems.

Contract

The Project Office would have full visibility of the process to ensure genuine competition and value for money for the Commonwealth.

RAN vessels would be constructed in Australia but the modular hull design would allow distributed production of ship sections, nationally or collaboratively with Malaysia.

A contract for the nine month JPV Project Design Phase was signed in Canberra on April 8 by Dr John White, Chief Executive Officer of Transfield, and RADM Nick Hammond, Assistant Chief of Naval Staff - Materiel.

Timing for the Australian program is consistent with Malaysia's.

Following an initial shortlisting of international shipyards, Malaysia is expected to choose its partner before the end of the year.

Although Transfield's bid is understood to be highly competitive in Malaysia and the potential parallel construction with the RAN indicates an Australian Government confidence in the Transfield design, the international competition from countries such as Germany, France, United Kingdom, Denmark and Sweden is very strong.

If Transfield is not selected by Malaysia, the Australian program is likely to revert to its original timing with the life extension project for the Fremantles being reinstated.

Current planning has production contracts being signed by mid-1995 and lead vessels being delivered in 1998-99.

JPV – LEADING PARTICULARS

Length	: 75m
Beam	: 12m
Draught	: 3m
Displacement	: 1250 tonnes
Crew RAN	: 35 + Helo flt personnel
Accommodation	
RAN	: 64
RMN	: 100
Max Speed	: >25Kts
Econ Cruising Speed	: 12-16Kts
Endurance	: 6000NM at 12Kts

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 electro-optical system
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 ESM and DF equipment
 surveillance and navigation radars
 GPS navigation equipment
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 automatic stabilised close range gun
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 anti-ship missile decoy
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Australian Army Watercraft

Part Three

Trawlers and Tugs (AS & AT)

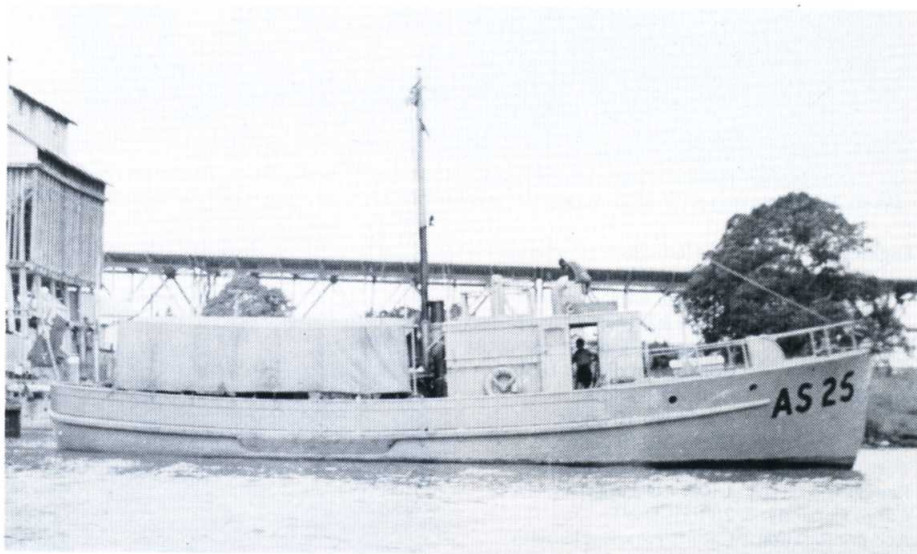
By Brian Alsop

This article, the third in this series, discusses those trawlers and tugs that have seen service since the Australian Army's first water transport units were formed during 1942. Many of the early workhorses of Army water transport during World War Two were trawlers and tugs taken up from civil sources.

Trawlers (AS)

Thirty trawlers of various types and sizes were requisitioned during late 1942 and early 1943. One of these, RADIO, was subsequently reclassified as a tug before taking up duty, thus having its hull number prefixed altered to AT. At only 36 feet long, AS22 WALSON was the smallest trawler in service. The largest, at 72 feet long was AS69 MELBIDIR. Several of these craft were modern when requisitioned, having been built since 1939 for use in the fishing industry. At least six requisitioned trawlers became war losses. One trawler, AS66 STUART THORPE was transferred to the US Army.

66 Foot Trawler. It was soon recognised that purpose built trawlers were required for use as cargo vessels around Papua New Guinea and the islands of the South West Pacific. The design selected was a typical seine trawler of the period. It became known officially as the "Vessel Cargo Wooden 66 Ft", being built in large quantities around Australia for the Australian Army, US Army and Royal Navy. A small number also saw service with the Royal Australian Navy, including six completed for the Services Reconnaissance Department (SRD) with junk or ketch rigging. One, AS1803 PEEBINGA,



Only two years old when requisitioned on 18 October 1942, AS25 SILVER FIN was a typical seine trawler of the 1940s.

transferred to the Navy in 1944 for use as a diving tender, becoming DB1. Renamed SEAL, she lasted till 1968.

Forty-two 66ft trawlers were eventually constructed for the Australian Army plus six for SRD use. Of these, only 32 had been delivered by 30 September 1945. Ninety were originally ordered, of which 42 were subsequently cancelled due war's end. Ten are noted in the 1944-

45 construction programme as being for "special requirements". These included seven Snake Class craft for SRD (of which six were completed), plus those vessels (including AS1778 NANYA) allotted to the Allied Intelligence Bureau (AIB).

Including, craft built to special requirements, three variants of the 66 foot Trawler were built. Most were diagonally planked and completed with a rounded stern. A small number, however, were longitudinally planked with square sterns. The third variant were ketch or junk rigged craft built for "special requirements". They all became the Snake Class when commissioned for RAN service with the SRD. All were laid down for the Army, being given "snake" names when transferred to Navy following the decision to commission all SRD craft longer than 40 feet. Army hull numbers were retained throughout their Navy service. Specifications were as follows.

Army Numbers:	AS1735-1819 plus others.
Construction:	Wooden - copper sheathed to 6in above loaded waterline.
Dimensions:	Length overall 66ft Breadth 17ft Depth (moulded) 9ft Draft loaded 8ft aft, 6ft fwd light 6ft aft, 4ft fwd.



AS26 BALMAIN on the Brisbane River. This vessel was requisitioned in October 1942 from Clayton & Adams, Berrys Bay, NSW.

AUSTRALIAN ARMY WATERCRAFT



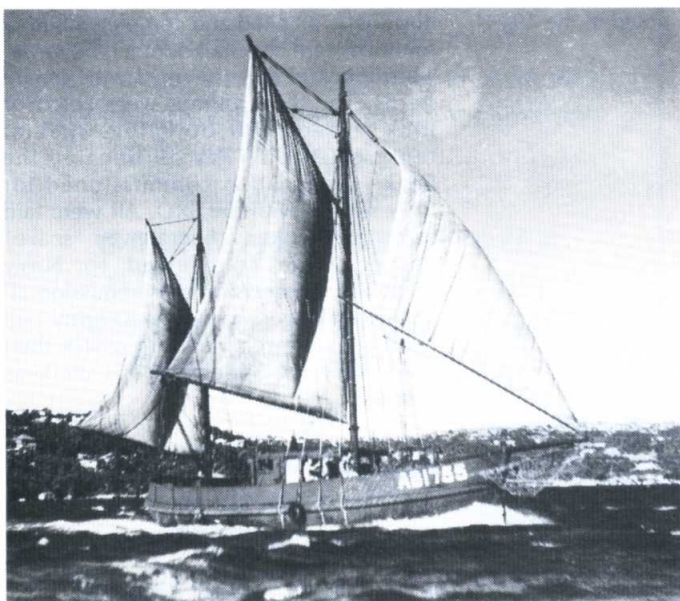
The "66 foot Wooden Cargo Vessel", AS1742 MADALYA under Storey Bridge on the Brisbane River. As comparison with AS25 shows, she was built to a typical seine trawler design of the 1940s.

Engines:	1 x Hercules DNX marine diesel, 270bhp, or 1 x Gray 64HN9 marine diesel, 225bhp, or 1 x GM 6-71 Briar Conversion diesel, 165bhp.
Speed:	Cruising 8 knots, maximum 10 knots.
Fuel:	Diesel, 1240 gallons (4 tanks).
Range:	1500 miles approx.
Cargo Capacity:	28 tons DWT.
Accommodation:	Cabins - 2 x single berth, 1 x 4 berth (Total 6 berths).
Crew:	6.
Armament:	1 x .303 Twin Vickers.
Purpose:	Transport of stores and/or personnel.

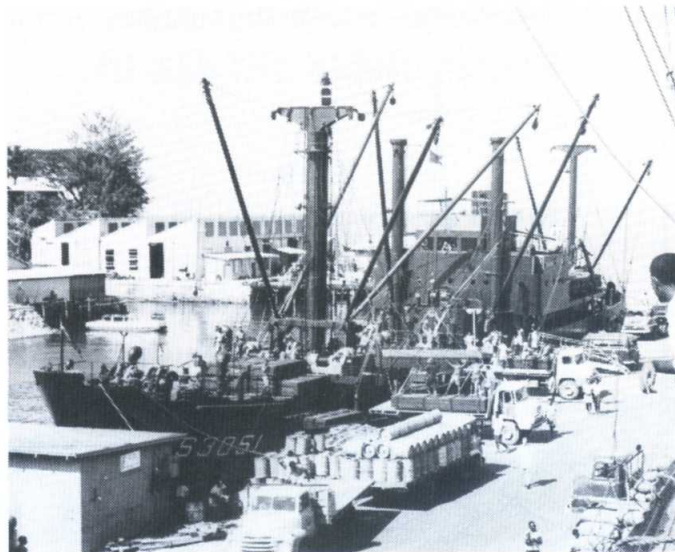
Although intended for war service only, the 66 foot trawler survived in Army use for many years. The last one, AS3050 (ex AS1739) LERIDA, remaining until the mid 1970s.



AS1757 MOLONG undergoing trials at Newcastle, NSW.



A variant of the 66 foot trawler, AS1755 MINGELA was commissioned as HMAS DIAMOND SNAKE for service with the SRD.



AS3051 JOHN MONASH discharging cargo in Port Moresby on 1 October 1965. She was on her first task following refit for Army service. The tub for her 40mm Bofors had not been fitted in the bows at this stage.

AUSTRALIAN ARMY WATERCRAFT

Army Number: AS3051.
Construction: Steel.
Dimensions: Length overall 233ft 2in
 Breadth 37ft 6in
 Draft loaded 16ft 10in aft,
 12ft 5in fwd
 light 10ft 4in aft, 3ft 6in fwd.
Engines: 1 x British Polar M47M
 diesel, 1120bhp @ 250rpm.
Speed: Cruising 9 knots, maximum
 11 knots.
Fuel: Diesel, 74 tons.
Range: 4000 miles.
Cargo Capacity: 1200 tons.
Accommodation: Berths for 41 crew plus 27
 passengers.
Crew: 41 war, 26 peace.
Armament: 1 x 40mm Bofors.
Purpose: Transport of general cargo
 and training vessel.



Above: Small harbour tug AT80 ACTIVE.



Left: AS3052 TAROOKI aground on 17 May 1973. She became a total loss.

Bottom: Cargo and Training Ship AS3051 JOHN MONASH later in her Army career.

The final AS vessel was the wooden trawler AS3502 TAROOKI. Designed for service during World War Two, but completed after War's end, she was employed as a landing craft control ship. After service in New South Wales coastal waters, TAROOKI spent the remainder of her career in Papua New Guinea. Her career ended abruptly when, on 13 May 1973 she ran aground on a reef near Coutance Island on the south coast of Papua. After an extensive air and sea search, the vessel was located on 17 May and her crew rescued. Subsequent attempts to refloat the vessel failed, TAROOKI becoming a total loss.

Army Number: AS3052.
Construction: Wooden.
Dimensions: Length overall 57ft 6in
 Breadth 16ft.
Engines: 1 x Caterpillar 333 diesel,
 220 bhp.
Speed: 9 knots.
Fuel: Diesel.
Range: 900 miles.
Crew: 6.
Armament: Nil.
Purpose: Landing craft command.
 Transport of stores and
 personnel.

Since the disposal of JOHN MONASH in 1974, no vessels in Army service have borne the AS hull number prefix.



Tugs (AT)

Tugs were among the first craft to be used by the Australian Army during the Second World War. Local tugs were employed with barges in the lighterage role at Tobruk in support of Australian and other Allied troops during the North Africa campaign. These vessels never appeared on charge with the Army and were operated by hastily organised dock operating companies. With the formation of Army Water Transport in Australia during 1942, there arose the need for the Army to have its own tugs for lighterage and towing duties.

Along with the other types of craft needed, twelve tugs were requisitioned for Army service in late 1942 and 1943.

One craft, AT193 MINAH was not impressed, the other eleven entering service after varying degrees of work had been carried out on them to ready them for use. Age and condition varied enormously, from the ancient like AT433 PLOVER (built 1910), to relatively modern craft such as AT440 KEERA (built 1926 and remaining in commercial service till the mid 1960s).

Although generally included among the requisitioned tugs, one vessel, the 67 foot AT139 MARS, had been operated by the Army since 1891. She was built at Williamstown, Victoria and used as a general workboat based at Queenscliff. Operated by the Fortress Engineers, her duties included target towing as well as

AUSTRALIAN ARMY WATERCRAFT

transport of personnel and stores between the various forts that guarded the entrance to Port Phillip Bay.

As with other types of craft, it was soon apparent that purpose built tugs were needed. Three tug types were subsequently designed and built in Australia for war service. These were officially designated the "Tug Steel 93ft", "Tug Steel 75ft" and "Tug Wooden 45ft".

93 Foot Steel Tug. Ten of these large tugs were ordered for the Australian Army prior to March 1945. A further three were on order for the Royal Navy. By mid 1945 it was apparent that fewer tugs of this type would be needed than originally anticipated. Consequently, during July orders for two craft (AT2388-2389) were cancelled outright, with a further three (AT2383, 2384 and 2390) transferred to the Royal Australian Navy whilst under construction. These latter three were launched as DT931 EMU, DT932 BRONZEWING and DT933 MOLLYMAWK. With the end of hostilities, work was suspended on four other tugs pending their sale. Parts from these were eventually used in the construction of two tugs, H.F. SEARL and A.R. FORD, for the NSW Department of Public Works. Following their sale, the three RN tugs were completed in late 1946 and early 1947 for the Maritime Services Board of NSW as BORAY, BOAMBILLY and BURRAWAREE.

Unlike many other small craft built for the Armed Forces during World War Two, the 93 foot tugs were constructed in regular shipyards – Morts Dock, Poole & Steel and Walkers – under Royal Australian Navy supervision. Their design was based on British Admiralty recommendations for sea going vessels with due regard for the availability of engines.

Only one 93 foot Steel tug, of the original ten ordered, saw Army service on completion. Following completion by Morts Dock & Engineering, Sydney during April 1946, AT2382 FREDA was sent north to Rabaul for Army duties. She remained in Army green for only a short time, being sold in 1949 to the Melbourne Harbour Trust. MOLLYMAWK was the only other tug of the type to be used by the Army. In 1957, after eleven years with the Navy, she transferred back to Army Water Transport as AT2383. MOLLYMAWK was sold in 1963 following the arrival of two new 60 foot tugs, JOE MANN and THE LUKE.

Army Numbers: AT2382-2391.
Construction: Steel.
Dimensions: Length overall 96ft 6in
 bp 93ft 9in
 Breadth 21ft 3in
 Depth (moulded) 10ft 6in
 Draft light 9ft 9in aft,
 8ft 6in fwd.
Engine: 1 x Crossley HR8 marine
 diesel, 440hp.

Speed: Service 6 knots, maximum
 9 knots.
Fuel: Diesel, 29 tons.
Range: 2000 miles.
Accommodation: 1 berth in deckhouse (CO)
 7 berths forward
 9 berths aft.
Crew: 17.
Armament: 1 x 20mm MG.
Purpose: Ocean and harbour towage.

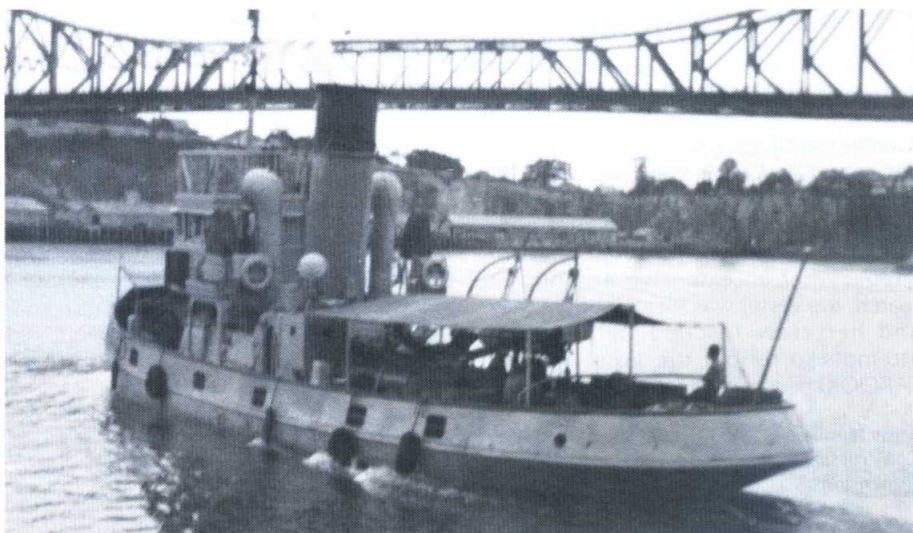
75 Foot Steel Tug. Designed for general towage duties, 75 foot steel tugs were built for both the US and Australian Armies. Sixteen US Army craft subsequently transferred to the Royal Navy. Following a prototype built for the US Army, 30 of these tugs were ordered for the Australian Army, the Australian version incorporated certain



Requisitioned tug AT166 RADIO on the Brisbane River following her refit for Army service.

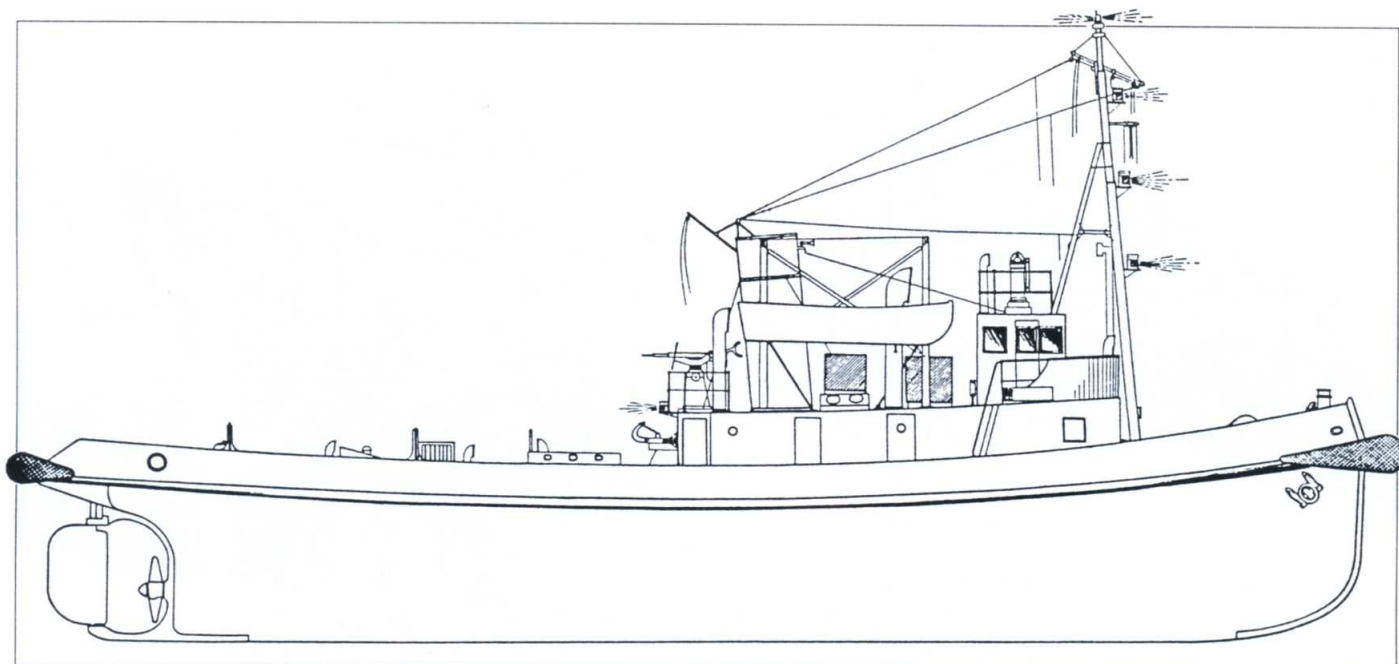


AT174 "SHELL 24" at Brisbane with the launch AM65 MISS ENID alongside. The tug was requisitioned from Shell Oil Company on 28 April 1943.



AT 85ft 5in length, AT440 KEERA was the second largest requisitioned tug used by the Army during World War Two.

AUSTRALIAN ARMY WATERCRAFT



Profile of the 93ft Steel Tug as published in March 1945, one month before the first of class was laid down.



AT2383 MOLLYMAWK in Chowder Bay, Sydney following her transfer from Naval to Army control.

modifications to render them more seaworthy, stable and stronger. Australian vessels were all assembled from sections prefabricated in the Victorian Railways Workshops. Assembly was undertaken by a variety of firms; many not normally associated with ship construction, including "J & A Brown & Abermain Seaham Collieries Pty Ltd", Bernard Smith, G.E. Bryant, BHP and J. Wallace. Ship repairers Storey & Keers also undertook assembly work.

Tugs of this type for the Australian Army were slow in coming, initial production all having been allocated to the US forces. By March 1945, Army requirements had been reduced to ten vessels due to the limited role perceived for the class. With the end of hostilities, the requirement was further reduced to 6 as of 30 September 1945. By this time four had been delivered to the Army with another two building. Although their service lives were brief, several 75 foot steel tugs were put to commercial use; some remaining to the 1990s.

Armament: 2 x .303 Twin Vickers MG, or 2 x .5in Browning MG.
Purpose: General towage within harbour and sheltered waters.

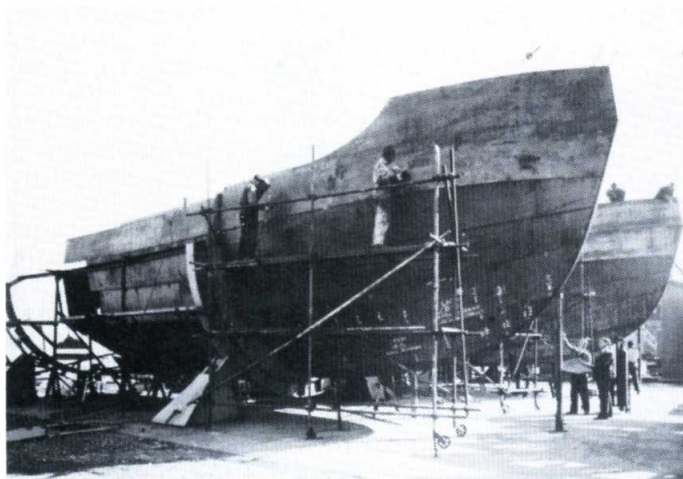
45 Foot Wooden Tug. Built in large numbers to a simple and robust design, the 45 foot wooden tug became the towing workhorse for Army Water Transport during the latter stages of World War Two and after. Records show 65



One of the Walkers built 93ft tugs during trials on the Mary River. Although delivered on completion to the Maritime Services Board, she is painted grey.

Army Numbers: AT2196-2215, 2223-2232.
Construction: Steel.
Dimensions: Length 75ft
Breadth 18ft
Depth (moulded) 9ft 11in.
Engine: Crossley HR4 marine diesel, 220hp.
Speed: Service 7 knots, maximum 8.5 knots.
Range: 1500 miles.
Accommodation: 4 berths aft
5 berths forward.
Crew: 9.

vessels ordered during the War for Australian Army use plus another 12 for the Royal Australian Navy. Sixty-two Army tugs were under construction or delivered by March 1945. Although only five are noted as delivered at this time, it is clear that several more had seen service prior to this date. Forty-four craft were earmarked for transfer to the Royal Navy following alterations and it appears the numbers of tugs "outfitting" reflect



75ft Steel Tugs being assembled on rotating cradle for ease of welding.



45ft tugs and 66ft trawlers being fitted out for the Australian and US Armies in Sydney on 16 September 1944. At right is Australian AT1520 COMBARA with US Army WT101 KOORUGGIN alongside. In the background is TL11 MANJIRA, built for the US then transferred to the Royal Navy in 1945.

this. Six ex-Army tugs with the Royal Navy were subsequently transferred to the Netherlands East Indies during late 1945. One tug, AT1550 GIRRAH was transferred to the RAN as TB5 prior to War's end. Another AT1536 DOOEN went to the Navy in 1958. One hundred and fifteen 45 foot tugs were also built in Australia for the US Army during the Second World War.

These sturdy craft remained in Army service till the 1960s. The last Navy 45ft tug, ex-Army AT1536 was paid off during 1993.

Army Numbers: AT1503-1557, 1817, 2010-2015, 2239-2241.
Construction: Wooden - copper sheathed.
Dimensions: Length overall 45ft
 Breadth 14ft
 Depth (moulded) 7ft
 Draft, loaded 5ft aft, 4ft fwd
 light 6ft 6in aft, 5ft 6in fwd.
Engine: 1 x Hercules DNX marine diesel, 270bhp, or
 1 x Gray 64HN9 marine diesel 225bhp, or
 1 x GM 6-71 Briar Conversion diesel 165hp, or
 1 x Ronaldson & Tippet 8-3-2 marine diesel 100bhp.
Fuel: Diesel, 1000 gallons (4 tanks).
Speed: 8 knots.
Range: 500 miles.
Accommodation: 4 berths in forecastle.
Crew: 4.
Armament: 1 x .303in Twin Vickers.
Purpose: Harbour towing.

Since 1945, only one other tug type has seen Australian Army service, this being the 60ft 6in Steel Tug.

60 Foot 6 Inch Steel Tug. Two vessels of this type, JOE MANN and THE LUKE, were constructed for the Army by Adelaide Ship Construction Pty Ltd at Birkenhead in South Australia. Entering service during March 1963, the tugs were soon in the news, with JOE MANN sinking overnight at her mooring in Chowder Bay on 10 April 1963. Salvaged the following day, she was refitted, returning to work some months later.

These two tugs were the first Army craft of significant size to not have their allocated hull numbers painted on their bows. Instead, names were worn on both bows and stern, just like their merchant cousins.

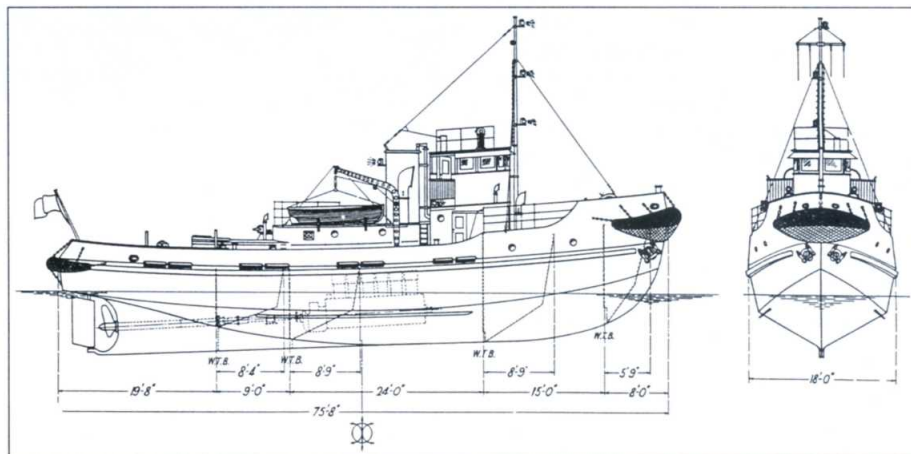
While JOE MANN has always been Sydney based, THE LUKE spent a large part of her Army career working from Brisbane.

Following the disbandment of 34 Water Transport Squadron at Bulimba, AT2701 THE LUKE was sold at auction in

Brisbane during June 1993. Her sister remains in service with 34 Water Transport Squadron in Sydney. The future for AT2700 JOE MANN however, looks doubtful. It seems likely that she too, may soon be retired in the not too distant future, without replacement.

Army Numbers: AT2700-2701.
Construction: Steel.
Dimensions: Length overall 60ft 6in
 Breadth 16ft 6in
 Draft, loaded 5ft 6in aft, 5ft 5in fwd
 light 4ft 6in aft, 4ft 5in fwd.
Engines: 2 x GM 6-71 series diesel, 330bhp @ 1800rpm.
Speed: Cruising 8 knots, maximum 10.2 knots.
Fuel: Diesel, 2049 gallons.
Range: 5500 miles.
Accommodation: 8 berths.
Crew: 6.
Armament: Nil.
Purpose: General towage duties and fire fighting.

Perhaps the most unusual tug of World War Two was AT1434 ALEC. Developed by Ford Motor Co from the ALC20 landing craft design, it was built at their Geelong plant. It retained the same overall dimensions as the ALC20, that is 54 feet long with a beam of 13 feet. Only one tug was built, suggesting the design was not successful. It was based in Sydney with the School of Military Engineering.



75ft Steel Tug in profile.

AUSTRALIAN ARMY WATERCRAFT

With the passing in 1974 of the last ship to wear the AS prefix, and the uncertain future of the Army's last tug, the use of AS and AT prefixes to hull numbers may soon pass into history, along with the many craft which wore them so proudly.

The fourth and final article in this series will discuss those craft that wore the AV prefix. Designated as "Army Vessels" they were the larger, sea-going members of Army's fleet.

Bibliography

Documents and Pamphlets:

1. Various official documents including:
 - a. AOU 1/1943, *Distinguishing Signals-Small Vessels and Craft-Australia*, Navy Office, Melbourne, July 1943.
 - b. AOU 1/1943 N(1), *Addendum No 1 to AOU 1/1943*, Navy Office, Melbourne, January 1944.
 - c. *Aust Army Small Craft as at 24 Nov 43*.
 - d. *Aust Army Small Craft as at 12 May 44*.
 - e. *Correction List No 4 to List of Aust Army Small Ships*.
 - f. *Engineer Equipment Technical Report No 1 (Small Craft)*, Mar 45.



AT2700 JOE MANN being raised on 11 April 1963 after sinking at her moorings in Chowder Bay, Sydney only one month after delivery.



45ft Wooden Tug, AT1503 BOURBAH beached after a cyclone at Bougainville during May 1945.



AT2700 JOE MANN at Woolwich in 1972. AS3051 JOHN MONASH is behind her.

- g. *Register of Army Small Craft* (dated 15 Jul 44).
- h. *Small Marine Craft Programmes - Quarterly Review of Uncompleted Projects as at 30th September 1945*.
- i. *Small Marine Craft Programmes - Quarterly Review of Direct War Efforts as at 30th September 1945 - Completed Projects*.
- j. *Statement Covering the Review of the Programme of Army Requirements of Small Marine Craft as at 30th June 1945*.
2. Various Australian Army information pamphlets including:
 - a. *Royal Australian Corps of Transport - 10 terminal Regiment*, (dated 1981).
 - b. *Ships and Craft of Royal Australian Engineers (Transportation)*, (dated about 1967).
3. Various Department of Administrative Services "Request for Tender" documents.

Books:

1. M.W. Askey, *A Definitive History of the Participation of Australian Water Transport Units in World War Two*, unpublished manuscript.
2. R. Gillett (Ed), *Australia's Armed Forces of the Eighties*, Child & Henry Publishing, Brookvale, NSW 1986.
3. MajGen R.R. McNicoll, *The Royal Australian Engineers 1919 to 1945 - Teeth and Tail*, The Corps Committee of the Royal Australian Engineers, Canberra, 1982.
4. Col J.H. Pearn, *Watermen of War*, Amphion Press, Brisbane, Qld, 1993.
5. *Soldiers at Sea*, Australian Water Transport RAE AIF Association (NSW Branch), Strathfield, NSW, 1990.
6. *Soldiers at Sea Mk II*, Australian Water Transport Association (NSW Branch), Strathfield, NSW, 1992.

Articles:

1. "Australian Wartime Achievement", *The Australian Power Boat and Yachting Monthly Magazine*, August 10, 1946, pp 18-19.



AT2701 THE LUKE slipped at Ballina, NSW on 6 March 1987.



Under conversion to the training ship role. (Photo - RAN).



At sea on trials, prior to commissioning. (Photo - RAN).

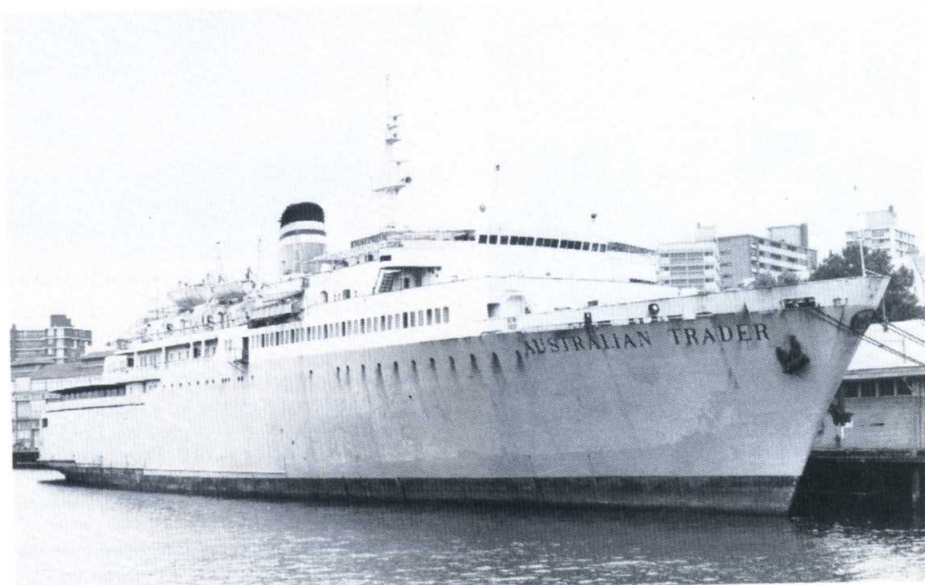
Farewell Jervis Bay

The Royal Australian Navy farewelled its training ship, HMAS JERVIS BAY, on Thursday 7 April, when Ceremonial Divisions were held aboard.

First commissioned by the Navy on 25 August 1977, the ship was launched in 1969 for the Australian National Line as AUSTRALIAN TRADER. She was purchased by the Navy in January 1977 for conversion to a training ship.

Having retained a roll-on/roll-off cargo capability, JERVIS BAY has also seen extensive service as a logistic support vessel, in addition to her training role. In this capacity, the ship sailed twice to Somalia (with Australian troops and equipment) as part of Operation Solace between December 1992 and May 1993.

In late April the ship's company left Sydney for the United States of America



AUSTRALIAN TRADER, laid up in Sydney, December 1976. (Photo - John Mortimer).



to take delivery of JERVIS BAY's replacement; one of two Newport Class ships the RAN is purchasing from the USA. Following arrival in Australia during the second half of this year, the new ships will be converted to the Training and Helicopter Support Ship role to allow the operation of up to four large helicopters in place of the present one.

The new ship will give the Navy a more effective training capability than that provided by JERVIS BAY, while retaining the capacity to transport large amounts of Army equipment and personnel when required.

Her last few weeks in commission, HMAS JERVIS BAY lays alongside HMAS TOBRUK (left). (Photo - Brian Morrisson).

FAREWELL JERVIS BAY



*Rebuilt with the new training bridge above the original structure.
(Photo - RAN).*



*Alongside in Cairns, 1991.
(Photo - RAN).*



Working with an LCH during Exercise Kangaroo 92. (Photo - John Mortimer).

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Sydney's Unknown Fleet

When the subject of the Navy in Sydney is raised, most people think of major warships. However, the Royal Australian Navy must sustain these warships via its own fleet of support craft. These range in size from 12 to 39.25 metres and are controlled by the Navy's "Master Attendant", currently Commander Glen Robinson.

Most visible are three 50 foot (15.5m) harbour tugs used to assist in berthing and unberthing ships at the Fleet Base and Garden Island Dockyard. Named BRONZEWING, CURRAWONG and MOLLYMAWK, the first two tugs were built in Sydney by Stannard Bros and the third in Brisbane by Perrin Engineering, entering service between 1968 and 1972.

Two 39.25 metre water/fuel lighters, WALLABY and WOMBAT, are operated to refuel and water ships. Williamstown Dockyard built four such craft for the Navy during 1983-84, the other two being based at Jervis Bay and in Western Australia.

General supplies and stores are shifted about the harbour using three 24.22 metre self-propelled crane stores lighters, WATTLE, BORONIA and TELOPEA. A catamaran design, these



Two CSLs, two tugs and a water/fuel lighter underway on Sydney Harbour. (Photo - RAN).



Two 15.5m tugs escort a water/fuel lighter. (Photo - RAN).

useful craft were built by Cockatoo Island Dockyard. Of similar catamaran hull design, is OSL 304, which is designed to act as a pollution control lighter. It may also be used to transport water supplies or aircraft.

A variety of smaller craft are also operated by the Master Attendant. These include ten 40 foot workboats, two new 9.3 metre Noosacat harbour personnel boats, eight metre Sharkcat launches plus several dumb lighter of numerous types.

All civilian manned, the Master Attendant's "fleet" are hard working craft that ply the harbour daily, going about their duties without fanfare – just getting on with the job! Their's is an essential task, without which the warships of the RAN could not put to sea.

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HMAS BRISBANE in 1991. (Photo - RAN).

HMAS BRISBANE Rejoins Fleet

After a 10 month long refit HMAS BRISBANE, known to all as the 'Steel Cat', has joined the fleet again. To mark the occasion of the completion of her final refit and the beginning of her final operational phase, a Rededicated ceremony was held on 24 May at Garden Island Dockyard.

B RISBANE is a one of three Perth class Guided Missile Destroyers, which arguably remain the most potent destroyers in the southern hemisphere.

BRISBANE was commissioned into the Royal Australian Navy in December 1967 and has seen active service in two conflicts. The ship first served on the gunline off Vietnam in 1969 during an eight month tour of duty. She completed another 8 months on the gunline in 1971. Her return to Sydney in October 1971 marked the end of the Royal Australian Navy's combat role in the Vietnam conflict.

BRISBANE's greatest challenge since Vietnam was her role in the Gulf War. Before departing for the Gulf she was fitted with two Close in Weapon Systems for defence against missiles; satellite communications and a electro-optical surveillance system. This work was accomplished in record time due to the hard work and dedication of both the Ship's crew and Garden Island dockyard staff, who worked around the clock until

completion. When hostilities began on 17 January 1991, BRISBANE became the only current Australian Naval Unit to serve in two wars. Throughout the war BRISBANE provided a protective air defence umbrella for American carrier groups. She spent 47 days straight at sea and earned a Meritorious Unit Citation presented by the Governor General of Australia, Bill Hayden.

Other highlights of BRISBANE's career include participation in "Operation Navy Help Darwin" in the aftermath of cyclone Tracy and representing Australia at the Queen's Silver Jubilee Fleet review.

A feature of the recent ceremony was the presentation of a "Three Star" safety award from the National Safety Council of Australia, to acknowledge the high standards of occupational health and safety maintained by BRISBANE throughout the refit.

Much work has also been done to upgrade and renew existing systems and equipment. New communications equipment has been installed, the ship's boilers have all been dismantled and

fully refurbished, while extensive hull preservation work has been completed. All weapon systems and related sensors were carefully overhauled and renewed, including the fitting of new barrels to both five inch guns.

During the refit considerable work was undertaken to improve ship's habitability. This included additional accommodation for the ship's company of 333, a new recreational space plus new equipment in the main galley. In accordance with the Navy's commitment to environmental protection, a new sewage treatment plant has also been fitted.

In the months ahead the ship will undertake intense exercises off the East Australian coast in readiness for a four month deployment to South East Asia. In company with other Royal Australian Naval units, she will participate in a number of multi national exercises. BRISBANE will also represent Australia at celebrations to mark the 50th anniversary of the battle of LEYTE Gulf.

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Noosa Cats Arrive

Four 9.3 metre harbour personnel boats are now in service with the Royal Australian Navy.

Built to a catamaran design by Noosa Cat Australia of Noosaville, Queensland, the first boat, number 0901, began duties on 15 December 1993. The second craft was delivered in late February 1994, with the final two during April. Two of the boats are based in Sydney with one each allocated to HMAS CRESWELL at Jervis Bay, NSW and HMAS STIRLING in WA. The vessels replace 33ft and 26ft harbour personnel boats that have been withdrawn from service.

Built to a commercial design, with a proven hull and machinery layout they are the first 9.3m Noosa Cats completed in a "ferry" configuration. The hull is divided into 18 watertight compartments with automatic bilge pumps aft. The vessels are powered by twin Volvo Penta AQD41DP 6 cylinder diesel engines, giving a maximum cruise speed of 25 knots and a top speed of 30 knots. Normal economical cruise speed is 21.5 knots. Maximum carrying capacity of the craft is 20 passengers plus 0.5 tonnes of cargo in sea state 1 reducing to 10 passengers and 0.3 tonnes of cargo in sea state 4.

Purchasing craft of commercial design has provided the RAN with vessels that are cheaper to buy and operate. The new 9.3m Noosa Cats, costing approximately \$170,000 each, will also be commercially supported.



Principal characteristics of the craft are as follows:

Length Overall (excluding engines):	9.3m
Waterline Length:	8.37m
Beam Overall:	3.495m
Waterline Beam:	3.105m
Draft - Hull only:	0.7m
Number of Watertight Compartments:	16 + eng comp = 18
Electrical System:	12 V DC
Fuel Capacity:	2 x 340 litres
Propulsion Details:	2 x Volvo Penta ADQ41DP
Maximum Horsepower:	2 x 200 hp
Maximum Speed:	30 knots
Endurance at 20 knots with 20% fuel reserve:	12 hours
Maximum Payload:	1900 kg
Maximum Capacity:	21 persons + 0.5 tonne

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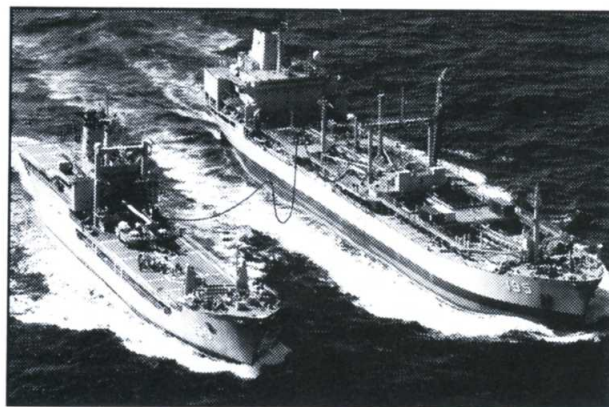


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The Need for a Balanced ADF

By A.W. Grazebrook

Although Australia has had no military involvement in the conflict in Bosnia and neighbouring areas, there are important lessons for us to learn from that prolonged and bitter war.

Not the least of these are the limitations on the use and effectiveness of military force, particularly in close proximity to civilian populations and where the political and strategic objectives are conflicting or unclear.

These limitations illustrate the need for the ADF to be a balanced land, sea and air force capable of graduated response.

Since 1991 and the successful liberation of Kuwait by a United States led coalition, we have heard a good deal about the relative contributions made by the three forces - land, sea and air. We need to balance all this with the lessons that can be learned from the Bosnian conflict.

We were told Iraq's defeat was air power's victory. Air power, both land and sea based, both fixed wing and rotary, both high performance combat and support, was successful both strategically and tactically.

In a classic example of graduated response, United States air power, both land based and maritime, moved to the Persian Gulf area to support Saudi Arabia by deterring Iraq from exploiting her success in Kuwait with an invasion of Saudi Arabia. This deployment of air power also bought the time required to form the UN sponsored coalition and build up the land forces necessary to defend Saudi Arabia and expel Iraq from Kuwait.

In a further prime example of graduated response, maritime power was used to blockade Iraq and prevent further military supplies reaching Iraq.

Air power destroyed the Iraqi logistic support for her army in the field. Air power destroyed or forced most of the surviving Iraqi Air Force to

flee to Iran. Air power crippled the Iraqi command, control and communications system. The availability of precision targeted weapons enabled the destruction of high value military targets located in civilian population centres with minimal civilian casualties. Air power seriously damaged Iraq's small coastal and riverine navy. Air power smashed the Iraqi Army as it retreated from Kuwait. Air power participated in the maritime blockade.

The first point that should be recognised is that the allied powers had air power in overwhelming strength - numerically, qualitatively and in diversity of function. The allies had not only strike aircraft but defence suppression aircraft to precede them, AWACS aircraft, air to air refuelling aircraft (to provide an extension of range necessary for allied aircraft to cover all military targets in Iraq) and air superiority fighters. This overwhelming force had the advantage of communications and satellite intelligence.

Although individually there is substance to many of these claims, there were limitations which it would be very unwise to overlook. The use of precision targeting in civilian areas requires accurate intelligence. On at least one occasion, that intelligence was wrong with disastrous consequences.

Lack of knowledge of allied forces' whereabouts resulted in allied air power damaging their own land forces on a number of occasions.

Whilst these limitations are important and have lessons for the future, they are not the main point.

The main point is that despite the achievements of air power, there was no way Kuwait could have been liberated without land forces.

Without land forces, the UN sponsored force would have failed in its primary strategic objective - to expel the Iraqi invader from Kuwait.

There was no way the maritime blockade could have been enforced without naval surface forces to stop and search suspect merchant ships.

There was no way the essential allied land forces could have been built up without the ability to move in large quantities heavy military cargo by sea.

All this demonstrates conclusively that whichever arm - land, sea or air - may receive the most spectacular media coverage, all three arms are essential. A balanced force is required for all major military campaigns, even those far from the sea.

There is a further, and very important point about the Kuwait liberation campaign. That is, that once the decision had been made to use military force to expel the Iraqis from Kuwait, President Bush and his allied national leaders allowed the coalition military commanders the freedom to use their forces as they considered best. Tactical decisions could be made without prior political approval.

That was possible in the Kuwait campaign because there was a clear cut strategic objective which was agreed by all the coalition members.

It would be most unwise for defence planners to assume that freedom from detailed political involvement would apply in other campaigns.

The current position in Bosnia exemplifies this.

Firstly, the internationally sponsored peacekeeping nations (United States, Britain, France, The Netherlands, Italy, Malaysia, the Ukraine and a number of other nations providing forces) would not

agree on their objective. To simply restore peace implied support for the status quo. To provide food and medical supplies for populations deprived of these essentials was likely to prevent the other side from achieving their military objectives.

Further, neither the United Nations nor their member countries contributing forces in Bosnia were prepared to escalate their military involvement.

Secondly, participating nations perceived their own forces in Bosnia to be at risk in varying ways. Those with forces on the ground, very much smaller forces numerically and militarily than the Serbian forces, recognised that their forces would be at risk of annihilation should their use of air power against attacking land forces provoke a land counter attack in overwhelming strength.

For some time, the use of air power strike against Serbian forces attacking Bosnian population centres appeared to provide a simple, quick and conclusive solution. However, senior professional military officers from several nations were strongly opposed to this, and for good military reason.

Firstly, participating nations were not prepared for the escalation in their involvement that would have accompanied the use of air power.

Secondly, the UN forces did not have sufficient military intelligence to define the targets for their attacking aircraft.

Thirdly, the defending Serbian forces had defensive anti-aircraft equipment that could (and did) destroy high performance UN aircraft operating in the ground attack role.

In the ground attack role, even high performance aircraft such as the F/A-18 suffer

NAVAL MATTERS

severe limitations. To launch precision targeted weapons from outside the range of defensive ground missiles (such as the Rapier), the attacking aircraft must have extremely accurate intelligence of the location of their target. This is very unlikely to be available in operations against well trained ground forces in the field, particularly when those troops are operating in close proximity to one's own forces or civilian populations.

Therefore, the attacking aircraft can either do nothing (and fail in their function), or approach the target within range of defending missiles and risk the aircraft's destruction.

Although this illustration applies to F/A-18s such as those in the RAAF, it also applies to such aircraft as helicopter gun ships etc. That is not to say that the risks are so high as to prevent their use in any circumstances. It is to emphasise that there are risks involved in the use of these aircraft in the ground attack role. It must be recognised that circumstances will arise when that risk will be unacceptably high.

In these circumstances, a nation which depends too heavily on air power (or one form of air power) will be in grave difficulty. The answer is a balanced force.

It is important to recognise these limitations of air power because there is, in Australia, a school of military thought which could be termed "air power isolationist". That is to say that, provided Australia has enough air power to

dominate the sea air gap between Australia and other nations against any conceivable attacker, no one can invade us. We can dispense with most of the rest of the Australian Defence Force as unnecessary.

That argument is palpably false. Mass invasion is far from the only form of attack. Our offshore resources can be at risk to overt or covert attack. Our coastal facilities can be at similar risk. Our economically vital coastal and oceanic trade can be attacked. It may be advantageous for the ADF to cooperate with the defence forces of friendly regional powers.

To be able to do all this, we need an ADF with balanced land, maritime and air forces. That is, the ADF must be able to deploy promptly forces to meet a variety of requirements.

The need for that balanced force is recognised by both Government and Opposition.

In recent years, significant progress has been made in improving the balance of the ADF.

An outstanding example of this is the acquisition of the two Newport class ships for conversion to training and helicopter support ships. Although these two vessels will be commissioned as HMA Ships KANIMBLA and MANOORA, and the ships themselves will be manned by the RAN, the Australian Army will provide, man and maintain the Black Hawk troop carrying helicopters and fill other functions. The primary purpose of KANIMBLA and MANOORA will be to provide the

Australian Army with an important improvement to their mobility.

The ADF's balanced force has been improved in other ways. Not the least of these is the acquisition, after years with virtually nothing, of a maritime mine warfare force.

However, there are some major deficiencies. Not the least of these is the lack of airborne early warning and control aircraft.

A number of important decisions have been made to ensure the continued balanced capability of the ADF. These include the Collins class submarine and Anzac frigate programmes, the purchase of additional F111 aircraft and the avionics updates for the existing F111 aircraft, the P3C Orion long range maritime patrol aircraft update and the coastal minehunter programme.

There remain a number of programmes that are required to maintain a balanced ADF. These include new vehicles to succeed the Army's aging M113 armoured personnel carriers, new tactical transports to replace the Caribous, replacements for the RAAF's C130E Hercules long range transports, helicopters for the Anzac frigates and new hydrographic ships and offshore patrol combatants for the RAN. An anti-air warfare upgrade is needed for the FFGs.

Improved bases are another requirement of all three services to provide for new types of equipment and deployment to Australia's north and west.

The forthcoming programme with the greatest significance for the RAN is the new destroyers to succeed the guided missile destroyers and, in due course, the FFG7s.

Studies are now underway in the Defence Department to determine the capabilities and number of these ships. If the ADF is to maintain a balanced force, it is essential that these new destroyers have an effective medium range anti-air warfare and command and control capability.

Another important aspect is anti-submarine warfare.

Incredible though it may seem in an age when regional submarine forces are growing and the capabilities of diesel electric submarines are increasing, the Australian Government's December, 1993, Strategic Review states that "the potential for submarine operations against us is small" and goes on to recommend a lower level of priority for ASW.

Inevitably, the RAN's new destroyer programme will be expensive, although it should be recognised that the billions of dollars will be spread over at least a decade. As such, the programme will be the subject of intense, but often misleading or ill informed, criticism by some segments of the community.

Nevertheless, Australia needs the ships – and they must have the capabilities to succeed the whole of the RAN's current first line surface combatant strength if the ADF's naval element is to be adequate.

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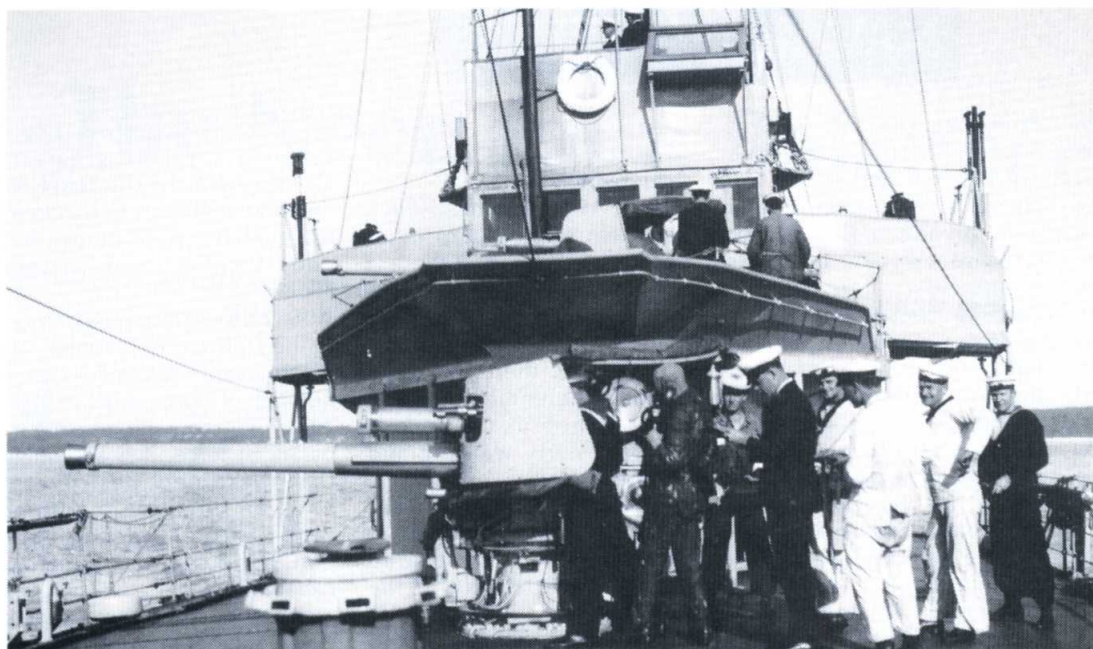
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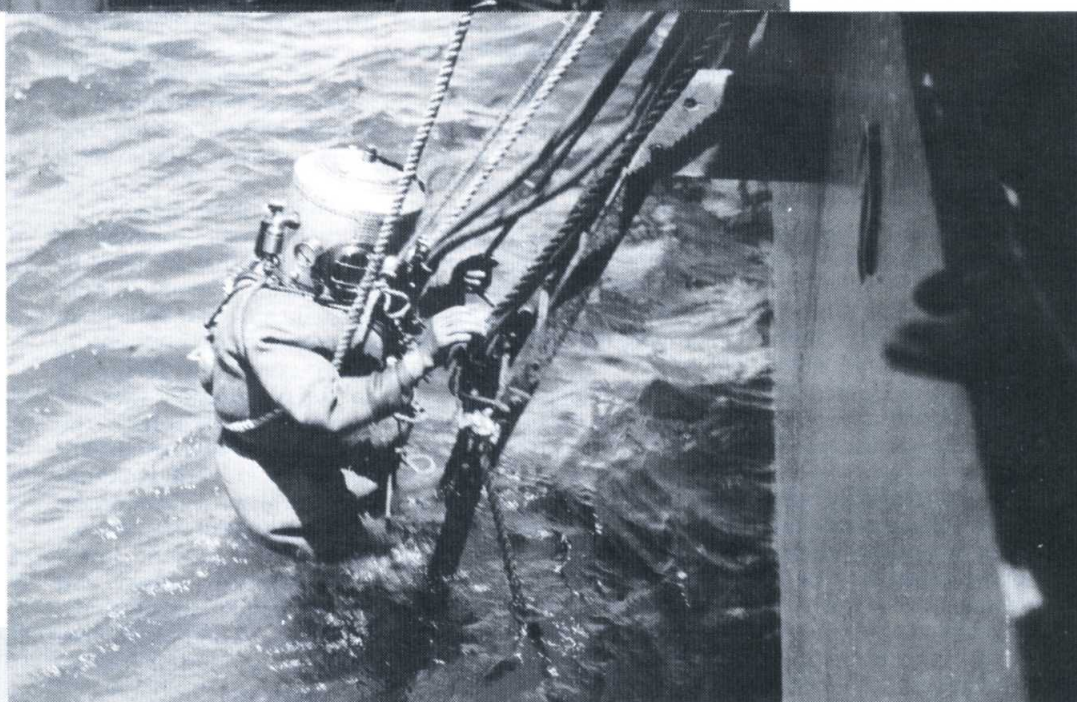
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History Revisited

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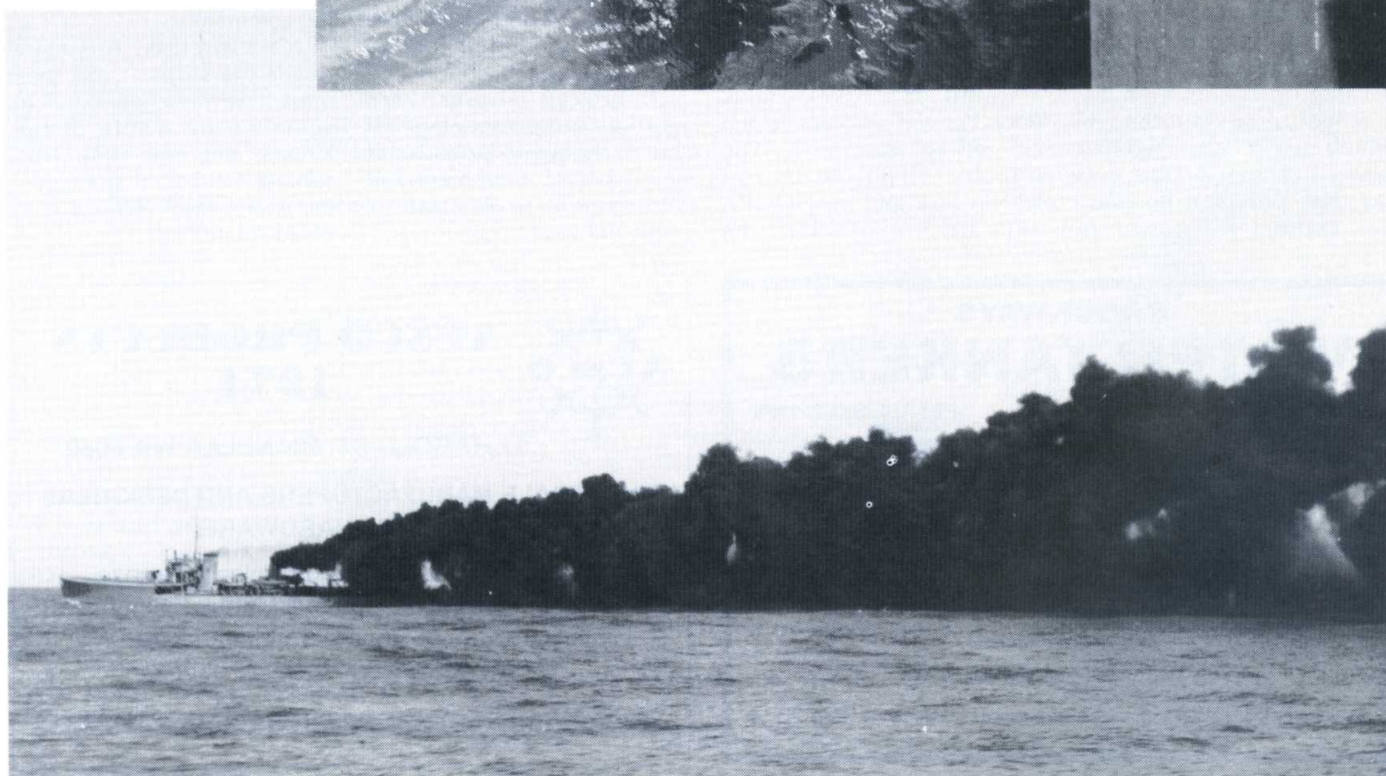


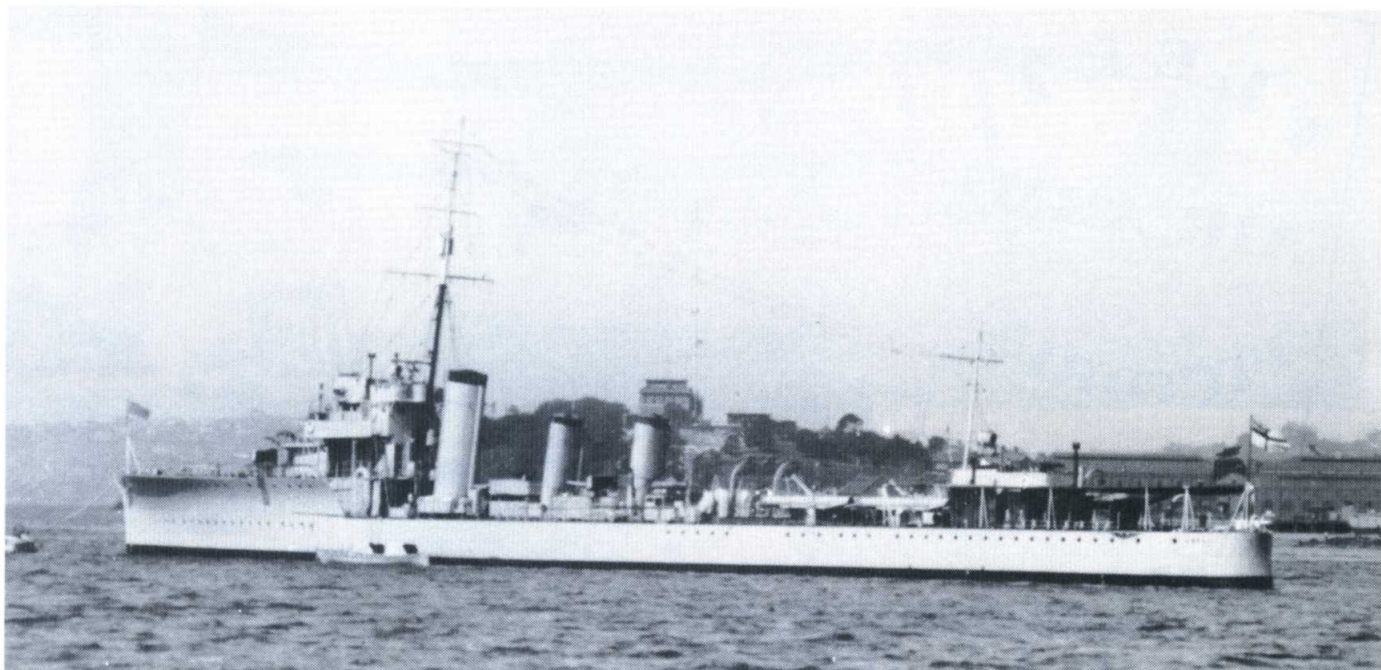
*Above:
Onboard HMAS ANZAC. The
forward 4 inch gun crew
prepare for a gunnery shoot.*



*Right:
Navy diver operating off
HMAS ANZAC, enters the
waters of Jervis Bay.*

*Below:
One of the RAN's mid-war S
class destroyers laying a
smoke screen.*





*Above:
HMAS ANZAC at rest in
Sydney Harbour.*

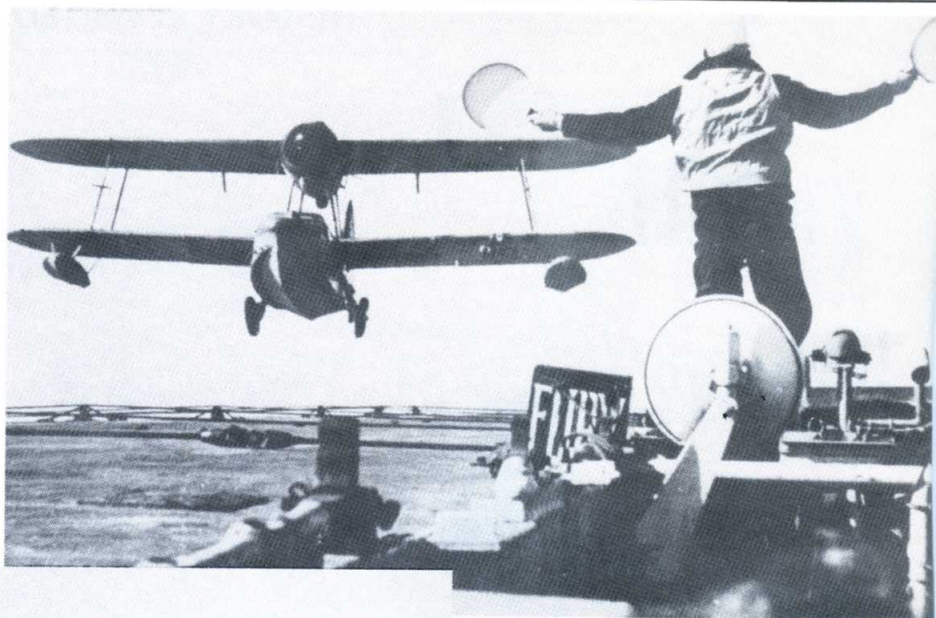


*Left:
Recovering a fired torpedo
onto HMAS ANZAC.*

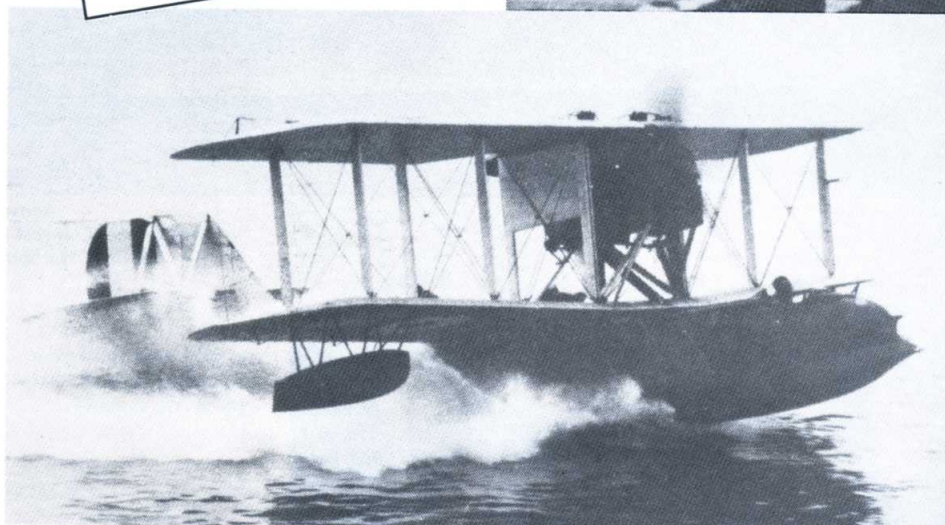


*Right:
Life boat drill.*

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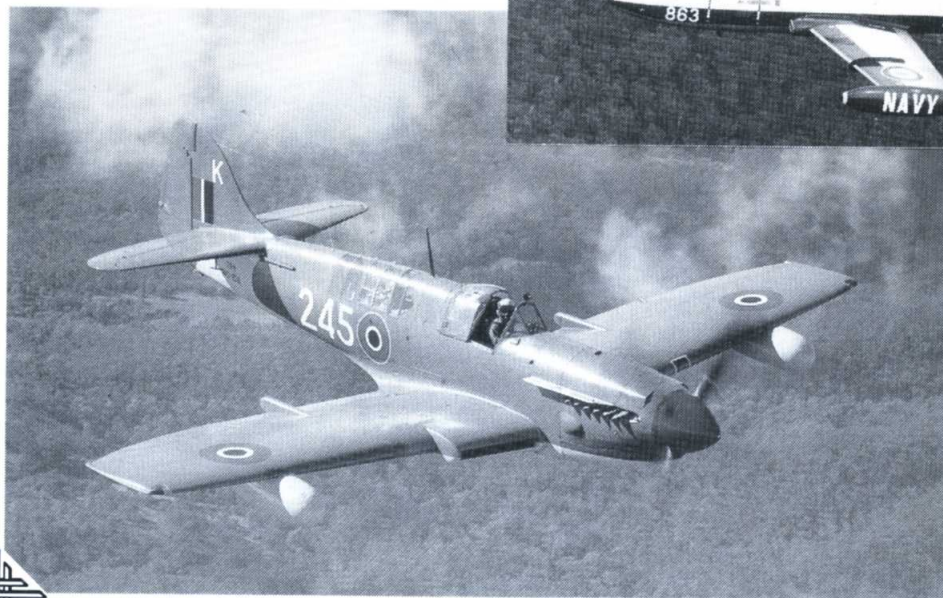


*Above: Supermarine Sea Otter;
air/sea rescue amphibian.*



*Left: Seagull III;
Spotter/reconnaissance amphibian.*

*Right: CAC Macchi MB 326 Hs;
land-based trainer 1970.
(Photo - RAN).*

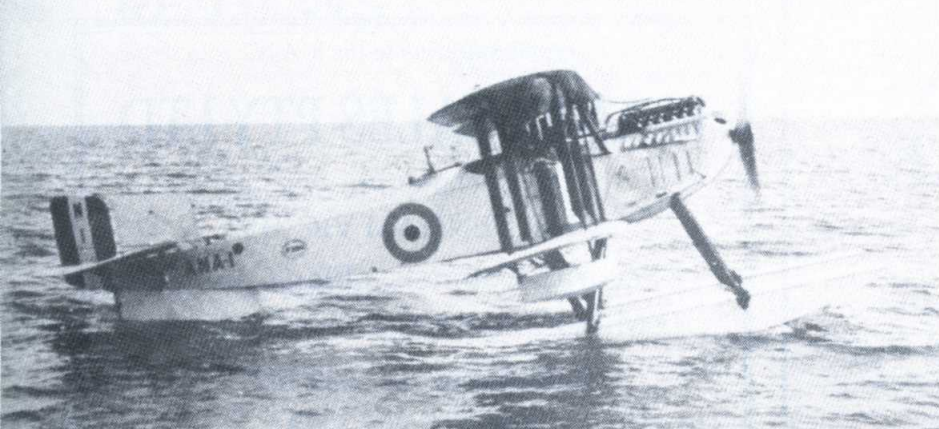


*Left: Fairey Firefly Mk5;
fighter bomber 1949.
(Photo - courtesy LCDR Mark Ogden).*

*Right: De Havilland Tiger Moth;
land-based trainer 1948.
(Photo - courtesy LCDR Mark Ogden).*

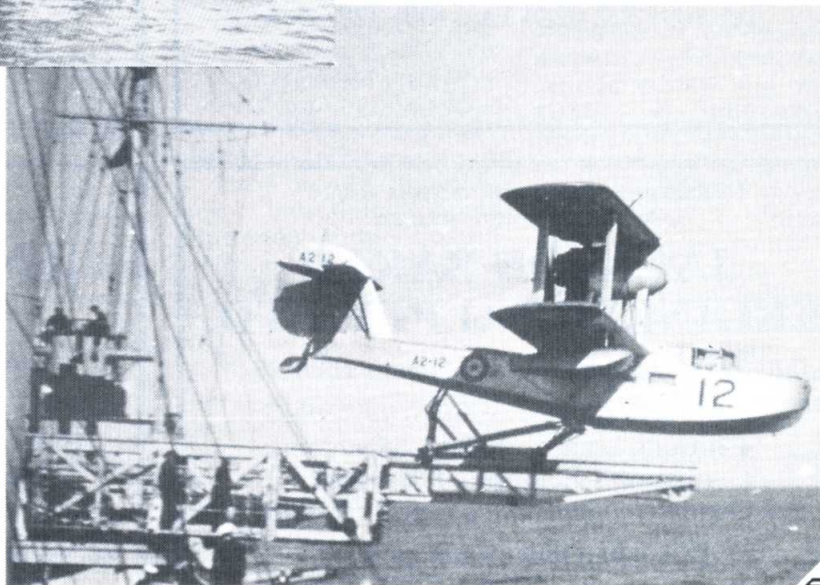


*Left: Fairey IIID;
Reconnaissance seaplane.*



*Below: Seagull V;
spotter/search and rescue and
reconnaissance amphibian.*

*Below: Douglas Dakota C-47;
land-based transport 1949.
(Photo - courtesy LCDR Mark Ogden).*



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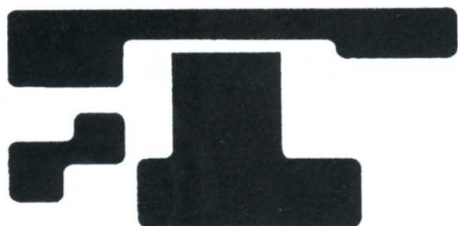
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REVIEWS

The Posters That Won the War

(RRP \$49.95)

and

The Ads That Won the War

(RRP \$60.00)

Both by

Derek NELSON

Reviewed by

Vic JEFFERY

Published by Motorbooks International, USA and distributed in Australia by Capricorn Link (Australia) Pty Ltd.

These two companion books compliment one another on a most important, yet little known part of the massive USA war effort during World War Two.

Millions of colourful posters of 100's of unique and stirring designs poured off America's printing presses

after the shattering shock of the Japanese attack on Pearl Harbour.

Described as America's "weapons on the wall", the posters were designed to convince people on the homefront that their efforts were the key to victory.

"The Posters That Won the War" is an in-depth study of this stirring art form and its relevance in the history of the war. Be it encouraging people to buy War Bonds, enlist, boost industrial production and safety records, or conserving materials, the posters were aimed directly at civilians and rarely at the armed forces.

Naturally the topics and techniques changed during the course of the conflict with the US Office of War Information constantly monitoring the mood of the public and responding to its findings.

There are more than 150 classic posters illustrated in this extensively researched book, more than 100 of them in colour.

Several of the most striking posters are: "A careless word... A NEEDLESS LOSS" illustrated with the body of a USN sailor being washed ashore; a tattered US flag with billowing clouds of black smoke behind it and the wording "We here highly resolve that these dead shall not have died in vain... REMEMBER DEC. 7th"; and the 1944 US Navy recruiting poster of a sailor with a girl in his arms admiring his submariner badge and titled "He volunteered for SUBMARINE SERVICE".

"THE ADS THAT WON THE WAR" also by Derek Nelson, civilian editor of US Naval Safety Center

publications is a great partner for the preceding volume on wartime posters.

This also contains more than 100 advertisements in colour and many more in black and white.

Mothers riding bikes to the grocery store to save petrol, fathers growing potatoes in victory gardens, war scenes, and servicemen sitting at shop counters sipping Coca-Cola as they flirt with the girls, they all appeared in wartime magazine advertisements.

Their purpose? Often not to sell - but to build morale on the homefront and show how even the smallest company and smallest product was vital to America's war effort.

Some of the catch lines to the ads were: "Loose talk can cost lives! Keep it under your STETSON", Coca-Cola's "At ease... for refreshment" or "Blast the hub and smash the wheel! Look to LOCKHEED for leadership!"

General Electric, Nash Kelvinator, North American Aviation, Champion spark plugs, Pontiac, Ford, Mobil Oil, Chesterfield cigarettes, General Motors, Palmolive soap, Cadillac, Willy's Jeeps, the fascinating list goes on.

These are two fascinating and nostalgic books illustrating posters and ads which in their day must have inspired enormous pride, and in some cases, horror and disgust.

There can be no doubt they are clever and superbly illustrated with one of the most obvious themes being do not discuss shipping movements. Things have not changed.

☆☆☆

Warship 1994

Published by

Conway Maritime Press

Reviewed by

Joe STRACZEK

The latest edition of Warship continues the high standards of the previous editions with a diverse range of well written and illustrated articles on a number of naval subjects.

Ships from the age of sail are represented by articles on the design and career of the USS NEW IRONSIDES and the DALHOUSIE, the last vessel built for the Bombay Marine. Technical developments are covered in articles dealing with ingenious devices for the ship borne launch and recovery of aircraft through to a general discussion of British technical developments at the end of the Great War.

Other articles cover the design of the Royal Navy's super-dreadnoughts, French flotilla program of 1922 and the Japanese Midget submarines and Akizuki Class destroyers. The annual is rounded off by the usual Warship Notes, Naval Year in Review and Naval Books of the Year. Unfortunately with respect to the latter section pickings do appear to have been very lean this year. However, Conway's are to be commended for maintaining this section as there aren't too many publishing houses which will give a free plug to the opposition.

Overall this publication maintains the high standards we have come to expect from Conway's and is highly recommended for those who desire greater knowledge on specific aspects of naval science or who just enjoy reading a quality naval publication.

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Royal Australian Navy Profile No 2 - Australian Submarines, Destroyers and Escorts

By
Michael Wilson

Published by
Topmill Pty Ltd

Reviewed by
Joe STRACZEK

This is the second in a series of profiles dealing with the ships of the Royal Australian Navy. The first dealt with the cruisers and aircraft carriers of the RAN.

Spanning some 80 pages, this publication is packed full of information on the various classes of submarines, destroyers and escorts of the RAN. Included are additional details of the ex-colonial torpedo boats to serve the RAN and the T and A Class submarines of the Royal Navy which were based in Sydney during the period 1949 to 1969.

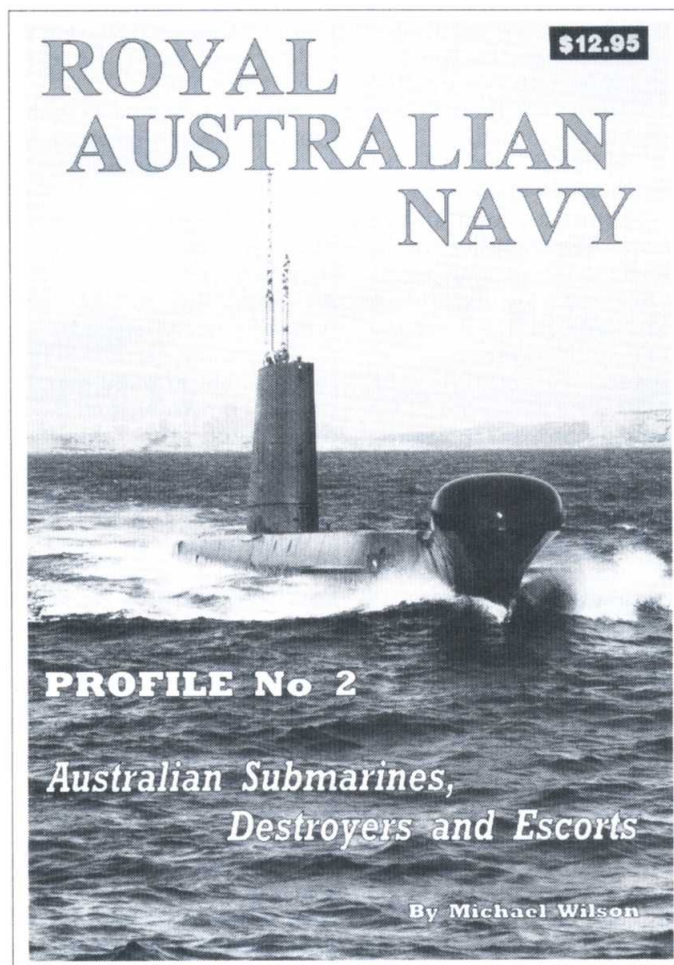
The publication is illustrated throughout with an excellent selection of photographs all reproduced to a high standard. One of the more unusual photographs is an aerial shot of the first HMAS OTWAY underwater.

Due to the size of the publication it is not possible to provide a complete and detailed history of individual ships. However, the author has managed to cram into 80 pages, a large amount of information, including details on often overlooked and neglected vessels such as the DDL and the sloop FIREBRAND.

Whilst only costing \$12.95 it could be expected that this publication would appear to be cheaply produced. However, this is not the case, with the book having an eye-catching front cover, well bound and utilising a crisp font which makes reading easy.

Michael Wilson has produced an excellent publication packed full of information which will serve all interested in the ships of the Royal Australian Navy very well indeed. To those who missed the Profile No. 1, all I can say is don't make the same mistake twice.

Profile No. 2 - Australian



Submarines, Destroyers and Frigates is available through most newsagencies. The next in the series is in preparation and will feature the two new helicopter support ships, the patrol, mine warfare and boom defence vessels. Highly recommended.

☆☆☆

Allied Coastal Forces of World War II Volume II - Vosper MTBs and US Elcos

By
John LAMBERT and Al ROSS

Published by
Conway Maritime Press

Reviewed by
Ross Gillett

Like the earlier volume on Fairmiles, submarine chasers and harbour defence motor launches, this second book in the series is the result of extensive research into this little published area of naval ships of the Second World War.

Volume II is highlighted by the inclusion of more than 700

line drawings and 200 photographs, most of the former finely itemised, a majority of the latter excellent quality. The plans include deck views, side and inboard profiles, sections, superstructures, accommodation and weapons.

Most of the craft are listed by number plus building dates and fates, an unusual bonus for this size and type of "warship". Other chapters are devoted to selected weapons' systems, camouflage and engines and according to the authors, the most popular subject, surviving Vospers and Elcos. The 256 page book also includes lists of builders, vessels sunk in allied service and post war service. An excellent addition to one's library.

British Battleships 1919-1939

By R.A. BURT

Published by
Arma and Armour
Review copy from
Capricorn Link

Reviewed by Ross GILLETT

This is the third book in the series to describe and illustrate the evolution of the British battleship. The earlier volumes included the 1889 and 1904 and First World War periods.

Although the title implies that the story concludes in 1939, many Second World War details are included, highlighted by the five ships King George V class of battleships. Special chapters are devoted to the battlecruisers converted to aircraft carriers, FURIOUS, COURAGEOUS and GLORIOUS, including their subsequent service and alterations. The role of the converted ships, is told in conjunction with the development of the purpose built carriers.

Photographically, the former flagship of the Grand Fleet, IRON DUKE, is shown in her secondary role in Scapa Flow during the Second World War, with the other surviving WWI ships covered including CENTURION, converted to a radio controlled target ship and the four other Iron Duke class units in some detail.

The book contains a wealth of information with extensive use made of line drawings of all the ships at varying stages of their careers. All mid-war changes, reconstructions and suggested modifications are discussed with sub chapters highlighting the machinery, bridgeworks, protection and battle damage in the 1939-45 conflict.

The set of three books by R.A. Burt cover the most important phases of the British Battleship story and are highly recommended.

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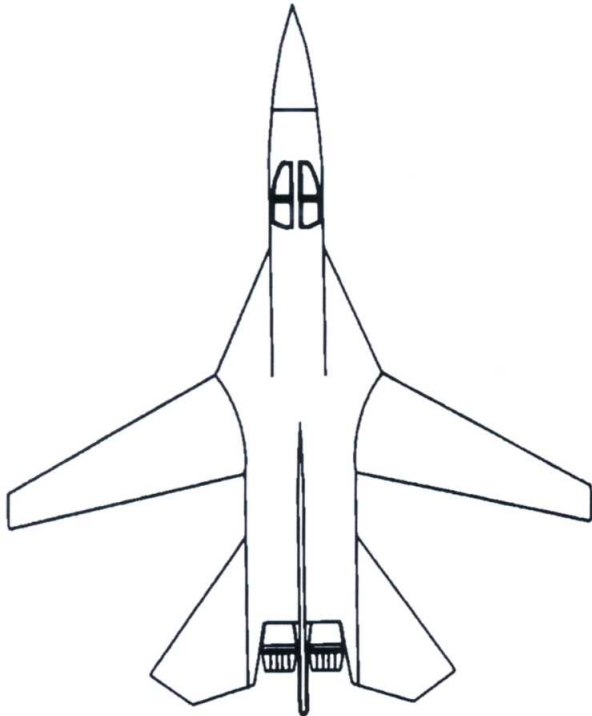
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