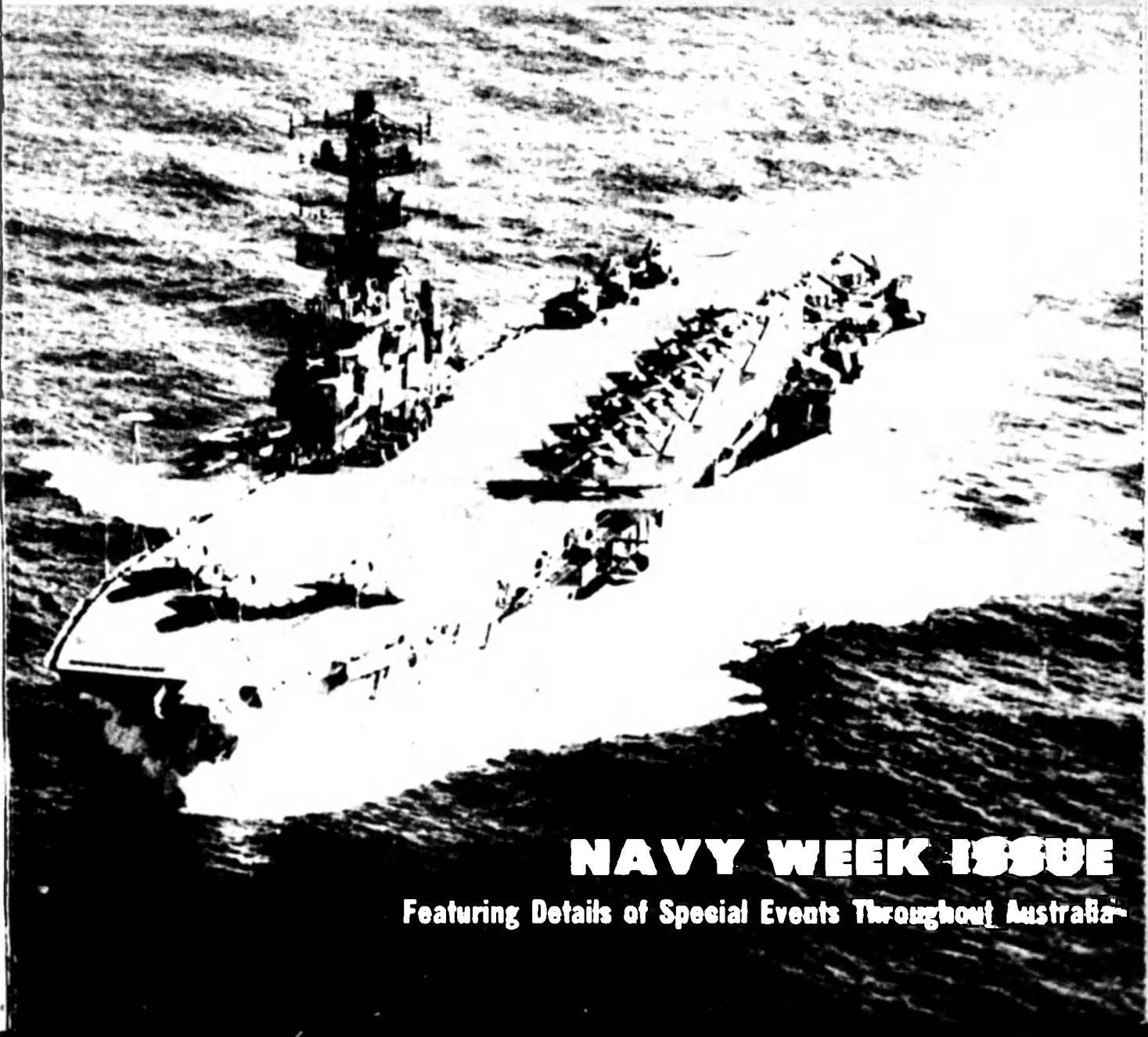


359  
THE  
Navy

AUGUST-SEPTEMBER-OCTOBER, 1971

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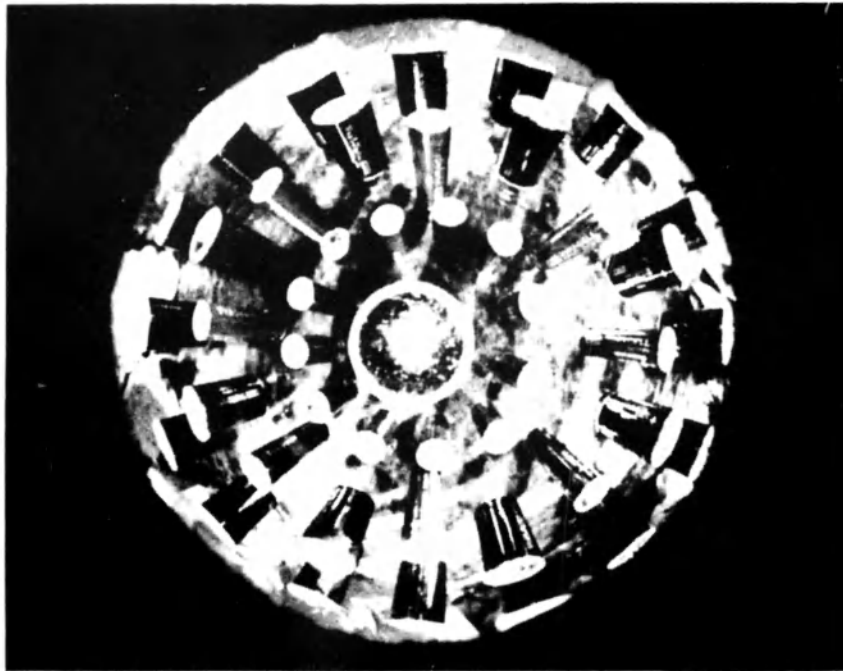
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## Page One

# MALLORY



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A Message from the  
First Naval Member and  
Chief of Naval Staff

**Vice-Admiral  
R. I. PEEK**

C.B., O.B.E., D.S.C.



Australia is an island continent situated between two great oceans and geographically close to South East Asia. Although rich in many resources, our country's economy is dependent on imports and international trade. The preservation of its sea lanes of communication are vital to Australia's development and to her very existence. If we are ever threatened with invasion, an invader can only reach Australia on, over or under the sea. It is because of these factors that Australia needs strong maritime forces.

Maritime forces cannot be obtained quickly. It takes a long time to build a ship and it takes years to train the officers and men to man them and to operate their highly technical weapons and equipment. Although there is no direct military threat to Australia or our sea communications at the present time, there is a continuing need to maintain preparedness. Ships must be designed, ordered, built and equipped, and officers and men trained, so that our maritime forces will be ready to react to any future threat or likely threat to our country.

I believe that thinking people are becoming increasingly aware of the significance of our geographical situation, that Australia's boundaries are the seas around us, and that the Royal Australian Navy has a vital role in the defence of our island continent.

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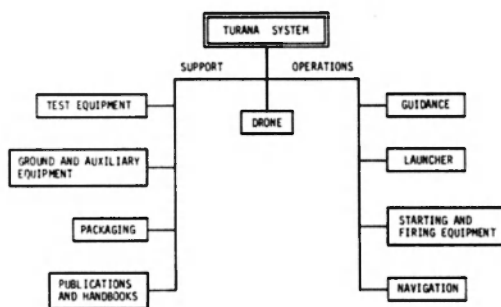
## The Turana Target Drone System

Especially designed for training in the Royal Australian Navy, to cope with low level missile attacks, the Turana drone is an all-Australian concept developed from the highly successful Ikara anti-submarine guided weapon system.

During a 19-minute flight the small aircraft reached a height of 10,000 ft.; attained a speed in excess of 450 m.p.h., and performed a number of complex manoeuvres under radio command from the range centre.

Turana is designed for parachute recovery and all equipments are suitable for at least 20 complete mission cycles including sea water immersion followed by simple refurbishing procedures.

Because of its weapon parentage, Turana achieves high supersonic speeds with little effort, it has a large weight and volumetric capacity for carrying special equipments and it possesses exceptional manoeuvring capabilities. These attributes make it an outstanding and versatile target suitable not only for routine service use but also for a wide range of research and development roles.



### THE SYSTEM

The Turana System comprises airborne and ground or ship equipments necessary to maintain and operate a target facility with the exception of a tracking facility. A tracking facility will normally be available in the environment in which Turana will be used.

The breakdown of the Turana System Hardware is such as to allow the operator a free choice of equipment dispersal. This permits flexible use of equipments normally sited in either the operational or support areas and means that few restrictions are placed on target facility planning.

### DESCRIPTION OF THE DRONE

(Refer diagrams — Turana General Arrangement)

The Drone Fuselage (5), is a composite metal-fibreglass structure containing the Microturbo Cougar -022 Turbojet Engine (10), the Fuel Tank (6), the Control System (4), the Battery Power Supplies (15), and the Recovery System. The Turbojet Engine, which is housed in the rear fuselage is supplied with ram air through a Ventral Intake and Duct (9). The control and Electrical power systems are housed in the front fuselage.

ahead of the tank. The Fibreglass Nose of the Drone (2) is ejectable on command by means of a pyrotechnic charge. The nose which is connected to the parachute by a lanyard contains a 7½ inch diameter Luneberg Lens (1) for forward looking, passive radar augmentation and a Recovery Parachute (3). The main structural member of the body is provided by a light alloy H-section structure made of chemically milled side-skins, light alloy bulkheads and forgings and a light alloy bottom diaphragm. The easily attachable steel fuel tank also contributes to the structural stiffness of the fuselage. The Fin (8), which contains all the airborne guidance equipment and air data unit, and the Wings (7), are also composite structures and are quickly attachable, interchangeable components. The Boost Motor (13), is attached to the main structure by means of swivelling links and two explosive bolts and is



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### THE TURANA

automatically jettisoned at the end of the launching phase.

A Breakout Fitting (12), is situated at the rear of the Drone to provide restraint in the launcher until the boost thrust reaches a nominated level Umbilical Connections (16), on the port side ahead of the wings

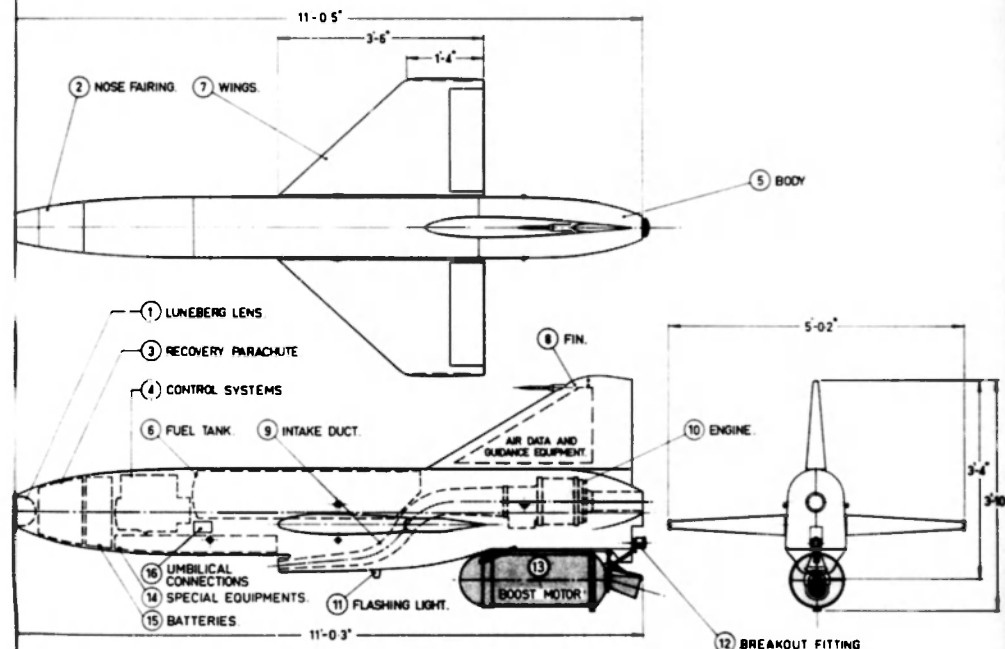
provide starting, power, and monitoring connection prior to launching.

A removable bottom fairing, positioned between the ejectable nose and the intake, provides access to special Trials Equipments (14), and telemetry which the user may wish to carry for particular trials. The telemetry unit is a locally developed 465 MHz 48-Channel Sub-

Miniature System which provides some 40 usable information channels.

A Strobe Flashing Light (11), is housed on the underside of the intake fairing to provide visual augmentation of the drone.

Flotation is provided by a combination of sealed equipment compartments and integral light foam sections.



Turana General Arrangement

### LAUNCH AND CONTROL FACILITIES

Turana may be launched from an Ikara ship launcher or from a simple, portable, lightweight unit on board ship or on the ground. In the case of an Ikara-fitted ship, the missile handling equipment is used for insertion of the drone into the launcher. For non-Ikara operations, the ground handling equipment and launcher are combined in a simple trolley/launcher.

The Ikara-type umbilical shell provides only the tie back restraint

and all engine starting, power systems control and sequencing and monitoring are carried out using a special umbilical attached to the port side of the fuselage. Special ground based units, connected via the umbilical, are provided for activation and control of all drone functions prior to launch.

The drone is connected in flight by means of the target control unit which is connected to either the Ikara Guidance System or, in the case of non-Ikara based operations,

directly to a command transmitter. Return data facilities are available, although not essential. If used, flight information is presented to the controller on the target control unit. A small remote control panel which provides azimuth and recovery control may be used in conjunction with the target control unit for use in the visual tracking mode.

Navigation is effected by the controller using a plot or P.P.I. display which is fed by either the Ikara tracking system or by any suitable

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### THE TURANA

radar. Space and power are available

in the drone for fitting tracking transponders to suit any particular customer requirement.

After recovery the target is washed

down and given a short engine run. A replacement parapack and boost motor are fitted and after check-out Turana may be re-used immediately.



SEA LAUNCH



GROUND LAUNCH



RECOVERY



Turana, Launch and Recovery.

POST RECOVERY PICK - UP



HELICOPTER PICK - UP



SHIP PICK - UP

### METHOD OF OPERATION

Turana is launched at a fixed elevation of 55° and is programmed to a near level flight condition. The boost motor is then automatically jettisoned and at this point the controller selects the mode of control appropriate to the mission plan.

Control of the drone is effected by open loop demands from the ground and by a closed loop sensing and auto control system in the drone. This system deletes any obligatory need for either telemetered flight information or for highly skilled flight controllers. An air-to-ground radio frequency link is available if special flight information is required.

Versatility in target operations is

effected by providing Turana with these basic flight modes:

**LEVEL:** A basic level flight, height-keeping mode in which speed may be varied by command via throttle variations.

**NON LEVEL:** A basic climb or descent speed-keeping mode in which speed may be changing the pitch flight path and rate of climb or descent varied by throttle demand.

**HEADING AND TURNS CONTROL:** A basic azimuth control which allows demanded heading charges of up to 26° or demanded turns of up to 3g.

Additional on-off command channels are provided for initiating special equipment operation or for

selecting programmes or disturbances for evasive manoeuvres. Turana's Weapon System Origin, where gross weights were considerably greater than any target requirement, permits pitch manoeuvres of up to 10g to be performed.

A wide variety of flight plans is available to provide realistic simulated attacks allowing both service and research and development weapons systems to be exercised and evaluated.

On completion of a sortie and after guidance to an appropriate area, Turana is recovered by parachute and retrieved from the sea close to the launching ship.

## THE TURANA

**Turana's** automatic recovery in the event of engine failure, electrical power system failure or command link failure ensures that safety boundaries will not be violated by invader tent system faults and that the drone will not be lost.

### OPERATIONAL PERFORMANCE

The versatility of the **Turana** Flight Control System allows tactics of fighter and attack aircraft to be realistically simulated and its fine heading control ensures that a stable track-keeping target is available for gunnery system assessments.

Speeds variable from 150 knots to above 400 knots can be demanded in level flight at altitudes from below 150 ft. up to 30,000 feet and speeds above 500 knots can be achieved and controlled in shallow dives.

A wide variety of flight plans can be flown allowing multiple presentations to be made in a single flight. Active or passive radar and infra red augmentation can be carried to simulate possible attacking aircraft.

The maximum rate of climb of 4,100 ft./min., inserts **Turana** into its operational pattern at 20,000 feet with a flight endurance of 65 minutes and a range of 320 nautical miles at a cruise speed of 300 knots.

Representative flight plans for guided weapon engagements are diagrammed.

### TURANA APPLICATIONS

The large volumetric and weight payload capability of **Turana** provides an unmatched flexibility in the target role and special equipment fitment. The capacity of more than 100 lb. and 1 cubic foot means that engagements in the following categories can be catered for:—

- Surface to air guided weapons (Service and research and development firings)
  - Air to air guided weapons (Service and research and development firings).
  - Gunnery engagements for small and medium calibre Projectiles.
- In order to meet these engagements a range of augmentation,

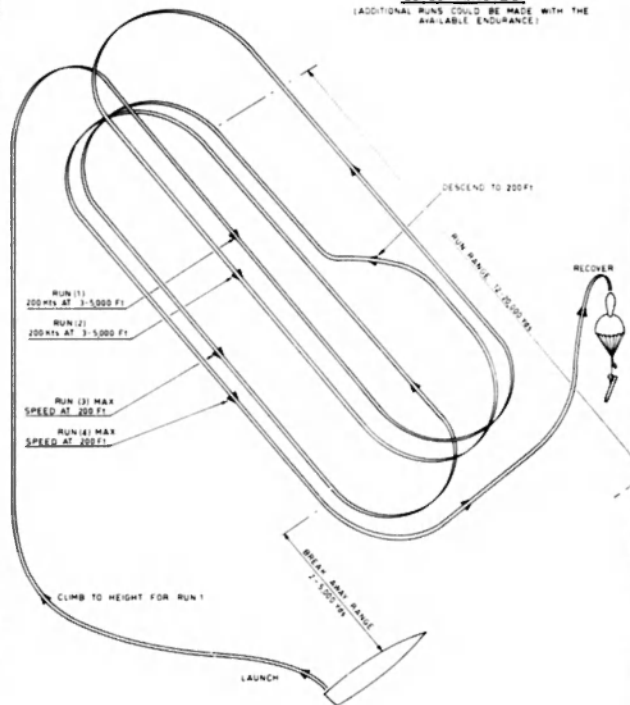
tracking, countermeasures and miss distance devices can be accommodated. These include:—

- Passive radar augmentation — Luneberg lenses and corner reflectors

- Active radar augmentation
- E.C.M. equipment
- Body mounted or towed infra red flares for heat seeking missiles
- Acoustic miss distance equipment for gunnery engagements
- Optical or doppler type miss distance systems
- Radio-active miss distance equipment
- Other special customer equipment.

### TOTAL LAUNCH TO RECOVER TIME 20-25 MINUTES

(ADDITIONAL RUNS COULD BE MADE WITH THE AVAILABLE ENDURANCE)

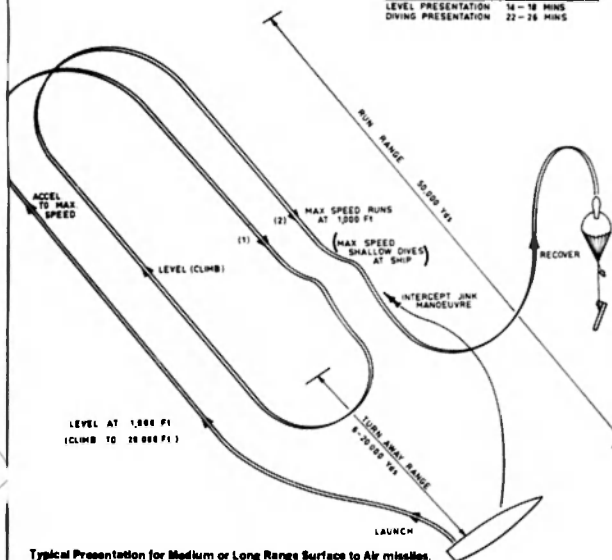


Typical Presentation for Short Range Surface to Air missiles

### ALTERNATIVE PLAN SHOWN IN BRACKETS

### LAUNCH TO RECOVER TIMES

LEVEL PRESENTATION 14-18 MINS  
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## ECUMENICAL CHURCH SERVICE

Garden Island  
Dockyard Church

11 a.m. Sunday,  
10th October

Interested Members  
of the Public are in-  
vited to Attend

By THE CHAPLAIN

Interior of the Garden Island Dockyard Church, showing the Altar and certain  
plaques recording the names of sailors killed during World War I.

The Ecumenical Service for Navy Day, 1971, is a new event in the history of the Dockyard Church. We will meet to worship together as an outward demonstration of our essential unity as Christians. Together we shall thank God for those who have given so much in securing the protection and safety of our Country, and pray that we may be responsive to His will and guidance in the years to come.

We are grateful that leaders in the Churches in Sydney have agreed to share in this Service and bring the distinction of their presence to this occasion.

Participating clergy will include the Most Reverend E. V. Kelly, Auxiliary Bishop to the Roman Catholic Archbishop of Sydney, guest

preacher; Right Reverend F. O. Hulme-Moir, Anglican Bishop to the Forces; Reverend Alan Walker, President of the Methodist Conference in N.S.W., and the Reverend Hugh Cunningham, Past Moderator of the Presbyterian Church.

Historically, Church Services on Navy Day have been held in the two Cathedral Churches of St. Andrew, and St. Mary in the city of Sydney. In 1970, however, Church Services were held in various establishments in the Sydney area. It was a logical development that we should hold one Service and that this Service should take place in the Dockyard Church.

So far as is known, the first Service to be held in this Church was in 1902, and was a thanksgiving

Service for peace at the end of the South African War.

The first stained glass windows were installed in 1904. Since then the Church has been beautified by many Memorials, all of which tell their own poignant story.

For many years the Church has been used for all Church Services held in Garden Island. Protestants and Roman Catholics have come to feel that it is their Church.

An ecumenical spirit has always existed in the working relationships between serving Chaplains. But this has grown in the new atmosphere of unity and trust which we believe is God's will for his Church. It is appropriate therefore that we should together thank God for his

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### ECUMENICAL CHURCH SERVICE

grace and pray for His guidance in the future

There are a number of groups which hold their Annual Church Services here — amongst them are Sydney Legacy, the Naval Association of Australia, Naval Reserve Cadets, Sea Scouts and Sea Rangers.

We hope that some from these organisations as well as interested members of the public will join with us in this Service.



One of the stained glass memorial windows of the Garden Island Dockyard Church, in memory of Australia's Submarine Flotilla. Submarines AE 1 and AE 2 were commissioned at Portsmouth, England, during February, 1914.

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## Torpedoed Cruiser DRAKE to be Salvaged



H.M.S. Drake, an armoured cruiser of the Drake Class. She was 535 feet in length and 71 feet beam. Twin screws she was capable of 24 knots.

An attempt will shortly be made to salvage the wreck of the World War I cruiser H.M.S. Drake, which sank off Rathlin Island almost 54 years ago. The wreck, lying in shallow water in Rathlin's Church Bay, has long been a hazard to shipping — several vessels have grounded on her down through the years.

Now an English firm is mounting a full-scale operation to salvage the thousands of tons of steel which today has a high scrap metal value. The job is expected to take between 18 months and two years. The plan is to cut up the 14,100 ton battleship into sections of around 50 tons, which will then be hoisted aboard another ship by a huge floating crane especially designed for the work.

The chief method of salvage will involve a series of underwater explosions to break up the hull. And so the divers who will be doing the work will also make a very careful check to see if there are any old explosives on board which might still be dangerous.

The ill-fated Drake was commissioned in March, 1901, just three years after she had been laid down at Pembroke Dockyard. A four-funnelled ship, she was well equipped with the weapons of war, including two, 9.2 inch; sixteen, 6 inch and a dozen powerful 12-pounder guns.

It was on the morning of Tuesday, 2 October, 1917, that the Drake's last voyage came to a sudden and dramatic end—ironically enough, just a few hours after she had successfully completed a dangerous escort mission from the Mediterranean. The merchant ships she had guarded on that perilous journey had dispersed and were discharging their vital cargoes in the Clyde and Mersey.

As the Drake was steaming in the comparatively safe waters off the Mull of Kintyre, the enemy, in the shape of German U Boat 79, was lurking in the depths. One officer and 18 men were killed in the vicious torpedo attack which followed. But the Drake, with its full complement of 900 men, remained afloat and was able to reach the shelter of Rathlin. Captain Stephen Radcliffe and his officers and men were taken off by two other Navy ships and shortly afterwards the stricken cruiser sank in about ten fathoms of water.

Now, with her hull a mere ten feet below the surface, the ghost ship is sometimes visible from the surface when the weather and tides are right. Boatloads of trippers on their way to and from Rathlin are fascinated by the story as told by local fishermen—it has become something of a tourist attraction.

Although a buoy, placed by the Commissioners for Irish Lights, marks the spot as a hazard to other shipping, several smaller vessels have run aground on the wreck over the years.

Most recent mishap involving the Drake occurred six years ago. Then the Fleetwood trawler, Ella Hewitt, foundered when she hit the hulk and now she lies alongside her on the bottom.

It was off the Giant's Causeway headlands, just a few miles from where the Drake lies, that another wreck, that of the Armada ship Girona, gave up some of her secrets. Two years ago a team of divers brought up a fascinating collection of priceless treasures from the seabed.

The possibility of treasure or anything else of interest being recovered from the Drake is highly unlikely. The salvagers are interested only in the recovery of the heavy armour plate (6 inches thick at the waterline and 2-3 inches on the deck) for scrap metal.

About a week or so after the cruiser went down, however, there were pickings for local beachcombers—large quantities of flour and many boxes of condensed milk, almost certainly from the Drake, were washed ashore at Rathlin and Ballycastle.

A report in one of the local newspapers at the time stated: 'A great number of bales of cotton and other wreckage have also been saved. Salvaged flour was auctioned in Ballycastle, over 200 boxes being disposed of. Large crowds of farmers were present and competition was extremely keen for the flour, which was of the very best quality...'

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# THE ROYAL AUSTRALIAN NAVY TODAY

The Royal Australian Navy is responding to the advances  
now being made in maritime technology.

Destroyers, escorts, submarines and aircraft are being computerised and fitted with electronics to world standards. As a result, the R.A.N.'s sailors are technologists with years of training in handling complex and expensive equipment.

The Fleet now has grown to 55 ships, the largest number ever commissioned in peace-time.

It includes an aircraft carrier, which is the flagship; front-line destroyers and escorts, and air and submarine arms which can operate independently.

These units are backed by patrol and mine-warfare ships, support vessels and hydrographic and oceanographic ships.

Soon, the R.A.N. will begin moving into the 1980's with a new O&M maritime defence — the Australian-designed and built light destroyer (DDL).

The project will ultimately give the R.A.N. a warship with high top speed, a long range at cruising speed and a variety of weapons.

Other additions planned for the Fleet include a fast combat support

ship to carry fuel and stores, an oceanographic ship, a hydrographic ship and two more submarines.

These developments, along with others, are aimed at providing a Navy which can fulfil its varied roles:—

- \* to have a force capable of timely and sustained combat operations at sea;

- \* detection of enemy naval forces and sea commerce;

- \* establishing superiority in areas as necessary for naval operations, including protection of sea lines of communications;

- \* conducting naval offensive operations against enemy forces and installations;

- \* conducting naval reconnaissance and surveillance, anti-submarine warfare, shipping protection and hydrographic and oceanographic surveying;

- \* providing naval support for land operations;

- \* providing military sea transport for Australian Services; and

- \* providing seaward and harbour defence of ports and anchorages.

### AIRCRAFT CARRIER

The light aircraft carrier H.M.A.S. **Melbourne** is the Royal Australian Navy's flagship.

With her Skyhawk, Tracker and Wessex aircraft, **Melbourne** combines aerial defence of the Fleet with her anti-submarine role.

She also has a limited strike capacity which has been strengthened with the purchase of additional Skyhawk aircraft this year.

When carrying extra Skyhawk aircraft the carrier will control a significant strike force which can be directed against either maritime or shore targets and can give ground support to the Army.

**Melbourne** embarked her present aircraft in 1969 after an extended refit, which included modifications to aid flying and handling of the new generation aircraft.

**Melbourne** was laid down in April, 1943, as H.M.S. **Majestic**, at the same time as H.M.S. **Terrible** (now H.M.A.S. **Sydney**) and was launched in 1945.

With the end of World War II, however, work on **Majestic** ceased

An artist's impression of the proposed DDL. The new destroyer for the R.A.N. will have a high speed and long endurance and will be propelled by gas turbines.





The flagship, H.M.A.S. Melbourne. With her Skyhawk, Tracker and Wessex aircraft she combines aerial defence of the fleet with an anti-submarine role.

**Machinery:** Parsons single reduction geared turbines. 4 Admiralty 3-drum type boilers.  
**Speed:** 23 knots (maximum).  
**Ship's company:** 1,335 (includes 347 Carrier Air Group personnel).  
**Aircraft:** Douglas Skyhawk A4G jet fighter bombers.  
 Grumman Tracker S2E ASW aircraft.  
 Westland Wessex ASW helicopters.  
 Westland Wessex SAR helicopters.

#### GUIDED MISSILE DESTROYERS

The R.A.N.'s First Destroyer Squadron comprises the three guided missile destroyers H.M.A. ships **Perth, Hobart and Brisbane**.

The three U.S.-built ships are similar to the U.S. Navy's DDG-15 class and their design is particularly versatile.

Their main task is air defence of the Fleet, but they also have formidable anti-submarine and surface gunnery capabilities.

The principal aircraft defence weapon is the **Tartar** guided missile system which is mounted towards the stern of these ships.

The DDG's are also fitted with two **Ikar** missile launchers. These long-range anti-submarine systems are Australian-designed and developed. In action, the missile is automatically guided to the vicinity of the hostile submarine, where a torpedo is released by parachute to home on to the target.

The ships are fitted with modern

#### R.A.N. TODAY

long-range sonar, radar, communications and electronic equipment to provide the command with comprehensive information in the operations room.

Living spaces are air conditioned.

All three ships have seen action in Vietnam where they served with distinction with ships of the U.S. Navy's 7th Fleet.

They share the names of former R.A.N. cruisers.

Name	No.	Builder	Laid Down	Launched	First Commissioned
PERTH	38	Defco Shipbuilding Co. Bay City Mich	21.9.62	26.9.63	17.7.65
HOBART	39	Defco Shipbuilding Co. Bay City Mich	26.10.62	9.1.64	18.12.65
BRISBANE	41	Defco Shipbuilding Co. Bay City Mich	15.2.65	5.5.66	16.12.67

**Displacement:** 4,500 tons (full load).

**Length:** 437 ft (overall).

**Beam:** 47 ft.

**Armament:** Two 5 in. (154 calibre) automatic rapid fire guns. Tartar anti-aircraft guided missile system. Two Ikar anti-submarine missile systems. Triple mounted 2 sets anti-submarine homing torpedoes.

**Machinery:** Two GE geared steam turbines driving two shafts.

**Speed:** Over 35 knots.

**Ship's company:** 333.

#### DESTROYERS

The R.A.N.'s Second Destroyer Squadron is made up of the **Daring**-Class destroyers H.M.A. Ships, **Vampire, Vendetta and Duchess**.

These all-purpose ships have main gunnery armament comparable to a

light cruiser, giving them formidable surface gunnery as well as anti-aircraft capabilities.

Anti-submarine detection equipment and weapons increase their versatility.

They are all-welded construction

and light alloys have been used extensively to reduce weight.

Modernisation of the **Vendetta** and **Vampire** which began in 1970 includes updating of weapons systems and other changes which will improve their performance. Changes will include a new enclosed bridge.

The three twin-gun turrets are being modernised by improving the drive and other systems.

Digital systems replace analogue fire control systems and include new radar.

New air-warning radar, new navigation surface search radar and better sonar are other improvements.

In 1969, **Vendetta** became the first all Australian-built warship to see service in Vietnam.

She also has the distinction, as a result, of being the first **Daring**-class destroyer to be engaged in the role for which they were primarily built — naval gunfire support.

#### R.A.N. TODAY

pending a decision on future requirements. Arrangements were made for her to be taken over by the R.A.N. and renamed **H.M.A.S. Melbourne**.

Construction resumed in 1949 with modifications to be made, including increasing the size of the flight deck lifts to handle larger aircraft coming into service, and in 1952 work started on fitting an angled flight deck, steam catapult and mirror landing site.

She was commissioned into the R.A.N. on 28 October, 1955, and after working up in British waters with her **Sea Venom** jet fighters and **Gannet** turbo-prop, anti-submarine aircraft she sailed for Australia, arriving in Sydney on 10 May, 1956.

#### MELBOURNE

**Builder:** Vickers-Armstrong, Barrow-in-Furness.

**Displacement:** 20,000 tons (full load).

**Length:** 701.5 ft (overall).

**Beam:** 80.2 ft (hull).

**Armament:** 12 (4 twin, 4 single) 40/60mm Bofors.

H.M.A.S. Hobart. The Royal Australian Navy has three guided missile destroyers, H.M.A. Ships **Brisbane, Perth and Hobart**. Their main task is defence of the fleet but they also have formidable anti-submarine and surface gunnery capabilities.



#### R.A.N. DARINGS - EXISTING

The **Daring** Class destroyers **Vampire** and **Vendetta** are being substantially modernised. Work on **Vampire** is nearing completion while that on **Vendetta** was scheduled to commence during August of this year. Illustrated are the "before" and "after" silhouettes of the ships.



#### R.A.N. DARINGS - AFTER EXTENDED REFIT

August-September-October, 1971

THE NAVY

Page Twenty-one

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### RAN TODAY

Name	No.	Builder	Laid Down	Launched	First Commissioned
VAMPIRE	11	Cockatoo Island Dockyard Sydney	1/7/52	27/10/56	23/6/59
VENDETTA	08	HMA Naval Dockyard Williamstown	4/7/48	3/3/54	24/11/58
DUCHESS	154	John I Thornycroft & Co Southampton	2/7/48	9/4/51	8/9/64 (RAN) 23/10/52 (RN)

Displacement: 3 600 tons (full load)  
Length: 388 ft (overall)

Beam: 43 ft

Armament: Six 4.5 in. dual purpose guns in twin turrets, two forward, one aft. Six 40 60mm Bofors guns. Triple barrel anti-submarine mortar.

Machinery: Parsons double reduction geared turbine, driving two shafts

Speed: Over 30 knots

Ship's company: 321



H.M.A.S. Duchess, one of three Daring Class destroyers. They are all-purpose ships and have main gunnery armament comparable to a light cruiser.

### DESTROYER ESCORTS

Now that H.M.A.S. *Torrens* has joined the Fleet, the R.A.N. has six Australian-built destroyer escorts forming the Third Australian Destroyer Squadron.

*Torrens* is identical to her sister ship H.M.A.S. *Swan*, but these two escorts have had included many changes on the four earlier River-Class ships — *Derwent*, *Stuart*, *Varra* and *Parramatta*.

They all are armed with 4.5 inch guns which are used with digital fire control radar and computers.

The guns can be used for shore bombardment or can provide fire power against air or surface targets.

Close-range air and surface defence is provided by the *Seacat* missile system which is controlled by a separate radar and computer.

The *Seacat* missile system was developed in Britain and has been adopted by a number of navies.

A submarine threat can be met by using either the Australian-designed and built *Ikara* anti-submarine missile system, or the triple barrelled mortars carried on all the escorts.

The *Ikara* is a rocket propelled guided missile which carries a homing torpedo towards its submarine target. The torpedo is lowered into the sea by a parachute and is then acoustically homed on the submarine target.



H.M.A.S. Stuart, one of six Type 12 Anti-submarine frigates (destroyer escorts) serving in the Royal Australian Navy.

## R.A.N. TODAY

Name	No.	Builder	Laid Down	Launched	First Commissioned
Torrens	53	Cockatoo Island Dockyard	18/8/65	28/9/68	19/1/71
Sean	50	Williamstown Dockyard	18/8/65	16/12/67	20/1/70
Derwent	49	Williamstown Dockyard	16/6/58	17/4/61	30/4/64
Stuart	48	Cockatoo Island Dockyard	20/3/59	8/4/61	28/6/63
Yarra	45	Williamstown Dockyard	9/4/57	30/9/58	27/7/61
Parramatta	46	Cockatoo Island Dockyard	3/1/57	31/1/59	4/7/61

Displacement: 2,700 tons (full load)

Length: 370 ft (overall)

Beam: 41 ft

Armament: Two 4.5 in. guns in twin turret controlled by digital fire control radar and computer

Seacat anti-aircraft missile system Ikara anti-submarine missile system Triple-barrel anti-submarine mortar

Machinery: Geared steam turbines 30,000 shaft horsepower

Speed: Over 30 knots

Ship's company: 250

## SUBMARINES

Four Oberon-Class submarines form the First Australian Submarine Squadron. Two more are on order.

Their value as an offensive weapon system is enhanced by their ability to operate in enemy-dominated waters for extended periods, without logistic support and without air cover.

The Oberon is a long-range diesel-electric submarine which can move against surface ships or other submarines.

They are one of the most effective conventional types of submarines

Name	No.	Builder	Laid Down	Launched	First Commissioned
Onslow	60	Scott's Shipbuilding Greenock	4/12/67	3/12/68	22/12/69
Owens	70	Scott's Shipbuilding Greenock	17/6/66	4/12/67	15/4/69
Otway	59	Scott's Shipbuilding Greenock	29/6/65	29/11/65	22/4/68
Ostley	57	Scott's Shipbuilding Greenock	27/6/64	24/9/65	27/3/67

Displacement: 2,030 tons (surface), 2,410 (submerged)

Length: 295 ft (overall)

Beam: 26½ ft

Armament: Six bow and two stern anti-surface ship and anti-submarine, 21 inch, torpedo tubes

Machinery: Two English Electric main propulsion motors, with two Admiralty standard range diesel generators

Speed: Submerged—17 knots; Surfaced—12 knots

Ship's company: 62

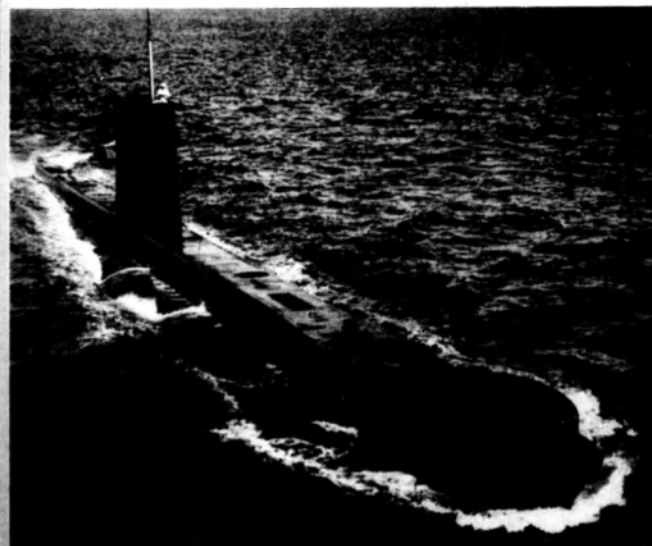
available today, and their quietness of operation makes them particularly difficult for the enemy to detect.

They are designed for silent running, and underwater equipment includes sensitive listening apparatus and an electronic fire control system.

All are fitted with a snort system which enables batteries to be recharged while the submarine remains submerged.

They can dive to more than 400 ft. and have a submerged speed of over 15 knots.

The four craft are based at H.M.A.S. Platypus, Neutral Bay, Sydney.



Of the four Oberon class submarines, H.M.A.S. Owens was completed during October, 1968. Submarines of this class carry homing torpedoes.

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## R.A.N. TODAY

### MINE WAREFARE SHIPS

The First Australian Mine Countermeasures Squadron is made up of six Ton-class mine countermeasure ships.

Of British design and construction, the ships were modified in the U.K. before joining the Australian Fleet in 1962.

Originally all six ships were fitted as minesweepers, but H.M.A. Ships Curlew and Snipe have been converted to minehunters.

The other four, Gull, Hawk, Ibis and Teal are fitted for mine-sweeping.

They carry devices to explode acoustic and magnetic as well as contact mines. They can also detect and destroy other underwater obstructions which would be hazardous to shipping.

The wooden-hulled minesweepers are themselves non-magnetic and are sufficiently silent not to actuate acoustic mines.

Mine hunting is the latest advance in mine countermeasures and the re-equipped Curlew and Snipe play an important role in the Australian Fleet.

Minehunting is complementary to minesweeping and is carried out in a different way.

Using a high definition sonar set the minehunter locates mines ahead of the ship.

When a mine is located, clearance divers go into the water to identify it and decide whether to render it safe and remove it or blow it up with an explosive charge where it lies.

Name	No.	Builder	Launched	First Commissioned
Gull	1185	Doig, United Kingdom	1/7/54	19/7/62
Hawk	1139	I. W. Richards, U.K.	17/9/55	18/7/62
Ibis	1183	Montrose, United Kingdom	18/11/55	7/9/62
Teal	1152	Philp, United Kingdom	28/2/55	30/8/62
Curlew	1121	Montrose, United Kingdom	6/10/53	21/8/62
Snipe	1102	Thornycroft, U.K.	5/1/53	11/9/62

Displacement: 480 tons (full load)

Length: 152 ft (overall)

Beam: 29 ft

Armament: Two 40/60mm Bofors gun (one only on minehunters)

Machinery: Napier Deltic diesel engines developing 3,000 b.h.p.

Speed: Over 15 knots

Ship's company: 34 (minesweeper), 38 (minehunter)



The minesweeper, H.M.A.S. Curlew, which with her sister ship, H.M.A.S. Snipe has been re-equipped from minesweeping. Minehunting is the latest advance in mine countermeasures and is complementary to minesweeping. The hunter does not sweep for mines but locates them ahead of the ship by using high definition sonar.

Patrol Boat H.M.A.S. Buccaneer, one of 20 similar vessels serving in the Royal Australian Navy and the Papua/New Guinea Division.



### PATROL BOATS

Twenty patrol boats have been built in Australian shipyards for patrol work in waters around Australia and Papua-New Guinea.

They are units of the First Australian Patrol Boat Squadron.

These all-weather, ocean-going ships have a variety of tasks, including the patrol of fishing grounds close to the coastline.

They also assist R.A.N. survey ships for close-to-shore sounding work and for reconnaissance.

The 107-ft. patrol boats are also used to train Australian Naval Reserve officers and sailors while



## R.A.N. TODAY

Papuan and New Guinean officers and sailors are being trained to resume full responsibility for operating the P-NG patrol boat squadron.

The speed and versatility of the patrol boats have made them useful for assisting disabled craft, for use as sea-air rescue boats and for

transporting patients from remote shallow ports.

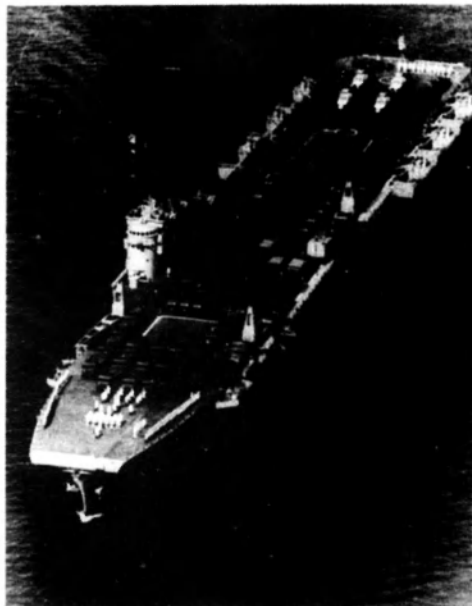
Major excursions have been made into Papua-New Guinea river systems.

Included in the ship's equipment is high definition navigation radar, high and ultra-high frequency radio transmitters and receivers, gyro and magnetic compasses and echo sounder.

They are fully air conditioned. All were built in Queensland shipyards, with the first being commissioned in November, 1967.

### PATROL BOATS

Attack, Altape, Samari, Advance, Acute, Aware, Loo, Madang, LaDeVa, Archer, Assail, Adroit, Arrow, Ardent, Barricade, Barbette, Bombard, Buccaneer, Bandalier and Bayonet.  
Displacement: 146 tons  
Length: 107 ft  
Beam: 20 ft  
Armament: 40 60mm Bofors gun, machine gun and variety of light arms  
Machinery: Two 16 cylinder diesels, producing more than 3 000 h.p.  
Speed: Over 20 knots  
Ship's company: 19



The troopship/equipment carrier, H.M.A.S. Sydney (formerly an aircraft carrier). She has been continuously employed in transporting Australian forces to and from South Vietnam.

### TROOP TRANSPORT

H.M.A.S. Sydney, which first saw service in the Royal Australian Navy as a light aircraft carrier, was converted in 1961-62 to a fast troop/transport carrier.

It is also the senior ship of the First Australian Training Squadron.

Sydney was recommissioned in her present transport role on 7 March, 1962.

She is capable of transporting a large body of men and their equipment anywhere in the world.

Late in May, 1964, Sydney transported a complete load of Army and R.A.F. units to Malaysia.

She has been continuously employed in transporting Australian Forces to South Vietnam and in 1971 visited the United States to pick up new aircraft for the Fleet Air Arm.

Sydney was laid down in 1943 as H.M.S. Terrible.

By the end of the war she was not urgently needed and was laid up until bought for the R.A.N. as Australia's first aircraft carrier.

She reached Sydney on 28 May, 1949, but returned the following year to bring back the 21st Carrier Air Group. The aircraft borne comprised Sea Furies (fighters), then the fastest piston engine fighter in the world, and all purpose Fairy Fireflies.

In 1951-52 and 1953-54, Sydney served with distinction in Korean waters where she mounted aerial strikes against Communist tanks, trains, bridges, supply depots and troop concentrations.

Sydney finally landed her aircraft on 1 May, 1955, and six years later began her role as a training ship.

### SYDNEY

Displacement: 17 233 tons (full load)  
Length: 698 ft (overall)  
Beam: 80 ft  
Armament: Four 40 60mm Bofors guns  
Machinery: Parsons single reduction geared turbines  
Speed: Over 20 knots  
Ship's company: 607

### TRAINING SHIPS

Much of the sea training for R.A.N. sailors is gained through experience aboard the troop carrier H.M.A.S. Sydney, and the training destroyers Queenborough and Anzac. The three ships form the First Australian Training Squadron.

Queenborough was a Royal Navy ship loaned to the R.A.N. in 1943 and

## R.A.N. TODAY

transferred to the R.A.N. in 1950. She was converted to a fast anti-submarine frigate and saw service in South-East Asia and off the Australian coast.

She was taken out of service and placed in the Reserve Fleet in 1963, but recommissioned in 1966 as a training ship.

With the other training ships, Queenborough provides most of the basic sea time for recruits and midshipmen during their initial training period.

The destroyer Anzac is a veteran of the Korean War, and since 1960 has been a Fleet training ship.

Originally she had three twin 4.5 inch gun mountings, but one of the forward turrets was removed in 1966 and replaced by a classroom for training.

**QUEENBOROUGH**  
Displacement: 2 020 tons  
Length: 359 ft  
Beam: 35 7 ft  
Armament: Two 40 60mm Bofors guns two anti-submarine mortars  
Machinery: Parsons geared turbines  
40 000 shp, 2 shafts  
Speed: Over 31 knots  
Ship's Company: 237

**ANZAC**  
Displacement: 3 450 tons  
Length: 379 ft  
Beam: 41 ft  
Armament: Two 4 5 in gun (one twin turret)  
Machinery: Parsons geared turbines  
50 000 shp, 2 shafts  
Speed: 31 knots  
Ship's Company: 270



H.M.A.S. Queenborough was launched and completed in 1942 as a destroyer. Later she was converted to a Fast Anti-submarine frigate and since 1966, along with the other ships of the R.A.N. training squadron, she has provided basic sea time for recruits and midshipmen during their initial training period.



H.M.A.S. Anzac is a veteran of the Korean War. A Battle class destroyer and now a fleet training ship, she has had her director removed and "B" turret replaced by a classroom.

### DESTROYER TENDER

The destroyer tender H.M.A.S. Stalwart is a floating workshop with the job of maintaining and repairing destroyers between major dockyard refits. Three-quarters of the ship's company of 396 are engaged in repairing and maintaining other ships.

Stalwart can handle several destroyers alongside at the same time and can operate from forward bases.

She has extensive and well equipped engineering, electrical, electronic, weapons, shipwright and other workshops manned by officers and sailors expert in a variety of trades.

She is Australian-designed and built.



The destroyer tender H.M.A.S. Stalwart. She is a floating workshop with the job of maintaining and repairing destroyers between major dockyard refits. Stalwart can handle several destroyers alongside at one time and can operate from forward bases.

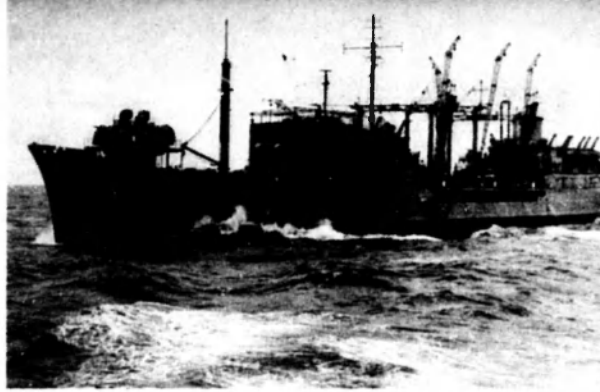
## R.A.N. TODAY

### FLEET OILER

H.M.A.S. Supply has the important task of refuelling fleet units to give ships greater range and mobility.

She supplies furnace fuel, aviation gasoline, dieselene and water to other ships while they are underway.

A typical operation sees a destroyer steam alongside Supply at 15 knots. With only about 100 ft. between the ships, lines are shot across, hoses are run across and connected, and pumping begins. A destroyer can be refuelled in this way in less than half an hour.



The Fleet oiler, H.M.A.S. Supply. She has the most important task of refuelling fleet units at sea to give them greater cruising range and mobility. Supply is able to deliver furnace fuel, aviation gasoline, dieselene and water to other ships while they are under way.

approaches and the resurvey of existing routes, notably the Great Barrier Reef and Torres Strait, to cope with the deep draught ships.

The surveying task is a formidable one and presents a challenge to the two R.A.N. survey ships Moresby and Paluma.

Moresby is one of the most modern survey ships in the world. She operates her own helicopter and has advanced equipment including electronic aids for surveying in all conditions.

A new hydrographic ship to replace Paluma is being built.

Diamantina and Kimbla undertake oceanographic research both for military and scientific purposes, including programmes for the C.S.I.R.O. universities and museums.

H.M.A.S. Diamantina, one of two oceanographic research ships used for military and scientific purposes. Formerly a frigate of the Australian River class completed in April, 1945.



H.M.A.S. Moresby. She is one of the most modern survey ships in the world and has advanced equipment, including electronic aids, for surveying in all conditions.

### SURVEY SHIPS

Hydrographic surveys and oceanographic research are carried out by H.M.A. Ships Moresby, Paluma, Diamantina and Kimbla, aided at times by other Fleet ships.

The R.A.N. Hydrographic Service is the charting authority for Australian waters, which cover about one-eighth of the earth's surface.

The recent increase in the exploitation of Australia's national resources has seen the development of a number of new ports, such as Gove, Weipa, Port Latta, Spring Bay, Hay Point and Dampier and heralded the era of the bulk carrier. This has necessitated the surveying of new shipping routes and harbour

## R.A.N. TODAY

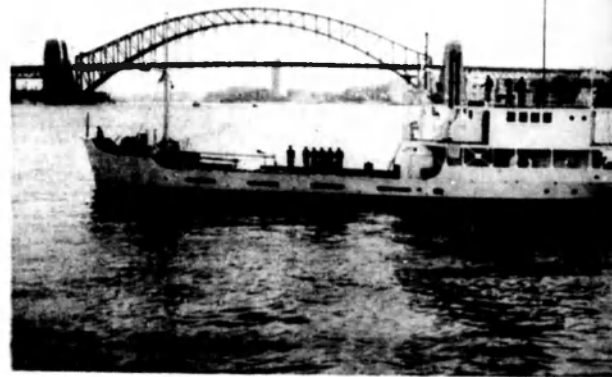
Diamantina, a converted frigate, will be replaced by a modern hydrographic ship, now under construction, which will be similar in design to H.M.A.S. Moresby, but slightly larger to incorporate requirements for modern oceanographic research.

### FUTURE SHIPS

Increased demands and newly-developed techniques are providing the Navy with a need for new ships.

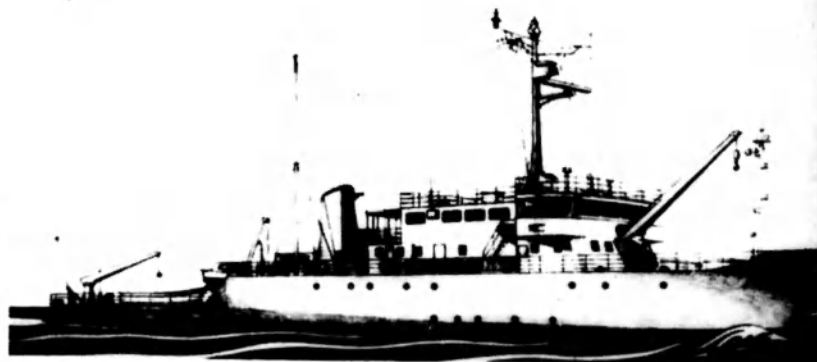
Several different types are on the drawing boards and they will become an important part of the Fleet for the 1980's.

The biggest project is the designing and construction of a series of new destroyers designed specifically for Australian conditions.

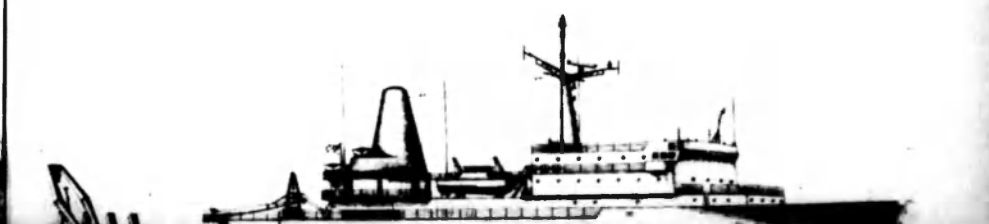


The survey ship H.M.A.S. Paluma. Originally a motor stores lighter of war construction she was converted for surveying in 1958. She will shortly be replaced by a new hydrographic ship, H.M.A.S. Flinders.

An artist's impression of the new hydrographic ship, H.M.A.S. Flinders. It is expected that she will displace about 700 tons.



An artist's impression of the new oceanographic ship H.M.A.S. Cook which is expected to go into service about 1975.



## R.A.N. TODAY

They will have a long cruising range and high top speed and will be armed with a variety of weapons.

To provide support away from bases, the Navy is also planning a combat support ship to carry fuel, stores and ammunition to warships so they can operate for long periods and distances away from base facilities.

The support ship to be named **H.M.A.S. Protector**, will carry several types of liquid fuel, as well as stores such as clothing and food.

The ship will displace about 20,000 tons, will be about 540 ft. long and will be built in Australia at an estimated cost of \$45 million.

Approval has been given for a new oceanographic ship to replace **H.M.A.S. Diamantina**. It will be named **H.M.A.S. Cook** and is expected to go into service about 1975.

A replacement is being built at Williamstown Naval Dockyard for the hydrographic ship **H.M.A.S. Paluma**.

Named **H.M.A.S. Flinders**, it will have about a 50 per cent increase in output over **Paluma** mainly because of higher speed, better endurance and better sea-keeping qualities. It will displace about 700 tons.

The R.A.N. currently has four **Oberon** Class submarines, and another two will be bought from British ship builders. They are expected to enter service in the mid 1970's.



Skyhawk fighter-bomber, one of twenty serving in the R.A.N.



Grumman Tracker anti-submarine aircraft fly from the flagship H.M.A.S. Melbourne

## R.A.N. TODAY

### AIRCRAFT

Fleet Air Arm effectiveness has been increased with the addition of 10 new **Skyhawk** jet fighter-bombers.

These transonic aircraft have joined 10 already in service, which has significantly added to the versatility of the aircraft carrier **H.M.A.S. Melbourne**.

The Douglas **Skyhawk** is a relatively small aircraft (weight empty 9,800 lb) but it is capable of carrying an extensive and varied war load (Maximum all-up weight, 24,500 lb) over considerable distance.

Its armaments include combinations of air-to-air missiles, a variety of 250, 500 and 1,000 lb bombs, a 20mm cannon and rocket projectiles.

Embarked on **Melbourne** with the **Skyhawk** are anti-submarine **Tracker** aircraft and **Wessex** helicopters.

Grumman **Trackers** are all-weather twin-engine aircraft fitted with electronic devices for navigation and detecting submarines.

They can remain on patrol for up to 10 hours, and each carries a crew of two pilots, observer and aircrewman.

Armaments include homing torpedoes or depth charges in bomb bay, underwing attachments for torpedoes, depth charges or rockets, and sonobuoys and marine markers in rear of engine nacelles.

The Westland **Wessex** are employed to screen the Fleet, searching with their sonar equipment for submarines.



The Macchi jet trainer has replaced the Vampires and Sea Venoms in the Royal Australian Navy. The Italian designed Macchi is a twin seater trainer capable of cruising at 500 m.p.h. These aircraft are not intended for operational carrier flying.

They also used in a search and rescue role. They carry a crew of two pilots, observer and aircrewman.

### FLEET AIR ARM SQUADRONS

Squadrons	Task	Aircraft
HT 723	Helicopter crew training and pilot continuation training Fleet support and search and rescue duties	Iroquois and Scout helicopters
VC 724	Fixed-wing fighter pilot training and Fleet requirement flying trials	Macchi jet trainers, TA4G Skyhawk trainers
HT 725	Anti-submarine helicopter operational training and Fleet requirement duties	Wessex 31B helicopters
VF 805	Front-line Strike fighter squadron	A4G Skyhawks
VS 816	Front-line fixed wing anti-submarine squadron	S2E Trackers
HS 817	Front-line helicopter anti-submarine squadron	Wessex 31B helicopters
VC 851	Training squadron for pilots, observers and aircrewmen Twin-engine conversion, communication and Fleet requirement flying	S2E Trackers and Dakotas

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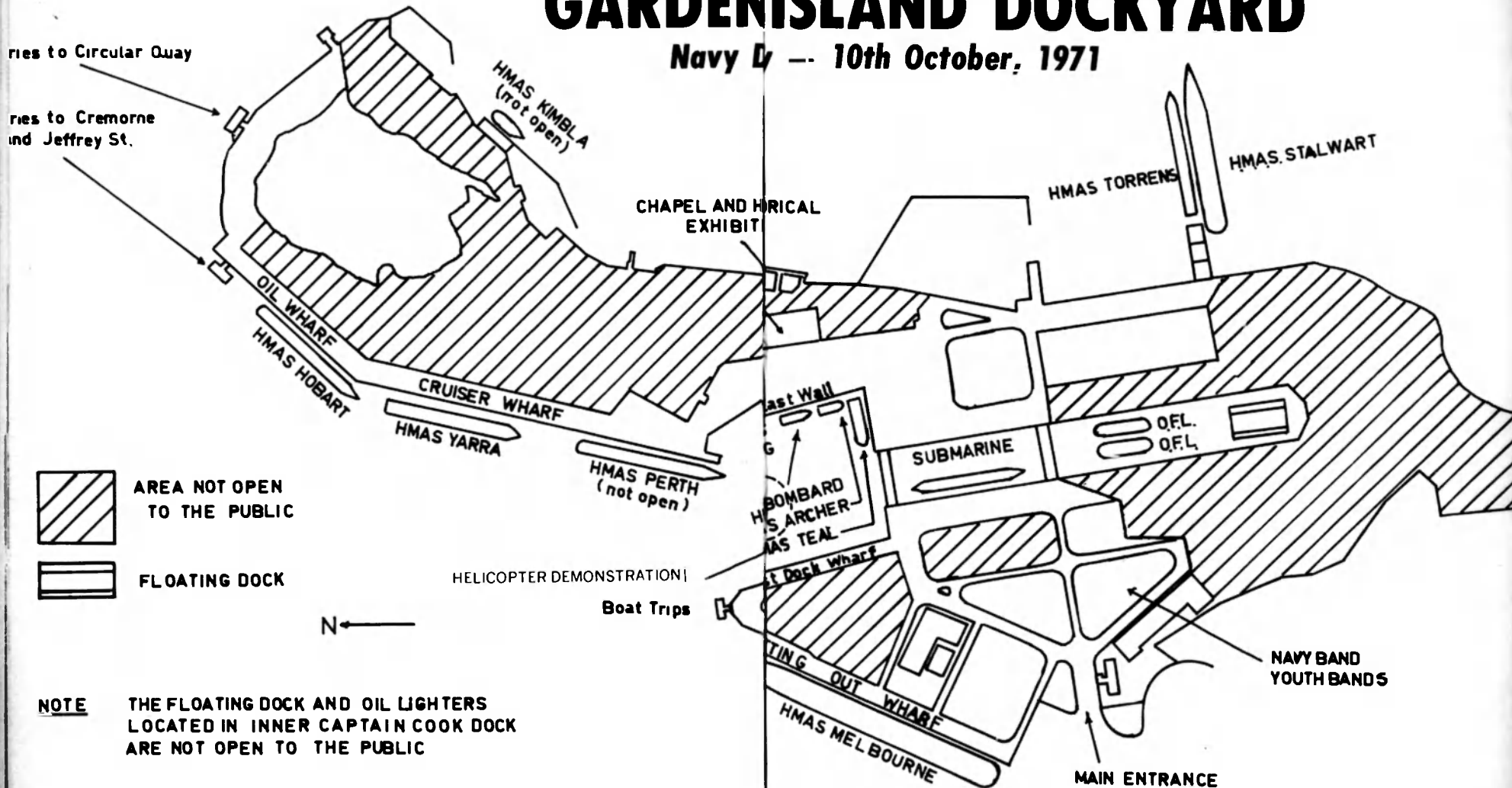
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Navy Day -- 10th October, 1971





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Now you can copy a circuit, notice, plan or specification direct on to Oce diazo polyester adhesive film in a diazo printer, make as many copies as you like, then peel off the adhesive backing and stick on to any surface as a permanent record for everyone to see.

Oce adhesive film saves time in the drawing office too. Say you want to alter a portion of a plan, then take the original and make an Oce diazo transparent copy on either paper or film. Eradicate by chemical means the unwanted part or

parts of the drawing on the copy then go back to the original plan and place a tracing sheet over the portion you want to alter and draw in the changes. Then expose through a diazo printer on to Oce polyester adhesive film and develop. Take off the backing sheet and stick it over the transparent copy and you have a new master plan from which you can make more copies.

You'll be amazed at the number of uses you'll find for this new film. Ask for a sample sheet.

## Coloured Films for Diazo Process

Here's a real breakthrough for diazo printing. Post Chromtex film in ten beautiful colours, red, yellow, blue and black, magenta, cyan, green, orange, brown or violet. Use them as colour overlays for engineering or architectural drawings. Process through ammonia type diazo printer as quickly and easily as ordinary diazo paper. Accurate register assured.

Ideal for charts, maps, reports, drawings of all kinds. Easy to overlay one, two, three or more colours on top of one another. Saves drawing time, gives true, high fidelity reproduction.



## Anti-Static Drafting Film

New anti-static drafting film does not store static electricity . . . eraser crumbs and specks of dirt don't cling to the surface . . . goes through diazo printer with the greatest of ease. Arkwright Anti-Static film gives a better inking surface . . . very durable, matte finish takes pencil or ink to give dense clear lines that reproduce sharply. Plenty of tooth too, erase quickly and easily without ghosting. Non glare surface absorbs light . . . very easy on the eyes. Sheets won't cling together no matter how long you store them. Single or double matte surface.



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# NAVY WEEK IN AUSTRALIA

Navy Week is one week in each year when Australians from coast to coast are urged to pay grateful tribute to those who have served and those now serving Australia at sea.

During this week it is fit and proper that a nation of free men and women give well-deserved honour and recognition to the patriotic and victorious achievements of its men of the sea. It is the week for Australians to rededicate themselves to those principles of freedom and self-government which they cherish. It is a week in which grateful citizens should salute their Royal Australian Navy and make sure that it is adequate to fulfil its contribution to our national security.

In the Royal Australian Navy the month of October has always held special significance. The 21st commemorates the 166th anniversary of the victory of the Battle of Trafalgar. Fought in the Atlantic, off the southern coast of Spain, it was

the last great Naval battle to be fought under sail alone.

Fifty-eight years ago, on October 4, 1913, the Australian Fleet steamed into Sydney Harbour. Navy Week, 1971, was planned to coincide with the anniversary of the Fleet's entry.

The arrival of the ships in 1913 was an event Australians had looked forward to for half a century. They were their own ships, paid for by their own money and manned in large proportion by their own men; the nucleus of what they hoped would be their own Fleet.

The Squadron comprised the Battle Cruiser *Australia*; Light Cruisers *Encounter*, *Sydney*, *Melbourne* and the Torpedo Boat Destroyers *Warrego*, *Parramatta* and *Yarra*.

It is appropriate at this time to recall the words expressed by the then Prime Minister of Australia, The Honourable Sir Joseph Cook:

"Since Captain Cook's arrival, no more memorable event has happened than the advent of the Australian Fleet. As the former marked the birth of Australia, so the latter announces its coming of age, its recognition of the growing responsibilities of nationhood, and its resolve to accept and discharge them as a duty both to itself and to the Empire. The Australian Fleet is not merely the embodiment of force. It is the expression of Australia's resolve to pursue, in freedom, its national ideals, and to hand down unimpaired and unsullied the heritage it has received, and which it holds and cherishes as an inviolable trust. It is in this spirit that Australia welcomes its Fleet, not as an instrument of war, but as the harbinger of peace."

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## Programme Of Events arranged for Navy Week, 1971

### NEW SOUTH WALES

Friday, October 1

12.30 p.m. to  
1.30 p.m.

Navy Band recital in  
Hyde Park.

1.30 p.m.

Navy Band leads Waratah  
Princess Procession  
from Hyde Park to Sydney  
Town Hall.

Monday, October 4

to

normal  
business  
hours

Naval static displays in:  
(a) Commonwealth Trading  
Bank, Corner Pitt and  
Market Streets, Sydney.  
(b) "Commonwealth Centre",  
Chifley Square, corner of  
Phillip and Hunter Streets  
(c) Prouds Pty. Ltd.,  
Jewellers and Watchmakers,  
84 King Street, Sydney.

Saturday, October 9

Tuesday, October 5

12.30 p.m. to  
1.30 p.m.

Navy Band recital in  
Wynyard Park.

Wednesday, October 6

Afternoon

Navy Band will play  
during the A.J.C.  
Spring Carnival at  
Randwick Race Course.

Thursday, October 7

12.30 p.m. to  
1.30 p.m.

Navy Band recital in  
Hyde Park.

Saturday, October 9

12.30 p.m.

Waratah Festival Pageant  
through the Streets of  
Sydney — led by Navy  
Band.

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## N.S.W. CONTINUED

Sunday, October 10

11.00 a.m.

An Ecumenical church service will be held in the Dockyard Church, Garden Island. The guest preacher will be the Most Reverend E. V. Kelly, Auxiliary Bishop to the Roman Catholic Archbishop of Sydney.

The service, to which the general public are invited to attend, will be conducted by the Right Reverend F. O. Hulme-Moir, Anglican Bishop to the Forces. Assisting at the Service will be the Rev. Alan Walker, President of the Methodist Conference in N.S.W., and the Rev. Hugh Cunningham, Past Moderator of the Presbyterian Church, and the Rev. W. D. O'Reilly, a former President of the Methodist Conference.

At the conclusion of the Service, worshippers are invited to picnic in Garden Island, then at 1.15 p.m. inspect the Naval Dockyard and ships open for public inspection.

Garden Island Naval Dockyard and Her Majesty's Australian Ships open for Public Inspection.

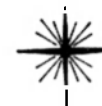
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## QUEENSLAND

### Friday, October 1

7.00 p.m.

Training Ship **Paluma** open to Public at Sea Cadet Headquarters, Gibson Park, Stafford.

7.30 p.m.

Naval Reunion Dinner at R.S.L. Club, Cairns.

8.00 p.m.

Naval Association Ball at Ipswich.

### Saturday, October 2

2.00 p.m. to 4.30 p.m.

Training Ship **Tyalgum** open to Public at Southport.

7.30 p.m.

Navy Reunion at R.S.L. Clubroom, Gladstone.

7.45 p.m.

"Old Ships" Reunion at H.M.A.S. **Moreton**, New Farm.

7.45 p.m.

Dinner Dance at R.S.L. Club, Bundaberg.

### Sunday, October 3

9.00 a.m.

Street March to Civic Centre by Sea Cadets at Bundaberg, followed by Combined Church Parade.

9.25 a.m.

Wreath-laying Ceremony by ex-navalmen at the War Memorial, Gladstone.

9.45 a.m.

Wreath-laying Ceremony at the Naval Memorial Cairn at Ipswich.

a.m.

Dedication of Memorial Wall and Combined Service at the R.S.L. Memorial Hall, Southport. (Cadets from the Training Ship **Tyalgum** will participate.)

10.00 a.m.

Naval Service of Remembrance and Wreath-laying Ceremony at the Shrine, Anzac Square, Brisbane.

11.00 a.m.

Seafarers' Service at St. John's Cathedral, Ann Street, Brisbane. (Cadets from the Training Ship **Magnus** will act as flag bearers.)

7.30 p.m.

Naval Commemoration Service, St. Margaret's Church, Aumuller Street, Cairns.

### Monday, October 4 (NAVY DAY.)

a.m.—p.m.

School Talks throughout Queensland.

Fashion Parade at Myer's Chermside Drive-In.

### Tuesday, October 5

12.30 p.m.

Luncheon at Naval Memorial Club, Charlotte Street, Brisbane.

Fashion Parade at Myer's Chermside Drive-In.

### Wednesday, October 6

a.m.

H.M.A.S. **Duchess**, Daring Class Destroyer, arrives in Brisbane.

12.30 p.m.

Navy Golf Day at Nudgee Golf Club.

Fashion Parade at Myer's Chermside Drive-In.

### Thursday, October 7

p.m.

H.M.A.S. **Duchess** open for public inspection in Brisbane.

12.00 noon

Luncheon and Fashion Parade in H.M.A.S. **Moreton** (by invitation).

8.00 p.m.

Fashion Parade at Myer's Chermside Drive-In.

Fashion Parade in H.M.A.S. **Moreton** (by invitation).



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### QUEENSLAND CONTINUED

#### Friday, October 8

p.m.  
7.45 p.m.  
8.00 p.m.

8.00 p.m.

H.M.A.S. **Duchess** open for public inspection in Brisbane.  
Navy Reunion at R.S.L. Clubrooms, Toowoomba.  
"Maritime Ball 71" at Cloudland, Bowen Hills. (Bookings at Naval  
Memorial Club, Charlotte Street, Brisbane. Phone 2 7618.)  
Navy Week Dinner at Boomerang Hotel/Motel, Mackay.  
Fashion Parade at Myer's Chermide Drive-In.

#### Saturday, October 9

p.m.  
2.30 p.m. to 5.00 p.m.

p.m.  
6.00 p.m.  
p.m.

7.00 p.m.  
p.m.

7.30 p.m.

H.M.A.S. **Duchess** open for public inspection in Brisbane.  
Training Ship **Pioneer** open to public at Sea Cadet Headquarters,  
Mackay.  
Navy Week Flying Handicap at Eagle Farm Racecourse.  
Naval Association Dinner at Boomerang Hotel, Mackay.  
Dedication of Gothenberg Memorial Porthole and Social at  
Training Ship **Coral Sea** Headquarters, Townsville.  
Navy Day Dinner at United Services Club, Brisbane. (By invitation).  
Training Ship **Bundaberg** open for public inspection at new  
Headquarters Bundaberg.  
Navy Reunion Dinner. Anzac Hall, Rockhampton.

#### Sunday, October 10

a.m.  
9.00 a.m.

12.30 p.m.  
p.m.  
1.00 p.m.

Naval Service of Remembrance at Gladstone.  
Naval Service of Remembrance and Wreath-laying Ceremony at  
Toowoomba.  
Navy Bowls Day at Wavell Heights Bowling Club.  
H.M.A.S. **Duchess** open for public inspection in Brisbane.  
Navy Week Sailing Regatta at R.Q.Y.S. Course, Manly, Brisbane.

## VICTORIA

#### Saturday, October 2

Afternoon

Navy Day Handicap at  
Flemington Racecourse.

#### Sunday, October 3

Morning

Church Services at  
St. Paul's and St.  
Patrick's Cathedrals.

Naval Reserve Cadets will  
participate in the  
Seafarers' Service at  
St. Paul's.

#### Monday, October 4

Navy Golf Day at  
Waverley Golf Club.

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### VICTORIA CONTINUED

Friday, October 8

Saturday, October 9

Afternoon

NOTE: H.M.A.S. **Cerberus** and Williamstown Dockyard will NOT be open for public inspection during Navy Week

Sunday, October 10

Morning

Afternoon

Evening

Navy Week Ball at  
H.M.A.S. **Lonsdale**.

Naval Reserve Cadets  
Training Ships, **Barwon**,  
**Melbourne** and **Voyager**,  
will be open for public  
inspection.

Naval Association  
Service at Christ Church,  
South Yarra.

Naval Reserve Cadets will  
be participating.

Shrine Commemoration  
Service. Cadets from  
the Training Ships  
**Melbourne** and **Voyager**  
will be participating in  
the service.

Reception at H.M.A.S.  
**Lonsdale**.

## WESTERN AUST.

Sunday, October 3

Wednesday, October 6

Sunday, October 10

Service at St. John's Church, Fremantle.

Luncheon organised by Navy Officers' Wives.  
Race Meeting.  
Trots.

Open day at H.M.A.S. **Leeuwin**.

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## TASMANIA

Sunday, October 3  
Monday October 4  
to  
Saturday, October 9

Church Services and Wreath-laying Ceremonies.  
Naval displays in New State Library and the  
windows of various department stores.

## SOUTH AUST.

Sunday, October 3

H.M.A.S. Queenborough  
will berth. (It is  
anticipated that the  
training frigate will be  
open for public  
inspection on a number of  
occasions during Navy  
Week.)

Thursday, October 7

p.m.

Members of the Naval  
Officers' Club will hold  
a dinner at the Naval  
and Military Club.

Friday, October 8

12.00 Noon

Commemoration Service  
and Wreath Laying at the  
State War Memorial,  
North Terrace, Adelaide

8.00 p.m.

R.A.N.R. Ball in Drill  
Hall, H.M.A.S.  
Encounter.

Saturday, October 9

p.m.

Navy League Junior  
Group Dinner Dance in the  
Drill Hall, H.M.A.S.  
Encounter.

Sunday, October 10

11.00 a.m.

Naval Commemoration  
Service, St. Francis  
Xavier Cathedral,  
Adelaide.

7.00 p.m.

Naval Commemoration  
Service, Holy Trinity  
Church of England,  
North Terrace, Adelaide.

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# GARDEN ISLAND NAVAL DOCKYARD

... SUNDAY, 10th OCTOBER, 1971

1.15 P.M. TO 5.00 P.M.

## ACTIVITIES SCHEDULED Ships for Public Inspection

The Aircraft Carrier H.M.A.S. MELBOURNE, the Flagship of the Royal Australian Navy, The Guided Missile Destroyer H.M.A.S. Hobart, Submarine OTWAY, modern Destroyer Escorts including the R.A.N.'s latest Escort, H.M.A.S. TORRENS, Patrol Boats and Minesweepers will be opened for Public inspection.

Naval aircraft, including Skyhawks, Trackers and Wessex Helicopters, will be embarked in the MELBOURNE.

### Harbour Trips in Torpedo Recovery Vessels

Visitors will be taken on harbour tours in these modern Naval support craft. The latest torpedoes will be on display in the vessels.

### Display by Navy Frogmen

Frogmen will simulate underwater attacks; drops and pick-ups from helicopters and fast surface craft will be featured. A selection of explosive devices used in Vietnam will be on display.

### Film Show

A continuous film show will be run during the afternoon. Films to be featured will include:—

"Birds Away" (the TARTAR Surface to Air missile); "On the Gunline" (Vietnam Operations); "Music for the Modern Navy"; "The Oberon Submarine"; "Sea and Air Power" and "Supplying the Navy".

### Naval Historical Exhibition

The following attractions will be featured:—

- (1) Display of Naval firearms and edged weapons — 17th to 20th Century.
- (2) Display of medals from Napoleon's Wars to World War II.
- (3) Twenty scale models of Naval vessels — 18th to 20th Century.
- (4) A collection of John Alcott paintings of Naval vessels.
- (5) Photographic display of Naval vessels
- (6) A live demonstration of model making. H.M.A.S. *Corberus*, an historic Iron Monitor Warship, will be modelled at the display. Model maker's plans of the vessel will be available to the public.
- (7) Items salvaged from the battleship *Niagara*.
- (8) Trafalgar relics, including a copy of the *Guernsey Gazette* dated December 28, 1805, announcing the death of Lord Nelson. A 1797 lithograph of Lord Nelson.
- (9) Relics of H.M.A.S. *Parramatta*, the first ship in the R.A.N.

### Band Performances

The Naval Band and Combined Youth Bands will give recitals and marching displays during the afternoon.



A submarine of the Oberon class heaves to, while Army commandos board from their canoe. At least one of those submarines will be open for public inspection during Navy Day at Garden Island Naval Dockyard on Sunday, 10 October, 1971.

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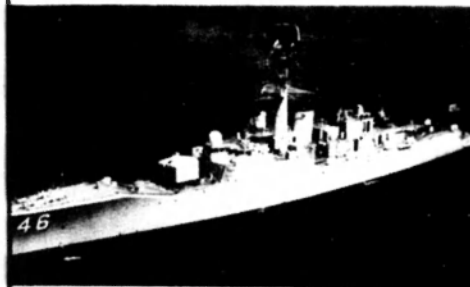
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OPEN DAY CONTINUED



The Destroyer Escort, H.M.A.S. Parramatta. Vessels of this type will be open for public inspection at Garden Island Naval Dockyard, on Sunday, 10 October, 1971.

### Submarine Display

In addition to the opening of the Oberon Class submarine **Otway** for public inspection, a static display showing the activities of the submarine arm of the Royal Australian Navy will be mounted.

### Display by Naval Apprentices

Naval Apprentices from the Apprentice Training Establishment at H.M.A.S. **Nirimba** will mount a working display of boat building, welding, turning, fibre glass working, painting and engine maintenance. The display will be assembled in the workshop of the R.A.N.'s Fleet Maintenance Ship H.M.A.S. **Stalwart**. The yacht **Nirimba**, which was built by the apprentices, will also be on display.

Free ferry transport to and from Garden Island will be run from 1 p.m. The ferries will run a continuous shuttle service between No. 2 Wharf, Circular Quay, Jeffrey Street and Cremorne Wharves. Public transport services to and from Garden Island will also be supplemented during the afternoon.

## CONTRIBUTIONS INVITED

The editor invites persons to submit articles, photographs and drawings (black ink) for inclusion in the magazine, but regrets that no payment can be made for contributions submitted. Contributions should be addressed: The Editor, The Navy, Box C178, Clarence Street Post Office, Sydney N.S.W. 2000 Australia.

The Editor does not hold himself responsible for manuscripts, though every effort will be made to return these with which a stamped and addressed envelope is enclosed.

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# Seamanship for a Student Prince

by TIM RADFORD

The young English graduate who joins the Britannia Royal Naval College in September, along with other graduates and naval students from countries as far apart as New Zealand and Ethiopia, will learn something about spit and polish and a lot about seamanship.

And during the accelerated course for graduate entrants to the Royal Navy he will draw 4 40 Pounds a day pay (less 1 Pound for mess and accommodation) while learning the all-important art of leadership.

But in this subject he has a head start. He will one day be King of England.

Like his father, his grandfather and his great-grandfather before him, Prince Charles, the Prince of Wales and heir apparent to the

British throne, is to join the Navy. For nearly two centuries the Kings of England — with the exception of George IV — have served at sea.

Prince Charles' father, the Duke of Edinburgh, spent two terms at the College in 1939, gained his first command in 1950 and is still serving as an Admiral of the Fleet.

But the college at Dartmouth in the west of England that the 22-year-old Prince will join is no longer the wooden-walled training ship that

King George V joined in 1877, and the curriculum has changed, too, since his father's day.

**Science — and Drill**

The cadets and Sub-Lieutenants still take a pride in smartness. But the accent is less on drill and more on science — the basic physical and mathematical principles underlying the sophisticated technology of the modern Navy.

Some of the academic studies that lie before the young Prince will already be familiar: he is now studying at the Royal Air Force College at Cranwell in eastern England and has already gained his wings.

But he — and the other 40 or so graduates — will have to begin learning seamanship, navigation, engineering, supply administration and management and something of Naval history.

Out of the classroom he will be confronted by swimming, lifesaving and small-boat sailing tests, physical fitness activities and a couple of outings aboard a minesweeper attached to the college. These won't be pleasure trips — the college cadets and acting Sub-Lieutenants will get practical experience in ship-handling and fixing by radar and Decca moving map display.



A young officer takes a sight aboard a frigate of the Royal Navy's Dartmouth Training Squadron, which is attached to the Royal Naval College. The young man who enters the college as cadets is trained as officers, are soon to be joined by the Prince of Wales, who will follow in the footsteps of his father, the Duke of Edinburgh, and his grandfather King George VI. The College, with reputation and traditions, not only trains officers for the Royal Navy, but many from overseas as well.

## STUDENT PRINCE



A cadet is transferred by jackstay from H.M.S. Torquay to H.M.S. Scarborough, two frigates of the Royal Navy's Dartmouth Training Squadron, which is attached to the Royal Naval College.

And on top of that, the inevitable drill — 16 periods of some 50 minutes each on the parade ground.

### Commonwealth Links

The Prince will live and work under the same conditions as his other contemporaries among the 500-600 students at the college. Staff and his contemporaries will call him Prince Charles. His juniors in rank — the cadets — will call him Sir.

Basically, we are not making any special arrangements for the Prince at all," says the college. "He will have a lot to learn in a very short time."

The Prince's education at Dartmouth will keep him in touch, too, with the Commonwealth. In fact he'll move into a cabin (furnished with bed, desk, armchair and wardrobe) just vacated by a young naval officer born in Dar es Salaam, whose parents now live in Nairobi.

The next term's intake of students from other countries has not yet been settled, but the college normally has young officers from Malaysia, Singapore, Kenya, Nigeria, New Zealand and Trinidad and Tobago — as well as from Iran and Ethiopia.

### Destroyer Service

He'll be under the command of a New Zealander, Captain of the college, Captain Allan Gordon Tait, was



Heir Apparent takes to the air. Prince Charles the Prince of Wales, became the first heir to the British throne to make a parachute descent when he completed a six month flying course at the Royal Air Force College at Cranwell, England, by dropping from an Andover aircraft, 1,200 ft. into the English Channel.

Cadets at the College are not required to make the parachute drop — but the 22-year-old Prince requested that he should make the descent. Within seconds of landing in the Channel, the Prince was hauled aboard this Gemini inflatable assault craft by two Royal Marines and, highly satisfied, ferried towards the fleet tender Aberdovey for a hot drink and a change of clothes.

born in Timaru in the South Island and studied at Dartmouth at the beginning of the Second World War. He returned to the college last year. But the preliminary training the Prince will undergo at Dartmouth will be only the beginning of his studies. At the end of October he will join the guided missile destroyer H.M.S. Norfolk for nine months' sea training as acting Sub-Lieutenant before he considers specialist study in any particular branch of the Navy during his three to five years' service.

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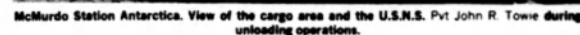


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## ... The World's Frozen Frontier



Admiral Welch's command is made up of personnel from the Navy, Marine Corps, Army, Coast Guard and Air Force — a total of some 2,500 men, a half dozen ships and about a dozen aircraft. This task force is brought together to plan and



direct the procurement and transportation of supplies and equipment to the Antarctic for support of scientific programmes conducted by the National Science Foundation.

In 1955 the Department of Defence assigned the Navy to handle the bulk of the support mission for the Antarctic operations because of the Navy's requisite experience, background and know-how in handling a maritime task of running supplies some 12,500 miles from the east coast of the United States through New Zealand to McMurdo Station, the largest American base in Antarctica.

In many cases, this supply line continues on several hundred miles to outlying stations on the Antarctic continent.

Admiral Welch explains his mission as "... basically, we provide our scientists with transportation and construction support for their habitat and their various projects; plus their fuels, supplies and the many other necessities of everyday life".

He adds, too, "This enables the civilians to devote their full efforts to research on the five and one-half million square mile continent that is covered with 95 per cent. of the world's permanent ice".

Each year the Navy transports some 250 scientists from the National Science Foundation to the Antarctic, where they are involved in projects ranging from marine biology to upper atmospheric physics.

The scientists and some scholars come from the nation's leading colleges and universities and some are sponsored by various U.S. Government agencies and organisations.

Adelie penguins at Cape Royds, Antarctica.

The U.S. Air Force's C-141 Star Lifter transport, first put into regular use during "Deep Freeze, 1969", made several flights to the Antarctic in the early part of the operational season when the ice runways are still available for wheeled aircraft. The Star Lifter's payload of 40,000 lbs. gets priority cargo to the outer Williams Field at McMurdo Station much faster than the Hercules aircraft.

U.S. icebreakers Burton Island, Atka and Glacier push together to move a huge iceberg from a channel of broken ice leading to McMurdo Station, Antarctica.

A group of Emperor Penguins showing difference between shaggy chicks, and adults with sleek formal plumage.

About 95 per cent. of the supplies used by Americans in the Antarctic get there by cargo ships and a modern tanker, which unload at Winter Quarters Bay in McMurdo Sound. Enough supplies are brought in to McMurdo Station during the short relatively warm Austral summer to support some 2,000 sailors and scientists during the operating season. Enough food and materials is also stockpiled to support just over 200 men for the six-month "wintering over" period when the only contact with the outer world is by ham radios or official communication systems.

The U.S. Air Force's Military Airlift Command (MAC), headquartered at Scott Air Force Base in Illinois, provides special mission aircraft in support of Operation DEEP FREEZE.

Their giant C-141 Starlifter cargo carriers make flights to the Antarctic in the early part of each season while the ice runways are still available and because they can carry double the amount of priority cargo that can be carried by integral DEEP FREEZE aircraft.

Navy LC-130 ski-equipped Hercules aircraft, the workhorse of all aircraft in the Antarctic, ferry equipment and supplies from Christchurch, New Zealand's Harewood International Airport to Outer Williams Field, the Navy Airfield some six miles from McMurdo Station on the Ross Ice Shelf.

These C-130 planes also make hundreds of flights in delivering the fuel and supplies to the various United States' stations around the Antarctic.

When the season is at its peak late in October, the Hercules aircraft are making almost daily turn-around flights from New Zealand to the Antarctic. Navy LH-1N twin-turbine Bell helicopters will be used this autumn to transport much of the materials to outlying camps near McMurdo. These twin-jet helicopters are replacing the UH-1B Huey and LH-34 Seahorse helicopters that have previously been used by the Navy in the Antarctic.

#### Ice Breakers

To open the way for the cargo ships, barrel-hulled Coast Guard icebreakers carve a channel through the frozen Ross Sea into McMurdo Sound. This channel, cut through ice

sometimes 8 to 10 feet thick, is usually between 20 and 30 miles long.

By late January, the channel is opened into McMurdo and then it is relatively easy for the icebreakers to keep it clear so the other ships can get in with their critical cargo.

This 1971 season saw three Military Sealift Command (MSC) ships, the U.S.N.S. Pvt. John R. Towle, U.S.N.S. Wyandot, and the giant tanker U.S.N.S. Maumee, bringing supplies and fuel into McMurdo ... commonly known as the "super market" of the Antarctic.

(The U.S.N.S. ... U.S. Naval Ship ... means the ships are manned with Civil Service crews and operated for the U.S. Government).

The Wyandot stopped at Palmer Station in the northern tip of the Palmer Peninsula late in January and with 10 men from the U.S. Navy Cargo Handling and Port Group in Williamsburg, left enough food and supplies to stock the shelves for those spending the winter there.

The Towle and Wyandot brought McMurdo Station more than 15,000 measurement tons of cargo, all of which had been staged and shipped from Davisville.

The giant tanker Maumee brought in more than five million gallons of fuel this year. Last season, on its maiden voyage to the Antarctic, the tanker delivered just over seven million gallons of fuel and petroleum products. That single load would have required six trips by smaller tankers used in previous years in the Antarctic.

The Navy's Antarctic Support Activities (ASA), the operators of McMurdo Station's 70 or more buildings, is responsible for receiving and then distributing the cargoes to their final destination. They are assisted in this mission by the Navy's Seabees from Construction Battalions at Davisville and a contingent of about 40 sailors from the Williamsburg Cargo Handling and Port Group.

#### Temperatures

On August 24, 1960, the Soviet Union's Vostok Station, some 700 miles from McMurdo Station, recorded a minus 126.9 degree temperature, the lowest ever recorded anywhere in the world.

At Byrd Station, deep in the heart of Marie Byrd Land on the other side

of the continent from Vostok Station, is the so-called centre for scientific parties in the western part of Antarctica.

This new Byrd Station was commissioned on February 13, 1962, and is built in eight man-made trenches covered over with steel Wonder-arches and snow. The entire building complex of prefabricated, insulated buildings is below the surface; only ventilators, scientific equipment and summer support facilities appear above the snow.

The average temperature at the South Pole Station, where the ice is almost 8,000 feet thick, is minus 60 deg. F., while at the U.S. Palmer Station on the Antarctic Peninsula it averages a comparatively warm 26 deg. F.

#### Land of Intrigue

The Antarctic is a land of intrigue. The possible existence in the past of a "super continent" called Gondwanaland, is being studied. Many scientists feel that it did exist and that it broke up into separate continents that drifted to their present positions.

One thing is certain, Antarctica once had a much warmer climate. Large deposits of coal have been found as well as fossilised trees and ferns, indicating that parts of Antarctica were once covered with forests.

Today, there are no trees and few other plants. The most common are lichens and mosses. The only flowering plants or grasses are on the Antarctic Peninsula.

With so few plants for food, it is not surprising that there is little life on shore. However, the seas around the Antarctic continent are rich in food, supporting penguins and seals near the coasts where man conducts most of his biological work.

#### Animal Life

All the world's 17 species of penguins live in the Southern Hemisphere and seven are found in Antarctica. The two most common are the emperor penguin and the adelle penguin.

The emperor is the larger bird; an average adult stands about three feet tall and weighs about 60 pounds. The adelle penguins are about 18 inches high and weigh about 15 pounds when full grown.

Biologists have traced these flightless birds returning to their



rookeries from as far away as 2,800 miles, but how they navigate is still being studied.

Other animals in the Antarctic include whales, seals, and sea birds, but no four-footed animals. The Arctic — at the other end of the world — has not only seals, whales and sea birds, but polar bears, arctic foxes, hares and caribou.

Scientists today are puzzled over the penguins' natural desalination process. They are also puzzled as to how newborn seals live through the critical first days lying on a bed of ice with only a thin downy-like fur coat.

Another question still unanswered is how do seals and penguins make deep dives; some seals have been recorded making 2,000-foot dives.

The future of this hostile, barren continent cannot be answered today, but the scientific approach to the Antarctic has enabled man to conquer it, live there in reasonable comfort and continue his studies in a co-operative atmosphere for the good of mankind.

The cost of a year's Antarctic operations is roughly \$33 million. The National Science Foundation

and the U.S. Navy have shared this cost previously but, beginning July 1, 1971, the funding will be totally provided by the National Science Foundation.

#### Wintering over Party

When Task Force 43 returned to the United States last March at the end of the 1971 operating season, 213 American sailors and scientists were left in the Antarctic with the "wintering-over party".

Of these, 212 will spend the six-month-long winter of darkness at the four American bases. Our largest Antarctic base of McMurdo Station has 151 American sailors and nine U.S. scientists. Byrd Station has 16 sailors, three American scientists and one Russian scientist for the winter; the Amundsen-Scott South Pole Station has 14 sailors and seven scientists, and Palmer Station has nine sailors and two scientists in its winter crew.

One other American scientist is spending the winter in the cold Antarctic but his winter home is somewhat different from life at the four American wintering-over stations.

This scientist, Dale L. Vance, will be studying upper atmospheric physics during the long winter at the Soviet Union's Vostok Station.

The Antarctic is a continent on which all nations present have agreed to hold, during the 30-year period of the Antarctic Treaty, territorial claims in abeyance; it is a land where there are no military weapons; a land where nuclear explosions and disposal of nuclear wastes are outlawed; a land where any nation's planes can fly at any time to check on what is going on below; and it is a land where observers from all the treaty nations have the right of free access to any or all areas.

The Antarctic has many possibilities for the future but the pursuit of scientific knowledge will long be its main attraction. Scientific data will remain the chief export, and the men who obtain it from the Antarctic will continue to be the principal inhabitants.

In the next edition of "The Navy" there will appear a further article on the world's frozen frontier.

—Editor

# Naval Cadet Force News

## NEW SOUTH WALES

### QUARTERLY REPORT OF PROCEEDINGS

This Report is for the period 1 April to 30 June, 1971, and covers Continuous Training, Weekend Training and other activities carried out by the Naval Reserve Cadets in New South Wales.

Continuous Training was undertaken in the following Ships and Establishments:—

M.A. SHIP/ ESTABLISHMENT	DATES	TYPE OF TRAINING	NUMBER OF PERSONNEL
Penguin	10-16 May	Advancement Course	37
Vendetta	10-16 May	Advancement Course	18
Armba	10-16 May	M.E. Badge Course	31
Armba	10-16 May	Cookery Course	9
Armba	10-16 May	Physical Trainer's Course	11

In addition, 6 Cadets attended the Army Cadet Adventure Training Course held at Singleton Army Camp from 19 to 29 May. This involved sections on physical agility, map reading and completion of a long distance walk and climb from written information supplied by Army Headquarters.

Weekend Training took place in the following Ships and Establishments:—

M.A. SHIP/ ESTABLISHMENT	DATES	NUMBER OF PERSONNEL
Penguin	16-18 April	34
Hobart	23-26 April	12
Vendetta	21-23 May	24
Yarra	21-23 May	17
Yarra	28-30 May	17
Vendetta	28-30 May	24
Hobart	28-30 May	12
Hobart	18-20 June	12
Hobart	25-27 June	20

Commander J.St.B. More, R.A.N. representing the Flag Officer Commanding East Australia Area carried out the Annual Inspection of the following Units:—

Saturday, 17 April	T.S. Warrego (Hunter's Hill Unit)
Saturday, 1 May	T.S. Shropshire (Canterbury Unit)
Saturday, 22 May	T.S. Condamine (Manly Unit)
Saturday, 29 May	T.S. Hawkesbury (Gosford Unit)
Saturday, 5 June	T.S. Albatross (Wollongong Unit)
Wednesday, 9 June	Sydney Grammar School Unit
Friday, 18 June	Scots College Unit

The Senior Officer and the Executive Officer, as members of the Service Advisory Panel of the Duke of Edinburgh's Award in Australia attended the presentation of Gold Awards by His Royal Highness, The Duke of Edinburgh on Friday, 2 April.

As an official guest, the Senior Officer attended a R.A.A.F. Reception on Tuesday, 6 April. The Senior Officer was the Principal Guest and Speaker at Guildford R.S.L. Anzac Day Service and Parade on 18 April and was present at the Scots College Remembrance Parade on Sunday, 2 May.

During the period 10 to 15 May, the Senior Officer visited the Headmasters of the following schools where School Units or Sections are operating:—

The Scots College — Bellevue Hill.  
St. Ives High School — St. Ives  
Barrenjoey High School — Avalon Beach.  
James Cook High School — Kogarah.

It is with sincere regret that I have to include in this Report the death of the Commanding Officer of T.S. Condamine, Lieutenant A. D. Alexander, on Thursday, 3 June. The new building to house Condamine is now almost complete, and although the Unit has operated under hardship for some considerable time it has been due to the efforts of Lieutenant Alexander that a high standard of efficiency has been maintained. The new building will be a fitting memorial to an Officer who has done much for the Cadet movement in New South Wales and in particular within the Manly area.

(Sgd.) L. MACKAY-CRUISE.  
Commander, R.A.N.R.  
Senior Officer.

New recruits to the Naval Reserve Cadets being introduced to Cadet life by a kindly petty officer



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TIGHT BINDING

## VICTORIA

The Commanding Officers of the Victorian Sea Cadets held their annual meeting on 24 April last at H.M.A.S. *Lonsdale*. The meeting opened with a very lively session in the morning, and after a buffet lunch continued into the afternoon with an address from a member of the Naval Audit Branch. In the evening, several members of the Navy League joined the Officers at an informal dinner at the home of the Senior Officer — Lieutenant Commander F. G. Evans.



Captain B. L. Cleary, R.A.N., Director of Naval Reserves, talks with two sailors who were formerly Sea Cadets.

T. S. Barwon has been named the Best Unit in Victoria for the year 1971. On 1 August, Captain B. Cleary arrived aboard H.M.A.S. *Arrow* to do the annual inspection. The Unit situated on the shores of Corio Bay at Geelong was founded in 1932 and over the years has become possibly one of the best equipped Units in Australia. The Unit is under the Command of Lieutenant Commander J. Baker and has approximately 60 Cadets.

On 20 August, 35 Cadets from all Units and 14 Officer/Instructors will enter a weekend camp at

The Director of Naval Reserves, Captain B. L. Cleary, R.A.N., sails with cadets from T.S. Barwon during his Annual inspection of the Unit.



H.M.A.S. *Lonsdale*. Training will include boat work on H.M.A.S. *Arrow*, Parade Training, instruction on Ships of the R.A.N., and several films will be shown.



Somebody has to do the washing up at the Training Ship Barwon!

## QUEENSLAND

### ROCKHAMPTON TERRITORIAL BRANCH

Last year, a Territorial Branch of the Queensland Division was established at Rockhampton. Mr. Corrin was the first President and Mr. D. Hope, the Hon. Secretary. With considerable local enthusiasm the organisation of a Sea Cadet Unit was put in hand, under the control and guidance of Mr. S. J. Cooke.

This year, Mrs. V. Goleby has taken over as President of the Branch to allow Mr. Corrin to devote more time to the unit. The Branch is arranging to lease an area of land from the Harbour Board.

In January, 1971, the Naval Board recognised the unit, under the command of S. J. Cooke as T.S. Rockhampton. The unit is now functioning satisfactorily with a full complement of Officers and Instructors.

The new unit perpetuates the name of H.M.A.S. *Rockhampton*, an Australian Minesweeper (Bathurst Class) built at Walker's Ltd., Maryborough, and launched on 26 June, 1941. She was commissioned on 21 January, 1942.

At the end of the war *Rockhampton* took the Sultan of Ternate back to the Island of Ternate, in the

At T.S. Pioneer, the boatshed looking through to Cadets' canteen.



Halmaheras. The Proclamation of the surrender of the Japanese was read and the ship's officers were entertained by the Sultan.

### MACKAY TERRITORIAL BRANCH

The Mackay Territorial Branch, under its capable President, Mr. E. Homan, has built considerable extensions to the Headquarters of its unit, T.S. *Pioneer*. At a cost of approximately \$12,000, they have added class rooms, a galley, canteen, showers, heads, wardroom and an instructors' mess. The extensions were opened early in the year and are adding greatly to the comfort and instruction of the cadets. To the great credit of the Branch, it was opened free of debt.



T.S. Pioneer Unit Headquarters.

### BUNDABERG TERRITORIAL BRANCH

The Bundaberg Branch has had a very busy year. In 1970, they obtained a lease of 2½ acres from the Bundaberg Harbour Board, and this year set about building a Headquarters for T.S. *Bundaberg*. Much of the work has been done with voluntary labour. The concrete floor was poured on 24 April, and the building is now nearing completion. The Branch obtained an overdraft from the Bank of New South Wales.

It was the intention to open the new building during Navy Week, but, realising that the demands of Navy Week would preclude attendance of any visitors from Brisbane, they have postponed the opening until 30 October, 1971.

### KINGAROO TERRITORIAL BRANCH

Owing to the activities of Mr. B. R. Ebsworth, of the Bank of New South Wales, a new Territorial Branch has been started in Kingaroo. The President is Mr. K. T. Peters and there is considerable support in the town. Sixteen citizens have joined the Navy League and the Queensland Division has applied for a Warrant of Commission from the Federal Council of the Navy League. We are now awaiting the issue of the Warrant and are looking forward to useful endeavours from the new Branch.

Honour Board, Training Ship Pioneer at Mackay, Queensland



### SOUTH COAST TERRITORIAL BRANCH

South Coast was the first territorial branch to be formed in the Queensland Division. Over the long haul, they have produced the finest Headquarters and training establishment on the Spit at Southport, facing the Broadwater, at the southern end of Moreton Bay. For the last couple of years, the Branch has been kept alive through the Trojan efforts of Mr. Jim Spiers, who has often been President, Hon. Secretary and Treasurer all rolled into one.

Now, through the achievement of their unit, T.S. *Tyalgum*, which this year has, by being judged the most efficient Unit in Queensland became the holders of the Divisional Colour and as well, the holders of the A.M.P. Shield for the best unit outside the metropolitan area.

Since Presentation, the Colour has been held each year by one of the Brisbane Units. 1971 is the first year that any unit has won the "double header". Our sincere congratulations go to T.S. *Tyalgum* and the South Coast Branch. It is hoped that this success will so increase the morale of the South Coast Branch that it will quickly be in full swing again and ready to meet its commitments under the new system of Naval Reserve Cadets.

### THE A.M.P. SHIELD

A number of years ago, the Australian Mutual Provident Society presented a Shield to the Queensland Division, for the purpose of encouraging the small units outside the Capital City. That they have achieved their object is plain, when in 1971, T.S. *Tyalgum* has whipped all the Brisbane units.

The conditions of the gift were, that it was to be held each year by the unit judged most efficient outside the metropolitan area, and that the unit that succeeded in winning it three times should retain it as a permanent trophy. Since presentation, the Shield has gone up and down the Queensland coast, and last year T.S. *Pioneer* at Mackay, won it for the third time.

The Australian Mutual Provident Society has now offered a new Shield, which, when received, will be presented to T.S. *Tyalgum*. The Division is duly grateful to the Society for its generous gesture in ensuring that the Shield will continue to encourage the country units.

The Headquarters building of T.S. Pioneer has recently been extended at a cost of \$12,000. Facilities provided include class rooms, wardroom, canteen, galley, showers, etc.



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## TASMANIA



The Director of Naval Reserves, Captain B. L. Cleary, R.A.N., watches sick bay drill while inspecting T.S. Derwent

## T.S. DERWENT WINS AWARD

T.S. Derwent has been awarded the  
Sea Cadet Corps Colour for being the  
most efficient Sea Cadet Corps unit  
in Tasmania for 1971.

Under the command of Lieut.-Cdr.  
A. E. Gates, of Lindisfarne, T.S.  
Derwent is situated at the naval  
depot at H.M.A.S. Huon in the  
Domain. It is staffed by six cadet  
officers and nine chief and petty  
officer instructors, and has 100  
cadets in training.

The old Mercantile Rowing Club  
quarters is being rebuilt to become  
the unit's permanent headquarters,  
and when finished it will be one of  
the best equipped sea cadet training  
establishments in Australia.

On 5 August, T.S. Derwent was  
inspected by the Director of Naval  
Reserves (Capt. B. L. Cleary), who  
will make an assessment for the  
annual award of the Navy League of  
Australia efficiency trophy for the  
most efficient sea cadet unit in  
Australia.

The Naval Officer in Charge,  
Tasmania Command (Commander I.  
C. Hutchison) recently completed a  
tour of Tasmania when he made his  
annual inspection of sea cadet units  
at George Town, Launceston,  
Hobart, Devonport, Ulverstone and  
Burnie.

## SOUTH AUSTRALIA

The South Australian Units have a  
new Senior Officer, Lt. Cmdr. A. F. W.  
Langford, V.R.D., R.A.N.R., vice  
Commander E. B. Hopkins, R.A.N.R.,  
who was Senior Officer for 15 years.

### T.S. GAMBIER

The Training Ship Gambier has  
been named the most efficient Naval  
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The Navy League Shield was  
presented to the Unit by Mr. T.  
Francis Matters, President of the  
South Australian Division of the  
Navy League. The President also  
presented the Unit with their own  
power boat, John Lancaster.

All three South Australian Units  
now have identical power boats,  
which will greatly facilitate  
uniformity in training.



The power boat, John Lancaster, was recently presented to T.S. Gambier  
by the President of the South Australian Division of the Navy League of  
Australia, Mr. T. Francis Matters.

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If you are between the ages of 13 and 18 years.

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The interesting syllabus of training covers a wide sphere and includes seamanship, handling of boats under sail and power, navigation, physical training, rifle shooting, signalling, splicing of wire and ropes, general

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Instructional camps are arranged for Sea Cadets in Naval Establishments, and they are also given opportunities, whenever possible, to undertake training at sea in ships of the Royal Australian Navy.

Cadets, if considering a sea career, are given every assistance to join the Royal Australian Navy, the Mercantile Marine or the Royal Australian Naval Reserve, but there is no compulsion to join these Services.

For further information please contact the Divisional Senior Officer in your State, using the Form provided below.

## Senior Officers, Australian Sea Cadet Corps

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TO: The Senior Officer,  
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I am interested in joining the Australian Sea Cadet Corps and would be pleased to receive further information.

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—see list of addresses above

THE NAVY

August-September-October, 1977

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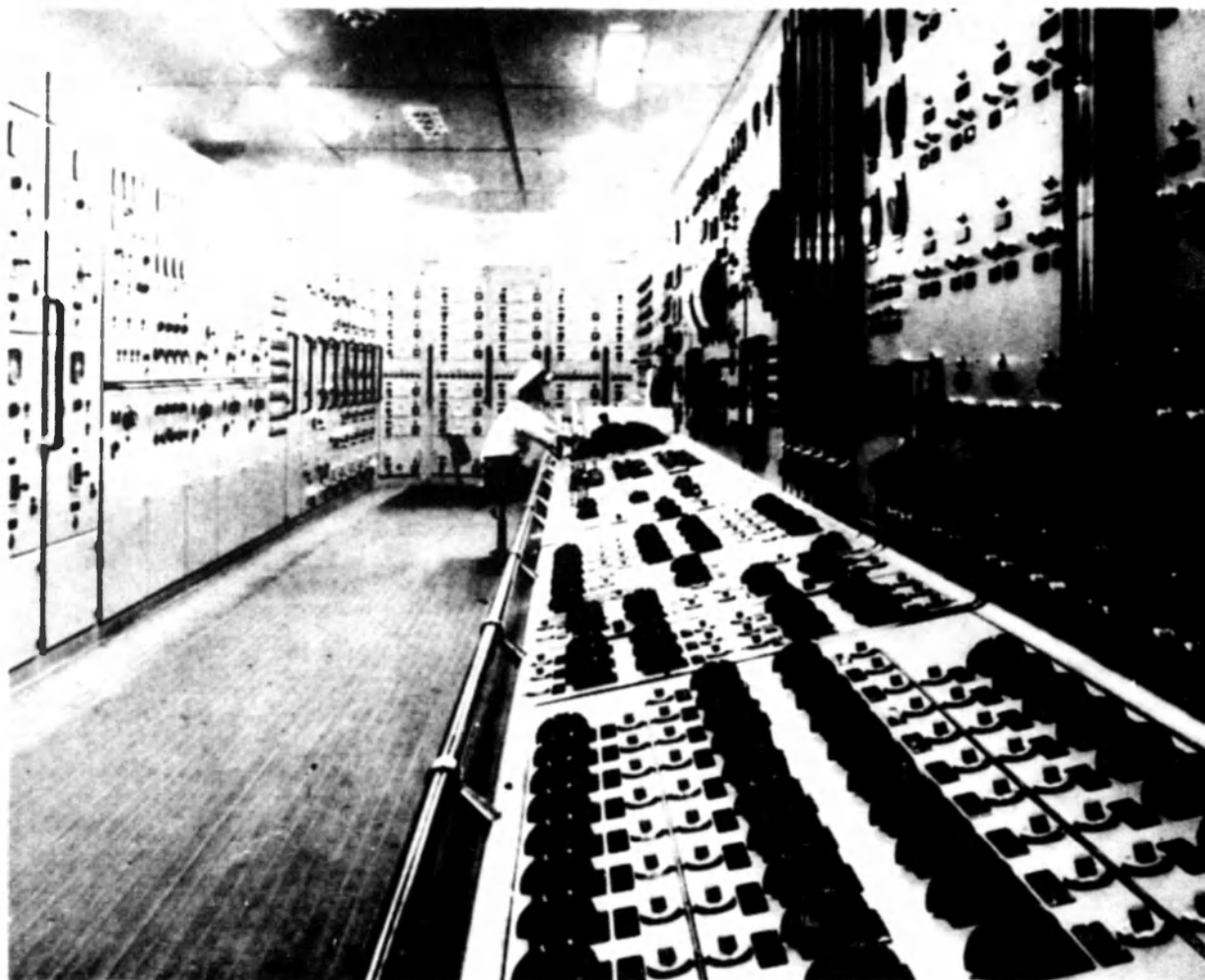
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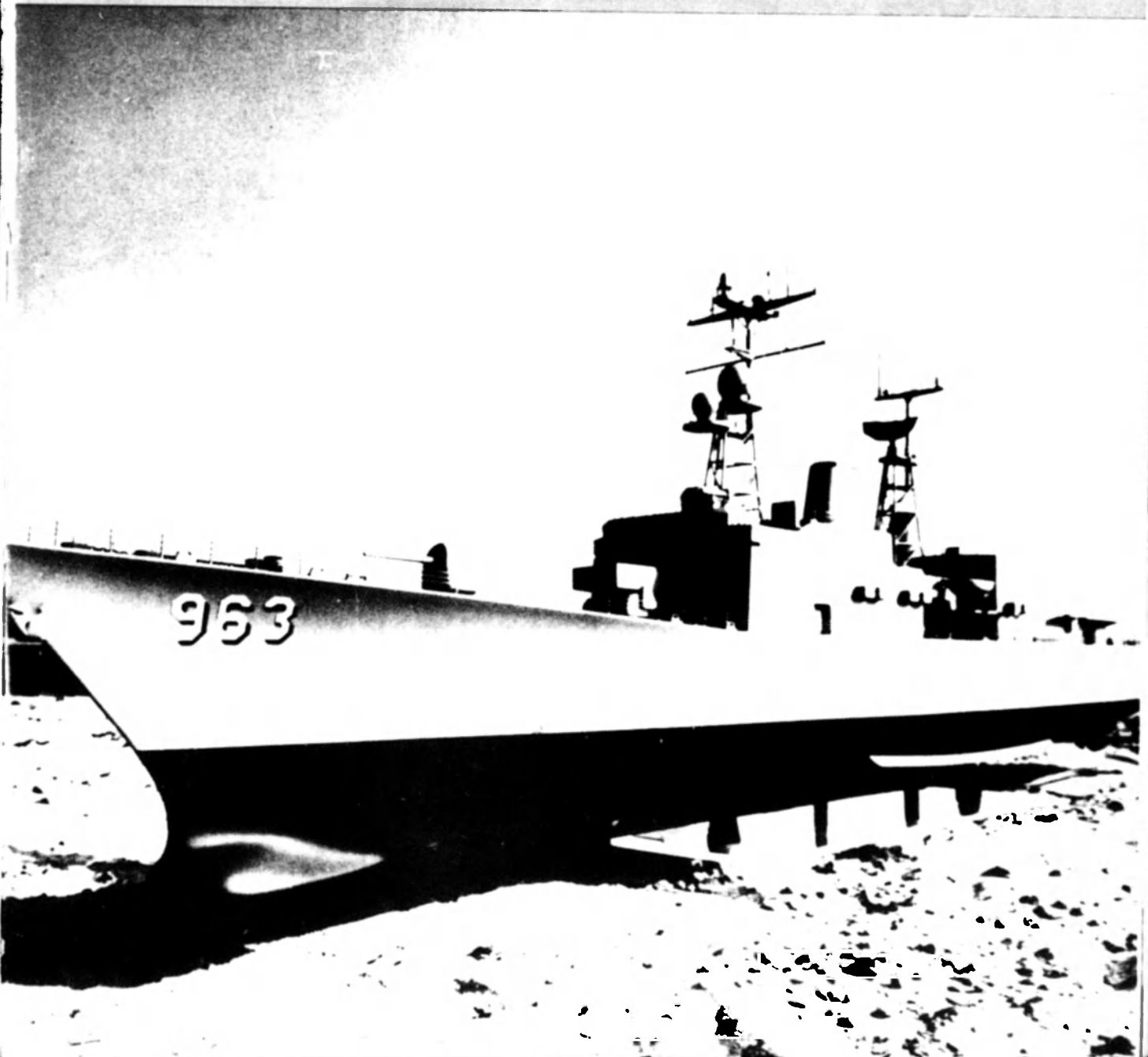
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## THE NAVY

The magazine of the Navy League of Australia  
Registered for posting as a periodical — Category A

Vol. 33 November — December — January, 1971-1972 No. 4

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## Hydrographer's Course

Australia is shouldering responsibility for charting one seventh of the world's sea area.

To replace charts which date back as far as the era of Matthew Flinders, the Royal Australian Navy's hydrographic school is maintaining a strong training programme.

The school was established in March 1966, to train sailors for the survey recorder branch of the R.A.N. In 1967, the syllabus was widened to also train officers.

Before the opening of the school, all hydrographic training was conducted by ships at sea.

Although this system worked well for the branch since its inception in 1920, it was a time-consuming task on a ship where emphasis was placed on progressing surveys and collecting oceanographic data.

With the introduction of new ships designed and built specifically for the hydrographic/oceanographic role, it became apparent that a separate training organisation was required and the present Hydrographic School was established.

In its first five years of operation, 102 students have graduated. Included in this number are 20 Malaysian and Indonesian students trained as part of Australia's policy of assisting South East Asian neighbours.

During 1971, the school has strived to hold two classes for able seaman survey recorder, one for petty officer survey recorders and two officer courses. Additionally, two short refresher courses, one for the leading seaman survey recorder and the second for R.A.N. reserve officers, are planned.

The Hydrographic School staff consists of two permanent and three part-time instructors. The Officer in

charge of the school is Lieutenant-Commander D. M. Davidson, R.A.N., who has held the position since December 1970.

He joined the R.A.N. College as a cadet in 1951, graduating in 1954. After further training with the Royal Navy and general service in H.M.A. Ships *Melbourne* and *Quadrant*, he joined the Hydrographic Service in 1961 and served in H.M.A. Surveying Ships *Warrego*, *Barcoo*, *Moresby* and *Paluma* charting the waters off all Australian States and New Guinea.

The senior instructor is Chief Petty Officer Survey Recorder David Waining. He joined the R.A.N. in 1945

Part of the course is the R.A.N.'s hydrography school in Sydney is training in the use of a theodolite to accurately measure distances. Lt. Cmdr. Davidson, officer-in-charge of the school is pictured instructing junior officers.

and became a survey recorder in 1953. He has served in all eight survey ships and tenders which have operated since then.

He assisted with the opening of the school and is spending his third tour of duty on the staff.

Graduates of the Hydrographic School fall into two main categories



Officers of the Royal Australian Navy undergoing training at the Hydrographic School in Sydney, examine a theodolite, which uses a laser effect to accurately measure distance.

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can make 'em



## HYDROGRAPHER'S COURSE

— the survey officers who are expected to carry out oceanographic tasks with little or no supervision, and the survey recorders who initially assist the officers and later, as senior recorders, shoulder more responsibility.

The term oceanography covers a multitude of fields connected with the ocean including its physical dimensions and properties, its chemical composition, biology, meteorology and geological properties.

The detailed study of all these sections, many of them scientifically new, is beyond the scope of one man. But the officer's course in 5 months endeavours to cover as many of these subjects as possible so that students can select some facet to study further.

Additionally, as the Hydrographic Service of the R.A.N. is the primary charting authority for the waters of Australia, New Guinea and southern areas of the Pacific Ocean, emphasis is placed on the teaching of hydrographic surveying at the school.

The final product of the hydrographic survey is the published chart which goes on sale to international ship owners and to a public with interests such as yachting, fishing, skin diving or quiet Sunday boating.

The hydrographic surveyor must be capable of producing a contoured picture of the sea bed, delineating the coast line, accurately fixing the position of submerged rocks and reefs — especially those dangerous to navigation. He must recognise and chart all topographic features which may help a mariner determine his position.

He must also understand tidal theory and be able to analyse and predict heights, and the times of high and low waters.

He must record tidal stream and ocean currents. The survey must be accurately located on the earth's surface and the true meridian (north point) determined by astronomical observations of extreme precision.

While a chart probably exists of an area, it could be based on a survey undertaken more than 100 years ago by surveyors undersail using a weight on a marked line to determine the depth.

For all their painstaking care and long hours of work, surveyors of bygone days could not survey as effectively or as accurately as is now possible with electronic echo sounders, radio fixing systems and mechanical propulsion.

The survey recorder has been defined as a man among men and a sailor among sailors. He is expected to work long hours in the field often under difficult and trying conditions.

He may be a member of a sounding boat's crew detached from the parent ship for extended periods, or based in a shore camp on a remote coral island operating modern electronic position-fixing equipment so that the survey ship — possibly 200 miles away — can accurately and continuously determine her position.

Alternatively, he may be a member of that ship's survey team, or in the collection of information to advance scientific knowledge.

This could be a gravity observations, the measurement of the intensity of the earth's magnetic field, characteristics of sea water at various depths, cores and dredge samples of the bottom of the sea and plankton hauls.

It is the business of the Hydrographic School to ensure that the men conducting these tasks do so with the professionalism expected by other world oceanographic authorities.

It may be said that the mariner places boundless confidence in the published chart and almost invariably assumes that, where no dangers are shown, none in fact exist.

It is the surveyor's business to see that this trust is not misplaced.

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## ***Recovery Bid for . . .***

# **HENRY VIII WARSHIP**

**Diving will start next month (May) in a bid to recover one of Henry VIII's finest ships which sank in the Solent while putting out to fight the French.**

She is the **Mary Rose**, lying a mile off the Portsmouth Coast. Built at Portsmouth in 1536, she was the first warship to have complete batteries of siege guns as main armament instead of an infantry battalion. The ship was re-built at Portsmouth in 1536, but was sunk by accident during the Battle of Portsmouth.

Between 1545 and 1549 salvage operations failed although some items of gear were removed.

A few guns from the **Mary Rose** were brought up in 1842 by divers blowing up the wreck of the Royal George. After this, the position of the **Mary Rose** was lost.

### **EVIDENCE**

But evidence proving the position of the **Mary Rose** came a few years ago when an 8 ft. long iron gun, identical to the guns taken from the

wreck in 1842 and now in Southsea Castle, was found.

The discovery was the result of four years of research by a team of archaeologists headed by Mr. Alexander McKee, a naval historian.

Mr. McKee, who had been trying to find the site of the ship for 25 years came across an old chart which marked her position.

The site of the wreck was examined using sonar techniques and the **Mary Rose** (1967) Association formed. Portsmouth fire brigade lent pumps, the local brewery helped out with funds for electronic equipment and several underwater clubs gave their services.

Diving on the ship last year finished with the coming of winter, and Mr. McKee spent the free time looking for further funds.

Timbers from the wreck have been brought to the surface and a cannon found had a cannon ball inside. It is thought the **Mary Rose** was about to fire a broadside before she sank, because traces of gunpowder were also found in the weapon.

The wreck is not just of interest to historians and archaeologists. The corpse of a little ship worm, the *Notoredo Norvegica*, found in the first piece of wood raised by divers showed that there were thousands of similar worms in the ship's woodwork, making it a find for marine biologists.

The species of worm was not thought to have existed at the time of the **Mary Rose** in the 1550's. A theory is that the ship might have been seriously affected by ship worm at the time she went down.

## **CONTRIBUTIONS INVITED**

The editor invites persons to submit articles, photographs and drawings (black ink) for inclusion in the magazine, but regrets that no payment can be made for contributions submitted. Contributions should be addressed: The Editor, The Navy, Box C178, Clarence Street Post Office, Sydney N S W 2000 Australia.

The Editor does not hold himself responsible for manuscripts, though every effort will be made to return these with which a stamped and addressed envelope is enclosed.

## **OUR COVER**

An artist's drawing of the United States Navy's DD-963 class destroyer. These innovative and highly automated vessels will have complex weapon systems incorporating missiles, rocket-assisted torpedoes, electronic warfare equipment, automated gunfire control equipment, multi-purpose helicopters and a wide range of ship support systems. Anti-submarine warfare is the primary mission of the new vessels but they will also be able to carry out gunfire missions in support of amphibious assault and land forces.

The DD-963s were designed by Litton Industries' Ingalls West division, an advanced marine technology centre at El Segundo, California. The ships will be mass-produced in the division's new mechanised ship manufacturing facility at Pascagoula, Mississippi. The new ship production plant, the most advanced in the world, will manufacture the destroyers on an assembly line, using modular building techniques.



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# Periscope on Australia

by Grommel

## GOLDIE REEF — REST IN PEACE



Commander E. R. Whitmore, commanding  
Officer of H.M.A.S. MORESBY.

The hydrographic survey ship, H.M.A.S. Moresby (Commander E. R. Whitmore, R.A.N. — pictured) returned to Sydney earlier this year after laying to rest a north Queens-land ghost reef that has plagued mariners since 1793.

The first report of the phantom Goldie Reef was noted in 1793 and has been on and off the charts ever since.

During an extensive and complete survey of the Great North East Channel area of the Great Barrier Reef, Moresby found no sign of Goldie Reef.

## SUBMARINE SIMULATOR

The Electronic and display equipment division of Ferranti Ltd., has been awarded a contract valued at \$2,357,190 for the development and manufacture of a submarine command team trainer to be supplied to the R.A.N.

The trainer will simulate characteristics of submarine manoeuvres and will incorporate a Ferranti Argus 500 digital computer with a disc file system. The new equipment will use system 30/40 graphical cathode ray tube displays.

The simulator is designed to train the submarine command team and crew in tactics and operations, and the various degrees of training to be made available in the simulator system will range from elementary operator training to complex tactical exercises involving a number of target and escort vessels.

Realistic simulations of sonar, radar, periscope fire control and navigation systems will be provided.

The system 30/40 C.R.T. displays will form part of the extensive instructor facilities, and a digital recording system will enable training exercises to be relayed in part or fully, as required.

A particular feature of the trainer to be supplied to the R.A.N. is the simulation of the view through the attack periscope of the submarine. Excellent realism is provided by using television techniques and small models of the target ships which appear correctly positioned in the periscope's field of view in relation to bearing, waterline elevation, angle-on-the-bow, range and speed under the control of the Argus 500 computer.

## HAWKER SIDDELEY 748

With the purchase of two aircraft for the Royal Australian Navy, world-wide sales of the Hawker Siddeley 748 now total 250 aircraft. Selected by 49 operators in 32 countries, the HS 748 is currently Britain's top-selling civil aircraft.

The two 748s, costing approximately 2 million pounds, are scheduled for delivery in early 1973 (see photo); they will be used for naval aircrew training, fleet training and systems trials, including trials of the Ikara weapon. The HS 748s will in particular be used to exercise ships in electronic warfare.

Powered by Rolls Royce Dart R Da engines, the aircraft may be used to transport equipment and personnel (seating for 20 passengers can be installed), such as maintenance teams, on occasions, for example, when another aircraft is forced down and requires repair or maintenance on-the-spot. Galley facilities will also be fitted.

Since entering service in 1962, the versatile 748 has won for itself an enviable reputation for reliability. It has now completed over one million landings, logged over one million flying hours and carried more than 20 million passengers.

One of Two Hawker Siddeley HS 748s scheduled for delivery to the R.A.N. during 1973.



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## PERISCOPE ON AUSTRALIA

### U.S. ARMED FORCES STAFF COLLEGE

Commander B. H. Wilson, R.A.N. is attending the 50th course of the United States Armed Forces Staff College at Norfolk, Virginia, from 16 August, 1971 to 21 January, 1972.

At the conclusion of the course, Commander Wilson will take up the appointment of Assistant Naval Attache, Washington.

### HAWAIIAN EXERCISE — RIMPAC

Five ships of the R.A.N. and Fleet Air Arm aircraft participated in an anti-submarine warfare exercise in the Hawaiian area from 8-20 November, 1971.

Australia's contribution to the exercise included four R.A.A.F. Orions and H.M.A. Ships Melbourne, Hobart, Torrens, Yarra and Onslow.

The Australian forces were commanded by Rear Admiral W. J. Dovers, Flag Officer Commanding the Australian Fleet.

### NAVY MAY BUY FRENCH HELICOPTERS

The R.A.N. may buy the 195 m.p.h. French Super Frelon SE 3200 heavy helicopter.

Talks between an Australian arms buying mission and the French manufacturers, Aerospatiale, have begun.



French helicopter Super Frelon SE 3 200 currently being evaluated for possible purchase by the R.A.N.

The deal would cover between 15 and 20 helicopters.

An Aerospatiale spokesman said this might be only a first order.

The anti-submarine equipment includes a sonar buoy and a doppler radar navigation system connected to a computer.

Sophisticated localisation and data transmission equipment are also included.

The Super Frelon has three 150 h.p. Turbomeca turbines, a maximum speed of 195 m.p.h. and a cruising speed of 146 m.p.h.

Range is three hours and 20 minutes.

The Super Frelon, flown by the French Navy, has two pilots, one mechanic and one flight electrician-announcer and an electrician for operating the radar.

The Aerospatiale spokesman said the Super Frelon was facing tough competition from the American Sikorsky 61 and the Chinook 47.

### ADDITIONAL OBERON SUBMARINES

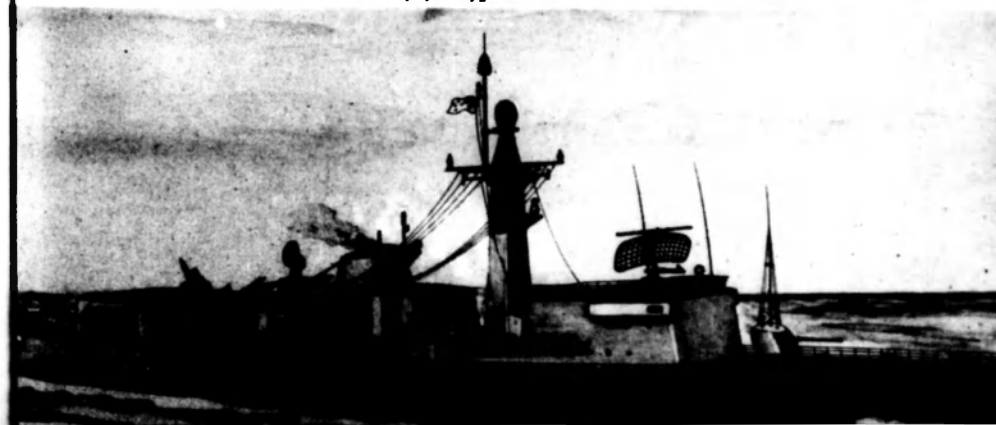
The R.A.N. has accepted the tender of Scott's Shipbuilding Co. Ltd., Greenock, Scotland, for the construction of two Oberon class submarines at a cost of \$23,266,000, and a project cost of \$48,000,000.

Apart from construction, this sum will include outfitting equipment and services to be provided by the Ministry of Defence U.K. and the provision of associated spares and shore facilities including a slave dock and service housing.

### DESTROYER DESIGN PRESENTED

The preliminary design of the proposed destroyer, DDL, was handed over on Monday, 27 September, 1971, at Navy Office, Canberra, to the Third Naval Member, Rear Admiral B. J. Castles. Mr. E. B. Good, Managing Director of YARD (Aust.) Pty. Ltd., presented the design documents and a model of the proposed warship.

An artist's impression of the proposed DDL. The new destroyer for the R.A.N. will have high speed, long endurance and will be propelled by gas turbines.





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### PERISCOPE ON AUSTRALIA

The proposed destroyer will be about 4,000 tons, powered by gas turbines and capable of long range operations.

#### H.M.A.S. SYDNEY DELIVERS SKYHAWKS

On Thursday, 12 August, 1971, H.M.A.S. Sydney began unloading aircraft after anchoring in Jervis Bay, at the end of a 17,000 miles voyage.

The fast transport put ashore 10 Skyhawk fighter bombers for the Fleet Air Arm. The aircraft were purchased from the U.S. and will bring to 20 the total number of Skyhawks on the R.A.N.'s inventory.

H.M.A.S. Sydney loaded the Skyhawks in San Diego, California during her logistic and training voyage which began on 15 June, 1971.

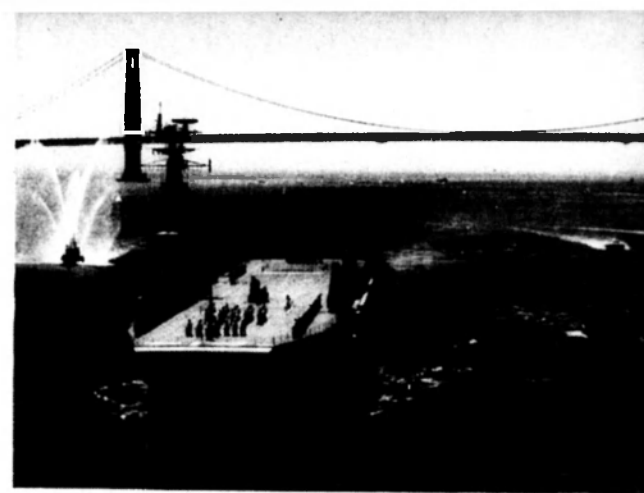
The former aircraft carrier and past flagship of the Australian Fleet visited Honolulu, San Francisco, Esquimalt and Vancouver during the voyage.

Her crew included large numbers of young seamen and midshipmen under training. For many of her crew, it was their first overseas visit. Shore leave was given in all the ports visited and many of the crew were invited into American and Canadian homes.

The Skyhawks were unloaded into lighters at Jervis Bay, and transported overland to the Naval Air Station, H.M.A.S. Albatross, Nowra, New South Wales.

It is anticipated that the aircraft will enter service in January, 1972.

H.M.A.S. SYDNEY fires a salute towards Treasure Island Naval Station. Immediately behind her, partly obscured, is Alcatraz Island; the Golden Gate bridge can be seen in the background.  
(Photograph by courtesy of Mr Joseph D. Fama, a United States Naval Journalist)



The transport H.M.A.S. SYDNEY sails under the Golden Gate bridge at San Francisco. At San Diego, she embarked 10 Skyhawks for the Fleet Air Arm.



In San Francisco Bay, H.M.A.S. SYDNEY is welcomed by a helicopter of the United States Marine Corps. In the foreground can be seen one of SYDNEY's boats and a U.S.N. Gemini dinghy.  
(Photograph by courtesy of Mr Joseph D. Fama, a United States Naval Journalist)



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## **PERISCOPE ON AUSTRALIA**

### **ROYAL COLLEGE OF DEFENCE STUDIES**

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A party from the British Royal College of Defence Studies commenced a tour in Australia on 15 September.

The party of 13, led by Brigadier W. D. Mangham, included senior service and civil service officers from Britain, Pakistan, Italy and the United States.

The visitors called on industrial centres in Western Australia, then proceeded to inspect scientific centres in the A.C.T. and industrial and scientific centres in New South Wales. The group departed Sydney for New Zealand on 25 September.

The College trains selected members of the armed forces and civil services in the broadest aspect of strategy and also studies organisation and direction of the resources of the Commonwealth, for war.

Six Australian — four Senior service and two civilian officers have been selected to attend the 1972 course at the Royal College of Defence Studies in the United Kingdom.

Personnel selected include — Captain M. P. Reed, R.A.N., Brigadier B. A. McDonald, O.B.E., M.C., Group Captain F. W. Barnes, D.F.C., A.F.C., Group Captain S. D. Evans, D.S.O., A.F.C., Mr. P. M. Twiss (Department of Supply) and Mr. D. J. Moore (The Treasury).

### **NAVY STRAIGHT SHOOTER**

Second Officer Elizabeth Cronin, Assistant Signals Communications Officer at H.M.A.S. *Albatross*, takes aim during a pistol shoot.

In January, 1969, she made Navy history by moving into a traditional man's world by flying in a Navy Skyhawk jet fighter, at faster than the speed of sound.



One of the new Skyhawk jet aircraft being ferried ashore at Jervis Bay after the delivery voyage aboard H.M.A.S. SYDNEY.



Second Officer Elizabeth Cronin, W.R.A.N.S. takes aim during a pistol shoot

### **EDITOR'S NOTE**

In the article entitled "The Turana Target Drone System" which appeared in the previous edition of this magazine, it was not clearly stated that TURANA was conceived and designed at the Government Aircraft Factories which are controlled by the Department of Supply.

I draw attention to this anomaly as readers may have gained the impression that TURANA was developed by the Royal Australian Navy.

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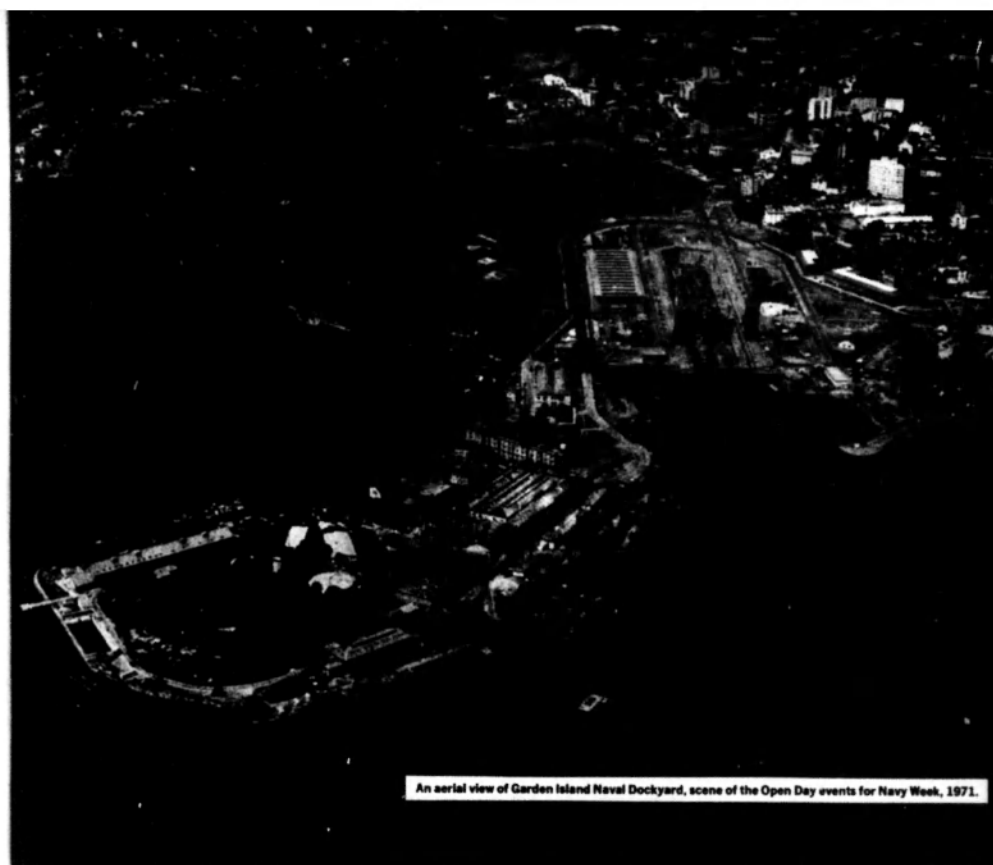
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An aerial view of Garden Island Naval Dockyard, scene of the Open Day events for Navy Week, 1971.

## NAVY DAY, 1971—SYDNEY

**Dedication, Key to Christianity**

**SUNDAY, 10 OCTOBER**

Christianity provided the correct and complete outlook on the vocation of the sailor, the Most Rev. E. F. Kelly, Auxiliary Bishop to the Roman Catholic Archdiocese of Sydney, said.

Speaking at the Navy Week ecumenical service at the Garden Island Dockyard Church, Bishop Kelly said the attitude of Christ to his fellow man revealed what was meant

to be the fundamental attitude of the sailor — the spirit of disciplined and dedicated service.

"The spirit of the sailor is meant to be a similar spirit of the service . . . personal, disciplined, maturing, exemplary, unselfish, courageous service," he said.

"It is a personal service which stems from the man or woman concerned. It is their sincere

personal choice. It is meant to be a convinced choice which says in fact: 'This is the best way of life for me'.

"It is a disciplined service implying the genuine recognition of authority, unquestioning obedience, physical endurance, the observance of regulations which are formulated for the common good, sometimes at the expense of individual freedom."

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## NAVY WEEK, 1971 — SYDNEY

Bishop Kelly said, "It is a maturing service which over the years, through wide and varied experiences, helps a man come to full manhood and development of character."

"It is an exemplary service through the quiet, unostentatious effect of being a real man ... an ambassador wherever one goes."

"It is an unselfish service because the life of the sailor demands sacrifice beyond the usual — lonely patrol boats in the islands to the north, home life systematically disrupted, the normal and constant relaxations in the atmosphere of one's home or one's country set aside."

"It is a courageous service — the courage of being loyal to principles under strain, of being faithful to marriage despite long and repeated absences; the courage to regulate the use of alcohol, to abstain from unlawful sexual pleasure; courage in time of action, in casualty or even death."

Bishop Kelly said members of a specialised group trained for the defence of their country took on a higher dignity.

He said the group was made in "true greatness from the principles of the Gospel, not from the sayings of Mao or Marx."

A record 30,000 people crowded into Garden Island Naval Dockyard for the annual open day.

The attendance figures more than doubled those of last year and made Navy Day 1971 one of the most successful for the Navy — and hectic for the public.

Traffic banked up on all nearby roads.

Sightseers parked their cars to avoid the traffic and walked to the dockyard.

Ferries from Circular Quay, Cremorne Point and Milson's Point ran a non-stop service all afternoon to cater for the crowd.

The dockyard was opened for public inspection following an ecumenical church service in the Dockyard Church at 11 a.m.

Queues up to 300 yards long formed before the gangplanks of the more popular ships, the fleet flagship, **Melbourne**, and the submarine **Ovens**.

The Oberon class submarine **Otway**, scheduled for inspection, was closed to the public because it had just returned from rescue operations of the crew of the ketch **One and All**.

The liferaft used in the rescue of the crew of six men and a girl, and pictures of the operation, were displayed on deck.

Throughout the afternoon torpedo recovery vessels took visitors for cruises around the Harbour.

Demonstrations were given by

clearance divers and sea-air rescue divers.

The clearance divers jumped from a moving Iroquois helicopter into a special area between the ships, set explosives charges to buoys, and were scooped up by a fast-moving rescue vessel.

A special display this year was the stern section of one of the two Japanese midge submarines sunk in Sydney Harbour during World War II.

Although sections from the two submarines are on display at the War Museum in Canberra, remains of the submarines have not been on display in Sydney since the war.

Another historical display was the opening to the public of an area of Garden Island containing initials of three members of the First Fleet carved in stone.





# U-Boat Surrendered To R.A.F. Aircraft

By JACK MILLAR

The German U-Boat (U-570) having been straddled in the Atlantic, 80 miles south of Iceland by 4 depth charges containing Torpedes, ferried the crew by carrier float to captivity.

On 8 September, thirty years ago, the Admiralty announced that a German U-boat had been attacked in the Atlantic by a Hudson aircraft and forced to surrender. Behind that announcement lies one of the most amazing exploits of the war — a story which thrilled the world.

It began on the morning of 27 August, 1941, when Squadron Leader James Thompson and his crew, of Coastal Command's 269 Squadron took off from Iceland in their Lockheed Hudson aircraft "S for Sugar". Destination: that portion of the vast Atlantic assigned them. Objective: to seek out and attack U-boats, of which many were reported in the area.

The weather was typical of the Atlantic, cold and bleak, with rain squalls and winds approaching gale force.

Secured beneath the plane were four lethal depth charges, each containing 250 lb. of the new explosive Torpex, ready for instant release.

In the plane the crew busied themselves with their various duties,

all the time keeping a good air and sea lookout for the enemy.

## SITTING DUCK

Suddenly, the dream of every pilot was sighted dead ahead — a nice big juicy U-boat coming to the surface.

Thompson's crew, keyed to fever pitch, watched breathlessly as he put "S for Sugar" into a shallow dive for the attack.

Bomb doors were opened, and when dead on target the order to drop was given. Four depth charges hurtled down on the unsuspecting submarine. It was a perfect straddle, two exploding close to the pressure hull on either side, the gigantic wall of water temporarily blotting out the U-boat.

Aboard the U-570, for such she was, all was chaos, the submarine

being almost turned upside down by the blast. All lighting systems were blown, broken glass and instruments scattered everywhere, and the crew tumbled into all manner of odd places, suffering many injuries.

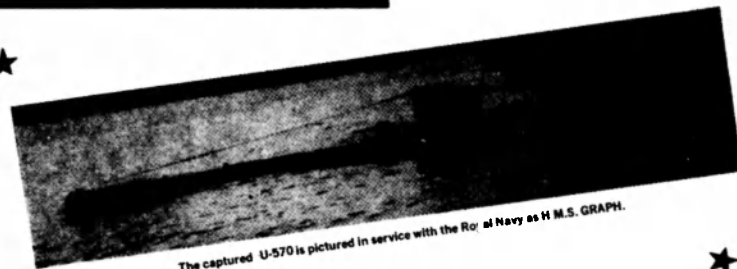
## ALL ON DECK

Her commander, Kapitän-leutnant Hans Rahmlow, wondering what had hit them, and remembering the effects of deadly chlorine gas, had but one thought, to get the crew on deck as quickly as possible from what he felt was a sinking submarine.

Opening the conning tower hatch he ordered "All out!"

In the air the crew of the Hudson were ready, spraying the conning tower with machine-gun fire to prevent manning of the 3.5 gun on

## U-BOAT SURRENDERED TO R.A.F. PLANE



The captured U-570 is pictured in service with the Royal Navy as H.M.S. GRAPH.



the fore-deck. After the fourth strafing, the Germans, still groggy from the terrible pounding received, had taken all they could stand, and Rahmlow exhibited a white flag as a token of surrender.

A quick check by key personnel below informed Rahmlow that the submarine was badly damaged, whereupon he ordered all wireless equipment to be smashed.

## PLANE IN LUCK

To those in "S for Sugar" the surrender was a staggering piece of luck beyond their wildest dreams. Immediate signals were despatched giving the sub's position and asking the navy to take over. By Morse the U-570 was told to get all hands on deck, keeping well away from the gun under threat of being borribed out of the water.

Jubilation ashore was followed by swift action as planes and ships were directed to the scene. Thompson maintained his vigil until relief planes arrived, when with low fuel tanks and the weather worsening, he headed for base and a tumultuous welcome from 269 Squadron.

To Thompson and his navigator, the award of the D.F.C. was a fitting climax to the most astounding surrender of all time. Several hours later, during the evening, naval vessels reached the U-boat, wallowing helplessly in mountainous seas.

U-570's captain was warned not to scuttle, being told no crew would be rescued if he did.

## THE RESCUE

Gale force weather prevented any rescue attempts till the afternoon of

the following day, when by expert seamanship a carrier float was got across the heaving ocean, and the Germans, injured first, a few at a time, were ferried to captivity.

U-570 was taken in tow to Iceland, where surprised naval officers found that damage was not nearly as bad as Rahmlow had first imagined.

The colossal capture was quickly turned to good effect, and when U-570 was taken to England, naval intelligence went over the sub with a fine-tooth comb, and many secrets of German torpedoes and submarine equipment, hitherto unknown to the navy, were revealed for the first time.

The aftermath of U-570's capture, lifting her out as the British submarine H.M.S. Graph — is another story. Suffice here to say that while on patrol in the Bay of Biscay she torpedoed and sank one of her kind — another U-boat.

The capture of U-570's crew was to have a strange sequel. In a German naval officers' prisoner-of-war camp in England her officers faced a prisoner council-of-honour — the charge, cowardice in the face of the enemy.

Senior officer of the camp was Otto Kretschmer, one of Germany's U-boat aces, who was in command of U-99 when sunk by Royal naval destroyers.

Kretschmer, a prominent figure in today's re-born German navy, presided. Each was asked what steps were taken to escape with U-570, or alternatively, why she was not scuttled to prevent her falling into enemy hands.

## FOUND GUILTY

All pleaded they merely obeyed Rahmlow's orders. Two were found not guilty, but First Lieutenant Berndt, as second in command, was found guilty. He was told to expect a proper court-martial and the firing squad when the German Army occupied England.

In a desperate effort to retrieve his fallen status, Berndt asked permission of the council-of-honour to escape in an effort to sink or sabotage his old ship, the U-570, then in an English dockyard port. Permission was granted, all the prisoners helping to engineer the escape, Berndt being supplied with maps, fake papers and passports.

The breakout was successful. However, the alarm was given shortly after and Berndt recaptured. In a last-ditch chance he made a bolt for nearby woods, and was shot when he refused to obey the order to halt. By the time a doctor arrived he was dead. Berndt was buried with full naval honours.

## THE CAPTAIN

It was then the turn of Kapitän Hans Rahmlow, who had just arrived in camp following interrogation in London, to face the council-of-honour. Ignoring Rahmlow's outstretched hand, Kretschmer informed him of his "trial" on the morrow.

Meantime, he was shunned by the entire camp.

The council-of-honour, however, was never held, the British camp commander, realising what was in the wind, had Rahmlow quietly transferred to a Luftwaffe prisoner-of-war camp in another part of England.

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## Nostalgic Memories

By A. J. LEE

In 1954 the hulk of the steam yacht *Alvina* was purchased by the Launceston branch of the Navy League for a headquarters and training ship for the Launceston Unit T. S. Tamar of the Australian Sea Cadet Corps.

She was moored at the lower end of Royal Park by kind permission of the then Launceston Marine Board. Immobilised and without power, the activities of the unit began to be centred around her. The unit possessed two boats — one a 25 foot whale boat from the Marine Board, at least 50 years old, and a 27 foot Montague whaler from the Navy. These were tied up alongside the ship and the gear stowed aboard. Old theatre seats were obtained and used for classroom seating.

A boat boom was erected and cadets could then man their boats via the boom and Jacob's ladder. A few failed to make the grade!

Because of the lack of power, night

parades were held at the nearby army barracks. However, for weekend continuous training, hammock bars were rigged in the foc'sle and hurricane lamps were used for light. The galley used wood fuel.

The cadets learnt quickly and retained their knowledge. They did not have to imagine they were playing seamen, they were on a ship. The ship rose and fell with the twelve foot tide, and moved to and fro on the springs with the tide.

On a night by the dim light of the hurricane lamps and with the wind whistling in the rigging, the deck moving under his feet, it was so easy for a young cadet of fourteen to think he was at sea. This feeling stayed with him all his cadet life; he was a seaman!

Slowly the cadets began to refurbish the vessel. A thirty-two volt D.C. lighting plant was installed to provide electric light. The ship was

painted from bow to stern, the foremast was rigged.

However, money was needed for additional equipment, but the Navy League had faded away. With no money work could barely proceed. Vandals added to the task by repeatedly breaking aboard and causing destruction with hammers, axes and other implements.

With no financial aid the unit could not keep up with repairs and the ship started to go backwards. Finally in 1961 she was sent to the breakers.

During her service in the Sea Cadet Corps she had served well. At that time she was the only floating headquarters in Australia, but lack of public support finally sealed her fate.

Those of us like the writer who served aboard her will always remember those days with pride and nostalgia.



The steam yacht *ALVINA* which from 1954-1961 was the headquarters and training ship for the Launceston Unit of the Australian Sea Cadet Corps, T.S. TAMAR.







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## AIRCRAFT FROM BRITAIN FOR OUR SERVICES?

The Hawker Siddeley HARRIER

Now proved in squadron service with the R.A.F. and on extensive order from the United States Marine Corps, the Hawker Siddeley Harrier, the world's first V/STOL (vertical short take-off and land) fighter, has definitely passed the experimental stage.

Indeed, more and more defence experts in almost all countries are proving willing to admit that the development of the Harrier has been the greatest breakthrough in military aviation since the invention of the helicopter.

Major-General Homer S. Hill, Deputy Chief of Staff (Air), U.S.M.C.,

went further last year when he said V/STOL aircraft would constitute as significant an advance to both military and civil aviation as did the introduction of the turbine engine.

The R.A.F. now has five squadrons of Harriers, three of them in Germany, with their aircraft operating from dispersed sites and

performing a dual role: tactical reconnaissance and close support of ground forces. This support is provided by a variety of weapons which the Harrier can carry: bombs, cannon, rockets and napalm, to say nothing of its reconnaissance cameras.

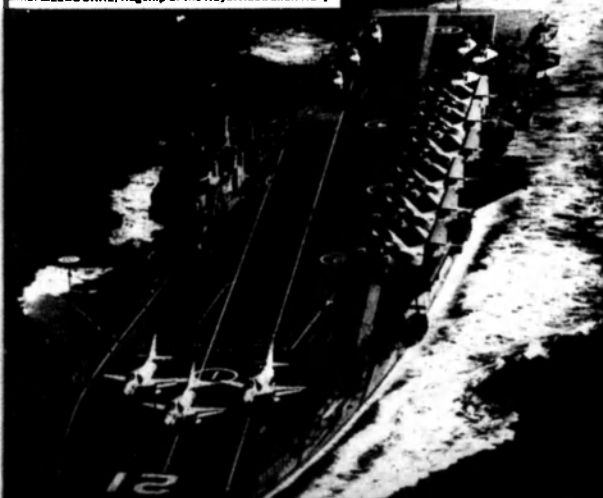
In all, the R.A.F. has ordered 90 Harriers to operate four squadrons and a training squadron.

The R.A.F. uses the short take-off quality of its Harriers in Germany. It

By Ian Fitchett, Defence Correspondent for The Sydney Morning Herald, who is currently touring defence bases in Great Britain.

(THIS ARTICLE IS REPRODUCED BY COURTESY OF THE SYDNEY MORNING HERALD)

A.S. MELBOURNE, flagship of the Royal Australian Navy



means that the aircraft have an operational range of about 200 miles carrying 5,000 lb. of externally carried weapons in addition to its Aden guns. Vertical take-off means a lesser, but still most formidable, performance the R.A.F. claims.

### INVALUABLE

It has become obvious in recent years that the Royal Navy regards anti-submarine warfare as its main mission in life and the equipping of R.N. ships with the Harrier is very much part of this planning.

The Harrier can operate from any helicopter deck provided on any naval vessel, but again its utilisation for its most effective mode can be doubled in load-carrying capability with a 200 ft. or 300 ft. take-off run.

For this reason, R.N. planners see the greatest future for the Harrier on its through-deck cruisers now being designed.

R.N. planners envisage the Harrier as an invaluable supplement to



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## AIRCRAFT FROM BRITAIN

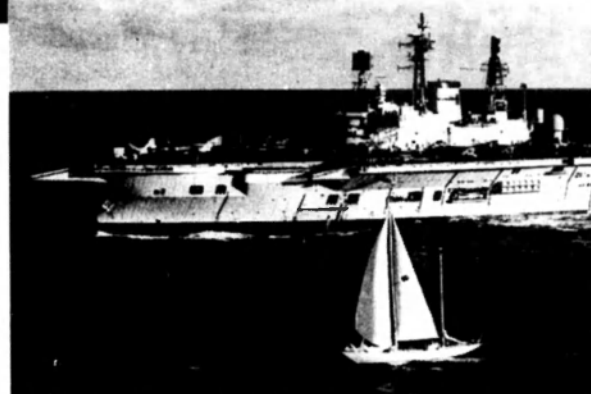
shore-based aircraft to give defence to vessels at sea in terms of air-strike, but also recognise its ability to drive off or destroy shadowing enemy aircraft long before shore-based aid could be called, even if it were available.

The Harrier must be very much in the minds of Royal Australian Navy planners, particularly as the aircraft carrier H.M.A.S. *Melbourne* will be phased out at the end of the present decade.

At present the R.A.A.F. is definitely not interested in the Harrier. Its major concern is selecting the replacement for its four squadrons of Mirage fighters by the end of the decade and getting the finance for their replacements. Nonetheless, there can be little doubt that the Australian Army will be looking for ground support now being given by the Harrier to British ground forces in Germany, the more so because of the recent decision to cancel the order for the 11 helicopter gunships it had sought.

In the light of all this, the attitude of the U.S. Marine Corps towards the Harrier is of vital interest to Australian defence planning.

The U.S.M.C. will acquire no fewer than 114 Harriers by 1974, this in itself representing a major breakthrough for the British aircraft industry into a market which has come to rely almost exclusively on home design and production.



The 50 000 ton British aircraft carrier, H.M.S. ARK ROYAL.

The Marine Corps does not believe that helicopters have the weapons delivery accuracy and survivability to take on a defended hard target and this is why it does not share the U.S. Army's confidence in the Cheyenne gunship.

Hawker Siddeley know they are on a winner and have been quick in their response for more and more power for the aircraft.

The original Rolls-Royce Bristol Pegasus engine had a thrust of about 16,000 lb., which gave it far too little payload. But the Pegasus 10 engine has been developed to give a thrust of 20,500 lb. and Pegasus 11 will carry it to 21,500 lb., allowing the Harrier with an empty weight of 12,400 lb., up to 9,000 lb. for fuel

and ordnance in the vertical take-off function.

Sooner or later it seems inevitable that the R.A.N. will acquire Harriers and it also seems most likely that the Army will need them in a support role, however unwilling the R.A.A.F. might now be to look at them.

One thing is certain, by the time Australia gets Harriers, the present speed of improvement in their performance will result in a vastly more effective V/STOL fighter than that in use today.

The new British through-deck cruisers of about 20,000 tons will begin to appear about the time the aircraft-carrier *Ark Royal* is withdrawn from service at the end of 1978.

This was revealed in a special briefing by Admiral Sir Edward Ashmore, who recently assumed supreme command of the Royal Navy the world over.

The cruisers were being designed as an anti-submarine force, he said, to augment the present one and would be equipped with Sea King helicopters.

They would also be equipped with the Harrier, which would supplement the ability of shore-based aircraft to give the fleet defence in terms of air-strike.

His reference to the Sea King helicopters is of more than passing interest as the R.A.N. must shortly seek a replacement for its Wessex helicopters, which operate from

A Sea King helicopter armed with four Mk. 44 torpedoes and operating in the A.S.W. role.



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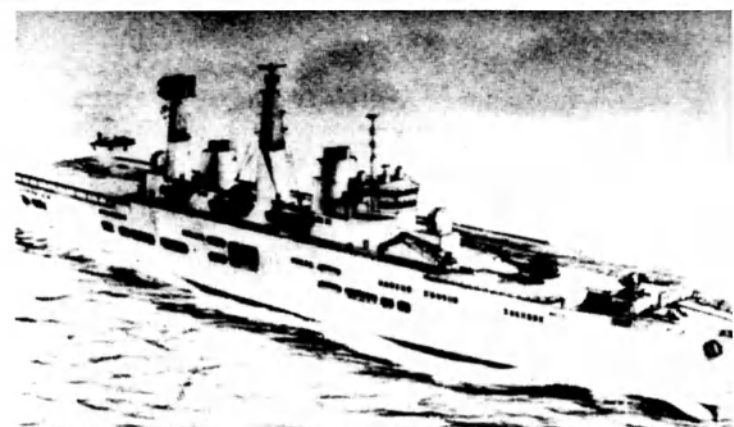
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AIRCRAFT  
FROM  
BRITAIN



An artist's impression of the British through deck cruiser (helicopter carrier) now being developed.

H.M.A.S. **Melbourne** and are nearing the end of their useful life.

The Australian Navy acquired 27 of these about 10 years ago and if a decision is made that the Sea King is the ideal replacement, the cost of up to 30 of them would be more than \$40 million.

British defence sources appear confident that the Australian Government will order the Sea King, a twin-engined helicopter with a top speed of about 150 knots, an endurance of more than five hours and equipped with radar, sonar and other systems claimed to be the best in the world.

The manufacturers, Westland Ltd. of Yeovil, England, have recently had teams of experts in Australia briefing defence officials on the Sea King earlier this year.

British defence experts believe that the only serious competitor is the French Super Frelon, now in service with the French Navy, which, however, has the disadvantage of being half as big again as the Sea King and much more expensive than the latter's approximate price of \$1.5-million.

The American Sikorsky, from which the British Sea King has been developed under licence, is also in the field, but it has different engines and systems and is not believed to be highly fancied by the R.A.N.

The Royal Navy has five Sea King squadrons in service, their primary role being search and strike as well as vertical replenishment.

Westland Ltd. is also hopeful of the R.A.N. accepting its Anglo-French light helicopter, the Lynx.

The Royal Navy has them on order for its Type 42, Type 21 and

converted Leander class frigates, for its commando carriers and assault ships and also for **Ark Royal**.

The Lynx appears to be a success story for British industry, as in addition to the R.N. orders there are more from the British and French Armies, the French Navy and the Argentine Navy.

Westland is confident of orders for more than 400 Lynx, which have a maximum speed of 180 m.p.h., a range of more than 400 miles and an endurance of about four hours.

The United States Navy is tipped as a likely purchaser, as no other manufacturer is producing a direct competitor to this joint Anglo-French venture.

It must come under close study by Australian defence experts in the near future. As the design of the Australian light destroyers nears completion, definite helicopter requirements are a must in final design.

Another decision of vital importance to Australian defence is the need to replace the rapidly aging Neptunes, which are still flying in the older of the two R.A.A.F. maritime reconnaissance squadrons.

The R.A.F. is just completing the replacement of its old long-range maritime reconnaissance Shackletons with the Hawker Siddeley Nimrod, a completely new aircraft based on the Comet, bringing new sophistication to anti-submarine warfare as the first pure-jet aircraft developed for this role. The R.A.F. has ordered 38 Nimrods and took possession of the 24th last week.

Both the R.A.F. and the R.N. are

loud in their praise of the Nimrod, which has been in service for almost two years on continuing surveillance of the waters from Greenland across to the Scandinavian coastline and down to Portugal, an area of 10 million square miles.

### COMPETITOR

The R.A.F. describes the Nimrod as a superb aircraft unequalled by any other flying and regrets that it will never have enough of them because of the cost factor.

The R.A.A.F. knows everything about it, several teams of Hawker Siddeley experts from the home factory have already been in Australia and will be there again in December.

In early negotiations, the Nimrod appeared to be at a disadvantage with its main competitor, the updated American Orion, because of the length of airstrip it needed. But this problem has now been solved and it will be capable of operating from any service airfield on the east coast of Australia, that is down to the present 8,000 feet capacity of Townsville.

British defence experts will not admit that any other aircraft at present in production can equal the performance of the Nimrod and it does not suffer any comparative price disadvantage, although this must present a huge problem to the Australian Government.

The bill for 12 Nimrods with spares cannot be much less than \$150 million, but this is roughly the amount it will be to replace the Neptunes, whatever aircraft is chosen.

# DEFENCE REPORT 1971

## The Royal Australian Navy

### THE FLEET

1 Aircraft Carrier: H.M.A.S. **Melbourne** R21, Flagship  
3 Guided Missile Destroyers: H.M.A.S. **Parth** DDG38,  
H.M.A.S. **Hobart** DDG39, H.M.A.S. **Brisbane** DDG41, First  
Australian Destroyer Squadron  
3 Daring-class Destroyers: H.M.A.S. **Vampire** DD11,  
H.M.A.S. **Vendetta** DD08, H.M.A.S. **Duchess** DD154,  
Second Australian Destroyer Squadron  
6 River-class Destroyer Escorts: H.M.A.S. **Yarra** DE45,  
H.M.A.S. **Parramatta** DE46, H.M.A.S. **Stuart** DE48,  
H.M.A.S. **Derwent** DE49, H.M.A.S. **Swan** DE50, H.M.A.S.  
**Torrens** DE53, Third Australian Destroyer Squadron  
4 Oberon-class Submarines: H.M.A.S. **Oxley** SS57,  
H.M.A.S. **Otway** SS59, H.M.A.S. **Ovens** SS70, H.M.A.S.  
**Onslow** SS60, First Australian Submarine Squadron  
4 Coastal Minesweepers: H.M.A.S. **Hawk** MSC1139,  
H.M.A.S. **Teal** (O) MSC1152, H.M.A.S. **Gull** (O) MSC1185,  
H.M.A.S. **Ibis** (O) MSC1183, First Australian Mine  
Countermeasures Squadron  
2 Minehunters: H.M.A.S. **Curlew** MSH1121, H.M.A.S.  
**Snipe** MSH1102  
20 Patrol Boats: H.M.A.S. **Advance** PTF83, H.M.A.S.  
**Assail** PTF89, H.M.A.S. **Attack** PTF90, H.M.A.S. **Barbette**  
PTF97, H.M.A.S. **Barricade** PTF98, H.M.A.S. **Bayonet**  
PTF101, H.M.A.S. **Altape** PTF84, H.M.A.S. **Ladava** PTF92,  
H.M.A.S. **Lae** PTF93, H.M.A.S. **Madang** PTF94,  
H.M.A.S. **Samaral** PTF85, H.M.A.S. **Aware** PTF91,  
H.M.A.S. **Ardent** PTF87, H.M.A.S. **Bombard** PTF99,  
H.M.A.S. **Buccaneer** PTF100, H.M.A.S. **Archer** (R) PTF86,  
H.M.A.S. **Adroit** (R) PTF82, H.M.A.S. **Arrow** (R) PTF88,  
H.M.A.S. **Acute** (R) PTF81, H.M.A.S. **Bandolier** (O) PTF95,  
First Australian Patrol Boat Squadron.

\*—Papua-New Guinea Division.  
(R)—Naval Reserve Training.  
(O)—Operational Reserve.

### TRAINING SHIPS

1 Transport: H.M.A.S. **Sydney** AP214.  
1 Destroyer: H.M.A.S. **Anzac** DD59.  
1 Destroyer Escort: H.M.A.S. **Queenborough** DE57,  
First Australian Training Squadron.

### SUPPORT SHIPS

1 Destroyer Tender: H.M.A.S. **Stalwart** AD215.  
1 Oiler: H.M.A.S. **Supply** AO195  
2 Reserve Training Ships: H.M.A.S. **Bass** GS247,  
H.M.A.S. **Banks** GS244.  
1 Cargo Ship: H.M.A.S. **Jeparit** AFS (temporarily in  
Commission for Vietnam Service).

1 Surveying Ship: H.M.A.S. **Moresby** AG573  
1 Coastal Surveying Ship: H.M.A.S. **Paluma** AGSC337.  
1 Oceanographic Research Ship: H.M.A.S. **Diamantina**  
AGOR266  
1 Trials and Oceanographic Ship: H.M.A.S. **Kimbla**  
AGOR314.

### FLEET AIR ARM

### SQUADRONS

HT 723 Helicopter aircrew training and pilot  
continuation training. Fleet support and search and  
rescue duties. Iroquois and Scout helicopters  
VC 724: Fixed-wing fighter pilot training and Fleet  
requirement flying and trials: Macchi jet trainers. TA4G  
Skyhawk trainers and A4G Skyhawks  
HT 725: Anti-submarine helicopter operational  
training and Fleet requirement duties: Wessex 31B  
helicopter.  
VF 805: Front-line strike fighter squadron: A4G  
skyhawks.  
VS 816: Front-line fixed wing anti-submarine  
squadron: S2E Trackers.  
HS 817: Front-line helicopter anti-submarine  
squadron: Wessex 31B helicopters.  
VC 851: Training squadron for pilots, observers and  
aircrewmembers. Twin-engine conversion, communication  
and Fleet requirement flying: S2E Trackers and Dakotas.  
The Royal Australian Navy of the 1980s began to take  
shape during the year 1970-71.

Design work, planning studies and works construction  
conducted during the period will result in the

Navy Skyhawk fighter. Delivery of a further 10 aircraft has increased the versatility of the aircraft-carrier **MELBOURNE**.



## DEFENCE REPORT 1971

development of a new generation of ships and facilities  
to serve the Navy of the future.

This development is directed towards meeting the  
roles of the R.A.N. which are:

- e To organise, train and equip naval forces, including  
naval aircraft, for timely and sustained combat  
operations at sea:

- to detect and destroy enemy naval forces and sea  
commerce;

- to establish and maintain superiority in areas as  
necessary for naval operations, including the  
protection of sea lines of communication; to  
conduct naval offensive operations against enemy  
forces and installations;

- to conduct naval reconnaissance and surveillance,  
anti-submarine warfare, the protection of shipping  
and hydrographic and oceanographic survey;

- to provide naval support for land operations;
- to provide military sea transport support for the  
Australian Services; and
- e to provide seaward defence of ports and anchorages.

### NEW SHIPS

The preliminary design for a light general-purpose  
destroyer for the R.A.N. was progressed during the year.

This will form the basis for the next stage — detailed  
design and development — to complete all the systems  
and provide working drawings and specifications.

This destroyer will be of about 4,000 tons and will be  
powered by gas turbines. Weapons, radar and  
communications equipments have been selected for  
design purposes.

Design work is well advanced for a fast combat  
support ship to be named **H.M.A.S. Protector**.  
Construction is expected to begin in May 1972 at an  
Australian dockyard.

Tenders for the construction of an oceanographic ship  
are expected to be called in July 1972 and for  
construction to begin early in 1973.

This ship is to be named **H.M.A.S. Cook**. She will  
replace the aging frigate **H.M.A.S. Diamantina**, and her  
modern equipment will enable both the quantity and  
quality of ocean research to be increased substantially.

Work on the building of a small hydrographic ship to  
be named **H.M.A.S. Flinders** began at Williamstown  
Naval Dockyard in December 1970.

Tenders have been called for the construction of two  
additional Oberon-class attack submarines for delivery  
in 1975 which will give the submarine squadron six of  
this class.

The Oberons are acknowledged as the most effective  
diesel electric attack submarines in the world.

Being able to operate submerged and independent of  
support several thousands of miles from base, they are  
well equipped to provide the R.A.N. with anti-submarine  
and anti-surface ship offensive capabilities.

A contract has been negotiated for equipment to train  
submarine command teams ashore in realistically  
simulated conditions. A substantial part of the design  
and manufacture of this simulator will be undertaken in  
Australia.



The submarine **H.M.A.S. Ovens** goes through diving manoeuvres.

The submarine trainer is in addition to an earlier order  
for a special simulator to provide crews of R.A.N. surface  
ships with training in tactics.

This simulator will be computer-based and will enable  
ships' crews to be trained under realistic, but controlled  
conditions.

This form of training backs up training at sea, but can  
be more effective and economical in that the trainer has  
the ability to pose a greater number of threat incidents  
from a larger number of ships, submarines and aircraft  
than can be assembled at sea in peacetime and is not  
hampered by such peacetime constraints as merchant  
shipping, safety regulations and weather.

The location of the trainer near the Fleet base is an  
essential requirement. Among other reasons it will  
enable officers and sailors who form ships' operations  
rooms teams to be trained regularly on highly  
specialised equipment while their ships are in Sydney  
for maintenance.

The building to locate the trainer will have a low profile  
and is designed to blend into the landscape.

### OPERATIONAL ACTIVITIES

#### Vietnam

In May and June 1971 members of the R.A.N.s  
Clearance Diving Team No. 3 and Helicopter Flight  
Vietnam were withdrawn from service in Vietnam.

The Clearance Diving Team, which was the first R.A.N.  
unit to go into service in Vietnam (February 1967)  
undertook work ashore, in rivers and along the coast to  
provide security for shipping as far north as the  
demilitarised zone.

The R.A.N. Helicopter Flight of 46 officers and sailors  
was unique because it was integrated with a 300-man  
company of the United States Army's 135th assault  
helicopter company. During its 3½ years of operations

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## DEFENCE REPORT 1971

in Vietnam, members of the R.A.N. Flight earned seven D.S.C.s, three D.F.C.s, two M.B.E.s and 21 mentions in dispatches.

The R.A.N. continued to maintain one fleet unit in Vietnam area as part of the United States Navy's Seventh Fleet until September this year. Since 1967, this commitment was undertaken by guided missile destroyers H.M.A. Ships, *Perth*, *Hobart* and *Brisbane* and the Daring-class destroyer H.M.A.S. *Vendetta*.

By 30 June 1971 the troop transport H.M.A.S. *Sydney* had made 20 return passages to Vietnam since mid-1965 carrying troops, vehicles and equipment.

### Strategic Reserve

Two ships have been deployed to the British Commonwealth Strategic Reserve on a continuing basis during 1970-71. H.M.A. Ships *Vendetta*, *Derwent*, *Parramatta*, *Swan*, *Duchess* and *Yarra* served in the area at various times during the year.

It is intended that the R.A.N. will make a contribution to the A.N.Z.U.K. force in the area after the transition from the Commonwealth Strategic Reserve on 31 October 1971.

### Exercise Swan Lake

In October and November 1970 the first major maritime exercise sponsored by the R.A.N. was held in the Indian Ocean off Western Australia.

Named Swan Lake, the exercise was conducted to demonstrate the practicability of deploying ships from Australia's east coast and other areas to the West Australian area, and to provide tactical, anti-submarine, air operational and weapon training for ships of the R.A.N. and R.N. and maritime forces of the R.N.Z.A.F. and R.A.A.F.

Ships which took part in the exercise were H.M.A.S. *Melbourne*, the guided missile destroyer H.M.A.S. *Brisbane*, the destroyer escort H.M.A.S. *Swan*, the frigates H.M. Ships *Charybdis*, *Minerva*, *Lynx* and *Ashanti*, the submarines H.M.S. *Finwhale* and H.M.A. Ships *Oxley* and *Otway*, and the patrol boat H.M.A.S. *Acute*. They were supported by the fleet oiler H.M.A.S. *Supply*, the submarine support ship H.M.S. *Forth*, the destroyer tender H.M.A.S. *Stalwart*, and the Royal Fleet Auxiliaries *Olemeda*, *Resource* and *Typhoon*.

*Neptune* and *Orlon* anti-submarine aircraft from the R.A.A.F. and R.N.Z.A.F. also took part.

Exercise Swan Lake was directed by the Flag Officer Commanding the Australian Fleet.

### Patrol Boats

Two patrol boats transferred their base from Sydney to Cairns in January and a third in February to undertake regular patrols in North Queensland waters.

After an investigation into the relative advantages of Townsville and Cairns as a North Queensland patrol boat base, Cairns was selected because its harbour offered better protection from cyclones, accommodation was more suitable, an all-weather passage through the Barrier Reef was closer and it was nearer the main areas of operation for patrol boats.

Twenty-nine houses have been purchased in Cairns as

married accommodation for patrol boats crews and maintenance personnel.

Patrol boat operations continued to be conducted from Sydney, Westernport and Darwin, and by the Papua New Guinea Division of the R.A.N. from Manus Island.



Newest ship in the fleet — destroyer escort H.M.A.S. TORRENS.



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### DEFENCE REPORT 1971

#### Mine Countermeasures

Mine countermeasures ships H.M.A. Ships *Hawk*, *Curlew* and *Snipe* conducted minesweeping and minehunting operations in Papua New Guinea waters during June. Some wartime explosive ordnance was destroyed.

A Clearance Diving Team visited Papua New Guinea for three months from April 1971. The team helped clear underwater navigation hazards and blasted passages through coral reefs to make channels safer for copra plantation vessels. A channel suitable for use by 40,000-ton oil tankers was made in Madang harbour by partly clearing the wreck of the auxiliary minesweeper H.M.A.S. *Tarka* which sank in 1944.

At Madang the divers recovered 320 bombs from water close to shore and in Lae harbour cleared 533 bombs from a dump which was discovered by accident in June. Some known dumps of wartime explosives ashore were also destroyed.

#### FLEET AIR ARM

##### Additional Skyhawks

Ten further Skyhawk fighter bombers, two of them dual seat trainers, have been delivered to increase the R.A.N.'s holding of these aircraft to 20. The aircraft will enter squadron service between September 1971 and January 1972.

The inclusion of additional Skyhawks will increase the strike and ground support capability of the Navy's aircraft carrier H.M.A.S. *Melbourne* and enable the ship to carry up to 14 in a strike carrier configuration.

The ability of H.M.A.S. *Melbourne* to alter the number of different aircraft types carried while at sea was demonstrated at the end of last year during Exercise Swan Lake off Western Australia when two Skyhawks were flown non-stop from Nowra to join the carrier off Bunbury.

The aircraft refuelled from other R.A.N. Skyhawks over South Australia during the flight from the Pacific to the Indian oceans.

##### Aircraft Contract

A contract has been let for the purchase of two Hawker Siddeley 748 aircraft which the R.A.N. expects to be delivered late next year.

These aircraft will be used for Naval aircrew training. Fleet training and systems trials, including trials of the Australian IKARA weapon. The HS748s will in particular be used to exercise ships in electronic warfare.

The Navy's HS748s will have as many common features as possible with the HS748 navigational trainers of the R.A.A.F., and the R.A.A.F. will provide logistic support for the Navy aircraft.

The Navy's two HS748s will replace four Dakotas which first flew with the R.A.A.F. during World War II. They are due to be phased out of service next year after 30 years' flying.

##### Macchi Trainers

Six of 10 Macchi jet trainers for pilot training and fleet training exercises were delivered by 30 June. The remaining four are expected to be delivered by the end of 1971.

#### HYDROGRAPHIC AND SCIENTIFIC SERVICES

##### Surveying Service

The five-yearly hydrographic conference was held during the year and a future survey programme called Hydroscheme '70 was drawn up.

The major areas to be surveyed will serve the coal trade of central Queensland ports, the improved facilities at Ceduna and Bunbury, and the bauxite port at Port Warrender in North West Australia.

During 1970-71, H.M.A.S. *Moresby* carried out major surveys in the Broome area in the Gulf of Papua. *Paluma* has worked in North Queensland waters resurveying Torres Strait for today's deep draught traffic and for strategic purposes. For the next 12 months, she will continue in the northern Great Barrier Reef area. *Moresby's* next task will be at the eastern end of the Great Australian Bight and Spencer Gulf.

##### Scientific Service

The Naval Scientific Service provides advice to the Navy on many problems associated with ships, weapons and equipment.

Research programmes in the fields of military oceanography, underwater acoustics, mine countermeasures and operations research studies were undertaken by the R.A.N. Research Laboratory, Sydney. The field of research into various aspects of anti-submarine warfare continues to increase in importance as submarines become quieter, faster and capable of operating at greater depths.

A number of large maritime exercises are currently being analysed by the Research Laboratory.

H.M.A.S. *Diamantina* performed five oceanographic cruises during 1970-71. Civilian scientists pursuing marine biological research were carried on three of these. H.M.A.S. *Kimbla* also completed five cruises — four included geophysical studies by C.S.I.R.O. and the University of New South Wales and one allowed marine biology research by the Australian Museum.

#### PERSONNEL

##### Manpower

A total of 17,232 personnel were serving in the Navy on 30 June 1971. These included officers and sailors of the Permanent Naval Forces, W.R.A.N.S., the Royal Australian Naval Nursing Service, the Papua New Guinea Division, Naval Dockyard Police, loan personnel and Naval Reserves on full-time service. The officer strength at 30 June 1971 was 2,128.

A Macchi jet trainer flown by Squadron 724.



## DEFENCE REPORT 1971

### Naval Reserve Forces

At 30 June 1971 the Naval Reserve Forces had a total strength of 6,011 made up as follows:

			Total
RAN Emergency Reserve (part time)	75 officers	843 sailors	918
Citizen Naval Forces (part time)	1,333 officers	3,484 sailors	5,013
WRANS Reserve (part time)	4 officers	272 WRANS	

### W.R.A.N.S., R.A.N.N.S.

The Women's Royal Australian Naval Service had 31 officers and 657 W.R.A.N.S. serving on 30 June 1971.

The Royal Australian Naval Nursing Service at 30 June had a strength of 19 against an establishment of 30 officers.

**Training**—As a result of training research, advances are being made in objectively specifying training requirements. These are based, to an increasing degree, on job analyses. Accent is also being placed on modern training methods to ensure the most effective use of training time.

**Sailors**—Initial, promotion and specialist training for sailors is conducted at various Navy schools as well as with other organisations in Australia and overseas. Courses vary in duration from one day to four years. Annually about 1,700 sailors receive initial training after entering the R.A.N. as adult recruits, junior recruits or apprentices.

The pattern of sailor employment, promotion and training is currently receiving close examination taking into account changes in other sectors of the community and future needs of an expanding and more technically complex Navy.

**Officers**—The degree training scheme for junior officers of the R.A.N. is now in full operation, and approximately one-third of the officer entrants to the R.A.N. College each year begin degree courses. Degrees in Arts, Science and Engineering are available. The system of offering one year of Science and Engineering at the R.A.N. College as a First Year College of the University of New South Wales is proving successful, and in 1970 there were no first year failures. Of 76 first year papers taken by students, there were 51 passes at credit level or better.

Further efforts are being made to encourage sailors to become officers in the R.A.N., and each year up to 100 sailors commence full-time courses of either 6 or 18 months to achieve the necessary pre-requisites for officer rank.

**Personnel from Other Countries**—During 1970, increasing numbers of students from Asian countries undertook training courses with the Royal Australian Navy. Courses ranged in length from 2 weeks to 3½ years, the latter for apprentices from the Royal Malaysian Navy. Countries involved were Malaysia, Singapore, Indonesia and Brunei.

### Flying Training

During the second half of 1970 front line Fleet Air Arm squadrons carried out regular flying and weapon training followed by deck landing practice which in turn was followed by participation in Exercise Swan Lake. During the first-half of 1971 squadrons continued training and work up in readiness for embarkation in H.M.A.S. Melbourne in August 1971.

Front line squadrons will be embarked for major exercises later this year and early in 1972.

Delivery of 10 Macchi MB326H jet trainers is expected to be completed by the end of 1971. These aircraft are being used for pilot training and Fleet training exercises.

### Sailor Review

A committee to review sailor structure within the R.A.N. has made recommendations covering engagement pattern, promotion rules, complementing and branch structures.

### Optional Discharge

The optional discharge scheme which was introduced in January 1970 for a trial period of one year is continuing. The scheme allows recruits the option of seeking discharge after an initial period of training before committing themselves to full-time services.

### P.N.G. Division

The Papua New Guinea Division of the R.A.N. is steadily building up. At 30 June 1971 there were 235 Papuan and New Guinean members serving, including seven officers. These men are progressively taking over billets in P.N.G. patrol boats and at the P.N.G. Base at Manus Island, H.M.A.S. Tarangau.

### Civil Personnel

A total of 12,149 civilians were employed by the Department of Navy on 30 June 1971.

### BUILDINGS, WORKS AND HOUSING

Expenditure on buildings and works during 1970-71 was \$12,822m. In addition \$1,925m. was advanced to the States under the Commonwealth States Housing Agreement towards houses under construction and the cost of a further 345 houses for Naval personnel.

Work began on the 2½ mile causeway between the Western Australian mainland at Point Peron and Garden Island in September 1970 and is expected to be completed by mid-1973, giving road access to Garden Island.

Estimated to cost \$9,490m., the causeway will have two rubble mole sections, totalling more than 10,000 ft., 1,000 ft. of steel trestle bridging and a 2,000 ft. long concrete bridge.

On 30 October 1970 the Government approved the construction of the second stage of the Cockburn Sound project.

It is proposed to provide base facilities capable of supporting four escort vessels and three submarines for periods of up to a year without dry docking.

Capital works would include the wharves and service area, workshops and stores buildings, engineering services, barracks, an armament depot with jetty and housing, to be provided on the mainland.

Other major works projects let to contract during 1970/71 included three instructional buildings at H.M.A.S. Cerberus, Victoria, at a cost of \$1,515m., the marine engineering demonstration building at H.M.A.S.

## DEFENCE REPORT 1971

Nirimba, Quakers Hill, N.S.W., at a cost of \$745,000, components of shipbuilding facilities at Cockatoo Island, Sydney (\$467,000), 14 new houses at Coonawarra West, Darwin (\$370,000) and work on the oil fuel installation, the power generating plant, electrical plant and five residences at H.M.A.S. Tarangau, Manus Island, involving \$1,034 m.

Provision is made in the 1971-72 programme for an expenditure of \$13.5m. on buildings and works which will include a senior sailors' barracks complex at H.M.A.S. Cerberus, a wardroom mess and senior sailors'

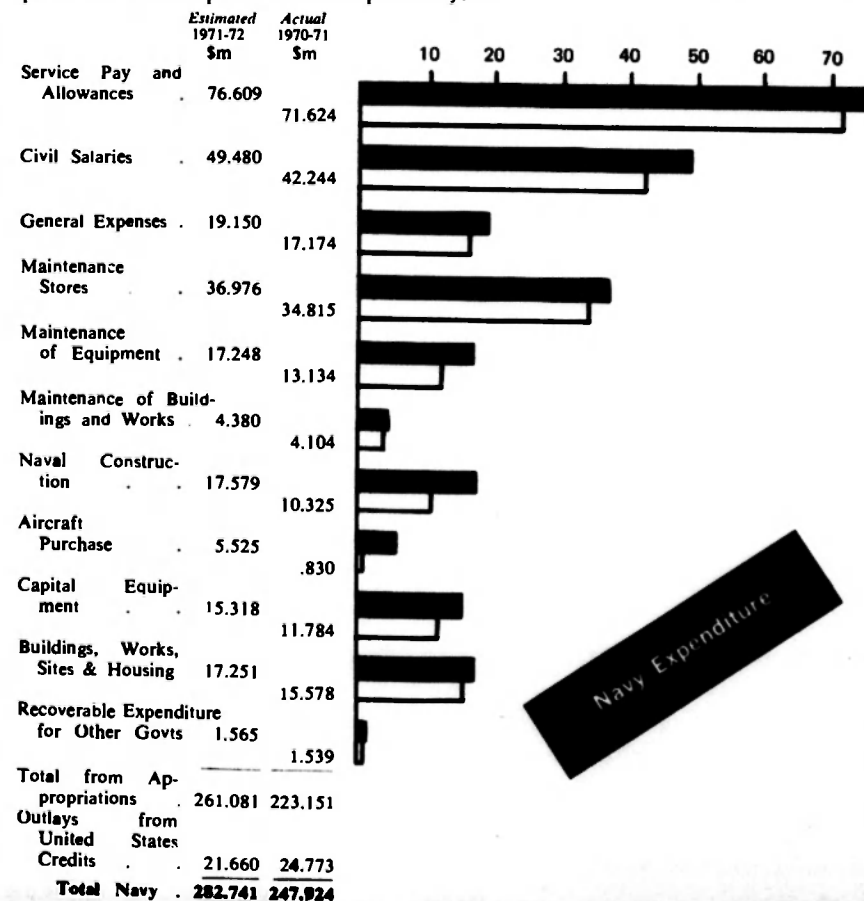
barracks at the Naval Air Station, Nowra (H.M.A.S. Albatross), and a tactical trainer building at South Head, Sydney at a cost of \$3.2m.

As at 30 June, 3,030 houses had either been obtained, were under construction, or on approved programmes under the Commonwealth States Housing Agreement.

In addition, as at the end of June 1971, 983 Service-owned married quarters had been obtained, or were under construction. There are also 61 houses for Naval personnel in Papua New Guinea.

Provision has been made for a further 223 houses to be programmed from advances to the States amounting to \$3,749m. during 1971-72. A further eight are programmed for construction by the Commonwealth.

The chart below shows major categories of proposed expenditure for the Navy in 1971-72 compared with actual expenditure for the previous year:



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# BOOK REVIEW

## CONSCRIPTION AND AUSTRALIAN MILITARY CAPABILITY

by Darcy McGaurr

Price \$1.50

(Canberra Papers on Strategy and Defence, No. 11)

A publication of The Strategic and Defence Studies Centre, Australian National University, Canberra.

Review by

"IKARA"

This is the eleventh in a series of papers published by the Strategic and Defence Studies Centre of the Australian National University and, like its predecessors, is a valuable work for the serious student of current affairs. As Australia's commitment to the Vietnam war draws to a close, a study of the cost effectiveness of conscription is not only timely, but overdue. Mr. McGaurr advances detailed arguments to support his case that "conscription is the most expensive system of military manpower procurement" (page 25).

From his own research and by referring to several prestigious American works, including the Report of the President's Commission on an All-Volunteer Armed Force (Chairman: Thomas S. Gates), Mr. McGaurr shows, by a series of graphs and tables, several different views on the expected supply of volunteers for the armed forces and the costs to the community involved in the various systems.

Mr. McGaurr goes on to give a brief review of the likely areas of deployment of Australian forces in the near future — South East Asia, Malaysia/Singapore, Papua New Guinea and the Australian Mainland. Where South East Asia (excluding Malaysia/Singapore) is concerned, he quite correctly points out that there would be no significant Australian involvement unless American ground forces were involved — an unlikely event after Vietnam.

Where the Malaysia/Singapore region is concerned, Mr. McGaurr makes valuable comments about the type of force to be committed to the area, particularly in regard to the question of technology as opposed to manpower. His suggestion of a "Strike Force" certainly bears close investigation.

When he turns to the defence of the Australian mainland, Mr. McGaurr makes the point that since there does not appear to be any threat of invasion within the next ten years, "Australia's force structure should be such as to provide not so much a present capability as a potential capability . . . A conscript trained in 1971 will not be a valuable defence asset in the event of an invasion in 1985" (not under our present system, anyway). He states (and I agree with him) that Australia should be spending its resources on items with a longer term pay-off — dockyards, ships, aircraft, airfields, roads etc. Whilst this is certainly true, there is even more to be said: Australia should be devoting a lot more of its defence budget towards building a local aircraft industry with a capacity to design and build multi-engine fixed-wing

and rotary-wing aircraft. Soldiers can be trained (or re-trained) comparatively speedily, but a capacity to design and build aircraft takes years to develop.

Again, the part-time serviceman can draw from the article not only a justification for his own existence, but an illustration of the value of reserve forces.

Whilst a conscript trained in 1971 might not be a valuable asset in 1985, the 20 year old CMF soldier or Naval Reserve seaman of 1971 may well, if properly trained and encouraged, be a 34 year old Captain or Warrant Officer or Lieutenant or Petty Officer in 1985. Soldiers and sailors can be trained in a hurry, but leaders cannot.

One solution Mr. McGaurr offers is that of the Student-soldier, paid by the Army to be a full-time student but obliged to spend all or part of his vacations in the Army. An interesting idea, well worth studying, but has it not already been done? In the mid 1960's, (when the Army had money), University Regiments had an allocation of 73 days home training pay per man (and so did the Commandos), and it was not unusual for soldiers who were full-time students to spend up to ten weeks per year in camps of continuous training. Mr. McGaurr's suggested scheme appears to differ only in detail from the reality of University Regiments in their heyday.

I commend this paper to all serious students of defence.

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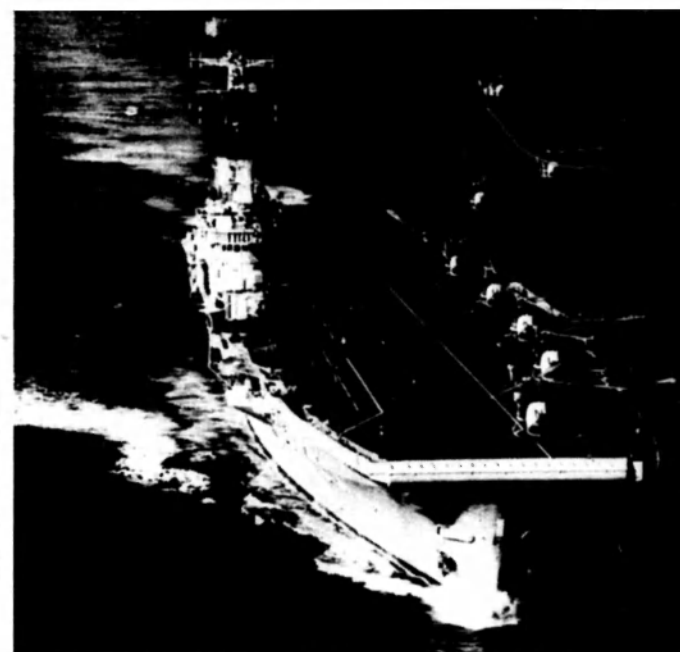
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# One-Ship Task Force

By Lieutenant Commander  
Trevor Blore  
R.N.R.



Her Majesty's Ship ALBION, one of the most versatile ships in the British Navy. This 23,300 ton vessel is an every-ready, go-anywhere task force that was originally a medium-sized aircraft carrier. Now a "commando ship", ALBION is a mobile base for crack Royal Marines and artillerymen who, with supporting armour, helicopters and landing craft, can carry out necessary operations swiftly. ALBION, capable of a speed of 28 knots, is herself equipped with rocket launchers, anti-aircraft guns and electronic detection equipment.

Her Majesty's Ship Albion is one of the most versatile in Britain's Royal Navy. For here is an every-ready, go-anywhere task force. On board, Albion can carry a Royal Marine Commando unit equivalent to a full strength army battalion. Backed by helicopters, armour and landing craft, the troops can be lifted ashore at speed to deal with trouble or emergency. Albion itself is armed with anti-aircraft guns, rocket launchers and electronic detection equipment.

One of the most versatile ships in the British Royal Navy, Her Majesty's Ship Albion is practically a task force on its own, ever ready to answer the call of a civil authority ashore in times of unrest or disaster.

For Albion, originally a medium-sized aircraft carrier operating fixed-wing aircraft, is now a "commando ship" serving as a mobile base for a highly trained military force of Royal Marines and artillerymen, with a large squadron of helicopters and four landing craft to carry out land operations.

A Royal Marine Commando Unit, equivalent to a full strength army battalion, embarked on the Albion can be moved into action swiftly and

at short notice at any trouble spot in any kind of terrain in the world, to answer a call for assistance in dealing with an armed revolt or to cope with aid and rescue operations after a natural disaster.

With their mortars, anti-tank guns and light transport, they can be moved more than 100 miles (160 kilometres) inland by the ship's Wessex helicopters, each of which can carry a dozen or more fully armed combat troops or the equivalent weight in stores, such as Land Rovers, light artillery or bulky loads of fuel and ammunition that can be slung below the aircraft.

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In the same way, the helicopters

can carry Commando Light Batteries of the Royal Artillery, with their 105 millimetre howitzers from the ship to the operational area in support of the marines. The pilots have been trained to fly in all weathers, and in a wide variety of terrain without ground navigational aids and to make the best use of cover. They not only move the troops into action, but keep them supplied and are ready to move them quickly from one point to another in the trouble zone by day or night, and can move any casualties straight back to the Albion for medical treatment.

The commandos have the four landing craft to put them and their transport ashore over beaches if

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required. A special mobile pontoon is also available for landing heavier vehicles if the need arises.

**Albion** herself is a ship of 23,300 tons displacement, with a speed of 28 knots, and a defensive armament of two sextuple rocket launchers and eight 40 millimetre anti-aircraft guns mounted in pairs. She is equipped with radars and electronic devices for detecting enemy aircraft, surface ships and submarines, and, as a mobile base for a compact, but powerful assault force, requires a complex system of short and long range communications equipment.

Her ship's company — apart from the Royal Marines — consists of more than 1,000 naval officers and ratings, with a wide variety of skills and responsibilities. For example, **Albion** has an education department which is also responsible for the meteorological forecasting, so important to air, sea and land operations.

### Own Medical Services

The medical department, with its doctors, dentist and medical assistants, has well equipped operating theatres and hospital quarters which not only provide everyday medical care, but are always ready to cope with casualties from the commando assault force flown back to the ship.

The present **Albion's** immediate predecessor was a first-class armoured battleship with four 12-inch (305-millimetre) guns which took part in the naval operations at Gallipoli in World War I in 1915.

But, of course, the present **Albion** is the first to introduce the air element in the forefront of combined service operations.

This air element is not necessarily confined to military operations or even disaster aid, as a recent report from the ship showed. During a ten-hours visit to the isolated island of Ascension, in the south Atlantic, some of **Albion's** helicopters and ship's company carried out an unusual voluntary operation.

They lifted half a ton of sand from the shore to a point high up a mountainside for a tree-planting scheme to improve this rather barren, windswept island. The 1,800 inhabitants of Ascension were delighted.

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We invite you to swell our ranks and so keep up to date with Maritime Affairs to help to build an ever-increasing weight of informed public opinion. The Navy League will then become widely known and exercise an important influence in the life of the Australian Nation.

The League consists of Fellows and Associates. All British subjects who support the objectives of the League are eligible for membership. Members receive copies of the League's magazine "The Navy".

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## NEW COOKERY MANUAL

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ABRS — The R.A.N.'s new cookery manual. Volume II is being prepared and will contain over 1,500 special recipes.

Naval catering and cookery have come a long way since weevils had to be knocked out of the biscuits and salt meat was so hard that seamen could carve snuff-boxes and other objects from it.

Just over a century ago, when Australian naval defence was provided by ships of the Royal Navy, the cooks on war vessels knew little or nothing about cooking in the accepted term.

Complaints were so intense that the Admiralty created a school of cookery at Portsmouth in 1873. Australia's naval school of cookery at Westernport in Victoria was estab-

lished in 1924, not because R.A.N. cooks required to be trained to cook properly but because the Royal Australian Navy had become an independent, national force in 1913 and required its own cooks.

Even so, the cookery practices and recipes were substantially those of the Royal Navy.

Now the Royal Australian Navy is to have its own cookery books, prepared to suit the tastes of the Australian sailor and the climates in which the R.A.N. operates.

The first of these has been distributed throughout the Fleet — the R.A.N. Cookery Manual, known officially as Australian Book of Reference 5.

Volume II will be a recipe book with 1500 dishes in loose-leaf pages so that new ones can be added from time to time.

The circumstances in which Navy meals are prepared are unique. They are not paralleled even in the merchant marine, because Navy practices, catering and cookery have to be carried out in ships of many sizes, from small patrol boats and submarines to large vessels like aircraft carriers.

Preparations range from the three-good-meals-a-day policy of peace time to action-stations food during operations.

The emphasis of Volume 1 of the Cookery Manual is on the impor-



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## NEW COOKERY MANUAL



Space is at a premium for submarine cooks and equipment is compacted to attain maximum use of every spare inch aboard Oberon class submarines.

tance of feeding the sailors well and correctly.

The manual also makes it clear that the sailors, too, can contribute to successful catering.

The manual explains the naval philosophy of catering. It says that the way people satisfy hunger and appetite from day to day has a direct effect upon their well-being, and the moral fibre of the whole crew can be effected by the meals it receives.

Eating is not just to satisfy hunger, the manual declares. It is part of the social way of life. This aspect is important to sailors who live close together at sea for long periods away from family and friends.

With deep freezing, dehydration and other forms of vitamin-conserving preservation, Navy catering and cookery are no longer restricted to a limited selection of food. In today's Navy there is a range at each meal which allows the men to choose what they want to eat. This ability to choose, rather than accept or reject

the menu which the cooks have drawn up, makes sailors more satisfied with their meals.

A rule-of-thumb guide to the popularity of meals is given in what is known as "plate waste", which is the amount of food left on the sailors' plates.

Experience here has shown that complete dishes which combine familiar with unfamiliar items, or liked with disliked, have less chance of being popular.

One of the problems faced by naval caterers and cooks is that the food habits of sailors are determined by such factors as customs, traditions, habits, age, climate and occupation.

It is not enough that the Navy should have cooks skilled in cookery; they must also be able to prepare and serve food which has eye-appeal and interest. This appeal of food is influenced by variety of aroma, colour, form, temperature, flavour and texture.

The meal pattern of the R.A.N. consists not only of breakfast, lunch, dinner or supper, but of between-meal snacks as well.

The manual explains that an adequate breakfast should help to increase the efficiency and work output of the crew and decrease "late morning fatigue".

Lunch is necessary to meet the body's needs for the afternoon, and afternoon tea can make an important contribution to the daily diet.

Dinner or supper, the final meal of the day, cannot compensate for a poor breakfast or lunch.



Sailors at H.M.A.S. KUTTABUL eyeing over the end-of-week meal, a smorgasbord.



A roast chicken dinner in course of preparation in the galley of the destroyer escort H.M.A.S. PARRAMATTA.

The R.A.N. insists on absolute cleanliness in the handling of food and there are firm instructions which must be obeyed by all cooks.

Symptoms of sickness must be reported immediately they appear and it is a punishable offence to conceal an infection, whether it is internal or external.

Cooks' hair must be cut short, and they must wear their cooks caps so that the hair is properly covered.

Safety and accident prevention are also important in a warship's

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### NEW COOKERY MANUAL

galley as in an industrial plant. The movement of a ship at sea can also create hazards which are not experienced ashore. Cooking is a human achievement, but in these days a galley is equipped with a variety of machines, all of which could cause injury if handled carelessly or improperly.

Even the cooks' simple implements, such as knives, are potentially dangerous and there is an instruction that cooks must not carry their favourite vegetable paring knives on their persons or keep them in their lockers. Such knives must be placed in a safe place in the galley.

Neither may a cook carry a knife in his hand while he carries a cooking dish or a heavy saucepan.

Sixteen chapters of the new Cookery Manual are devoted to details about the preparation of various types of food ranging from hors d'oeuvres and savouries to bread, cakes, pastry and icing.

In a chapter on fish, Navy cooks are warned about poisonous varieties that can be found in the Pacific, but are told that small, edible sharks can be found in all waters.

In a chapter on eggs and cheese, the manual states that Navy cooks who know the composition of eggs and understand the reasons for the changes that take place in cooking will have superior products for their efforts.

A great deal of space in the manual is given to the making of bread. Skill at this, the manual says, is the hallmark of perfection of a baker.

The Navy manual points out that bakers can use sea water in emergencies, when the normal ship's water supply is not available.

The water must be obtained only from the open sea and has to be strained through four layers of muslin or other suitable cloth.

The salinity of sea water has approximately the amount of salt required in bread making and no salt need be added to the dough.



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Uniforms are supplied free of charge.

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Instructional camps are arranged for Sea Cadets in Naval Establishments, and they are also given opportunities, whenever possible, to undertake training at sea in ships of the Royal Australian Navy.

Cadets, if considering a sea career, are given every assistance to join the Royal Australian Navy, the Mercantile Marine or the Royal Australian Naval Reserve, but there is no compulsion to join these Services.

**For further information please contact the Divisional Senior Officer in your State, using the Form provided below.**

Senior Officers, Australian Sea Cadet Corps

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# Naval Cadet Force News

## United States of America Sea Cadets

by Chief Journalist Brad Durfee,  
U.S.N.

Many of the country's youth re-entered their classrooms this fall with added maturity and possibly new career goals as a result of their Naval Sea Cadet Corps two-week summer training. Members of the Sea Cadets are Navy-oriented youngsters between the ages of 14 and 17. Many have undergone training this summer at one of the three Naval Training Centers located at Orlando, Fla.; Great Lakes, Ill.; and San Diego, Calif.

The Navy Sea Cadet Corps was federally chartered in September 1962 and is jointly sponsored by the

American Sea Cadets keep fit by active participation in sports, including boxing.



They could be Yankee sailors but they're Sea Cadets.

Department of the Navy and the Navy League of the United States. Objectives of the Sea Cadet program include developing in young

boys an interest and skill in seamanship as well as a sense of patriotism, courage, self-reliance, moral character, and good citizenship. Other goals of this program are to introduce the U.S. Navy as a career possibility and to increase the advancement potential of these young men who may later choose to serve as members of the Navy.

Cities and towns throughout the country have local chapters of the Navy League of the United States. The President of the local Navy League Council appoints a Naval Sea Cadet Corps (NSCC) Chairman and committee, and he allocates operating funds to the committee to carry out the Sea Cadet program. One of the main tasks of this committee is to obtain the sponsorship and support of the NSCC unit by a commanding officer of a local U.S. Navy activity. The commanding officer gives support to the training and testing of the cadets, and he also assists in selecting the recruiting Sea Cadet Corps officers.

The sponsoring Naval activity provides instructors, curriculum, classroom facilities, training aids, and text books. The Naval activity also monitors the training and authenticates the cadets' advancement in training. All training results, test scores, and other personal data are recorded in the cadets' modified version of a Navy enlisted training jacket. To qualify for the program, a youngster must have parental approval and be recommended by his high school principal. He is then given a Navy medical examination and, after passing the Navy AQT test (Armed Forces Qualification Test), he can join the Sea Cadet Corps. Sea Cadets attend two-hour weekly training sessions, the majority of which are held at local Naval and Marine Corps Reserve Training Centers. Training is also conducted aboard Navy shore installations and ships.





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## CADET FORCE NEWS

Cadets train as seamen, firemen, and airmen, following instructions and methods used by the United States Naval Reserve. This instruction is given by qualified civilian NSCC officers and Navy instructors.

Prior to advancement in rate, the cadets must pass the standard Bureau of Naval Personnel's advancement-in-rating examinations which are administered by Navy personnel.

By following guidelines set up by the Navy to provide cadets with a broad educational base, the young men receive extensive instruction and training in water safety; military bearing; personal hygiene; moral guidance; and Naval history, customs, and traditions.

Another source of training is the Navy Correspondence Courses Program. Cadets wishing to obtain additional training in specialized fields for petty officer ratings or study in areas which will help prepare for Naval officer programs can further these goals by taking advantage of these courses.

Cadets who are interested in Naval officer programs are encouraged to work closely with their high school counsellors in developing a solid college preparatory course of study to make them eligible for a commission through the U.S. Naval Academy or through the Naval Reserve Officer Training Corps program available at many universities.

All the weekly studying and classroom attendance at his home base through the school year comes into play when a Sea Cadet attends the two-week training cycle at one of the Navy's three Recruit Training Commands.

A Sea Cadet lives, works, and trains with his "shipmates," and is exposed to real Navy life.

His first half day at Orlando, Great Lakes, or San Diego, includes getting a haircut, being processed, and being given a "welcome aboard" lecture. In the second half of the first day, he jumps right into training by attending sessions conducted in hygiene and sentry training. He also watches two closed-circuit television programs on fire-fighting.

While at a Recruit Training Command, a cadet's day follows a tight schedule undergoing the same type training as Naval Reserve Companies during their two-week active duty training.

At the Naval Training Center, Orlando, the Sea Cadets' summer training culminated when they "passed in review" with recruits of the Regular Navy during graduation ceremonies. Four companies of cadets paraded their colors as they marched by the reviewing stand to martial music provided by the Naval Training Center Band and received the salute of Vice Admiral Jackson D. Arnold, U.S.N., Chief of Naval Material, reviewing officer for the graduation.

Two hundred and fifty-seven Sea Cadets graduated that day at the Naval Training Center, Orlando, and returned to their home bases located in the states of Florida, Alabama, Virginia, Texas, Pennsylvania, New Jersey, South Carolina, Georgia, Louisiana, Maryland, New York, and the District of Columbia. Thirty-one Sea Cadets departed Orlando for their home base of San Juan, Puerto Rico, following their training.

The ever-expanding Sea Cadet program has come a long way since its inception in 1962. Because of its tremendous growth, the Chief of Naval Personnel urges active, reserve, and retired Naval personnel to volunteer their services to assure that the highest quality of training is offered to members of the Sea Cadet Corps. Volunteers are also needed from the civilian communities to serve as instructors, lecturers, and Sea Cadet officers.

## TASMANIA

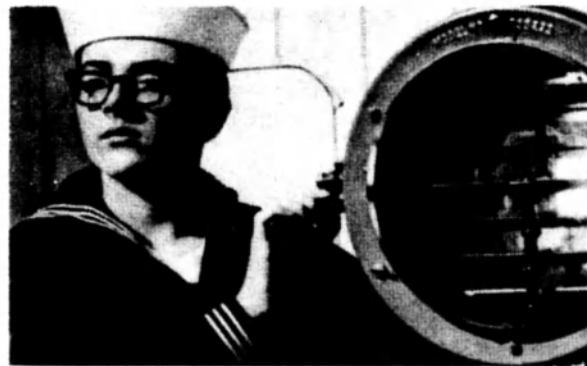
The Launceston Unit T. S. Tamar, under the command of Lieut. A. B. Cleaver, has continued to make further progress throughout the past year.

Enrolments stayed at a steady 42 cadets and the unit gained the services of a new civilian instructor, Mr. Mal Smith, who has already produced his "new broom". Rosters have been introduced for boatwork and Rifle Range. Classes are well in progress in First Aid, Visual Signalling, Wireless Telegraphy, Physical Training Instructor, and Quarter-Master Gunner. The unit's boats are under annual refit, including repairs to a hole in the eighteen foot yacht.

In September, the unit conducted a 7.62 mm. full bore shoot in conjunction with a weekend camp devoted to drill training and intensive cramming for V/S and W/T specialists, including cadets from T. S. York.

During the November long weekend, a camp under canvas was held on Middle Island at the mouth of the Tamar River, combining with T. S. York.

Senior cadets have also commenced surveying Tamar Island, near Launceston, which has been loaned to us as a permanent camp site. This will be completed in the summer months.



An American Sea Cadet learning one of the arts of signalling.

Best wishes to All Naval Personnel from

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## CADET FORCE NEWS

The unit H.Q. is gradually being  
further fitted out and Launceston  
Rotary Club have agreed to consider  
the hall as a project in the  
immediate future.

In June, sub-Lieutenant McMeekin  
was presented with his certificate of  
appointment to Lieutenant.

The unit is preparing to enter a  
team — possibly next year — in the  
Duke of Edinburgh's Ship's Bell Rifle  
competition.

(sgd.) A. J. LEE

## GREAT BRITAIN

### British Sea Cadets Set Sail in their Own Ship

The *Royalist* — Britain's Sea Cadet  
Corps' new 80 ton training brig —  
sails smartly through the English  
Channel. Valued at 50,000 pounds  
the square rigged vessel left England  
recently on a courtesy visit to  
Cherbourg, France (refer  
photograph).

It is intended that every year the  
*Royalist* will give nearly 1,000 Sea  
Cadets aged from 14-18 years, the  
opportunity of tough, disciplined sea  
training under sail. Designed on the  
lines of the traditional brig the vessel  
is made from all wooden material  
except for the steel hull, terylene  
sails and aluminium masts. She is  
equipped with two perkins 6354, six  
cylinder engines and the latest in  
navigation and communications  
equipment, including radar. British  
industry was generous in donating  
materials and equipment.

There is accommodation for 26  
Cadets. The sail plan gives a speed of  
over 10 knots in all good conditions.  
Length overall is 76 feet, the beam  
20 feet and draft 8 1/2 feet.

## NEW SOUTH WALES

### Quarterly Report of Proceedings

This report is for the period 1 July  
to 30 September 1971 and covers  
Continuous Training, Weekend  
Training and other activities carried  
out by the Naval Reserve Cadets in  
New South Wales.

Continuous Training was carried  
out at Snapper Island from 19-25  
August for 46 personnel from the  
Sydney Grammar School Unit and



## CADET FORCE NEWS

from 23-31 August for a similar number from the St. Ives High School Unit. In addition, 6 senior

cadets carried out Continuous Training at sea on H.M.A.S. **Stuart** from 30 June-3 July 1971.

Weekend Training took place in the following H.M.A. Ships and Establishments:—

Ship/Establishment	Dates	No. of Personnel
H.M.A.S. <b>YARRA</b>	2-4 July	17
H.M.A.S. <b>MELBOURNE</b>	2-4 July	23
H.M.A.S. <b>SUPPLY</b>	2-4 July	14
H.M.A.S. <b>STALWART</b>	9-11 July	34
H.M.A.S. <b>MELBOURNE</b>	16-18 July	24
H.M.A.S. <b>STALWART</b>	23-25 July	34
H.M.A.S. <b>PENGUIN</b>	6-8 Aug	23
H.M.A.S. <b>STALWART</b>	20-22 Aug	34
H.M.A.S. <b>SWAN</b>	20-22 Aug	8
H.M.A.S. <b>TORRENS</b>	27-29 Aug	22
H.M.A.S. <b>STALWART</b>	3-5 Sept	34
H.M.A.S. <b>SWAN</b>	3-5 Sept	7
H.M.A.S. <b>PENGUIN</b>	3-5 Sept	28
H.M.A.S. <b>CURLEW</b>	17-19 Sept	13
H.M.A.S. <b>PENGUIN</b>	17-19 Sept	17
H.M.A.S. <b>WATSON</b>	17-19 Sept	41
H.M.A.S. <b>CURLEW</b>	14-26 Sept	13

On Saturday 10 July the Director of Naval Reserves and Cadets, Captain B. L. Cleary, R.A.N., carried

out an inspection of T.S. **Sirius** (Armcliff Unit) the "most efficient" Unit in New South Wales.



The destroyer escort H.M.A.S. **STUART**, one of the vessels which provided training for Cadets of the New South Wales Division.

A small detachment of cadets took part in the Education Week March held on Tuesday, 17 August. The Deputy Senior Officer represented the Senior Officer at the Saluting Base and also at the Education Department Reception held in the evening.

Cadets from T.S. **Sirius** provided the Guard at the Legacy Sunday Church Service held at Garden Island Dockyard Chapel on Sunday 29 August. The guard was inspected by the Flag Officer Commanding East Australia Area.

The Annual Pulling and Sailing Regatta was held on Saturday, 4 September with many parents and friends of cadets in attendance. All courses were laid off Snapper Island and the facilities of T.S. **Sydney** were made available to spectators. The main event of the day was won by T.S. **Sydney**.

Over 300 officers, instructors and cadets were present at the Annual Church Parade held at Garden Island on Sunday 19 September. The Guard and Colour Party were provided by T.S. **Sirius** and T.S. **Tobruk**. The Parade was inspected by the Flag Officer Commanding East Australia Area and on completion of the inspection a Church Service was held in the Dockyard Chapel and Mass celebrated in H.M.A.S. **Sydney**. At the conclusion of the Service, Rear Admiral G. J. B. Crabb, C.B.E., D.S.C., the Flag Officer Commanding East Australia Area took the salute at a march past of the Cadet Force.

(sgd.) L. MACKAY-CRUISE,  
Commander, R.A.N.R.,  
Senior Officer.

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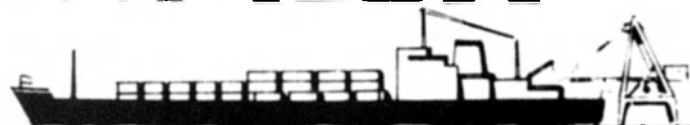
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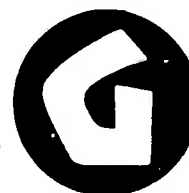
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