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THE NAVY

The magazine of the Navy League of Australia
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Vol 37

AUGUST-SEPTEMBER-OCTOBER

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THE NAVY

Page One



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**A Message from the
Chief of
Naval Staff**

**VICE-ADMIRAL
H. D. STEVENSON
CBE**

I have recently returned from visiting a number of countries and I had the pleasure of meeting their **Navy Chiefs**.

By letter and through visits to Australia I have been in contact with senior officers of other overseas navies and also senior office bearers of organisations similar to the Navy League of Australia. The warmth of these contacts emphasised the common bond of the sea but I was also glad to note the common recognition of the continuing importance of the flexibility that is characteristic of seapower.

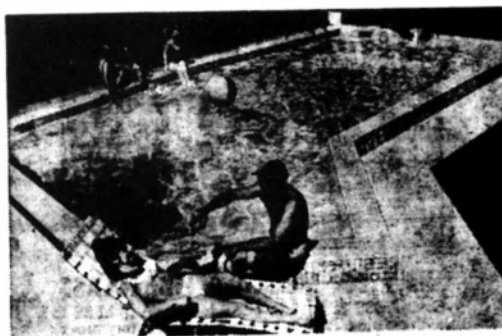
The seafarer has of necessity developed an ability to adapt to the changes in the elements and this undoubtedly has influenced his general outlook on life. But the seafarer is also aware of the advantages of flexibility that use of the sea gives to national strategy and military operations.

In the continuing appraisal of how to meet national interests in the face of rapidly changing attitudes and alignments flexibility is a very desirable capability. In my discussions with my overseas colleagues we came to the conclusion that navies still have a great deal to offer in protecting national interests because, amongst other things, of this essential quality.

Australia is a big country and it is not always possible for the RAN and the civilian community to make contact. In many cases the only Navy image is that presented by the Navy League or by the Naval Reserve Cadets, fostered by the Navy League. We of the "caretaker" navy are conscious of the dedication and hard work of our representatives who sponsor the case for seapower. We know that the maritime cause is in good hands.

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Message from

**THE
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 FOR
 DEFENCE**

**The Honourable
 W. L. MORRISON, MP**



Navy Week this year comes at a time when important changes are in contemplation for the command and control of the Defence Force.

Already significant reorganisation has been achieved in the supporting defence administration. The changes recognise the increasing need for the development of a defence posture that is related to Australian needs in an international climate which calls for a greater degree of self-reliance.

The Services are being oriented to play more directly complementary roles, and to be able to operate jointly with the necessary balance of capabilities and the required unity of purpose. Emphasis in training is on an Australian Defence force operating as a single force in Australia's own national defence environment, its territories, and the surrounding sea and air space.

Nevertheless the Royal Australian Navy has a vital role to play in the present strategic environment. Not only must it sustain and exercise an adequate range of military skills and capabilities against the possibility of less favourable strategic circumstances, it is being called upon to support the civil authorities in the surveillance of a vast coastline of a relatively sparsely populated continent, and assist in the protection of the resources of a maritime zone which may in the future extend 200 miles out to sea.

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Annual Message from . . .

The Federal President of the Navy League of Australia

Commander F. G. EVANS, MBE, VRD, RANR

In last year's message to members of the League I referred to the apparent lack of public interest in national defence issues, and suggested our pre-occupation with economic problems as a major cause.

It could hardly be said that financial pressures have lessened during the last twelve months, but nevertheless I believe there has been a distinct change of attitude in the community towards defence in the period.

The commonsense of the Australian citizen is often greatly underestimated; but we do see what is going on about us, we do take note of reasoned argument on various issues, and we do form our own conclusions. There have been many violent changes in the "outside" world in the last twelve months; there has been a good deal of sensible debate about our somewhat exposed position, and the ability (rather than the willingness) of our friends to assist us in risky situations which are by no means inconceivable. All this has led to a healthy questioning of our defence capacity, and it will continue while we are in doubt.

I hope and believe the Navy League, by drawing attention to the maritime problems facing us, has played some part in re-awakening community interest in our national security. We must not slacken our efforts.

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Seaborne Air Platform SAP

By A. W. GRAZEBROOK,
Federal Vice-President
The Navy League
of Australia



*VSTOL Harrier strike and reconnaissance aircraft hovering above
the command helicopter cruiser HMS BLAKE.*

**SAP — Seaborne Air Platform — is a word
that will be heard with increasing frequency in
Australia over the next twelve months or so.**

HMAS MELBOURNE (see photograph), the Navy's only carrier (or SAP) is due for retirement in the early nineteen eighties. The Government must decide soon how to ensure that Australia's Navy and merchantmen are to be protected against air, surface and submarine attack. The Government must

decide whether Australia needs one or more major seaborne air platforms.

During the last few months, two overseas governments have made a number of decisions that will have a major impact upon Australia's defence problems — the equipment our potential enemies can buy and

the equipment we need to defend our trade (upon which our economic prosperity depends) and our shores.

• Britain has decided to proceed with the development of a maritime Harrier — a VSTOL aircraft especially designed to work from ships.

• Spain has decided to build, in Spain, a Sea Control Ship — a nineteen eighties version of the World War II escort (or "Woolworth") carrier.

• The Through Deck Cruiser — the Royal Navy's Sea Control Ship — has survived the British Government's defence cuts.

The Maritime Harrier

The Harrier VSTOL aircraft (see photographs) has been in operational military service with the British Air Force, and US Marines, for several years. Both services have been delighted with its performance. However, their armament, handling equipment, and certain other features, have been designed for close support of ground troops in combat. Although Harriers have landed on ships — in some cases quite small ships — on a number of occasions, the maritime version will require some modification if the optimum maritime capability is to be obtained.

The Harrier concept has a great deal to offer maritime forces:

• It is able to operate from much smaller platforms than conventional carrier aircraft.

• It can be fitted to outrange and drive off medium and short range SSGW armed surface craft.



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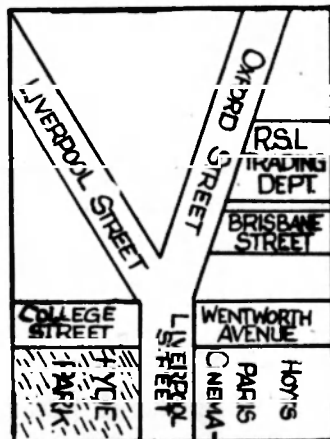
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• It can be fitted to drive off
hostile aircraft used for guiding
longer ranged SSGW.

• It can give close support to
ground troops.

• It is much faster and longer
ranged than helicopters in the anti-
submarine warfare (ASW) role. An
ASW Harrier could be expected to be
invaluable for the rapid distribution
of sonar buoys.

• Does not require the very expen-
sive steam-catapult launching equip-
ment necessary for conventional
fixed wing carrier aircraft.

• Requires a shorter, much
cheaper, flight deck and associated
equipment.

All this is not to say that the heli-
copter has no future with maritime
forces — its payload for cost is
greater than that of an Harrier, its
unit cost is markedly lower than that
of an Harrier, and it can operate
from even smaller platforms than an
Harrier. Furthermore, the US Navy
has demonstrated, in OPERATION
END SWEEP, that the helicopter has
a useful role to play in mine counter
measures (MCM) operations.

The Harrier concept offers the
Royal Australian Navy a way out of a
dilemma — how to provide the Fleet
and Australia's trade with close air
cover after MELBOURNE's aging,
hull, machinery and accommodation
compel her retirement. On the one
hand, the cost of a new conven-
tional carrier, capable of
operating high performance fixed
wing aircraft, is prohibitive. On the
other hand, the helicopter cannot
offer the tactical ability and flexi-
bility of "weapon fit" necessary to
give the cover the fleet requires.



A Light Airborne Multi-purpose System (LAMPS) helicopter.

The vertical take-off and landing
(VSTOL) concept's potential has
been recognised by the Russians,
who are developing their own
Freehand (in which the Indian Navy
is reputed to be showing an interest).
The Russians are reported to be
planning to equip their new 40,000
ton carriers KIEV and MINSK with
Freehand.

The Imperial Iranian Navy plans to
acquire Harriers — indeed, it is
reliably reported that pressure from
the Shah is responsible in part for
the British Government's decision
to go ahead with the maritime
Harrier development.

The Spanish Navy has ordered
eight Marine version Harriers from
the United States. These aircraft,

which are expected to be joined later
by a further sixteen, will operate
from the aging Spanish helicopter
carrier DEDALO until that ship is
replaced.

The Sea Control Ship (SCS) — A Simple Ship

Unable because of cost to provide
enough conventional carriers for
strategic (attack) and tactical
airpower, the US Navy has been
seeking a way of providing air
protection for merchantmen
cheaply in terms of both money and
manpower. With this in view, the US
has developed a ship that:

• Will provide a platform for both
VSTOL and the more effective ASW
helicopters — of Sea King size —
that are too large to operate from
escorts.

• Provide maintenance facilities
for smaller helicopters operating off
escorts.

• Have a low unit cost
• Require a relatively small
number of men to man them.

With these objects in view, the USN
assigned USS GUAM (an LPH — a
twenty knot helicopter operating
commando carrier) as a sea control
ship to try out the mechanical and
tactical aspects of operating the
Harrier VSTOL and Sea King (see
photograph) size helicopter in the
Sea Control Ship role. As a result of
the practical experience gained, the
United States Navy has developed a



HMS BLAKE, a command helicopter cruiser.

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ship design with the characteristics shown in the inset.

A key feature of the SCS is its simplicity. This is a feature which has both advantages and disadvantages. The virtual elimination of armament, with the very expensive electronics that go with a modern armament, keeps the unit cost down. However, the protection provided by a ship borne armament must be provided by other warships — escorts armed with surface to air missiles (SAM) and surface to surface guided weapons (SSGW).

Although the United States developed the SCS concept and design, as yet Congress has not approved the US Navy's request for funds to build a Sea Control Ship. It is the Spanish Navy which has become the first Navy to order a Sea Control Ship. The ship will be built in a Spanish yard — an advantage of the relatively simple design that is likely to be noted favourably by the Australian Government.

	Sea Control Ship
Displacement (tons)	14,300 (full)
Speed	26 knots
Crew (incl air wing)	700
Dimensions (feet)	650 x 80 x 20
Propulsion	2 gas turbines 1 shaft

Armament	2, 20mm rapid fire guns 3 Harrier 14 Sea King 2 LAMPS ASW helicopters (see photograph)
Aircraft	

Through Deck

Cruiser	20,000
	30 knots
	1200
	650 x 84 x 24
	4 Olympus gas turbines. Tyne gas turbines — at least two shafts
	1 quadruple Exocet SSGW. 2 twin Sea Dart (SAM) Missiles
	6 Harrier VSTOL
	9 Sea Kings

The Through Deck Cruiser (TDC) — A Complete Weapons System

In July, 1973, Vickers Ltd. laid the keel of HMS INVINCIBLE, the first of the Royal Navy's "Through Deck" Cruisers. In February, 1974, when Britain elected a Labor Government upon a platform that included drastic reductions in defence expenditure, many Defence Correspondents forecast the early cancellation of INVINCIBLE and her two projected sisters.

The construction of INVINCIBLE has not been cancelled. Instead, the British Defence Minister has expressed publicly his intention of proceeding with the construction of the whole class. At the same time, he has announced cuts in the number of the Royal Navy's conventional escorts.

If unconfirmed reports are correct, there is one basic conclusive reason for what, at first glance, was a surprising decision. Alone, the TDC, with her ASW Harriers and helicopters, and her SAM and SSGW armament, can escort a convoy that would otherwise require the protection of six conventional escorts.

The TDC design evolved from the need to provide a sea-going platform



Australia's newest helicopter, the SEA KING, underwent its first test flights during June at the Royal Australian Navy's air station at Nowra. The SEA KING, the first of 10, is a submarine hunter which will replace the Navy's Wessex helicopters.

Britain's revolutionary jump-jet, the Hawker Siddeley HARRIER, lands on the flight deck of the Royal Navy assault ship HMS FEARLESS



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for larger ASW helicopters after the retirement of the aircraft carrier HMS ARK ROYAL (see photograph) and the anti-submarine cruisers BLAKE (see photograph) and TIGER. ARK ROYAL herself is an attack carrier. Her ship-borne armament is limited to four small Seacat SAM launchers. She is much bigger than would be necessary to carry the number of aircraft required for the TDC role.

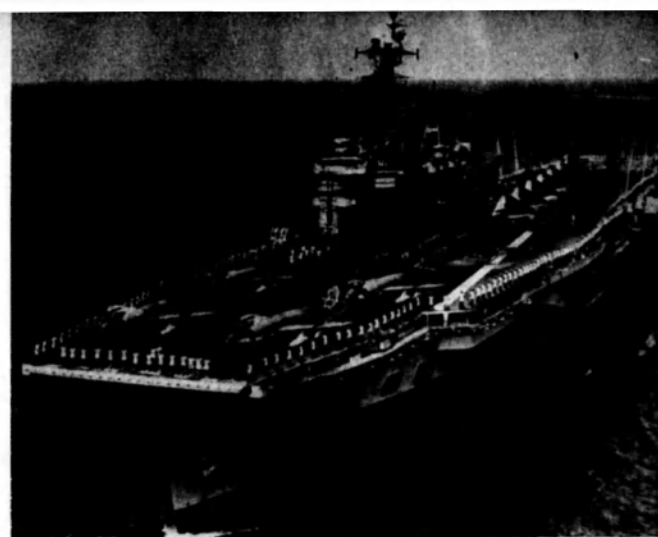
The ungainly BLAKE and TIGER were built as gun cruisers and have a hangar and platform perched upon their after ends. The forward two-thirds of the ships look like any other gun cruisers. This "half platform" approach, adopted by the Admiralty to utilise available hulls, allows space for only four SEA KING ASW helicopters — less than ideal for the tactical requirements envisaged for the TDC.

Seeking to take advantage of the "through" or full hull length, and angled, deck aspects of the conventional carrier, and the cost effectiveness of carrying a major SSGW and SAM system in the same hull, the British Admiralty has developed a design in which the flight deck extends forward from the stern about seven-eighths of the length of the ship. The remaining eighth of the deck length — the fo'c'sle — are utilised for the SAM and SSGW systems. A complete maritime task force command centre will be incorporated in the INVINCIBLE.

Apart from the British Navy, the TDC is being considered by the Imperial Iranian and Indian Navies.

The Shah of Iran, who is widely reported to have undertaken to purchase a TDC from Britain provided that country developed, built, and sold to him, maritime Harriers to operate from his new ship, is now likely to place a firm order. This ship, operating with the six SPRUANCE type (see photograph) super DDG's being built for Iran in the US, will provide the Shah (and the Indian Ocean) with a formidable armada.

The Indian Navy's position is very similar to our own. Our MELBOURNE was originally a sister to India's VIKRANT. Although both ships could easily be modified to operate Harriers, and are quite large enough, both must be retired because their hulls and machinery



HMS ARK ROYAL, an attack aircraft carrier. She is scheduled for disposal upon completion of the Through Deck Cruiser HMS INVINCIBLE.

are wearing out. India's strategic circumstances indicate the need for a continued seaborne air capability. She is studying the alternatives — the TDC and the SCS.

The Protean Concept

Y-ARD (Australia) Pty Ltd has developed a basic hull and machinery design with interchangeable standard commercial size containers providing the equipment and accommodation necessary for three alternative tactical roles:

- Fast Transport.
- Replenishment Ship.
- Light VSTOL Seaborne Air Platform.

The concept is fundamentally new and, as yet, untried by any Navy in construction, maintenance or operation. At first glance, at least, the concept has definite conceptual attractions to a small Navy that must operate over the long distances of Australia's coastline.

Whilst the Royal Australian Navy and Australian industry may well have the confidence and ability essential to successful development, it is difficult to see support coming from a Government that had insufficient confidence in Australian industry and technology to

support the DDL (light destroyer) — a project technologically more difficult than anything attempted here previously, but not new in concept.

Russia, France, Italy and Brazil

Four other nations, none of whom have previously been the source of major technology for the Royal Australian Navy, are interested in developing or acquiring ships of a similar type to the TDC or SCS.

The French have announced their intention of laying down this year an 18,000 ton nuclear powered helicopter carrier which would be capable of operating VSTOL aircraft. Details of her armament have not yet been announced. Undoubtedly, her nuclear powered propulsion unit will make her a very costly ship, quite apart from the domestic political difficulties that would arise if the RAN sought to acquire such a ship.

In mid-1967, the Russians completed MOSKVA, the first of their 15,000 ton helicopter carriers. These thirty knot ships, which can carry 18 ASW helicopters, are armed with SAM as protection against air attack. They carry no SSGW.

It was probably as a result of their success with MOSKVA, and her sister LENINGRAD, that the Russians decided to build KIEV, the first of their 40,000 ton aircraft carriers. These big 30 knot ships will be capable of operating 25 Freehand VSTOL aircraft, together with 25 ASW helicopters. They will carry a heavy SAM armament, but no SSGW armament is planned. For reasons which are not clear to observers, KIEV is expected to carry a surprisingly heavy gun armament — twenty-eight 57mm guns in twin mountings on sponsons, either side of the quarter deck, and forward, at a height above sea level that is likely to make them wet in heavy seas.

In 1974, the Italian Navy announced its intention of constructing an additional helicopter cruiser, capable of operating VSTOL aircraft. This new ship will join the three helicopter cruisers (VITTORIO VENETO, ANDREA DORIA and CAIO DUILIO) already in service with the Italian Navy. Although, as yet, the Italians operate no VSTOL aircraft, they have conducted a series of deck landing trials with a Harrier. As is to be expected, the Italian ships are designed for Mediterranean distances and sea conditions.

The Brazilian Navy's new construction programme includes a helicopter carrier, presumably to replace her existing aircraft carrier N. Ac. L. MINAS GERAIS (which served as HMAS VENGEANCE from 1953-57).

An Australian Role For An SAP?

HMAS MELBOURNE is a Seaborne Air Platform. It is the ship's hull, machinery and accommodation that are forcing her retirement. Her aircraft are not obsolete. On the contrary, the US Navy have this year requested the construction of more SKYHAWKS, and the SEA KING is widely regarded as the best anti-



The United States Navy's Destroyer (DD) SPRUANCE, the name ship of the class of which 30 will be built. SPRUANCE (DD963) was launched on 10 November, 1973, and commissioned in October, 1974. Vessels of this class were designed primarily for anti-submarine warfare.

submarine helicopter in the world.

Classed as a support carrier (CVS), MELBOURNE has two alternative aircraft complements. She is a ship with two interchangeable armaments that can be embarked according to the tactical role she is expected to perform.

MELBOURNE's Tracker aircraft and Sea King helicopters can provide a formidable anti-submarine force. Her SKYHAWKS are very effective aircraft in the anti-ship role, as protection against hostile Long Range Maritime Patrol (LRMP) or long range SSGW control aircraft, and in support of ground troops operating in remote areas where the paucity of operational airfields suitable for land-based aircraft is a serious difficulty — a situation particularly applicable to many parts of

Australia now, and, for cost and population distribution reasons, likely to obtain for the foreseeable future.

Australian trade must have protection against these forms of attack. A decision must be made as to how these forms of attack can be prevented after MELBOURNE's retirement. It is the protection, not necessarily the ship, that must be replaced. This can be done in two ways:

- Land based aircraft and helicopters operating from escorts.
- VSTOL aircraft and helicopters operating from a Seaborne Air Platform.

The former method would require substantial expenditure upon additional aircraft and more of the first class airfields essential to their operation. Even if there were enough

of them, the RAAF's Mirages have far too small a radius of action to provide the protection necessary. Information published about potential replacements for the Mirages indicates that none offers sufficient improvement in radius of action to resolve the maritime problem without new first class airfields.

These are factors senior Defence Advisors will take into account when making their recommendation to the Government. It is to be hoped that whoever is Minister for Defence at the time will avoid the mistake of becoming politically committed for, or against, the project before he has received the experts' recommendation with supporting facts.

For The Ran — TDC or SCS?

With the possible exception of the Russian ships, none of the types examined above are strategic strike weapons systems. They are not suitable for launching opposed air strikes against targets overseas. Both the TDC and the SCS could fulfil an Australian need to provide air and ASW protection for merchantmen trading with Australia.

The TDC carries in one hull all the weapons necessary for defence against deep water surface, sub-surface and air attack, with the advantages of the economy of scale. But all the eggs are in one basket — the whole unit would have to be deployed even if only one type of threat was expected. The TDC is an expensive and complex ship that would be difficult, if not impracticable, to build in Australia.

The Sea Control Ships would need SAM/SSGW armed escorts (the patrol frigates, now known as FFGs,

and our modernised DDGs, will have that ability). The relatively simple hull and machinery of the SCS would make construction in Australia a practical possibility. The much smaller crew would facilitate the operation of two SCS by the RAN. In appropriate tactical circumstances, FFGs and DDGs could be deployed separately from the SCS. The fact that all three types, SCS, FFG and

DDG, are US-designed would promote compatibility of systems used in the ships.

Within the next twelve months, the RAN will have to make its choice. Unit costs and manpower may well compel a choice between two SCSs and one TDC. It will be a choice of very considerable consequence to both the Australian defence and to Australian industry.

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Authors are requested to include a photograph of themselves together with brief biographical particulars.

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LG1274A

(Situated at Quakers HRA, NSW, HMAS NIRIMBA)
public inspection on Sunday, 28 September, 1975, 11.30 am to
5.30 pm.)

REFER PROGRAMME OF EVENTS

HMAS NIRIMBA

HMAS NIRIMBA is the
Royal Australian Navy
Apprentice Training
Establishment (RANATE) and is
responsible for the training
of Naval artificers in the
various trades required in a
modern and technical Navy.

NIRIMBA was formerly an airfield
and as such has had long con-
nections with Australian aviation.
Once part of a large property owned
by local settlers, it was used by early
aviation pioneers experimenting
with power and glider flight. Part of
the original airfield, outside the
boundary of NIRIMBA, is still being
used by the Department of Trans-
port (ATG) for light aircraft.

In the very early years of World
War II, the aerodrome was used as
an alternative for RAAF Richmond
and in 1942 it was used by the USAF

Situated 25 miles west of
Sydney, HMAS NIRIMBA is
the Royal Australian Navy
Apprentice Training
Establishment (RANATE) and its prime role is the
training of Naval Appren-
tices in the various trades
required in a modern and
technical Navy. Appren-
tices after a rigorous
selection procedure
enter in January and July
of each year

as an operational airfield. Later in
the war it was commissioned as a
support airfield for the Royal
Navy's Pacific Fleet.

At the end of the war, the RAAF
once again assumed control and the

*HMAS NIRIMBA — the workshop area is in the background and
apprentices' accommodation block in the foreground.*



Programme for Open Day, Sunday, 28 September, 1975

11.30 am
NIRIMBA open to visitors.

11.30 am-4.30 pm

Slot car racing.
Pony rides.
Merry-go-round.
Foden vintage steam truck rides.
Miniature steam train rides.

12.30 pm
Gymnastics display.

1.15 pm
RAN Band recital.

2.00 pm
RAN helicopters flying display.
2.40 pm

Sepak Takraw — Malaysian football.
3.10 pm

Gymnastics display.
4.00 pm
Sepak Takraw — Malaysian football.
4.20 pm

RAN helicopters flying display.
5.00 pm

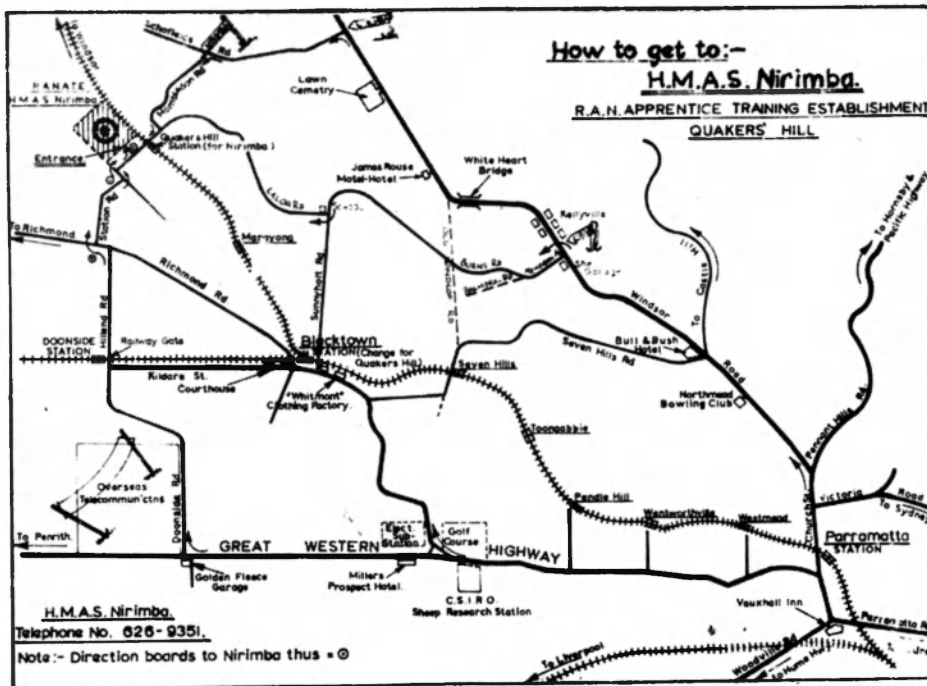
Ceremonial spectacular — beat
retreat.

5.30 pm
Visitors depart.

airfield became known as RAAF
Schofields. During this time it was
the base for the No 22 City of Sydney
Squadron.

In 1951, the RAN took over the
field as an Aircraft Repair Yard for
the Fleet Air Arm, the School of Air
Maintenance being moved here the
following year. HMAS NIRIMBA was
commissioned in April, 1953

It was not until July, 1956, when
the RAN's Apprentice Training
Scheme was introduced, that
NIRIMBA was established solely as
the training centre for all Naval
apprentices.



Technical Training Under Ideal Conditions

Under this scheme, the apprentices spent 3½ years at NIRIMBA learning the basic skills and then spent 1½ years with the Fleet putting the skills into practice. At the end of his five-year apprenticeship the apprentice was promoted to Petty Officer.

In June, 1972, the present four-year system was introduced. Under this scheme, the apprentices spend two years at NIRIMBA learning the basic skills and then go to sea for two years to complete the practical section of their trade.

During working hours they work on lathes, shapers, computers and many other up-to-date machines in one of the three branches available to them:

- Marine Technical (MT);
- Electrical Technical (ET);
- Aircraft Technical (AT).

Within each branch are sections which specialise in respective facets of the branch.

In addition to the training of RAN apprentices, NIRIMBA undertakes the training of RAN sailors as mechanics, direct-entry naval shipwrights, Papua New Guinea Defence Force apprentices, and Royal Malaysian Navy apprentices and mechanics. It also conducts advanced welding, precision soldering and other short courses.

Mechanicians achieve craft status during the adult Naval service by selection and a two-year course at NIRIMBA, at the successful completion of which they are regarded as the equal of the artificers produced by apprentice training.

RAN technical sailors who entered as adult sailors will also receive their advanced technical training at NIRIMBA along similar lines to that of the mechanics, with eventual

recognition of successful completion of an apprenticeship.

Vacation training of university undergraduates, both uniformed and civilian, is becoming an increasing commitment of NIRIMBA.

Outside normal working hours, a large number of activities are available to apprentices. Theatre parties enable apprentices to visit most of the live theatres in Sydney for a small charge and cinemas for about \$1. Recent films are also shown in the NIRIMBA Assembly Hall one night a week. A library, games room and television rooms are provided, as well as a canteen in which parents and friends may be entertained. Also, in each divisional block specially decorated guest rooms have been made available.

NIRIMBA has facilities for most popular sports — rugby, Australian

football, soccer, hockey, athletics, tennis, basketball, cricket and others. There are clubs for those interested in rifle and trap shooting and boxing.

NIRIMBA has teams in the normal Wednesday afternoon inter-ship competitions and teams also compete in a number of the local weekend competitions with considerable success.

A master plan to replace the existing wartime structure by brick buildings has been drawn up and is being implemented. These include new accommodation buildings and dining rooms for both the ship's company and apprentices and a sporting complex with swimming pool.

NIRIMBA offers young men of today a chance to learn a trade under the best possible conditions and with modern equipment. The opportunities for further studies at the Royal Melbourne Institute of Technology or the University of New South Wales are available.

They are also offered the facilities to pursue any of a large number of activities and sports in free time. These are prospects that few other employers could offer.

THE FUTURE

The opportunities for promotion are considerable. On completion of his first two years of apprentice-



The Flag Officer Commanding East Australia Area inspects the Passing Out Parade of Apprentices at HMAS NIRIMBA, June, 1975.

ship, a technical sailor is promoted to the rank of Seaman. He spends a minimum of two years in that rank to complete his apprenticeship and, if he has qualified in other respects, he could become eligible for promotion to the rank of Leading Seaman at this time.

A minimum of three years is necessary in that rank before promotion to Petty Officer. After four years' service as Petty Officer, promotion to Chief Petty Officer can be considered.

Outstanding apprentices have an opportunity to compete for cadetships at the RAN College, HMAS CRESWELL, Jervis Bay, ACT. Other avenues for promotion to commissioned ranks are available to personnel after completing their apprenticeships.

Should a technical sailor decide to leave the Navy after serving his term of engagement, he will find that as a highly trained technician he will be much sought after in private industry.

OUR COVER

Units of the Australian Fleet at sea — in the foreground, the aircraft carrier MELBOURNE and fleet oiler SUPPLY. In the background, two guided missile destroyers of the PERTH class and a RIVER class frigate. (Department of Defence, Navy, official photograph.)

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By THE CHAPLAIN



Interior of the Garden Island Dockyard Church showing the memorial window honouring Australia's First Submarine Flotilla.

The Ecumenical Service for Navy Day, 1975, will be held at 10.30 am, Sunday, 5 October, in the Garden Island 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.

This special service has been arranged by the Senior Naval

Chaplain. Monsignor F. Lyons will preach the occasional sermon and the choir will comprise brothers of the Order of St Gerard Magella. Other clergy participating in the service will include Chaplain W. J. Bates (Presbyterian) and Chaplain Walter Wheeldon (C of E).

The Flag Officer Commanding East Australia Area, Rear Admiral N. E. McDonald, will read the Naval

Prayer, music will be provided by the RAN East Australia Area Band.

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 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, The 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.



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 170th 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.

Sixty-two years ago, on 4 October, 1913, the Australian Fleet steamed into Sydney Harbour. Navy week, 1975, 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, PARRA-MATTA 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 unsoftened 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."

PROGRAMME OF EVENTS

arranged for

NAVY WEEK, 1975

SOUTH AUSTRALIA

Thursday, 2 October

Naval Officers' Club Dinner

Friday, 3 October

Commemoration Service and Wreath-laying at State War Memorial (Fly-past of 4 Skyhawk attack bombers). Luncheon at Naval and Military Club. Reception at Official Residence hosted by Naval Officer-in-Charge, South Australia (by invitation).

Sunday 5 October

11.15 am: Commemoration Service, Saint Francis Xavier Cathedral.

7.00 pm: Memorial Service, Christ Church, North Adelaide.

Monday, 6 October

Navy Week Golf Tournament, Riverside Club.

VICTORIA

Sunday, 28 September

11.00 am: Naval Association Service, Christ Church, South Yarra.
3.00 pm: Band from HMAS Cerberus will give concert at Myer Music Bowl, Alexandra Gardens.

Monday, 29 September, 7.30 am

Annual Golf Day, Waverley Golf Club

Tuesday, 30 September, 6.30 pm

Reception given by Naval Officer-in-Charge, Victoria at Greenwich House (by invitation.)

Wednesday, 1 October, 10.00 am

Annual Bowls Tournament, Fitzroy Bowling Club.

Thursday, 2 October, 7.30 pm

Greyhound Race Meeting, Sandown Park, Springvale. (All naval personnel in uniform admitted free of charge.)

Friday, 3 October, 8.00 pm

Navy Week Ball, HMAS Lonsdale.

Saturday, 4 October, 2.00 pm

Victoria Racing Club Meeting, Flemington.

Sunday, 5 October

9.00 am: Seafarers' Service, St Patrick's Cathedral.
10.30 am: Seafarers' Service, St Paul's Cathedral. (Naval Reserve Cadets will carry House and Shipping flags.)
2.30 pm: Remembrance Service, Shrine of Remembrance.
4.00 pm: Re-assembly at HMAS Lonsdale following Shrine Service.

NEW SOUTH WALES

(See also individual articles and details of events scheduled at HMAS Albatross and HMAS Nirimba)

Sunday, 28 September,

11.30 am-5.00 pm

Open Day HMAS NIRIMBA, Quakers Hill. (Refer story and programme of events.)

Monday, 29 September,

12 noon-2.00 pm

Navy Band Concert, Circular Quay.
Naval Display team, Westfield Shoppingtown, Parramatta.

Tuesday, 30 September,

12 noon-2.00 pm

Navy Band Concert, Hyde Park.
Naval Display team, Westfield Shoppingtown, Parramatta.

Wednesday, 1 October,

12 noon-2.00 pm

Navy Band Concert, Wynyard Park.
Naval Display team, Westfield Shoppingtown, Parramatta.

Thursday, 2 October

12.00 noon: Fly-past over Sydney by Navy Aircraft from HMAS ALBATROSS, Nowra.
12.00-2.00 pm: Navy Band Concert, Martin Plaza.
12.30 pm: Navy contingent changing the guard, Cenotaph, Martin Plaza.
12 noon-2.00 pm: Naval Display team, Westfield Shoppingtown, Parramatta. Navy Band recital at night.

Friday, 3 October, 12 noon-2.00 pm

Naval Display team, Westfield Shoppingtown, Parramatta.

SATURDAY, 4 October

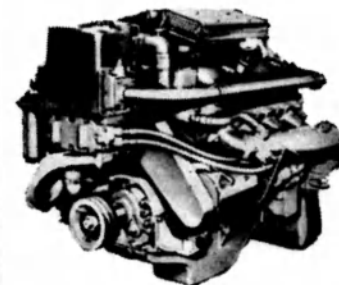
AM: Naval Display team, Westfield Shoppingtown, Parramatta.
PM: Navy Week Race meeting, Randwick — Navy Band in attendance.
2.00-5.00 pm: Training Units of the Naval Reserve Cadets will be open for public inspection. Cadets will stage special displays of radio equipment, fire fighting, boat rescue. Visitors will witness training programmes in gunnery, mechanical engineering, cooking, physical training, boating and signals.
Training Ships (shore establishment).
ALBATROSS — The Basin, Wollongong Harbour.
TOBRUK — Royal Australian Navy Drill Hall, Wharf Road, Newcastle.
HAWKESBURY: Gosford.
CONDAMINE — Addiscombe Road, Manly Vale.
VAMPIRE — Acquatic and rowing Club, Tweed Heads.
VENDETTA — CMF Drill Hall, Coffs Harbour.
PARRAMATTA — Ella Street, Rydalmere.

Sunday, 5 October

10.30 am: Ecumenical Church Service, Dockyard Chapel, Garden Island (Refer separate article), visitors may park cars within the Dockyard.

1.00 pm-5.00 pm: Open Day ISLAND NAVAL DOCKYARD (see separate article and map).
Fly-past over Sydney by Naval Aircraft.
Open Day, Naval Air station, HMAS ALBATROSS, NOWRA — Static displays ONLY (Refer separate article).

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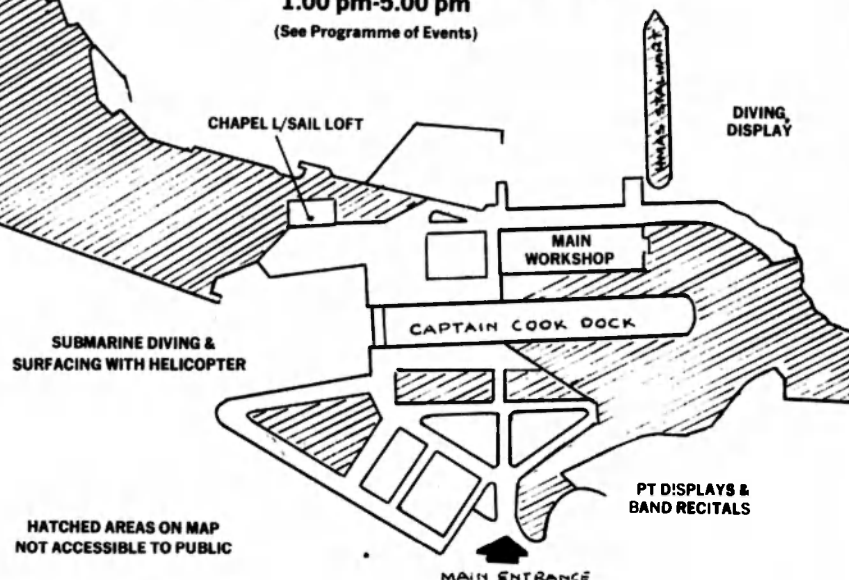
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GARDEN ISLAND NAVAL DOCKYARD OPEN DAY — SUNDAY, 5th OCTOBER, 1975

1.00 pm-5.00 pm

(See Programme of Events)



PROGRAMME FOR OPEN DAY GARDEN ISLAND DOCKYARD



5 OCTOBER, 1975

- 1.00 pm: Garden Island Open to visitors.
- 1.15 pm: Radio controlled model boats display.
Band concert (1.15-2.00 pm.)
- 1.30 pm: Physical training display.
RAN Ships open to visitors.
Submarine display.
- 1.45 pm: Sea King helicopter display.
- 2.00 pm: Diving and helicopter display.
- 2.30 pm: Radio controlled model boats display.
- 3.00 pm: Band concert (3.00-3.45 pm.)
- 3.15 pm: Physical training display.
- 3.30 pm: Submarine display.
- 3.45 pm: Sea King helicopter display.
- 4.15 pm: Diving and helicopter display.
- 4.50 pm: Beat Retreat ceremony.
- 5.00 pm: Visitors depart Garden Island following Beat Retreat.
(Certain Workshops will be open for inspection throughout the afternoon.)

HMAS ALBATROSS Naval Air Station, Nowra

OPEN FOR PUBLIC INSPECTION ON SUNDAY
AFTERNOON, 5 OCTOBER, 1975

Programme of Events For Navy Week, 1975

- 29th September — Navy Week Reception, Wardroom.
- 30th September — Navy Golf Day.
- 1st October — Jogathon for Charity — "FUN RUN 75" — 21km run from base into Nowra, through Nowra to Shoalhaven River Bridge.
- 2nd October — Navy Week Dance at White Ensign Club, Nowra.
- 2nd October — Navy Wives Art Show.
- 4th October —
- 5th October — OPEN DAY.
Static displays of all types of aircraft, Skyhawks, Trackers, Iroquois, Wessex and Sea King Helicopters.
Naval Aviation Museum open.
Static displays by all departments — catering, safety, weapons and photographic section.
(NO FLYING DISPLAY ALTHOUGH AIRCRAFT WILL BE COMING AND GOING FOR FLY-PASTS.)

The RAN Air Station at Nowra, on the NSW South Coast, was commissioned as HMAS ALBATROSS on 31 August, 1948. The airfield, built during the war for use by the RAAF, actually saw service as a Naval Air Station when taken over by the Royal Navy as a base for aircraft from aircraft carriers of the British Pacific Fleet.

With its satellite airstrip at Jervis Bay, the Air Station provided training and support facilities for the Carrier Air Groups during their brief respite in Australian waters.

Since 1948, the same support has been provided for the RAN aircraft carriers HMA Ships SYDNEY, VENGANCE and MELBOURNE.

HMAS SYDNEY brought the first post-war squadrons from the United Kingdom when the 20th Carrier Air Group arrived in May, 1949. The aircraft were Fairey Firefly and Hawker Sea Fury, the Sea Fury being accredited as being the fastest

piston aircraft at that period. Eighteen months later, two more squadrons forming the 21st Carrier Air Group came from the United Kingdom.

During the ensuing years, new aircraft have been added and the old aircraft relegated to training squadrons or passed from Service use.

In 1953, ALBATROSS received its first helicopters, Bristol Sycamores, used primarily for search and rescue duties and for training.

VAMPIRE jet trainers arrived in 1954, and in 1956 HMAS MELBOURNE arrived from the United Kingdom with the second generation of carrier-borne aircraft,



Douglas A-4G Skyhawk single-seat carrier borne attack bomber. These aircraft will be on display during Open Day at HMAS ALBATROSS.

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Above:—

The Grumman TRACKER carrier-borne anti-submarine attack aircraft. The Royal Australian Navy has 14 of the S-2E variant and these aircraft will be on display at HMAS ALBATROSS during Open Day, 5 October.

Sea Venom all-weather fighters and Gannet turbo-prop anti-submarine aircraft. In 1963, Wessex anti-submarine helicopters were added to the list of front-line aircraft, and two Westland Scout helicopters were acquired for survey work, one being permanently detached to HMAS MORESBY, a Navy survey ship. The Scout has since been replaced by the Bell 206B Kiowa helicopter.

The year 1968 saw the complete re-equipping of the carrier-borne force of the Navy. The Douglas A4G Skyhawk replaced the Sea Venom, while the Gannet bowed out to the Grumman S2E Tracker. At the same time the Wessex 31A was extensively modernised to become the

Wessex 31B. These new aircraft became operational at sea in 1969, once again from HMAS MELBOURNE which completed an extensive refit in that year.

Early in 1971 the Macchi twin-seat jet trainers arrived at HMAS ALBATROSS. Another new arrival has been the HS 748 turbo-prop aircraft, which replaced the RAN Dakotas. At present the HS 748 is used mainly for communication and logistic support, trials, etc.

RAN Air Station Nowra has a complement of 205 officers, 14 warrant officers, 1560 sailors and 67 WRANS when front-line squadrons are disembarked.

Below:—

The Navy's newest aircraft, the SEA KING helicopter has a maximum normal operating speed of 114 knots and can climb to a ceiling of 10,000 feet. These aircraft will be on display at HMAS ALBATROSS during Open Day.



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THE NAVY LEAGUE OF AUSTRALIA

Notice is hereby given that the
Annual General Meeting will be
held in the Board Room of Asso-
ciated Steamships Pty Ltd,
Ground Floor, 90 William Street,
Melbourne, at 4.30 pm on Satur-
day, 6 December, 1975.

BUSINESS

1. To receive the Report of the
Federal Council and to con-
sider matters arising there-
from.
2. To receive the financial state-
ment for the year ended 30
June, 1975.
3. To elect Office Bearers for
1975/76:
(a) Federal President
(b) Federal Vice-Presidents (2)
(c) Federal Council
(d) Auditors
4. General Business.

By Order of the Federal Council
O. V. HINCHITT,
Secretary.

PO Box 227,
Hawthorn, Victoria, 3122.

THE NAVY LEAGUE OF AUSTRALIA

(Victorian Division)

Notice is hereby given that the
Annual General Meeting of the
Victorian Division will be held at
the Royal Melbourne Yacht
Squadron, The Esplanade, St
Kilda on Monday, 27 October,
1975 at 6 pm.

BUSINESS

1. To receive the report of the
Executive Committee of the
Victorian Division for the year
ended 30 June, 1975.
 2. To receive the Accounts of the
Victorian Division for the year
ended 30 June, 1975.
 3. To elect the Executive Com-
mittee for 1975/76.
 4. To appoint an Auditor.
 5. General Business.
- By Order of the Executive
Committee.

O. V. HINCHITT,
Secretary.

PO Box 227,
Hawthorn, Victoria, 3122

THE NAVY LEAGUE OF AUSTRALIA

(Registered in ACT)

Notice is hereby given that an
Extraordinary General Meeting
of the League will be held at the
Royal Melbourne Yacht Squad-
ron, The Esplanade, St Kilda, Vic-
toria, on Monday, 27 October,
1979 at 6.30 pm for the purpose
of considering and if thought fit
of passing, the following reso-
lution:—

That the Articles of Association
of the League be altered as
follows:

1. By inserting in Article 43 after
paragraph (d) and before
paragraph (e) the following
paragraphs—
(da) To vary the annual con-
tribution payable by
each Division to the Fed-
eral Treasurer of the
League pursuant to
Article 110 hereof.
(db) To vary the annual con-
tribution payable by
each Territorial Branch
to the Secretary of the
Executive Committee
of its Division pursuant
to Article 169 hereof.

2. By inserting in Article 110
after the words "Twenty five
pounds (£25/-/-) per annum"
the following words—
... and provided further that
the Federal Council may from
time to time increase or
reduce the annual contribu-
tions to be paid by each
Division pursuant to the fore-
going provisions of this
Article.

3. By inserting in Article 169
after paragraph (d) the fol-
lowing words—
provided, however, that the
Federal Council may from
time to time increase or
reduce the annual contribu-
tion to be paid by each Terri-
torial Branch pursuant to the
foregoing provisions of this
Article.

Dated the 15th day of August,
1975.
By Order of the Federal Council.
O. V. HINCHITT,
Secretary.

PO Box 227,
Hawthorn, Victoria, 3122.

(Proxies should be in the hands of the
Secretary not later than 28th October, 1975.)

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The principal objective of the Navy League of Australia is to stress the vital importance of Sea Power to the Commonwealth of Nations and the important role played by the Royal Australian Navy.

The League supports the Naval Reserve Cadets who are administered by the Royal Australian Navy, which Service provides technical sea training for boys who intend to serve in the Naval or Merchant Services, also to those sea-minded boys, who do not intend to follow a sea career, but who given

this knowledge will form a valuable reserve for the Naval Service.

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".

DIVISIONS

New South Wales — Box 1719, GPO, Sydney, 2001.
Victoria — Box 227, Post Office, Hawthorn, 3122.
Queensland — 39 Pinecroft Street, Camp Hill, Queensland, 4152.
Tasmania — 3 Winmarleigh Street, Taroom, 7006.
South Australia — 9 Albert Place, Camden Park, 5038.
Western Australia — Box 735, PO, Fremantle, 6160.
Australian Capital Territory — 12 Darnody Street, Weetangera, ACT 2614.

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Application for Membership**

To: The Secretary,
The Navy League of Australia,
(..... Division).

Sir,

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Name (Mrs).....
(Miss)
(Rank)

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Signature..... Date.....

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PLEASE GIVE SOON

The Navy League's Task

By
GEOFFREY EVANS

From time to time members of the Navy League are asked "what do you do, what are your aims?". This happens especially when members are inviting their friends to join, and the answer is not as simple as it should be.

The "aims and objects" of the League are set out in 21 paragraphs of the Memorandum and Articles of Association of the Navy League of Australia; they are printed in full at the end of this article.

It will be seen that many of the objects are of a formal or legal nature, but the essential "working aims" so to speak, are quite straightforward and can be summarised thus:—

1. To convince our fellow Australians that we are a maritime nation, and that an effective Navy and a healthy Merchant Service, are essential to Australia's well being.

2. To actively encourage the training of sea-minded youngsters so that their knowledge of the sea is increased and their interest maintained in later life.

In the Memorandum our objects are worded in the broadest sense, and refer to the maritime interests of the British Commonwealth rather than those of Australia alone; whilst accepting this concept, and maintaining contact with the Navy Leagues of other countries (as we do), in practical terms we have to look to our own affairs first. How then do we achieve our objects of maritime security and cadet training?

As cadets were the main cause of the formation of the Navy League in Australia it is appropriate to mention them first, and to look briefly at the history of the League in our country.

From the nineteen twenties until shortly after World War II the League in Australia consisted of two or three State Branches and Sub-branches of the United Kingdom Navy League; these Branches operated several groups of "Navy League Cadets" totalling 300 or so in Victoria and New South Wales.

The question of Royal Australian Navy assistance for cadets arose in

1946, but the Naval Board of the day wished to deal with an Australian Navy League rather than State Branches of the United Kingdom League. A council of Branches was formed, and in 1950 this became the Navy League of Australia, with Commander J. D. Bates, RANVR (now Sir John Bates, CBE, VRD), as the first Federal President.

Practical but limited Naval assistance for Navy League cadets commenced at about the same time, but it was not until 1954 following amendments to the Naval Defence Act and the promulgation of Regulations that significant Naval support was accorded to the Australian Sea Cadet Corps, as the Navy League Cadets had by then been re-named.

For the next 18 years the Navy League of Australia and the Naval Board operated the Australian Sea Cadet Corps (ASCC) as a partnership, the League being responsible for administration, the provision of accommodation and other specified matters; and the Naval Board for the provision of uniforms, equipment, training and certain other facilities.

Under the arrangement outlined, cadet numbers rose from the original 300 members to 2500 in the mid-1960s, at which time it became evident that current and foreseeable Navy League resources, and current Naval allowances, were inadequate. Following a joint Navy-Navy League inquiry in 1967, and prolonged discussions thereafter, the Naval Board assumed financial responsibility and overall control of the ASCC, which became the Naval Reserve Cadets (NRC), at the beginning of 1973.

The present situation in regard to cadets is that the Navy League has a continuing and not-inconsiderable interest in properties used for cadet training; and that other aspects of League involvement with the NRC —

not least by providing facilities not available from the Navy — are the subject of discussion. This is all very relevant in view of recent decisions concerning the Army Cadet Corps, which had no "parent" civilian organisation on which it could fall back when the need arose.

I have written at some length on the cadet activities of the League, partly because there is a widespread lack of appreciation of the effort put into the sea cadet movement in Australia by the Navy League; incalculable in terms of time and effort, invaluable when measured by the tens of thousands of dollars raised over the years — not least by its lady members. Also to assure members that there is a continuing need by cadets for Navy League assistance. The Navy is providing the basic framework in which the cadet movement can function, but there are many facilities which for one reason or another are simply not available from Naval sources — canteen facilities in unit headquarters, sporting equipment, even boats which are nearly always in short supply. This is the area in which the Navy League can do so much at the present time and successfully fulfil our "cadet aims".

Maritime Aims: A lesser degree of responsibility for financing and administering a cadet organisation has enabled the League to place more emphasis on its wider maritime objectives. It is perhaps inevitable, due to the fact that a great deal of "homework" had to be done to enable the League to obtain an understanding of the maritime problems facing Australia (especially as they relate to the Navy) that the onus for developing this side of our activities has fallen on the Federal Council rather than on the State Divisions. This is a reversal of the roles of the Federal Council and the State Executives hitherto, as with cadets "the action" is in the States.

It is essential however for the States, which after all are the Navy League, to become just as involved with maritime defence issues, etc., as they have been with cadets. This is

NAVAL RESERVE CADETS GO BUSH

In this Navy exercise the Naval Reserve Cadets didn't go to sea. The nearest they got was Lake Narracan, the pondage area for the Yallourn Power Station in the Latrobe Valley.

But it was a bush exercise as the task was to find two bushwalkers, missing, believed lost.

The operation was a practice run by the Moe branch of the State Emergency Service and officers from training ships, VOYAGER and LATROBE, the names given to two units of Australian Naval Reserve Cadets.

The Latrobe cadets, who come from the Latrobe Valley area, were hosts at the camp in bushland on the shores of Lake Narracan. The Voyager cadets are based at Williamstown. Most of the cadets' officers are former Navy men.

Chief Petty Officer Alan Grubb said he was concerned at the lack of support the Cadet Movement was getting from teenagers. It was one of the best youth groups in Australia and everything was supplied.



The Cadet salute from Gary Mooney, 14, of Morwell.

WHERE IT IS



Learning how to use breathing apparatus in case of a fire, Kevin Broberg, 14, of Yallourn, carries Alan Turner, 14, of Morwell.

The CO of TS LATROBE, Yallourn, Lt Ernest Clegg and Jim Coulain, pull in the pride of the fleet, a privately owned launch. Lt Clegg served in both the RN and RAN.



Left:— Greg Oliver, 15, of Morwell, on spud peeling duty.

Below:— Rowing the heavy whaler on Lake Narracan.

Right:—

The Cadets walking across the rope bridge they had constructed.

Below:—

The Cadets learning how to use a rifle

Bottom Right:—

Part of the exercise was to locate injured boys and carry them out of the bush.



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easier said than achieved, but a start has been made.

For some time now "The Navy" magazine has been carrying articles written by our members on specific subjects, ranging from summaries of the maritime capacities of our neighbours, through the patrol boat situation, the replacement of RAN ships, to the new defence organisation and Australian naval air-power (in this edition). Many of these articles have been republished in daily newspapers or journals and are frequently quoted.

One would hope to see League members using the articles and information emerging from our "study groups" whenever the opportunities arise — and indeed causing them to arise. One would like to see a wider spread of the study groups to cover all States, looking at particular or local maritime problems and making their own contribution to the League's store of information and knowledge.

The aims and objects of the Navy League are unquestionably sound, and there is more than enough talent and skills available in our membership to enable us to fulfil them. There will be no reward other than the satisfaction of having made an effort to contribute to the well-being of our country.

The objects for which the League is established are:

1. To take over all or any part which may lawfully be taken over by the League of the assets and liabilities of the voluntary Association known as The Navy League of Australia.

2. To secure as a primary object of national policy the complete naval protection of British subjects and British Commerce all the world over and to urge this policy on all citizens of the Commonwealth of Australia and upon the Government of the day.

3. To spread information showing the vital importance to the Commonwealth of Nations of maintaining such sea and air power as will ensure the permanent safety of the Commonwealth of our trade and of our supplies of food and raw materials, and will secure British Prestige on every sea and in every port in the world.

4. To promote the teaching of the history, spirit and traditions of the Sea Service (particularly the Royal

Australian Navy and Merchant Navy) in schools and elsewhere by such means as may be deemed most expedient.

5. To maintain and develop the Australian Sea Cadet Corps and to encourage inter-Commonwealth exchange of Cadets for training purposes.

6. To co-operate with other Commonwealth and Foreign Navy Leagues and with Naval Authorities.

7. To purchase, take on lease or in exchange, hire and otherwise acquire any lands, buildings, easements or property, real and personal, and any rights or privileges which may be requisite for the purpose of, or capable of being conveniently used in connection with, any of the objects of the League. Provided that in the case the League shall take or hold any property which may be subject to any trusts the League shall only deal with the same in such manner as is allowed by law having regard to such trusts.

8. To enter into any arrangements with any Government or authority, supreme, municipal, local or otherwise, that may seem conducive to the League's objects or any of them; and to obtain from any such Government or authority any rights, privileges and concessions which the League may think it desirable to obtain; and to carry out, exercise and comply with any such arrangements, rights, privileges and concessions.

9. To appoint, employ, remove or suspend such managers, clerks, secretaries, servants, workmen and other persons as may be necessary or convenient for the purposes of the League.

10. To construct, improve, maintain, develop, work, manage, carry out, alter or control any houses, buildings, grounds, works or conveniences which may seem calculated directly or indirectly to advance the League's interests, and to contribute to, subsidise or otherwise assist and take part in the construction, improvement, maintenance, development, working, management, carrying out, alteration or control thereof.

11. To invest and deal with the money of the League not immediately required in such manner as may be permitted by law for the investment of trust funds.

12. To borrow or raise or secure the payment of money in such manner as the League may think fit and to secure the same or the repayment or performance of any debt liability contract guarantee or other engagement incurred or to be entered into by the League in any way and in particular by the issue of debentures perpetual or otherwise charged upon all or any of the League's property (both present and future), and to purchase, redeem or pay off any such securities.

13. To make, draw, accept, endorse, discount, execute and issue promissory notes, bills of exchange, bills of lading and other negotiable or transferable instruments.

14. In furtherance of the objects of the League to sell, improve, manage, develop, exchange, lease, dispose of, turn to account or otherwise deal with all or any part of the property and rights of the League.

15. To take or hold mortgages, liens and charges to secure payment of the purchase price or any unpaid balance of the purchase price, of any part of the League's property of whatsoever kind sold by the League or any money due to the League from purchasers and others.

16. To take any gift of property whether subject to any special trust or not, for any one or more of the objects of the League but subject always to the proviso in paragraph (7) of this Clause 2.

17. To take such steps by personal or written appeals, public meetings or otherwise, as may from time to time be deemed expedient for the purpose of procuring contributions to the funds of the League. In the shape of donations, annual subscriptions or otherwise.

18. To print and publish any newspapers, periodicals, books or leaflets that the League may think desirable for the promotion of its objects.

19. To make donations for patriotic or charitable purposes.

20. To transact any lawful business in aid of the Commonwealth of Australia in the prosecution of any war in which the Commonwealth of Australia is engaged.

21. To do all such other things as are incidental or conducive to the attainment of the objects and the exercise of the powers of the League.

Naval Reserve Cadet News

VICTORIA

NRC UNIT RECEIVES FREEDOM OF ENTRY TO CITY OF MOE

On Friday, 25 April, 1975, a most unusual honour was conferred upon TS LATROBE. The Training Ship received the Freedom of Entry to the City of Moe in Gippsland, Victoria, and it is believed that this is only the second time in Australia that a Cadet Unit has been given such a distinction.

TS LATROBE was formed in 1962 and named for both its location in the Latrobe Valley and the former Australian Mine Sweeper, HMAS LATROBE. Since formation, the Unit has always enjoyed a close and cordial association with the many organisations and municipal bodies in the area. There exists a particularly close relationship with the Australian Army for it is in their Drill Hall in Yallourn that the Unit has its headquarters, and holds parades and other activities. In 1964, TS LATROBE was judged the Best Unit in Victorian Division and last year again received this award.

The Freedom of Entry ceremony was held outside the Moe City Offices with His Worship the Mayor Cr J. Connaghan presenting the Scroll to the Unit's Commanding Officer Lieutenant (Cadets) E. Clegg.

In addition the many officials from both the City of Moe. Returned Servicemen's League and other organisations, the Commanding Officer of HMAS LONSDALE, Commander M. De V. Salmon, RAN, accompanied by the Senior Officer NRC Victorian Division, Lieutenant Commander A. H. Burrows, VRD, RANR, journeyed to Moe to attend the impressive proceedings.

Having received the Scroll the Unit marched a little way out of town and then exercised its newly granted right and privilege by returning to the Moe City Hall. The usual challenge was made by the Police,

who halted the Unit on its approach. Lieutenant Clegg claimed, "We have been granted Freedom of Entry into the City of Moe and are exercising our right to march through the City with Swords drawn, bayonets fixed, drums beating and bands playing."

The Police Senior Sergeant replied, "Pass Through Naval Reserve Cadets of Training Ship LATROBE."

As the Unit proudly marched past the City Hall, the Mayor took the Salute.

At the conclusion of this ceremony the Unit then had the honour of leading the 1975 Anzac Day March to the Moe War Memorial and the return to the RSL Hall.

The Salute for this March Past was taken by Commander Mr De V. Salmon, RAN.

TASMANIA

(Compiled by Lieut A. J. Lee)

A seamanship camp was held at TS LEVEN's headquarters on the weekend 16-17-18 May and a similar camp was held at TS MERSEY on 6-7-8 June, 1975.

In June the following promotions were announced:-

Lieutenant Commander Don Paul, TS DERWENT, 1-5-75.

Lieutenant Commander Doug Baillie, TS DERWENT, 1-5-75.

Lieutenant Commander McK. Strudwick, TSEMU, 2-5-75.

During the weekend of 14 June, HMAS PARRAMATTA visited Hobart and was open to NRC personnel. PARRAMATTA delivered a 25ft motor cutter to Hobart for MERSEY which they had purchased from disposals. The cutter was then transported free to Devonport by rail by the kind permission of the Minister for Transport, Mr Chisolm, MHA.

TAMAR unit held a seamanship camp at Tamar during the June long weekend. The weekend 20-21-22 June saw two camps in Tasmania. One at Devonport and one at EMU which included cadets from TS MACQUARIE. All cadets including

LEVEN's ship's company travelled to Burnie wharves to inspect HMS ODIN.

However, weather conditions prevented cadets from boarding. The cadets were later inspected by the new NOIS Tasmania, Commander B. StJ. More RAN at EMU's headquarters. Commander More then made a quick inspection of work planned at EMU and MERSEY with funds made available under the RED Scheme.

MERSEY was granted \$48,000 and EMU \$53,000. EMU is to build a new headquarters on a new site. LEVEN is still trying to obtain a new site to erect their new headquarters.

On 7 July the sudden death occurred whilst visiting in Victoria of the wife of the CO of TAMAR unit, Lieutenant Cleaver. Mrs Cleaver was a long-time supporter of the unit.

In July MERSEY launched their rebuilt 16 1/2 ft motor skiff. The boat is expected to greatly assist the unit as a safety boat and was purchased by the local Navy League Branch and repaired by unit Officers and Instructors.

18-19-20 July saw a training weekend at LEVEN which included a simulated bush rescue. TAMAR unit held a joint camp with the Army at Tippiagorree Hills on the 26-27 July.

On Wednesday, 30 July, HMAS ARDENT visited Devonport and later was available to take cadets from Devonport to Burnie. During the first weekend in August, 17 cadets and four officers and instructors from DERWENT camped aboard HMAS BASS alongside HMAS HUON. Cadets ran the ship to normal ship's routine and thoroughly enjoyed the experience.

On the 8-9-10 August MERSEY unit held a camp at Mersey to prepare for the visit of NOIC Tasmania, the Director of Naval Reserves and Cadets.

TAMAR unit is at present raising money for their visit to TS VOYAGER in December. The visit is being arranged by Petty Officer Gordon Handley who was an instructor with VOYAGER before moving to TAMAR.

TS TAMAR

Report by Senior Instructor M. Smith of the Camp held at Tippiagorree Hills, 26, 27 July, 1975

At approximately 0920 hours Saturday, a party of cadets, under the command of Lieutenant McMeekin were picked up by bus at the depot, and taken to the camp site. Weather conditions were appalling, but undeterred, the camp was set up by the army, and tents were allotted to the cadets and Lieutenant McMeekin and Senior Instructor Smith. All cadets were very hungry and a meal was had from the ration packs. Warrant Officer 2 Mollis of 34 Cadet Battalion issued berets, gaiters and other articles of clothing as required. All the cadets agreed that the food from the ration packs was of a very high standard.

At 1330 hours all cadets were mustered on the roadway and issued with Ponchos to keep out the cold and to ensure that they were kept dry. A series of seven stands had been erected and an instructor appointed to instruct the cadets. After each lesson, the cadets moved on to the next stand.

Stand One: Navigation.

Stand Two: Bands and Hitches and Water Safety.

Stand Three: Care and Maintenance of the 7.62 SLR.

Stand Four: Erection of Tents and Hootchies.

Stand Five: Impact Effect of SLR.

Stand Six: Radio Type 25 Transmission and Functions.

Stand Seven: Obstacle Course.

After instruction had ended for the day, all hands returned to camp, and

proceeded to get the evening meal ready. Tilly lamps were lit and given to the cadets. A portable generating plant was started up, and it gave the base camp a lift. After the evening meal a meeting of all Officers and Instructors was held, to discuss the day's activities, and to prepare the programme for Sunday. After the meeting, all the staff had a very pleasant discussion about ARMY and NAVY techniques.

Reveille was sounded at 0700 hours, breakfast was taken and all the cadets were formed up on the roadway and proceeded to instruction. The weather had improved and this made the lessons more easy for all. Cadet PO Salter made rather a name for himself on the obstacle course, and completed the course in one minute flat. The best time for the army cadets, some of which had done the course before, was 54 seconds. This cadet's assistance was of a very high standard indeed.

After lunch, the Naval Cadets began to break camp, and then Lieutenant McMeekin and party departed for Launceston. Senior Instructor Smith stayed behind to continue instruction of army cadets, and a vehicle recovery demonstration carried out by the light aid detachment. This demonstration was of a very interesting nature and it was remarkable to see what can be done to effect a vehicle recovery.

Instructor Smith then requested permission to retire and after reporting to Captain Reggars, who was Commanding Officer of the camp, proceeded back to TS TAMAR.

My thanks go to this Officer and to his staff. Their assistance was terrific and it made the camp one to be remembered. The "Q" Store Warrant Officer Mollis and his Corporal were most helpful.

My special thanks go to Captain Reggars for making this trip possible, and also to the Department of the Army.

Best wishes to all Navy Personnel from the...

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

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WESTERN AUSTRALIA: Staff Office Cadets, HMAS Leeuwin, PO Box 58, Fremantle, 6160.

SOUTH AUSTRALIA: Staff Office Cadets, HMAS Encounter, PO Box 117, Port Adelaide, 5015.

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AUSTRALIAN CAPITAL TERRITORY: Staff Office Cadets, HMAS Watson, Watsons Bay, NSW, 2030.

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ANZUK Disbandment of ANZUK Force

On 1 January, the three-nation ANZUK force, based in Singapore, ceased to exist. Components of the joint force, drawn from the defence forces of Australia, New Zealand and Britain, had earlier reverted to national commands on 16 December, 1974 (New Zealand forces have been under national command since 31 January, 1974), ending an arrangement set up on 1 November, 1971, under the Five Power Defence Arrangements for Malaysia and Singapore.

Under the terms of these Arrangements, the contracting parties declared their readiness to consult on measures to be taken to meet any form of armed attack externally organised or supported, or the threat of such attack, against Malaysia or Singapore. There is no requirement in the Arrangements for the parties to station troops in the region and Australia decided to withdraw its ground forces from Singapore in the latter part of 1973.

Australia continues to honour the full terms of the Five Power Arrangements, and its two squadrons of Mirage aircraft based at Butterworth, the flight at Tengah and the Australian naval units based in Singapore have remained with the agreement of both Malaysia and Singapore. The Prime Minister has previously stated that the Mirage Squadrons will remain at Butterworth as long as they remain relevant to the needs of both nations and to the realities of the region.

In a statement to the House of Commons on 3 December, 1974, the British Secretary of State for Defence, Mr Roy Mason, MP, announced his government's plans to withdraw British forces stationed in Singapore and Malaysia under the Five Power Arrangements, except for a small group which they

will continue to contribute to the Integrated Air Defence System for both countries. The British decision did not flow from the separate decision to disband the ANZUK Joint Force structure, but followed a long and complete review of its defence commitments and capabilities with a view to effecting economies in defence spending. The decision will not affect Australia's commitments and undertakings under the terms of the Five Power Defence Arrangements that the consultative provisions of the Arrangements will remain, and it is anticipated that exercises with Singaporean and Malaysian forces will continue in the future.

BRAZIL Lynx Helicopters

Brazilian Navy has placed an order with Westland-Aerospaziale for nine Lynx helicopters, with deliveries to begin in early 1977. Though primarily equipped for ASW strike, the Lynx will also be operated by Brazil on air-sea rescue and general fleet duties — both from the new Niteroi type frigates and the Sao Pedro Naval Air Base. Apart from UK orders for nearly 100, the Lynx will also enter service with the French and Netherlands navies and is under consideration for the RAN. Westland sales manager Mike Jones visited Australia earlier this year for discussions with Government officials and agencies concerning both the Lynx and its commercial derivative, the Westland 606. Hawker de Havilland Australia is not only the Westland agent in this country but is under contract as the sole supplier of Lynx doors and engine cowl components.

BRUNEI Second Vosper Thornycroft 71-ft FPB

KDB Pemburu, a 71-foot fast patrol boat designed and built for the

Royal Brunei Malay Regiment by Vosper Thornycroft Private Limited, Singapore, was launched on 30 January, 1975. She is the second of three to the same design being built under a contract worth more than £1.1 million, the first, KDB Perwira, having been handed over in the autumn of 1974. The ceremony was performed by Her Highness, Princess Masna, sister of the Sultan of Brunei.

The Perwira-class boats are of sophisticated design, capable of speeds of over 32 knots, with good sea-keeping and manoeuvrability. They are of all glued-wooden construction with aluminium alloy superstructure.

In his speech on the occasion of Pemburu's launch, Mr Robert Du Cane, the Singapore company's managing director, referred to the contribution to peace between maritime nations made by vessels such as these, providing as they do the means to guard and protect their territorial waters, particularly against dissident groups. There were also the serious problems of guaranteeing the safety of the oil installations, on which the maritime nations of South East Asia were spending enormous sums.

FRANCE Minehunters

The French Navy is to provide 30 more minehunters under its Plan Bleu. As a start, five wooden-hull ocean-going sweepers, obtained from the United States as long ago as 1953, are to be converted into

minehunters. The wire sweeps will be retained and the ships will be fitted with minehunting sonar, similar to, but more modern than, the DUBM20 fitted in the present Circe-class minehunters. They will also have a new radio navigation system, since accurate fixing is essential for minehunting.

Their main equipment, however, will be a complete system for locating and destroying influence mines. This will include the PAP, an unmanned submersible controlled by cable from the parent ship and directed over a located mine. On arrival over the mine, an explosive charge, carried below the vehicle, is released to fall as close as possible to the mine. The submersible is then withdrawn and the charge fired by an acoustic signal from the parent ship. The system is not unlike the new system proposed by Vosper, but uses a submersible instead of a surface catamaran.

ITALY New Orders from Italian Yard

Late last year saw the first launch from the newly modernised Riva Trigoso yard of Cantieri Navali Riuniti. A 1600-ton hydrographic survey ship, the *Ammiraglio Managhi*, was launched and named. She is equipped with a helicopter landing-pad and is propelled by two Grandi-Motori-Trieste diesels. The hull is stabilised, with a particular view of providing optimum conditions in the hydrographic laboratories.

Particulars
Length pp: 76-80m.
Beam: 13.70m.
Draught: 3.60m.
Displacement: 1600 tons.
GRT: 2000 tons.

*Italy's new hydrographic survey vessel
AMMIRAGLIO MANAGHI.*

Machinery: Single-shaft GMT B306 SS-type diesels, 3400bhp = 15kts

At the same time the keels were laid for the first of six CODOG frigates, of which two will go to Peru and four to the Marina Militare. These frigates are to be armed with the Otomat surface missile, Sea Sparrow close-range missiles, one Oto-Melara 5in/54 cal gun and four 40mm/70 cal Bofors guns, an impressive weapon-load for a 2500-ton hull.

The machinery arrangement comprises two Fiat/General Electric LM2500 gas turbines and two GMT (Grandi-Motori-Trieste) A230 diesels, coupled to two shafts. The diesels will give a cruising speed of 22 knots, but with gas-turbine boost a total of 55,000 shp will give 33 knots.

The weaponry will be controlled by two ELSAG NA-10 systems, supported by Selenia RAN 10S air/sea-search and SMA SPQ2 surface-search radars. Anti-submarine capability will be provided by homing torpedoes.

Particulars
Length oa: 111.80m.
Beam: 11.9m.
Draught: 3.70m.
Displacement: 2500 tons (normal).
Machinery: two-shaft CODOG, 50,000 shp = 33 knots.

Missiles: Eight launchers for Otomat SSM; one Sea Sparrow SAM launcher.

Guns: One 5in/54 cal; four 40mm/70 cal.

JAPAN

Japan's Maritime Self Defence Force has now commissioned its

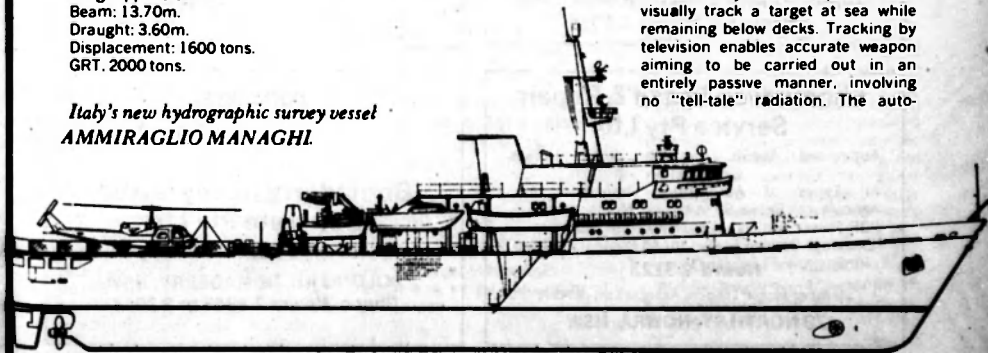
second 4500 ton frigate, *Hata*, which was recently handed over by the manufacturers. These frigates carry three Mitsubishi HHS-2 ASW helicopters, built under licence from Sikorsky.

NORWAY Low Light Television Systems for the Royal Norwegian Navy

A £1/3million order, to supply low light television camera channels and displays for the Royal Norwegian Navy, has been placed with Marconi-Elliott Avionic Systems Limited, a GEC-Marconi Electronics company, by A/S Kongsberg Vapenfabrikk of Norway. The equipment will form part of an advanced weapon control system which KV is supplying for the Norwegian Navy's new class of fast patrol boat, which is to be known as the "HAUK" class. These boats will be armed with wire guided torpedoes A/A gun and Kongsberg's Penguin surface-to-surface missile.

The low light television camera channels and displays which will be supplied by the Company's Electro-Optical Systems Division at Basildon, Essex, comprise a Marconi low light camera, incorporating an automatic light control system enabling both daylight and low light operation, together with a rugged display. Sightline stability is assured by mounting the camera on a stabilised sensor platform. This platform, manufactured by A/S Kongsberg Vapenfabrikk also carries other sensors, both active and passive, which are collimated with the television camera.

With the system, an operator can visually track a target at sea while remaining below decks. Tracking by television enables accurate weapon aiming to be carried out in an entirely passive manner, involving no "tell-tale" radiation. The auto-



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UNITED KINGDOM

Wilson Turns Down \$1770m Arms Deal

The Prime Minister, Mr Wilson, had
turned down a Libyan arms order
worth £1000 million (\$A1770
million) and most of the Libyan
orders for frigates, submarines, jets,
helicopters and other arms now go
to France.

Prince Charles to Continue Naval Flying

Following a successful helicopter
conversion course, it has been
decided to give Lieutenant The
Prince of Wales further flying experi-
ence in the commando support role
carried out by some Royal Navy heli-
copter squadrons.

Prince Charles has remained at the
Royal Naval Air Station, Yeovilton,
Somerset, to continue more
advanced flying training instead of
joining the Royal Naval College,
Greenwich, on 7 January for the
Lieutenants' Course, as previously
announced. It is expected he will
attend that course next autumn.

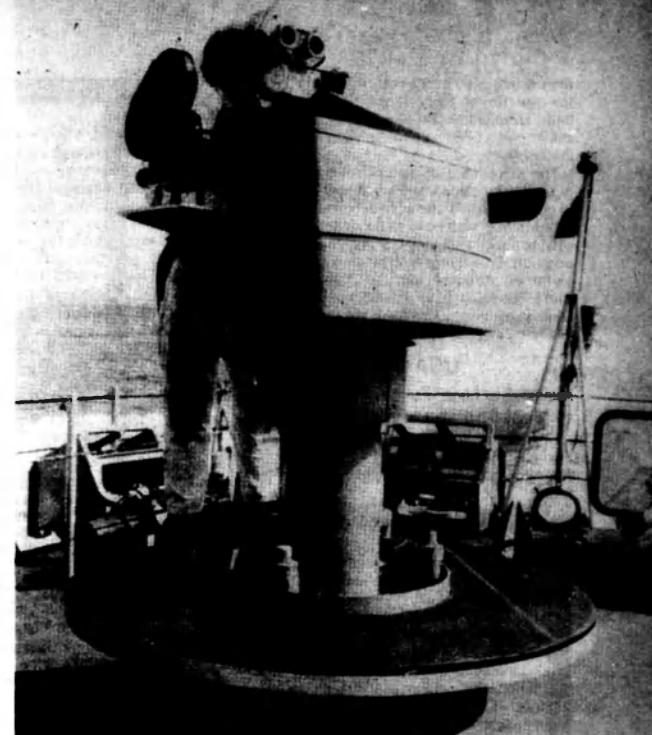
On 20 January Prince Charles
joined 845 Naval Air Squadron which
is equipped with Wessex 5 heli-
copters and specialises in
commando support operations.

The squadron embarked on the
Commando ship HMS *Hermes* from
mid-March until the end of June.

Keel Laying of HMS BROADSWORD First of Navy's New Type 22 Frigates

The keel of HMS *Broadword*, the
first of the Royal Navy's new Type 22
frigates, was laid down at the Scot-
stoun, Glasgow, shipyard of Yarrow
(Shipbuilders) Ltd, on Friday, 7
February, 1975.

The 3500 ton *Broadword* has
been designed to combine a first-
rate antisubmarine capability with
command and control facilities. The
vessel will be powered by Rolls-Royce
marine gas turbine engines and will
be equipped with the latest
communication and navigation



*The Optical Fire-Director supplied for the Fast Patrol Boats being
built for the Sultanate of Oman.*

equipment. She will carry Exocet
guided missiles, a Seawolf surface-to-
air missile system, and a Lynx anti-
submarine helicopter. Accom-
modation to the latest standards
will be provided for a complement
of some 250 officers and men.

HMS *Broadword* is the first Royal
Navy ship to be specified and built to
metric units.

Deep Diving System Prepares for Trials

Trials of a new 26-ton self-
contained diving system which can
provide a work base 800 feet under
water will be held in Scotland.

Although built for this depth, the
bell, designed by the British Hunting
Group, will be tested at a depth of
1200 feet in an old mineshaft. Other
trials will be in the deep water of a
Scottish loch.

Hunting says that the diving

system is the first offered as a
complete package made up of
pressurised diving bell and decom-
pression chamber together with
gantry and control cabin. All of these
modules are designed to be fitted to
the deck of an oil rig.

Rapid Return To Surface

The spherical bell can be returned
to the surface without reducing the
internal pressure and then locked on
to the top of a module that is in turn
linked to the decompression
chamber. Thus a diver can be
brought to the surface quickly and
transferred under the same
pressure to the decompression
chamber where he can eat and sleep
in comfort.

Optical Fire-control

A new Optical Fire-Director (OFD)
has been produced by Laurence,
Scott & Electromotors, the Norwich

firm which also produces LAS sights for the Royal Navy. The OFD has been supplied to Brooke Marine for their new FBPs building for the Omani Navy.

The advantage of an optical sight is that it functions well at ranges up to 10km, at a time when radar sensors may well have to be switched off to avoid giving away one's position. Low-flying aircraft and sea-skimmer missiles can be tracked more easily than by radar, and the OFD is, of course, totally immune to ECM (see photograph).

USA

Naval Surface Force Formed to Meet Changing Navy Needs

On 1 January, 1975, the new Naval Surface Force for both the US Atlantic and Pacific Fleets were formed.

Termed NAVSUF (LANT/PAC), the new commands encompass the old Amphibious, Cruiser-Destroyer and Service Force type commands. Each command is expected to be fully operational by July.

Consolidation is expected to bring about better utilisation of resources and more effective management. The first commander of NAVSUF LANT, headquartered in Norfolk, is Vice Admiral Robert E. Adamson; the first commander of NAVSUF PAC, headquartered at the Naval Amphibious Base Coronado, is Vice Admiral Robert S. Salzer.

New insignias were designed for each command showing their respective fields of responsibility, the Atlantic and Pacific oceans. The Surface Warfare breast insignia is featured on each and the three stars on both sides of the circle represent the flag rank of the commander and the combination of the three original surface type commands that consolidated to form the new commands.

Ship Classifications to Change

From 1 July, the Navy will be making a series of important changes in its ship classifications and designations. The revisions are designed to eliminate inconsistencies in ship class names and designations and to emphasize the offensive capabilities of surface combatant ships. Generally, the new classifications (which will also

involve some hull renumbering) will conform to the terminology used by other navies of the world.

Under the new system, ships now classified as Guided Missile Frigates (DLGs or the nuclear-powered DLGNs) — except USS *Farragut* class DLGs — will become Guided Missile Cruisers (CGs or CGNs). This will affect 27 ships. In addition, the two Guided Missile Light Cruisers still active with the Fleet — USS *Little Rock* (CLG 4) and *Oklahoma City* (CLG 5) — will drop the word "Light" from their classifications and become CG 4 and CG 5.

The 10 Guided Missile Frigates of the *Farragut* class, which are somewhat smaller than the other DLGs will become Guided Missile Destroyers and renumbered as follows:

Old Hull No	Name	New Hull No
DLG 6	<i>Farragut</i>	DDG 37
DLG 7	<i>Luca</i>	DDG 38
DLG 8	<i>MacDonough</i>	DDG 39
DLG 9	<i>Coontz</i>	DDG 40
DLG 10	<i>King</i>	DDG 41
DLG 11	<i>Nahant</i>	DDG 42
DLG 12	<i>Dahlgren</i>	DDG 43
DLG 13	<i>William V. Pratt</i>	DDG 44
DLG 14	<i>Dewey</i>	DDG 45
DLG 15	<i>Preble</i>	DDG 46

Escort Ships (DEs) and Guided Missile Escort Ships (DEGs) will become Frigates (FFs) or Guided Missile Frigates (FFGs). In addition, the new Patrol Frigates (PFs) — the first of which will be completed about 1977 — will also be reclassified as Guided Missile Frigates (FFGs) and given new hull numbers in sequence with the FFGs already in commission. USS *Glover*, now classified as an Escort Research Ship (AGDE 1) will become a Frigate Research Ship (AGFF 1).

Patrol Gunboats (PGs), reclassified as Patrol Combatants, but will still be designated PGs. The new missile-firing Patrol Hydrofoils (PHMs), now under construction, will be classified as Patrol Combatants Missile (Hydrofoil), but will

continue to be designated as PHMs.

In recent years it has become increasingly common to use the collective term "escort" for all destroyer-type ships. That term does not adequately identify the offensive potential of these multi-purpose ships, whose weapons and equipment are designed to increase their surface warfare role. This has resulted in overemphasis on their defensive role to the virtual exclusion of many other vital offensive missions. Their new classifications should more readily identify their multi-mission capabilities.

Some other inconsistencies have found their way into type names for surface combatants — for example, the use of the term Frigate for both DLG (Guided Missile Frigate) and PF (Patrol Frigate). The comparative sizes and capabilities of these ships differ widely. The Guided Missile Frigate (new designation, Guided Missile Cruiser) is an eight- to ten-thousand-ton ship designed to operate independently or with strike carrier, antisubmarine or amphibious forces in high intensity operations in a high-threat environment. By the nature of its intended wartime employment, it is one of our most capable surface combatants.

The 3500-ton Patrol Frigate (new designation Guided Missile Frigate) is meant to operate in lower threat areas. It is designed to function offensively or in mutual support of other sea control forces, to attack submarines and surface ships and to repel light air attacks. It does not have the same sophisticated systems, back-up equipment and endurance as the DLG.

The revised classifications were recommended by Admiral James L. Holloway III, USN, Chief of Naval Operations, and approved by Secretary of the Navy J. William Mendenhall II. They were announced in ALNAV 113 of 6 December, 1974.

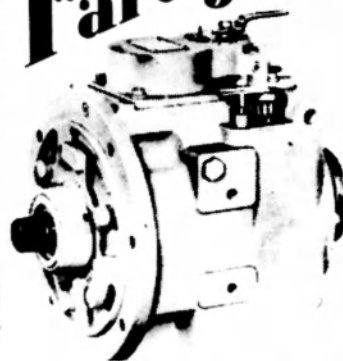
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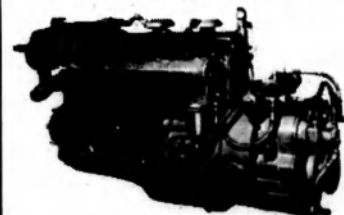


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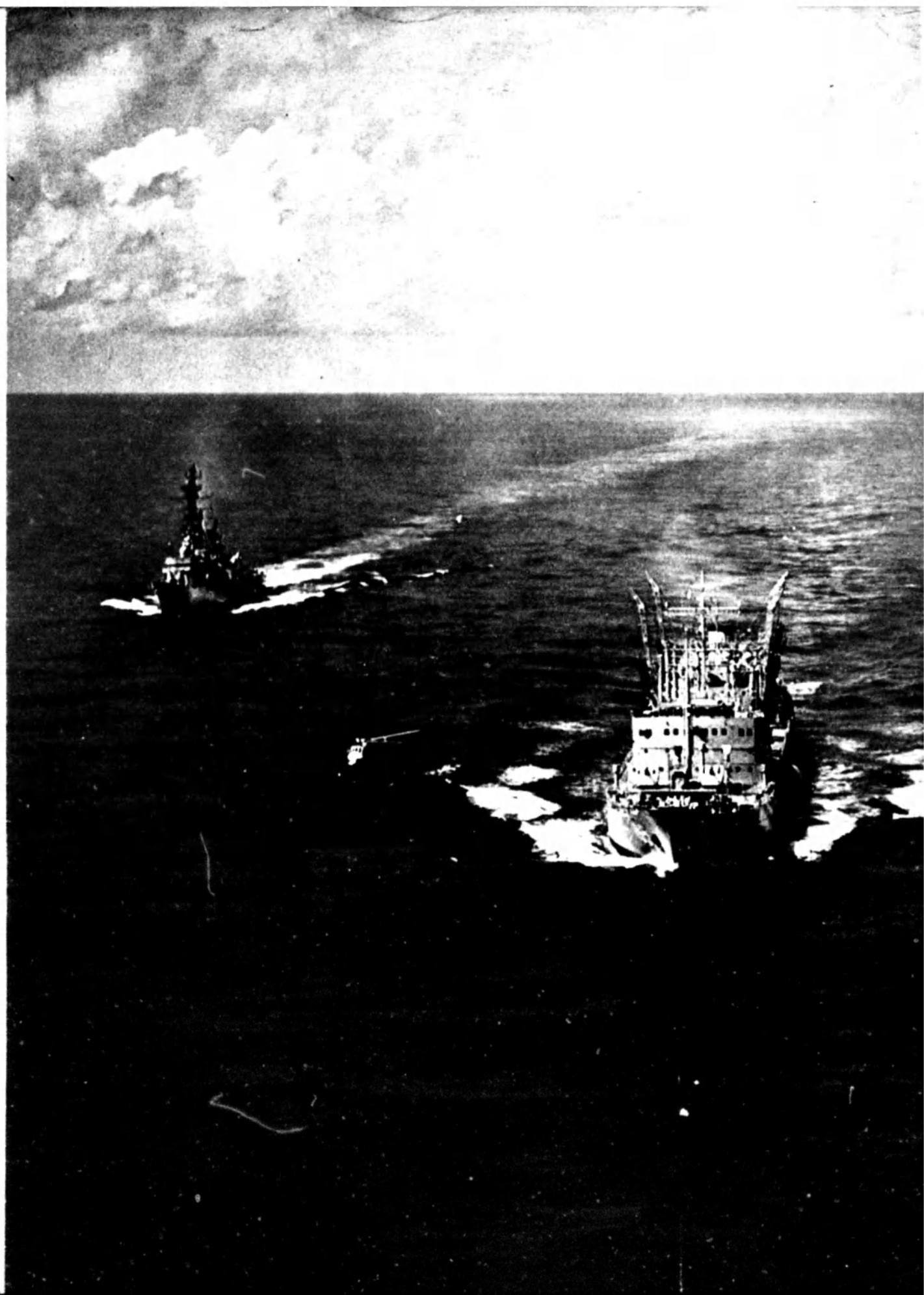
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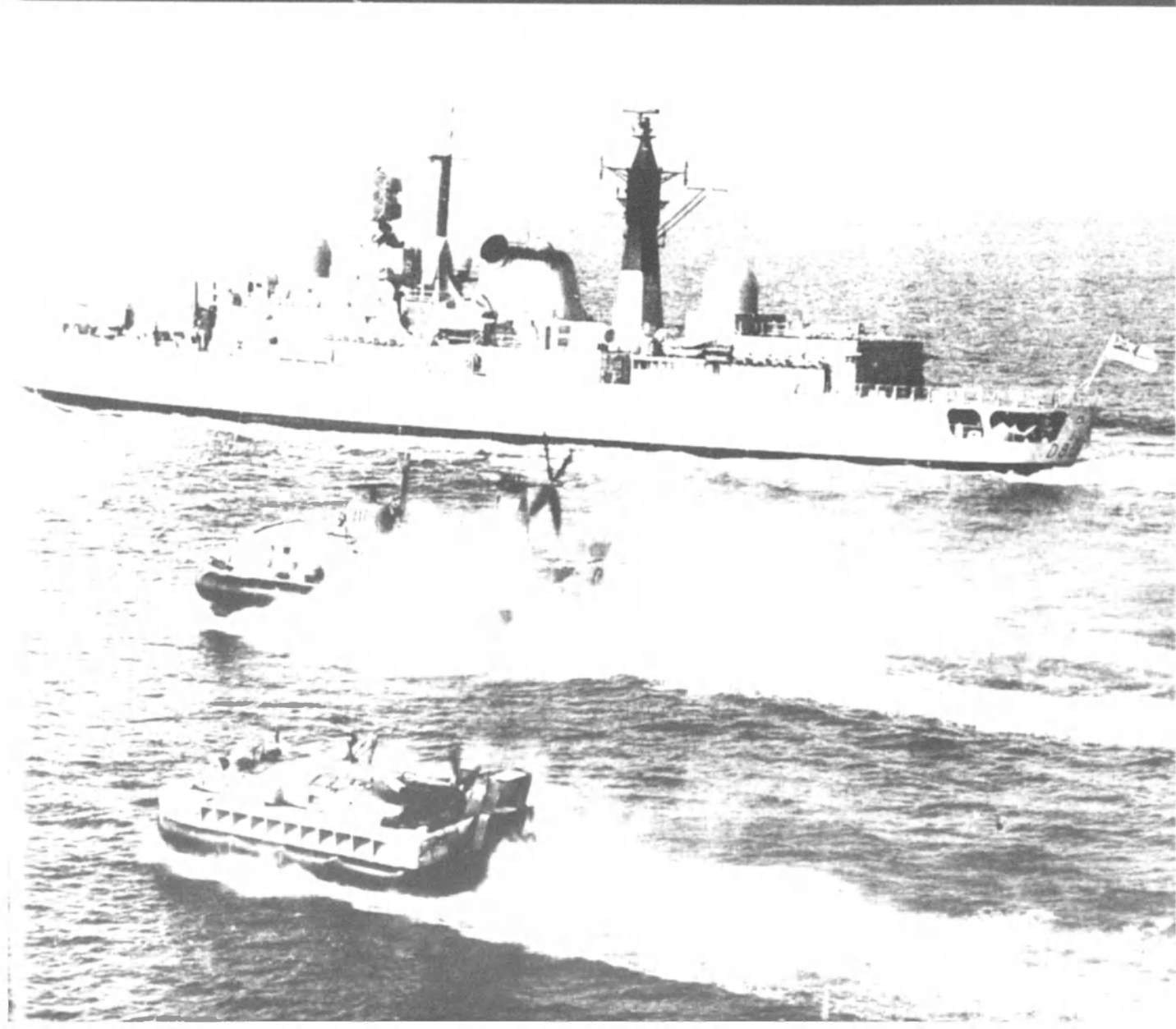
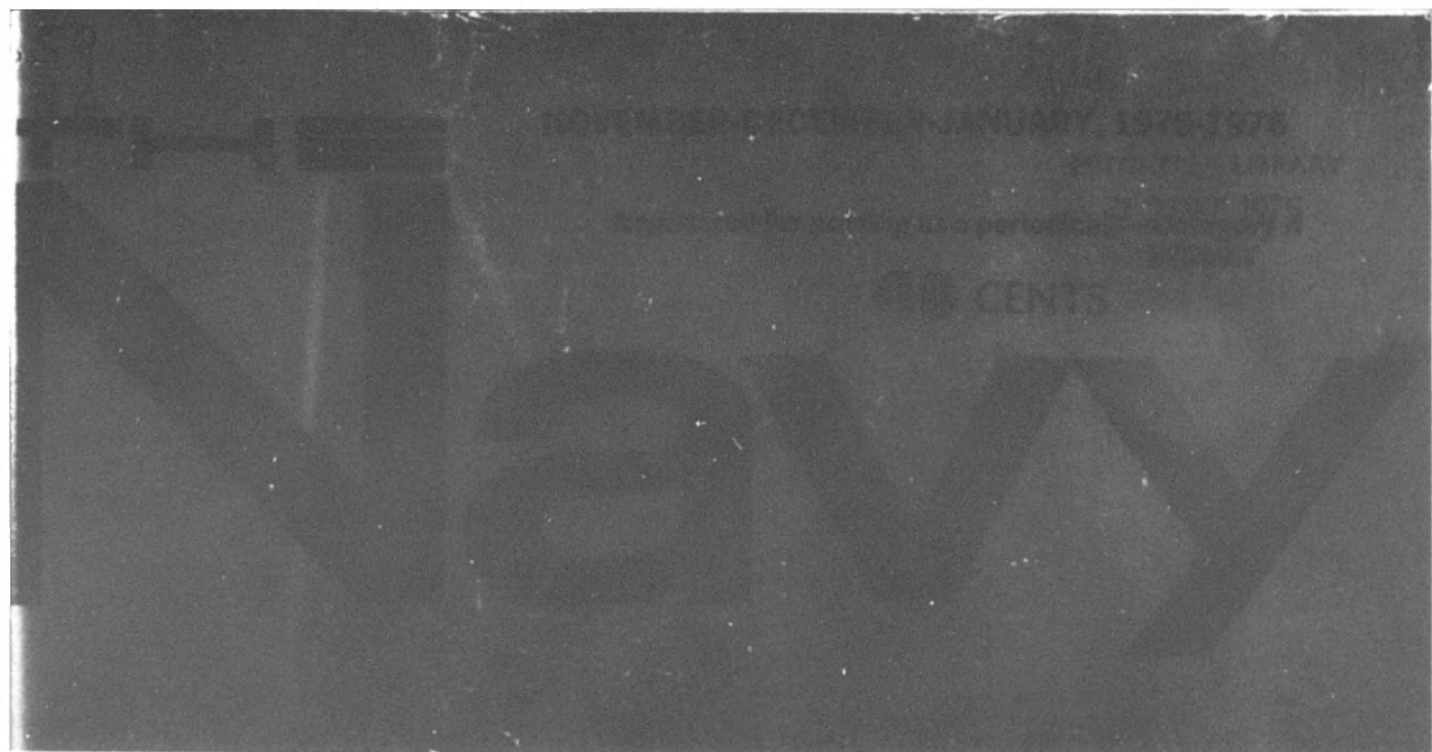


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No 4

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Nov/Dec/Jan, 1975-76

THE NAVY

Page One

Seasonal Greetings to RAN

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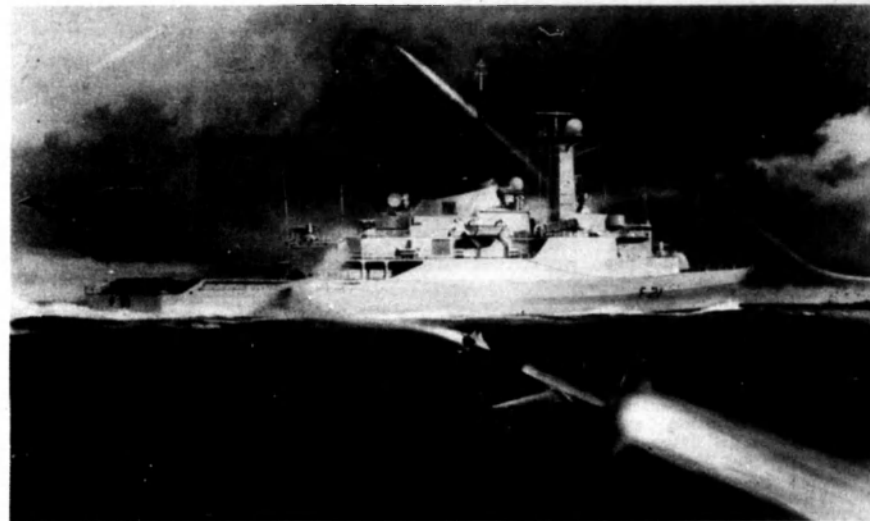
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An artist's concept of the new, developed version of the Type 21 frigate design offered by Vosper Thornycroft. The above picture shows the Seawolf PSI system intercepting simultaneously a sea-skimming missile and a high-flying aircraft, while the ship engages an enemy fleet with Exocet missiles.

Vosper Thornycroft Announce Type 21 with Seawolf

The original Type 21 frigate design was carried out by Vosper Thornycroft, in collaboration with Yarrow Shipbuilders, under a Ministry of Defence (Navy) contract, and resulted in a compact and versatile ship of 3000 tons displacement.

Eight ships were ordered, three from Vosper Thornycroft and five from Yarrow Shipbuilders; two are now in service. The first, HMS AMAZON, has now been with the fleet for more than a year, and is just completing her most successful Part 4 and weapon evaluation trials. She has proved to be very popular with her crew, and has amply demonstrated her excellent sea keeping qualities.

The Seawolf missile system has been developed by the British Aircraft Corporation and Marconi

Radar Systems Limited for the Royal Navy as a self-defence system for ships, capable of intercepting missiles and aircraft flying at speeds in excess of Mach 2. In its existing form, as intended for installation on the Royal Navy Type 22 Frigate, the system is designated GWS 25, and consists of two six-round launchers, associated tracker radars, and a back-to-back surveillance radar operating in S and L bands.

The GWS 25 system, like any defensive weapon system, was designed to counter anticipated

future threats. In designing the Type 21 with Seawolf, Vosper Thornycroft have considered the surface-to-surface missile as a major threat to the modern frigate and have therefore developed in collaboration with Marconi Radar Systems Limited a surveillance package which not only provides high altitude cover against aircraft but also adequate detection against the offensive sea skimmer missile.

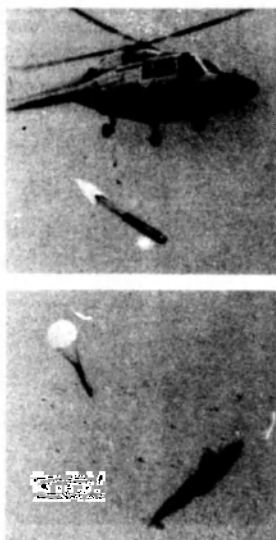
For this new version of the Type 21, Vosper Thornycroft have adopted a lightweight launcher variant designated Seawolf/PSI. This uses the same 910 tracker radar, associated data processing equipment and command guidance system as the GWS 25, but the launchers are lightweight twin-

barrelled. These are arranged to elevate to the loading position after firing for rapid reloading from below decks, with the aid of a manually controlled hoist arrangement. The surveillance radars are the Marconi S685N S-band frequency agile pulse compression radar to give medium range and high altitude coverage and Marconi S810P X-band radar which has been specially designed with a small elevation beam pattern to give optimum detection of high-speed sea-skimming missiles.

In the new Type 21, four twin-barrelled Seawolf launchers are carried, arranged in two groups of two, one forward of the bridge and one aft, on the deck each side of the helicopter hangar. This arrangement avoids interruptions to system availability during launcher reload and provides enhanced System capability against stream attacks. Each of the two groups has its own 910 tracker radar, while the two associated surveillance radars, carried on the foremast, serve the whole system.

Minor changes only are required to the original Type 21 design to accommodate the new anti-missile/anti-aircraft system. Since it involves some additional topweight, to maintain the same stability, an increase of about two feet in the beam is envisaged. This is comparable with the development which resulted in the Royal Navy's broad-beam Leander-class frigates. No significant effects on performance or sea keeping qualities are expected to result from this beam increase. Structural changes are mainly concerned with incorporating the tracker radar offices and providing space for the launcher reloading facilities below decks, which involves some modification in the wardroom and captain's accommodation areas, while aft the superstructure incorporating the helicopter hangar is carried out to the full breadth of the hull.

As well as having the Seawolf/PSI system (which replaces the SeaCat anti-aircraft missile system) the new design retains the full armament of the present Type 21 frigates, including the Exocet anti-ship missiles. The full armament thus consists of 4.5" Mark 8 gun for shore bombardment and use against surface targets, a double headed Seawolf/PSI anti-missile/anti-aircraft system, four Exocet anti-



Right hand panel shows the Lynx helicopter in an attack with Sea Skua missiles on a fast patrol boat, while the panel on the left shows an air-dropped torpedo attack on a submerged submarine.

ship missiles, two triple Mk 32 anti-submarine side launched torpedo tubes, and a Lynx helicopter capable of carrying air-drop anti-submarine torpedoes or Sea Skua missiles for combating fast patrol boats, hovercraft and hydrofoils. Secondary gun armament in the form of twin 30mm locally controlled mountings is proposed, although 40mm mountings with or without computer-controlled target designation could be accommodated.

As well as the sensors already mentioned, a Plessey PMS 32 sonar is carried, a Kelvin Hughes 1006 navigational radar and two optical sights. There is an IFF system with full target interrogation and transponding facilities. Also specified are a comprehensive Decca electronic warfare system with both active and passive facilities, and RE rocket launchers.

The action information organisation is a CAAIS (computer assisted action information system), very similar to that fitted to

the Royal Navy's Type 21 frigates of the AMAZON class, providing for picture compilation, allowing tactical assessment and target indication to all weapons. In addition separate, rapid target indication facilities are provided for Seawolf, to make possible quick reaction against high-speed targets. The CAAIS is made up of the Ferranti FM1600B computer suite and six horizontal conference-type display consoles, and gathers data from all the ship's own radar, sonar and electronic warfare sensors, as well as from other ships via data link facilities. It compiles the complete tactical picture used by the command for weapon deployment. Data from the PMS 32 sonar are fed into the system, and sonar tracking is performed in the normal way. In addition in this particular version of CAAIS the calculations associated with the fire control of the side-launched A/S torpedoes are carried out within the system's computer. The system also assists helicopter control by providing the solutions

for vectored attacks. The 4.5" Mark 8 gun's fire control system is a development of the WSA 4 system fitted to the standard Type 21, and provides control when engaging surface and shore targets, using track-while-scan data from the surveillance radars. The gun can be controlled in emergency from either of two optical directors.

By taking advantage of the powerful and quick reacting Seawolf missile system Vosper Thornycroft have, in this new design proposal, given the already highly regarded Type 21 frigate, a greatly enhanced anti-aircraft and anti-missile capability, while retaining its full versatility in other roles, including surface, anti-submarine and electronic warfare. Compared with the substantially larger Type 22, the armament carried is much the same, the main differences being the retention of the 4.5" gun in the Type 21, but with accommodation for one Lynx helicopter only, while the Type 22 will carry two. This developed version of the Type 21 is, in accordance with original concept as announced by the Ministry of Defence (Navy) when the design contract was placed, aimed particularly at the substantial export market for ships of this class.

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OUR COVER

NEW UNITS OF THE BRITISH NAVY SHOW THEIR PACES IN THE CHANNEL

The Royal Navy's latest guided missile destroyer, HMS SHEFFIELD, shows her paces alongside two craft of the recently formed Royal Navy Hovercraft Trials Unit, in the English Channel.

The 3500-ton SHEFFIELD was recently commissioned by the Royal Navy and like the hovercraft, is powered by gas turbines, enabling her to leave harbour at a moment's notice and quickly attain a high top speed. Armaments include a twin Sea Dart missile system, a fully automatic 4.5 inch gun, and she carries a twin-engined Lynx helicopter for anti-submarine work. SHEFFIELD is the first Type 42 class destroyer to be completed for the Royal Navy.

The hovercraft are (in the foreground) an SRN 6 Mark 2 and a 50-ton BH 7 Wellington class, both capable of about 60 knots. The hovercraft trials unit was formed earlier this year and is evaluating the craft in various logistical and support roles.

CONTRIBUTIONS INVITED

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

Authors are requested to include a photograph of themselves with their contributions, particularly.

The Editor does not hold himself responsible for return of photographs, but will endeavour to return those with which a stamped and addressed envelope is enclosed.

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Periscope on Australia

by Grommet

CHAIRMAN, CHIEFS OF STAFF COMMITTEE

Lieutenant-General F. G. Hassett, AC, CB, CBE, DSO, MVO, has been appointed Chairman, Chiefs of Staff Committee, Australia's highest military post, for a three-year term from 24 November, 1975. He will be promoted to the rank of General on taking up the appointment.

Lieutenant-General Hassett will succeed Admiral Sir Victor Smith, who will complete five years as Chairman, Chiefs of Staff Committee in November.

Under the planned Defence re-organisation the Chairman, Chiefs of Staff Committee will become Chief of Defence Force Staff.

SALE OF EX-HMAS SYDNEY

The former Royal Australian Navy aircraft carrier SYDNEY has been sold to Dong Kuk Steel Mill Co Ltd of Seoul, South Korea. The successful bid was \$673.516.

It is a condition of sale that the SYDNEY will shortly be towed to South Korea where it will be broken up for scrap metal recovery.

The tenders for the training ship, ex-HMAS ANZAC which was included on the same tender schedule are still under consideration and a decision concerning that vessel should be announced shortly.

PRINCESS ANNE TO LAUNCH NEW SUBMARINE

Her Royal Highness, the Princess Anne, Mrs Mark Phillips, will launch the Australian submarine, HMAS OTAMA, at Greenock, Scotland, on Wednesday, 3 December, 1975.

HMAS OTAMA is the sixth Oberon class submarine to be built in Scotland for the Royal Australian Navy. Four sister-ships, now serving in the Australian Fleet, OXLEY, OTWAY, OVENS and ONSLOW were built in the same shipyard. Another

sister-ship, ORION, was launched in September, 1974, and will be completed in 1977.

OTAMA will become the first ship to bear this name which is an Australian aboriginal word meaning porpoise or dolphin.

EXERCISE TASMANEX 75

A major maritime exercise, involving ships and aircraft from live nations will be held in the Tasman Sea between 16-30 November, 1975.

The naval task force of about 20 ships including five tankers and support ships, will comprise conventional ships of the Royal Navy, Royal Australian Navy, United States Navy and the Royal New Zealand Navy.

More than 40 aircraft from the Canadian forces, Royal Australian Air Force, RAN Fleet Air Arm, US Navy and the Royal New Zealand Air Force will operate from air bases in both Australia and New Zealand.

Tasmanex is the most ambitious maritime exercise ever planned by New Zealand and will be under the joint direction of the Chief of Naval Staff, Rear Admiral E. C. Thorne, and the Chief of Air Staff, Air Vice-Marshal R. B. Bolt.

The exercise will be conducted across the full breadth of the Tasman Sea, the first occasion on which a New Zealand-sponsored exercise has been conducted in this manner.

Opposing forces will sail from each side of the Tasman Sea and carry out a series of exercises designed to test ships and aircraft in aspects of maritime warfare.

PATROL CRAFT FOR THE RAN

Eleven Australian and overseas shipbuilders have been invited to tender for project definition study contracts relating to the supply of a

new class of patrol craft to the Royal Australian Navy.

Selection of the 11 companies resulted from an exhaustive evaluation by the Department of Defence of responses received from 34 companies from 10 countries who had supplied proposals in response to invitations to register interest in the project.

The project definition studies are the first step in a two-stage acquisition process and will be funded by the Australian Government. They will provide detailed information on costs and the capabilities of the craft in meeting Australia's needs.

Mr Morrison, the Minister for Defence, expects to announce early next year the successful companies and a construction contract for the new craft will probably be let a little over a year from then. The craft would probably be built in Australia although the possibility of constructing lead craft overseas will also be considered.

The new class will complement, and in due course replace the existing Attack class. It will have improvements over the Attack class in the areas of sea keeping, range, speed and radar for surveillance. Self-sufficiency for independent operations appropriate to conditions off the Australian coast is also required.

The companies invited to tender are:

- Lurssen Werft, Germany
- Brooke Marine, Britain
- Vosper Thornycroft, Britain
- Societe d'Armement Maritime et de Transports, France
- Karlskronavarvet, Sweden
- Vickers Cockatoo Dockyard Pty Ltd, NSW
- de Havilland Marine, NSW
- Carrington Slipways Pty Ltd, NSW
- State Dockyard, NSW
- North Queensland Engineers and Agents
- Dillingham Corporation of Australia

AUSTRALIA'S NAVAL CONSTRUCTION PROGRAMME

A NAVY LEAGUE VIEW

By A. W. Grazebrook, Federal Vice-President, The Navy League

During his August 28 speech to the Parliament, the Minister for Defence (Hon W. L. Morrison) commented at length on Australian Naval Construction projects. The League welcomes and recognises the importance of this statement.

LANDING SHIP LOGISTICS

The RAN will get an Australian built 3400 ton modern transport with an over-the-beach and helicopter landing capability. The British SIR BEDIVERE type has been selected as a basic design.

The British prototype, SIR LAN-CELOT, was completed in January, 1964. After a year's trials had enabled the lessons learned from the first ship to be incorporated in the design, the second ship (and first of the production series) was laid down as the first of the SIR BEDIVERE Class. After ten years' service, the type is regarded as most successful.

The design will be modified to suit Australian requirements. Although details of the modification were not given, an artist's impression of the ship shows one significant modification. Two LCAs will be handled by crane from the well deck.

The British ships displace 3270 tons light and 5674 tons full load. Two Mirrieles diesels drive the ship at a maximum speed of 17 knots, or 8000nm at 15 knots. Speed of construction was a feature — five of the six British ships took less than two years from keel laying to completion.

The Australian ship will have a "lift" of 2000 tonnes. Whilst this lift can be varied to suit circumstances

a typical lift could comprise 340 troops, 18 main battle tanks, and nine Wessex helicopters, in hard-laying circumstances, a total of 540 soldiers can be carried.

Whilst helicopters can be carried as cargo, there will be provision to operate helicopters from a platform. The well deck could be used for this purpose, although this is only possible in fair weather. Cargo can be embarked from shore by a stern ramp, and disembarked over the beach through bow doors. Cranes are carried for loading and unloading from craft alongside or from a quay.

A key feature of the design is its flexibility in role-landing ship, heavy cargo transport, MCM support ship, helicopter support ship, or training ship. The acquisition of this ship is essential to the movement of tanks and heavy equipment around Australia.

PATROL CRAFT

Mr Morrison stated that he hopes to let tenders shortly for a project definition study for the patrol craft planned to supplement and eventually replace the ATTACK Class. These craft, expected to have longer range and better sea-keeping qualities than the ATTACK Class, are badly needed following on the depletion of the RAN's patrol craft.

For the first time, the Minister mentioned that studies are in progress for a "higher capability" patrol craft, possibly missile fitted, that will complement the destroyer force in the 1980s. Further details were not given, but it may be that the RAN has in mind a type that would be classified by "Janes" as Fast Attack Craft.

Whilst there may well be a role for such craft in our Northern waters, they are no substitute for the anti-submarine capability of destroyers or guided missile frigates.

AOR

Once again, an underway replenishment ship was mentioned when the Minister indicated his expectation that he plans to make a decision regarding a particular design later this year.

This ship has been talked about since well before 1969. The Liberal/Country Party Government sought to relieve an escort shortage (which is even worse today) by keeping escorts at sea longer through operating an underway replenishment ship (AOE). The 1970-71 Defence Report stated that construction of the ship would start in May, 1972. However, construction had not started by December, 1972, and Mr Barnard decided that the Navy did not need the extra ship. He

specified that no ship should be built until a replacement was needed in 1980 for HMAS SUPPLY.

In 1969, the Navy's idea was to build an AOE — an underway replenishment ship capable of supplying both fuel and ammunition. Present plans are to construct only an AOR — an underway replenishment oiler. The omission of ammunition is significant. With the large size of modern ammunition, space limits the number of Ikara and Tartar missiles that can be carried on board the RAN's DDGs and DEs. By supplementing both fuel and ammunition supplies, an AOE would have ensured greater endurance for our escorts.

OBERON DELAY

Mr Morrison alluded briefly to the delay in completion of ORION and OTAMA, the fifth and sixth OBERON Class submarines now building for the RAN at Scott Lithgow's in Britain.

The intention to build these two submarines was first announced in March, 1970. Completion was expected in 1974 and 1975. Now, ORION and OTAMA will not be delivered before May and December, 1977.

At the present time, two of the Navy's four submarines are refitting. The departure of HMS ODIN for the United Kingdom leaves the RAN with only two operational submarines.

PATROL FRIGATES NOW CALLED GUIDED MISSILE FRIGATES

The Minister touched only briefly on the two ship patrol frigate project. He referred to the new ships under their new category — Guided Missile Frigates (FFG). Australia's final decision on this project will be made early next year, when certain US Defence Department decisions have been taken.

OMISSIONS

Conspicuous by their absence from the Minister's Statement were three items:

Seaborne Air Platform.

Further Escorts

Replacement Mine Countermeasure Craft.

The Minister did not comment upon the studies that have been underway for several years regarding the future provision of Seaborne air cover.

In April, 1974, Mr Barnard told the House of Representatives that

"Further proposals will later be necessary for the acquisition of additional destroyers of a type to be determined at that time." Mr Morrison did not comment upon this matter.

Nor did the Minister give any indication of the future of the RAN's Mine Clearance Force. The Government has already declared surplus two of the Navy's six craft. In January this year, Vice-Admiral Sir Richard Peek — immediate past Chief of Naval Staff — stated that the remaining four will be worn out by 1977.

THE FUTURE

In outlining the programme introduced by himself and his predecessors, Mr Morrison expressed some good intentions and was fairly specific on a number of points. The Navy League shares the anxiety of two of Australia's foremost newspapers, expressed in their 30th August editorials, to see the Minister's good intentions translated into ships in service.

The programmes are a start. More decisions, particularly regarding Seaborne Air Platform and Mine Countermeasure Craft are needed next year.

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Message from the Federal President of the Navy League of Australia,
Commander Geoffrey Evans

CADETS

All Navy League members will know that the Commonwealth Government's decision to scrap the Army School Cadet Corps has been extended to include the Naval Reserve Cadets and the Air Training Corps.

Following representations to the Defence Minister (Mr W. Morrison) by the Naval Board and the Federal Council of the Navy League, and due to the involvement of the League with the sea cadet movement over many years, the NRC has been reprieved until 30 September next year. Prior to that date we have to work out how the League can operate with little or no Government support an organisation which at the moment consists of some 2100 officers, instructors and cadets.

The League deplores the decision to abolish the Australian cadet system, which if carried out will give us the unenviable distinction of being the first country in the English speaking world to discount the value of Service-supported youth training: It is a mistake of some magnitude, and contrary to the wishes of the

Australian community as tabulated in the 1974 Millar Report on the Army School Cadet Corps.

A number of schools and organisations have expressed their intention of maintaining a cadet system based on military practices: This will be extremely difficult if the Services are not allowed to provide material support.

The Federal Opposition has stated its intention of reinstating a cadet system at such time it gains office. The problems associated with the creation or destruction of a cadet organisation whenever a Government changes will be obvious to anyone with even the slightest knowledge of cadet training and the continuity of effort it requires.

The League advocates, and has made its views known to those responsible, a thorough exami-

nation of alternative methods of cadet administration. Cost related to "military value" is said to be the reason for abolishing our cadet organisations: New Zealand with a quarter of our population and the same proportion of cadets, manages to run its cadet system at one-twentieth the cost of our own. Clearly there is scope for investigation.

Whilst urging the Government to reconsider its decision on cadets generally, we must nevertheless prepare ourselves to accept responsibility for sea cadets for an indefinite period. I have no doubt the individual Units can continue to function effectively if given the chance — what they will need is back-up support, and this must flow from the Federal Council, the State Executives, Local Committees, and every League member.

The Navy League is faced with a formidable task, but we must tackle it, and for the sake of the sea cadets of today and tomorrow we have to succeed.

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Cadets are required to produce a certificate from their doctor to confirm they are capable of carrying out

the normal duties and activities of the Cadet Corps. If injured while on duty, Cadets are considered for payment of compensation.

Parades are held on Saturday afternoon and certain Units hold an additional parade one night a week.

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 sporting activities and other varied subjects.

Instructional camps are arranged for Cadets 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 Senior Officer in your State, using the form provided below.

SENIOR OFFICERS, NAVAL RESERVE CADETS:
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USS WASHBURN (LKA 108), an Amphibious Cargo ship of the Rankin class, she was commissioned on 17 May, 1945.

United States Amphibious Forces THIRTY YEARS LATER

By ROSS GILLET

With the war's end in 1945, the USN found itself with almost 1500 large amphibious vessels (LSTs and larger), and an equal number of medium landing ships (LSMs), and Infantry landing craft (LCIs).

The years of peace which followed saw hundreds of these vessels scrapped and/or sunk, with the remaining ships being placed in 'mothballs'. During the cold war period it was generally accepted by the military that with the presence of the nuclear deterrent there would be no further need for the amphibious ships. However, these opinions changed during the Korean War, when numerous amphibious landings were undertaken. One at Inchon by 70,000 American troops cut off advancing North Korean units in a most successful operation.

The first post-war built LST TALBOT COUNTY was completed in September, 1947. She and her sister ship, TALLAHATCHIE COUNTY,

possessed improved cargo capacities over the war built LSTs. Following these two ships, came fifteen Terrebonne Parish class and seven Suffolk County class LSTs. Displacing 5800 tons, the Terrebonne class carried six, 3 inch guns and 395 troops. The Suffolk County class, which appeared in 1957, were the first LSTs to be air conditioned. Speed was increased to 17 knots and 600 troops were carried.

Experiments in landing troops from helicopters were carried out during this period resulting in the conversion of the Anzio Class Escort Carrier, THETIS BAY, to an Assault Helicopter Transport, for use by marines in amphibious operations, being authorised in 1955. Conversion of another Escort Carrier,

BLOCK ISLAND, to a helicopter role was approved in 1957, but subsequently cancelled.

The THETIS BAY, originally completed on 21 April, 1944, emerged in 1956 in her new role, carrying 15-20 helicopters, with accommodation space for 1000 marines or 1600 troops. Although a pioneer in the field, THETIS BAY served only to 1964.

The TULARE, an Amphibious Cargo Ship (LKA), with the PAUL REVERE and FRANCIS MARION, Amphibious Transports (LPA), joined the force in 1956, 1958 and 1961 respectively. These ships were acquired by the USN during construction and converted from Mariner design merchant ships.

Also joining the amphibious forces during this period were the eight-

ship, Thomaston Class Dock Landing Ships (LSD). Each of these vessels can reach 22 knots and carry twenty-one LCM 6 or three LCU, and six LCM landing craft. Crewed by 400 men, the Thomaston class ships carry 340 troops and were originally equipped with sixteen (later twelve), 3 inch anti-aircraft guns.

Heavy Lift amphibious ships were placed in service 1959-61, when the Essex Class Aircraft Carriers, BOXER, PRINCETON and VALLEY FORGE were relegated to the LPH role. Formerly classed as Attack Carriers and Anti-submarine Carriers, the three Essex Class were modified to carry 30 helicopters and berth 1500 troops. All built during 1945-46, the carriers possessed a speed of 33 knots, this being one of their main advantages over the other ships.

Developed from the LSD, the first Amphibious Transport Dock (LPD), RALEIGH, was commissioned in September, 1962. This ship was followed by another fourteen similar vessels by July, 1971. Improvements over the LSD included a more balanced load of assault troops and equipment, vehicle garages and helicopter deck, and later a telescopic hanger. Up to six UH-46 helicopters can be carried, and the docking well, although smaller than the LSD, can accommodate four LCM 8s, while four LCPL are located on the boat deck. Engines developing 24,000 hp drive the LPD at over 20 knots. The



The Tank Landing Ship (LST) BRISTOL COUNTY. Ships of this class were the first to depart from the bow-door design developed by the British earlier in World War II.

LPDs lift capacity includes 900 combat equipped troops with tanks, artillery and vehicles.

The IWO JIMA, an Amphibious Assault Ship (LPH), emerged in 1961, and introduced with her a vessel capable of carrying over 2000 troops at a sustained speed of 20 knots. Usually 32 helicopters (28

troop carrying), are embarked, to lift the marines and their equipment ashore. The helicopters are stored and serviced in the hangar deck, which is connected to the flight deck by two large elevators.

The class of seven ships has demonstrated its versatility with GUAM operating as an interim Sea Control Ship, and the INCHON undertaking mine clearing operations in Vietnam and Egypt. Each LPH is defensively armed with 3 inch guns and Sea Sparrow point defence missiles. Only the INCHON, the last ship completed, is fitted out to carry landing craft, two LCVPs being carried on davits.

With the older LKAs being reduced to reserve, five new construction ships were ordered in 1965 and 1966. These ships, designated as the Charleston Class, cost approximately \$21m per ship. They carry over 220 troops and 18 LCM landing craft for the amphibious operations (see photograph of USS ST LOUIS). Although no aircraft are embarked, a helicopter deck is located on the stern. The class displace 20,700 tons and are armed with eight, 3 inch anti-aircraft guns.

As in the case of the LKAs over-aged and outdated LSDs were paid off to the "mothball" fleet. Con-

struction programmes were called for, and five Anchorage Class LSDs, capable of over 20 knots, were commissioned 1969 to 1972. These ships are designed to transport pre-loaded heavy landing craft to a designated area and discharge them rapidly. Over 370 troops are berthed on board, while the crew numbers 397 men. Construction cost of each ship was approximately \$11.5m.

The modern Newport Class LSTs began service in June, 1969. This class, numbering twenty ships, is considerably larger than their war built predecessors. Their speed of 20 knots did not allow the bow door of the earlier LST classes. As a result of this, a 112 foot ramp is extended over the bow to allow loading and unloading of the tanks and other equipment. A stern gate is also provided to unload amphibious tractors into the water, or to off-load vehicles alongside a wharf. The ships are armed with four, 3 inch anti-aircraft guns.

To replace older war-built Amphibious Command Ships (LCC), the two-ship, Blue Ridge Class was ordered. BLUE RIDGE, completed in

1970, and MOUNT WHITNEY in 1971, provide command and control facilities for land, sea and air commanders during amphibious operations. They are defensively armed and have flag accommodation for 200 officers and 500 enlisted men.

In 1967, contracts were awarded to three shipbuilders for design development of an Amphibious Assault Ship (LHA). Litton Industries were given the contract in 1968 for construction of five ships. These ships of the Tarawa Class are being assembled in sections and then joined together, with the lead ship, TARAWA, now at sea undergoing pre-acceptance trials. The LHA design combines that of the LPH and LSD missions. Each LHA displaces 39,300 tons and carries approximately thirty helicopters. Most probably four to six VTOL Harrier fighter-bombers will be embarked to provide air cover for the troops. The armament of the LHA is three 5 inch guns, six 20mm close range guns and two Sea Sparrow guided missile launchers. The 2000 embarked troops are ferried to the shore by the

helicopters and four 135 foot LCU type landing craft. These landing craft are berthed in a floodable docking well, which is connected to the hangar, flight and vehicle decks by several ramps. Up to 300 casualties from an amphibious operation can be treated in the LHA's hospital.

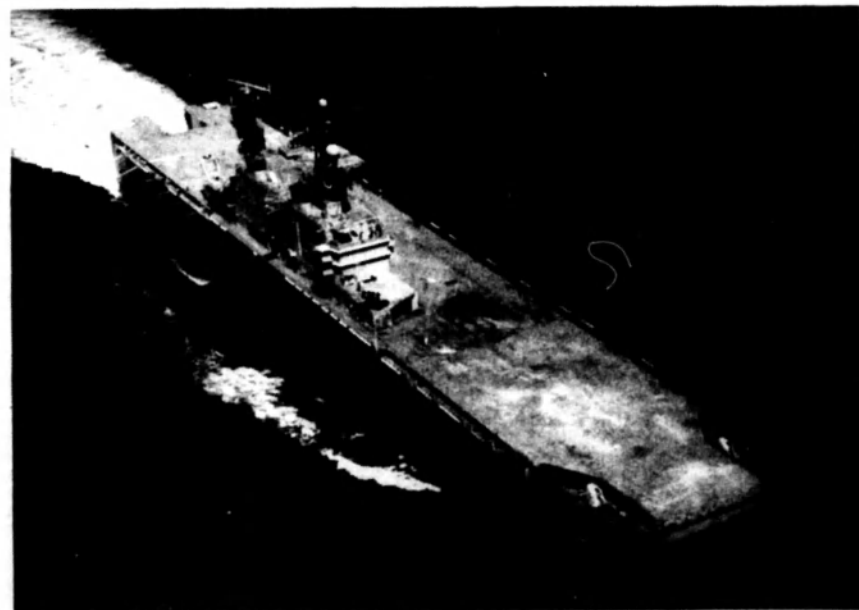
Together with two Newport Class LSTs, the LHA can carry and land a complete reinforced marine battalion with all their weapons and equipment, including trucks, artillery and tanks.

In the late sixties, many World War II vintage amphibious ships were decommissioned with the arrival of new construction.

The current strength of the USN Amphibious Forces is 1 LHA, 7 LPH, 2 LCC, 6 LKA, 2 LPA, 14 LPD, 13 LSD and 20 LST. With the completion of the LHAs, the TULARE, PAUL REVERE and FRANCIS MARION will be disposed of. This will leave a 66 ship force capable of deploying large marine detachments world wide. Amphibious task groups are assigned to the US Sixth Fleet in the Mediterranean and the Seventh Fleet in the western Pacific.



USS ST LOUIS (LKA 16), an amphibious cargo ship of the Charleston Class was commissioned during 1969.



LHA-1 — TARAWA on commissioning trials — US Navy.



book review

BEWARE, BEWARE THE BIGHT OF BENIN

(A novel of the British Navy in 1891)

BY

PHILIP MCCUTCCHAN

Arthur Barker Limited, London.
Our copy supplied by Hicks Smith and Sons Pty Ltd, Sydney. Price in Australia \$6.30.

Reviewed by: IKARA

When I originally thought about reviewing this novel, it struck me that it would be the ideal gift for a young man with some interest in naval history and particularly a young man who was a member of the Naval Reserve Cadets. Alas, the Minister for Defence has seen fit to bring the Cadet system to an end and I fear that Cadets will be a thing of the past.

This is an interestingly written novel dealing with a period of history which is not particularly well known. The author has a particular interest in naval affairs generally and has obviously put in a considerable amount of study to ensure authenticity.

The novel is set in 1891 and deals with the exploits of a naval officer with the curious name of St Vincent Halfhyde, who is sent to Benin in West Africa to investigate the increasing presence of the Russian Navy in that particular area. The story is quite appropriate at this time when one considers the rise of the Navy of Soviet Russia in the last ten or 15 years, particularly with its increasing presence not only in the Indian Ocean, but around the ports of the various African nations which form the Third World.

Here, of course, is the Navy of the Czar and what gives this book a particular appeal, more than the story itself, which is nevertheless interesting and well told, is the des-

criptions of life and customs aboard naval vessels of the day, both in the Royal Navy and in the Navy of Czarist Russia. The descriptions of life in the latter navy, which are accurate as far as my knowledge of Russian history is concerned, give to the reader some idea of why the simmering discontent in that navy exploded into a series of mutinies as early as the first decade of the 20th century, but they also give us some understanding of the degree of hatred which caused the mutinous sailors in the revolution of 1917 to find such horrendous ways of disposing of their officers as throwing them into the boilers... alive!

The book has an appeal not only for its historical background but also for its novelty. Whilst countless novels have been set in the Navy of Nelson's day and numerous books have been written about the Navy of the First World War, a book dealing with such a time of peace as the 1890s is rare indeed.

I would still recommend this book to the father or mother looking for a Christmas present for the teenage son or daughter with an interest in the Navy in particular and the sea in general. I would also suggest to those same fathers and mothers that they would quite enjoy reading this book themselves.

JANES FIGHTING SHIPS 1975/76

Edited by Captain John E. Moore, FRGS, RN (retd). Published by Macdonald & Co (Publishers) Ltd, London.

Reviewed by: A. W. Grazebrook

The publishing of Janes Fighting Ships has become an annual event reported in the media the world over. This year was no exception,

with Australian radio and major dailies stimulating our enthusiasm for the book which arrived by sea some weeks later. We were not disappointed. Once again, Captain John Moore has managed to combine much new information with the standard naval reference work.

New features this year include improved type designation, a resume of naval construction programmes, and a much improved presentation of the missile and naval aircraft sections. One can now find not only what types of, but how many, naval aircraft are in the service of each power.

The resume of new construction programmes, though not always consistent with the details in the national sections, does highlight the resurgence in world naval construction. Sixty-four nations appear in the summary of major naval programmes.

Consolidating the improvements in last year's edition, national sections applicable to our own region have again been updated.

The Iranian section includes an elevation of the six new SPRUANCE type "destroyers" — they are bigger than the RAN's World War II cruisers — the first of which is due for delivery in 1978. The three submarines to be acquired from the USN are not listed, the announcement having come too late for inclusion in the book.

In his Foreword, the editor remarks that the RAN's present strength of five destroyers and six frigates (of which two and four units are aging rapidly) allows little flexibility. He draws attention to Mr Barnard's acceptance of the need for more destroyers after the patrol frigates — an acceptance Mr Morrison omitted to mention in his August speech to Parliament.

As the book is compiled in alphabetical order, the Australian section is unavoidably one of the earliest. Therefore, recently published drawings of the modernisation planned for the RIVER Class OEs are not included, and the patrol and landing craft given to Papua New Guinea are still included in the RAN section. Australians will note with interest that their former BATHURSTS, BROOME and GERALDTON still soldier on in the Turkish Navy.

The Indian section is more informative than it has been for many

years. There are now 11 PETYAs. Eight FOXTROT submarines are now in service, and the possibility of a further two is mentioned. A number of frigates and a new class of large patrol craft are building.

To our far north, the North Koreans now have at sea a strong force of eight ocean going patrol submarines, two dozen small escorts, and over 200 fast attack craft. All operate within easy striking distance not only of South Korea, but also of the trade routes to and from Japan.

The editor comments on delays in the more sophisticated types included in the Chinese naval construction programme and speculates as to whether this is due to political decisions or hardware difficulties. In spite of these delays, the last year has seen the Chinese patrol submarine force increase from 49 to 56. New submarine construction continues with a further six boats building. Four more ocean-going SSGW armed DOGs will join the three already complete. Eight SSGW armed escorts are already in service. Over 700 fast attack craft are at sea.

On the other side of the Far Eastern political fence, the navies of South Korea, the Philippines and Taiwan still show little progress in modernisation. Virtually all significant craft are of ex-United States World War II vintage. It is to be regretted that the compiler of these sections, Mr Norman Polmar, has not accepted the standard type classification used by the editor throughout the rest of the book.

As we have come to expect, Mr Norman Polmar's US section is most informative, not only as regards details and photographs of ships, but also concerning the tactical role of weapons and sensor systems. New

photographs include the first of the SPRUANCE class "destroyers" and the colossal nuclear powered aircraft carrier NIMITZ. Mr Polmar is to be congratulated on incorporating the very welcome US rationalisation of ship classifications. This change must have come when Mr Polmar was half way through his annual task, and occasioned him considerable inconvenience.

Readers who recall the depth of information in the Soviet sections of 20 years ago cannot but admire the achievement of Captain Moore in presenting, once again, the extent of detailed information included this year. A resume of the building programme highlights the fact that the Russians are continuing their naval expansion, building aircraft carriers, cruisers, destroyers, escorts, submarines (both fleet and patrol), hydrofoils, MCM craft and amphibious vessels.

The United Kingdom section includes updated particulars of the Type 22 Escorts, the first of which has now been laid down. Surface to air and surface to surface missiles provide protection against surface and air attack. Anti-submarine capability will be provided by two Lynx

helicopters only. The ASW torpedo tubes have been deleted, as have the two 40mm guns originally included in the design.

The French section includes particulars of the planned nuclear powered helicopter carrier, as well as their ongoing programme of submarine and escort replacement. Their new AGOSTA type oceangoing submarines are selling well in the export market, with the South Africans and Spaniards as firm buyers.

With the increase in the number of independent countries, the editor's job becomes annually more complex. In this edition over 125 separate navies are listed. This compares with the 97 listed in the 1965/66 edition. When combined with the world resurgence in naval construction, the rapid disposal of obsolete craft by the more mature navies, and the rapid development of new weapons and sensor systems, the editor's task becomes difficult indeed. He is to be congratulated upon producing a book which is a must for any naval correspondent who hopes to achieve a qualitative performance, and any person who wishes to make a serious study of maritime defence.

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CONTRACTORS AND SUPPLIERS TO THE RAN



Hydraulic Loaders for Awkward Handling Operations

By Sten Lagerman

Despite all the discussion in recent years about modernisation and mechanisation in industry, many people in the marine industries remain unaware of the increased efficiency and financial savings to be obtained from small, easy-to-operate mechanical aids — whether mounted on board ship or at the dockside.

Such equipment must be thoroughly reliable under all weather and site conditions and strong enough to perform the required lifting duty. It should also be able to handle a wide variety of loads, even where access is restricted.

These considerations apply in marine applications whether the equipment is ship or shore-based. One range of loaders now widely used for these purposes is manufactured by the Swedish company HIAB-FOCO which has developed hydraulically-powered loaders over many years and established considerable expertise in their design.

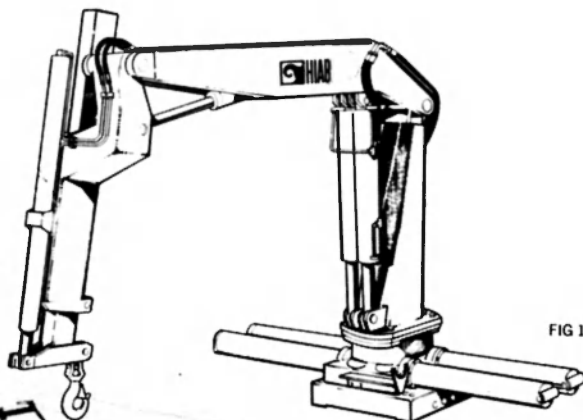


FIG 1

outreaches ranging between 0.5 metre and a maximum of 7.1 metres, but extra-extension booms can increase the maximum range to between 6.0 metres and 11.4 metres. All units can rotate through at least a complete circle: most through 410°.

Figure 1 shows a typical loader, the Type 950. This is rated at 9 ton-metres, with a maximum reach of 6.5 metres when fitted with a standard boom. The boom system, attached to the vertical body of the loader, consists of an inner boom jointed to an outer boom which carries the hydraulically controlled extension. The two-stage telescopic extension is guided by three rollers, two above it and one below, and a sliding lug. Lateral guidance is

THE EQUIPMENT

The HIAB range consists of hydraulically-powered loaders with capacities from 2 ton-metres to 15 ton-metres. In standard form the loaders can work at boom

provided by two sliding lugs on each side, mounted at the end of the outer boom.

The lifting force is applied through two hydraulic cylinders, connected in parallel, mounted on the loader body. All the cylinders, including the outer-boom drive and the extension control, are double-acting (ie there is positive hydraulic action in both directions).

The loader is rotated about its base by means of two horizontal racks, driven by hydraulic pistons, which mesh with a gear ring attached to a kingpost. The kingpost is connected by two bearings to the loader body.

The HIAB 950 can lift 5000 kg at 1.9 metres extension or 1375 kg at 6.5 metres extension. An alternative version with a one-stage hydraulic extension has a maximum reach of 5 metres.

The variety of winches, hooks, grabs, clamps, buckets, slings, claws, jaws and other handling attachments which can be fitted to such loaders is virtually limitless in shape and configuration. The only limiting factor is the loader's carrying capacity. Thus any loader can be quickly modified to handle loads of different sizes and shapes — ranging from boxes, bags and cartons to fishing tackle, bricks, bundles of timber, palletised cargo or cubic metres of sand. For marine installations a winch is the most common accessory.



FIG 3

CARGO HANDLING

For loading and unloading all conventional types of marine cargo at high speed and low labour cost, particularly to and from smaller vessels, lorry-mounted loaders are widely used. Whatever the cargo, the ability to drive onto the quay and load directly into a ship using the shipper's own equipment — already fitted with the correct handling attachments for the product — inevitably saves time for both the

shipper and the shipping company. The same lorry can also deliver goods to rail terminals, building sites or customers' factories.

Oil terminals normally have few dockside cranes because pumps and hoses move the oil, the heavy hoses themselves need moving. Fig 2 shows a HIAB loader lifting hoses aboard a tanker at Gothenburg, Sweden.

Delivering supplies to lighthouses, where cargo-handling facilities seldom exist, is another use for the shipboard loader.

OTHER SHIPBOARD USES

In ports and harbours everywhere, ancillary vessels such as tugs, bunkering lighters and pilot cutters assist larger ships by fetching supplies and spare parts, thus minimising turn-round times. To fulfil this function efficiently, the work-boat must carry her own handling equipment. Other vessels use loaders for buoy-laying. Fig 3 shows the 33-ton vessel TONNEN-LEGER which lays and moves navigational markers among the East Frisian shoals off North Germany. A HIAB 550 crane and hydraulic winch, mounted fore-and-aft in the bow, provide ample lifting capacity for markers weighing up to 1 tonne.

Uses include moving pumps and ventilation apparatus aboard vessels in distress, recovering sunken cars, and launching and recovering a vessel's own rubber dinghy (Fig 4).



FIG 2



FIG 4

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Fishing vessels too have found mechanical loaders equipped with hydraulically powered pulley-blocks ideal for hoisting heavy trawl tackle aboard in all weather and sea conditions.

British Petroleum's new system for clearing oil slicks first encloses the slick in a floating boom, then recovers the oil at up to 100 tonne/h with a hydraulically powered "skimmer". The latter is supplied as a packaged unit together with a HIAB 950 loader. When spillage is sighted, any suitable vessel can carry the package to the site, where the skimmer is lowered and later recovered using the loader (Fig 5).

Finally, pipelines on the sea bed often need protection from anchors or fishing equipment. Using a deck-mounted HIAB 970 loader with clam-shell bucket, one such line, the outflow from a sewage plant near Stockholm, was covered with gravel from the ship's hold at more than 90 tonne/h.

Whether operating on board or from the dockside, the simple



FIG 5

hydraulic loader is a versatile work-horse which can liberate larger, more costly mechanical-handling installations, reduce labour costs, cut handling time and, in short, handle most of the awkward, time-consuming jobs that exist on or beside the water.

MASSIVE HOVERCRAFT TAKES A BOW

One of the largest hovercraft yet built has made its public debut in Britain.

The fully amphibious VT 2, built by Vosper Thornycroft Ltd of Portsmouth, was on show at the Royal Navy equipment exhibition at Greenwich, London (October, 1975).

The hovercraft, capable of speeds of up to 60 knots, is propelled by two giant ducted fans, each four metres in diameter — the largest ever manufactured. Each is driven by a 3400 brake hp Rolls-Royce Proteus

gas turbine. The pitch of the fan blades can be varied for controlling thrust and for manoeuvring.

The craft is 30 metres long and 13.3 metres wide. It can clear 1.5 metre-high obstacles and operate over sand, mud flats, shallows or debris-strewn water.

The hovercraft can carry loads of up to 32 tonnes and has a vehicle bay measuring 21 metres long, five metres wide and three metres high. A full width door and ramp at the

bows and a 2.4 metre stern door and ramp permit through-loading.

With a full pay load ten and a half tonnes of fuel can be carried, giving a range of 300 nautical miles. Overloads can be accepted at a small sacrifice of performance.

The craft can be offered as a logistic support vessel, carrying, typically, heavy guns, light tanks and scout cars or a complete company of 130 men with their equipment and vehicles. It is also suitable as a missile-armed, fast patrol vessel.

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QUEENSLAND DIVISION — *Navy League of Australia*

ANNUAL REPORT — June, 1975

During this financial year every Branch has maintained a high level of activity in fund raising and improvements to their headquarters. This has always been the style of the Queensland Division, with emphasis on the development of local facilities with area support, to maintain a Navy orientated youth movement, rather than becoming involved in gratuitous, technical or strategic advice to the Department of Defence or the Government of the Day. The Naval defence of the nation is guided by very competent professionals.

This policy has been implemented mainly because of our geography and Branch dispersal, and after twenty-two years of great progress seems to be most appropriate for this Division. The Navy League of Australia operates throughout Australia as a public company, incorporated in April, 1966. Since then many of its commitments have changed or disappeared, leaving the currently active Divisions with the basic responsibilities of support for the Navy wherever possible, the management of their properties, and assistance to "The Navy" magazine.

A Federal Council meeting was convened in Melbourne this year but as the Director of Naval Reserves and Cadets was not attending, the cost of Queensland representation was not justified.

The need for an annual Federal Council has long passed and if the Defence Department has any requirement to discuss it can best be handled by the appropriate agent in the Divisions.

Communications with Defence during the past year have been minimal, and the previous amiable discussions with the occasional visitor have not been held. The Queensland Division regrets this, but perhaps it indicates that local affairs are proceeding without the need for consultation. This Division has developed a useful and friendly association with the Department of Administrative Services and their prompt and generous help, first given by the now retired Chief

Property Officer, Mr Frank Huxham, has been constantly maintained.

The Queensland Lands Department realigned the boundary of the South Coast lease, thus increasing the area available to TS TYALGUM by several hundred square metres without alteration to the rental.

This Branch has carried out extensive improvements to the two-storied headquarters, and completely replaced the sewerage system to cope with future Naval Reserve Cadet camps which may be held there.

Great credit is due to the President, Mr J. Spiers, Secretary Mr G. McCutcheon and their supporters that these most expensive works were put in hand and completed so promptly.

The success story of the Bundaberg Branch continues and extensions to the building at the Port are completed and are in use.

The growth of this Branch was started by the current President, Mr R. Moisel, with considerable support on the site by the Rotary Club and other volunteers, and it now stands as an impressive example of a well led community effort.

Mackay was the second Branch to build a headquarters for its cadet unit, TS PIONEER, and has always been extremely active. The current President and Secretary combination, Mr and Mrs Jenner, led a Branch which this year provided sailing boats for the unit at a cost of several thousand dollars. In addition there were many other gifts to the cadet unit.

The Townsville Branch maintains the headquarters for TS CORAL SEA. This year a new committee took office and the President, Mr K. Bellamy, and Treasurer Mrs D. Mathison, have drawn up a set of priorities for increasing the facilities for the unit.

The Cairns Branch appears to be developing as the star of the Division. Led by Mr G. McKaige, the President, a considerable number of local organisations have been involved in refitting MV TRITON and the ship will be operational by the end of this year.

A project which involves an overhaul of main engines and auxiliaries, slipping and painting, with volunteers working at weekends shows a degree of leadership and co-operation which may well be envied in other Divisions.

All this work has been carried out by civilian volunteers, in Branches extending over 1500 kilometres of Coast with minimal assistance from their original sponsor. This indicates the League's Cadet support has been implemented and is expanding in Queensland.

Good Branch Committees are essential, but special thanks are due to those accountants who act as their honorary auditors and maintain their financial stability.

Considerable liaison activity involving finance and correspondence is carried out by the Secretary, Colonel Fleming and the Treasurer, Mr A. Pearce, and it is they who have established the rental cash flow which has further assisted the Division to support so many cadets in well equipped headquarters.

1974-75 was a good year for Queensland and when the Cairns Branch project becomes operational, this Division will have even more diverse marine facilities to offer the seven hundred Naval Reserve Cadet personnel currently borne and administered by the Navy.

ATHOL ROBERTSON,
President.

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A COMPARISON OF DEFENCE SPENDING AND POPULATION RATIOS

by PHILLIP GOURLAY

TABLE I

Country	Population Ratio (3 Significant Figures)	Converted Manpower Figures (1973)				Defence Spending as % of GNP
		Army	Navy	Air Force	All Reserves	
USA	16.0	61,200	34,500	40,300	53,500	6.2
USSR	19.0	94,800	25,000	47,400	158,000	5.4
UK	4.34	41,100	18,000	22,600	99,000	4.9
FRANCE	3.98	83,200	17,300	25,600	130,500	3.1
CHINA	60.7	41,200	3,800	3,600	87,300	?
INDIA	43.6	19,000	700	2,300	7,600	3.1
JAPAN	8.15	18,900	4,700	5,000	4,900	.8
SINGAPORE	.175	108,700	6,300	9,100	223,000	6.8
MALAYSIA	900	62,400	5,300	5,900	45,000	4.3
SWEDEN	624	93,500	23,700	22,000	1,061,000	5.1
SWITZERLAND	495	67,600	—	18,200	1,175,000	1.7
ISRAEL	.236	530,000	19,100	67,900	1,075,000	47.8
SYRIA	.527	237,000	4,700	19,000	404,000	14.9
POLAND	2.58	85,300	9,700	22,500	397,000	3.7
EAST GERMANY	1.30	77,000	13,100	21,500	561,000	5.3
NEW ZEALAND	.228	24,400	12,500	18,500	44,500	1.7
AVERAGE FOR ALL COUNTRIES	10.2	103,100	13,200	22,000	345,400	7.5
AVERAGE FOR UK & USA	10.2	51,100	26,300	31,500	76,300	5.6
AUSTRALIA	1.00	31,200	16,100	21,500	27,700	3.3

Table I was prepared in an endeavour to compare Australia's military manpower figures with a representative sample of the armed forces of other nations. As Australia is a rich industrialised nation it would appear logical to compare it with other industrialised nations. However, as most of our neighbouring countries have underdeveloped agrarian economies a ratio of two industrialised countries to one agrarian country was decided upon as a reasonable compromise.

Six known nuclear nations were chosen (USA, USSR, UK, France, India and China) — the manpower figures for these nations will be found conservative as nuclear arms take a larger percentage of the budget for a relatively small percentage of the manpower. In other words if these nations had no nuclear capability they would have a bigger conventionally armed force for the same defence budget. Two Warsaw Pact countries (East Germany and Poland) were chosen to balance the two NATO countries (UK and France). Sweden and Switzerland were chosen as they are neutral nations. Two nations on a war footing were introduced (Syria and Israel) and these will have inflated manpower figures. Singa-

pore, Malaysia and New Zealand were introduced as they are small countries (two large Asian nations are already included, viz, India and China) and close neighbours. Japan was introduced as another large Asian nation and because of its anti-military posture. This gives a total of sixteen countries (eight industrialised, four agrarian and four being a mixture of both, or falling into unique categories).

The UK and USA were given a separate average in Table I, because as our principal allies and protectors in past years, and hopefully in the future, they should reasonably be able to expect Australia to allocate at least as large a percentage of national resources and manpower to defence as they do. The UK is an island like Australia, and the USA can be considered one, as none of the United States neighbours on the North American continent can be

remotely considered as a military threat. Nations in South America or Africa were not listed as they do not appear to constitute a credible threat to Australia, and we are not as likely to become involved in overseas wars on these continents as we are in Europe, Asia or the Middle East.

The manpower figures in Table I are obtained by dividing the actual manpower figures of these nations by the population ratio. This provides the manpower which the armed forces of those nations would have if they had Australia's population and enables, I believe, a direct comparison.

From examination of the figures of Table I, a further table can be drawn up giving the number by which Australian defence manpower figures would have to be multiplied to obtain the average of the other countries (or to obtain the average of the UK and USA).

TABLE II

Average Manpower	Army	Navy	Air Force	All Reserves	% GNP
ALL COUNTRIES	3.3x	.8x	1.0x	12.5x	2.3x
UK & USA	1.6x	1.6x	1.5x	2.8x	1.7x

It can therefore be calculated that Australia would have to increase the Army and Navy by 60%, the Air Force by 50%, the Reserves by 180% and defence spending by 70% to bring our defence effort to a comparable one with our principal allies.

NAVY PICTORIAL



WORLD'S LARGEST "PLASTIC" WARSHIP

Assembly of the mould for the new class of Mine Counter-Measure Vessels (MCMV) for Britain's Royal Navy which, on completion, will be the largest ships built of glass reinforced plastic anywhere in the world. The new class, designed by the Ministry of Defence, will be built by Vosper Thornycroft in Southampton, Southern England.

The Royal Navy will be the first service to put a class of GRP MCMVs into operational use. The ships are to be fitted with the latest British mine-sweeping and minehunting equipment and will be powered by twin diesel engines.

The decision to build the class follows a number of years' research, development and testing carried out by the Ministry of Defence in close co-operation with the builders. Throughout, the quest has been for material having the necessary qualities of strength, stiffness and durability for the hull of a warship, while exercising little or no magnetic influence.



PRINCE CHARLES GIVES HIS FIRST PUBLIC FLYING DISPLAY

His face bearing the look of total concentration, Prince Charles carries out the all-important pre-flight checks on his Royal Navy Wessex Mark V helicopter, before demonstrating his skills as a pilot in public for the first time. The Prince, a lieutenant in the Royal Navy and a fully qualified helicopter pilot, was taking part in a mock assault during a recent international Air Day at the Royal Naval Air Station, Culdrose, in Western England.

The display was watched by 30,000 people.

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NAVY PICTORIAL

CONTINUED



HMS ANTELOPE, second of the Royal Navy's 2500-ton Type 21 AMAZON class frigates to be built by Vosper Thornycroft. She has recently gone into service with the Royal Navy. The Type 21 was designed by Vosper Thornycroft in collaboration with Yarrow Shipbuilders under a Ministry of Defence contract, and eight have been ordered for the Royal Navy.

ALL IN ONE

A rare sight captured off Portland in southern England as all the modern types of helicopter currently in use with the ROYAL Navy line up for a spectacular fly-past. Together they comprise a basis for one of the most versatile and effective naval helicopter forces in the world.

From the top they are: The Sea King, the world's most advanced anti-submarine helicopter, which is also used for search and rescue operations. The Royal Navy are currently training personnel from many nations who are buying this helicopter. Next three Wessex, a Mark 3 for anti-submarine duties; a Mark 5 troop carrying aircraft; and a Mark 1 now mainly used for search and rescue work. The Lynx, which will enter service in 1976, incorporates the latest engineering technology and will replace the Wasp in many frigates and guided missile destroyers. The Wasp, which operates from frigates in anti-submarine and anti-fast patrol boat roles. Finally the Gazelle, an advanced fast helicopter which has recently become the Fleet Air Arm's basic helicopter trainer.

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The famous ship, VICTORY, flagship of Lord Nelson at the Battle of Trafalgar, permanently preserved in dry dock in Portsmouth Naval Dockyard.

Preserving Britain's Maritime Past

The Maritime Trust, founded by Prince Philip, Duke of Edinburgh, in December, 1969, to preserve ships of historic importance, recently reached its first fund-raising target of one million pounds. The money, given and promised by individuals, companies and trusts and spread over a ten-year period, has already saved many important vessels from oblivion — not all of them glamorous sailing ships.

The latest acquisition, for instance, is a "dirty British coaster", the ROBIN, built in London in 1890 and of a type immortalised in one of John Masefield's most famous poems. The Science Museum offered £10,000 towards the purchase from her recent Spanish owners. The

Maritime Trust has organised the vessel's return to Britain and the necessary refit and restoration to enable her eventually to be put on view in her home port of London.

Just as the National Trust seeks to maintain historic buildings for future generations, so the Maritime



The CAMBRIA, the last Thames sailing barge to trade under sail alone and one of the vessels bought and restored by the Maritime Trust

By Commander
N. E. Whitestone,
RN (Retd)

Trust exists to conserve ships — and indeed all things maritime — of historical or technical interest.

SLOW TO MOVE

But for a great maritime nation, Britain has been slow to move. True, there has been Nelson's famous flagship VICTORY, largely repaired and restored by the generosity of a private benefactor, the shipping magnate Sir James Caird. But there are deplorable gaps.

Although Britain built the world's first dreadnought in 1906, not a single example remains and it was only at the eleventh hour that the steamship GREAT BRITAIN, masterpiece of the great Victorian engineer Brunel, was saved. It was the ship that made the first screw-propelled crossing of the Atlantic and it embodies almost all the principles that have led to the large, modern supertanker.

The basic cost of rescuing it from a Falkland Islands beach and towing it to England on a pontoon was met by Mr Jack Hayward, who had also saved Lundy Island for the nation.

"With the escalation of costs," said Vice-Admiral Sir Patrick Bayly, the director of the Maritime Trust, "even the sum of one million pounds now raised cannot catch up with the long neglect of this branch of industrialised archaeology. A second million is the Trust's next target."

MUCH ACHIEVED

Much has already been achieved. Vessels fully restored include the last West Country trading schooner KATHLEEN AND MAY, the Thames barge CAMBRIA (see photograph), the last of her kind trading under sail alone, and the last steam herring drifter LYDIA EVA. Many ex-Royal Navy men will welcome the drifter's purchase by the Trust, for in the days when battleships formed the main strength of the Fleet many such vessels were bought or chartered by the Admiralty to act as tenders to the big ships.

The Brixham trawler PROVIDENT has been bought by the Trust and is at present on charter to the Island Sailing Club of Salcombe in the west of England. When her sailing days are over she will be fully restored as a fishing vessel. Among other craft fully restored in the west country is the Cornish lugger BARNABAS and a number of small local vessels.

The transition from sail to steam is a particularly interesting period and one of the projects already begun by the Trust is the restoration of the sloop GANNET, built in 1878 as a three-masted barque with steam propulsion as well and a true representative of the "up funnel, down screw" era. On dry-docking two years ago, the Gannet's underwater condition proved to be near perfect and very little work was needed.

THE WARRIOR

One of the most remarkable warships of all, which the Trust

hopes one day to be in a position to restore, is WARRIOR, the first fully armoured iron ship in the world and the forerunner of the dreadnought and all later battleships. Launched in the river Thames at Blackwall in 1860, she is still in a good state of preservation and for some years has been serving as an oiling jetty at Milford Haven, Wales. She has just been placed in dry dock for a thorough examination.

To restore her to her former glory may well cost £2 million and rather than exhaust the Trust's funds at the outset, seeing that the ship is in no immediate danger, it was decided to concentrate on more attainable objects.

Another important vessel is the fine 150-year-old wooden frigate UNICORN at Dundee, Scotland, where until recently she had been serving as headquarters ship of the local Royal Naval Reserve. Two years ago the UNICORN, with the help of the Maritime Trust, was docked for inspection and repair and her hull was found to be in such excellent condition that she only stayed in dry dock for 48 hours.

The Trust also helped with the arrangements for docking the frigate FOUDROYANT, owned by the Foudroyant Trust and still used for youth training in Portsmouth Harbour. Some seven years older than UNICORN, she is one of the oldest ships afloat.

GREENWICH ATTRACTIONS

The Trust now manages the CUTTY SARK on behalf of the Cutty Sark Society and also owns Sir Francis Chichester's yacht Gipsy Moth IV, berthed nearby at Greenwich. Both of these attract large numbers of visitors to London.

Many ship preservation societies have sprung up in recent years and the Maritime Trust has used part of its funds to assist some of these, including the SS GREAT BRITAIN Project already mentioned, and the HMS BELFAST Trust, which has been instrumental in bringing this fine cruiser, representing the Royal Navy of World War II, to a permanent berth opposite the Tower of London.

During her first year of display the Belfast attracted 550,000 visitors — a higher figure than that achieved by either the CUTTY SARK or the VICTORY.

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the MARY ROSE, lost with nearly all hands in July, 1545. It lies entombed in mud some 45ft (14m) below the waters of the Solent off the south coast of England. If, as is hoped, the hull of the MARY ROSE is found to be complete it should be possible to raise her, using methods already successfully employed with Sweden's WASA.

What a triumph it would be if the MARY ROSE could return to Portsmouth roughly 470 years after she was built there.

LAST DESTROYER

Reverting to more modern warships, a Trust has been set up with financial support from the Maritime Trust to preserve HMS CAVALIER, the last World War II-type destroyer.

The Trust is also helping the Windermere Nautical Trust to put on view its fascinating collection of Victorian and Edwardian steam pleasure craft, some of them salvaged from the bottom of Lake Windermere. Nor are racing yachts being neglected: the J-class ENDEAVOUR I, which in 1934 came nearest of all British challengers to winning the America's Cup, has been purchased with a view to restoration by a south coast of England firm of yacht builders in co-operation with the Trust.

It has long been an aim of the Trust to acquire and restore an old harbour or shipyard where the seafaring crafts of working with iron, wood, wire and rope can be maintained. The ancient west country port of Morwhellan is being considered as a place of interest in its own right which could be put to this use.

Interest in ship preservation is growing apace. At the first Congress of Maritime Museums held two years ago at the National Maritime Museum, Greenwich, ship preservation was one of the most widely discussed subjects. Movements akin to the Maritime Trust are afoot in nearly all west European countries and it is evident that the Trust is in step with international thought.

As far as Britain's maritime treasures are concerned, the work of saving them for present and future generations depends on the people themselves, for the tasks can only be carried through with public support. The attainment of the first target is an encouraging sign that this support is forthcoming.



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"The Civilian Arm of the Navy"

The principal objective of the Navy League of Australia is to stress the vital importance of Sea Power to the Commonwealth of Nations and the important role played by the Royal Australian Navy.

The League supports the Naval Reserve Cadets who are administered by the Royal Australian Navy, which Service provides technical sea training for boys who intend to serve in the Naval or Merchant Services, also to those sea-minded boys, who do not intend to follow a sea career, but who given

this knowledge will form a valuable reserve for the Naval Service.

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".

DIVISIONS

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THE UNITED STATES NAVY —

*Where we are, where we hope to go
and the direction we are moving*

My remarks to you today concern the Navy: where we are, where we hope to go, and the direction we are moving. It is very much the message I have recently presented to the committees of the Congress associated with military appropriations.

As you are aware, there is great competition within our society as to the allocations of our limited national income. There are few who will argue that a Navy is not needed — the argument is in the degree — how strong and how much of our national income should be so allocated.

Because there are some in our society who will decry spending for a strong Navy as being counterproductive to a growing economy, we must ensure that the message for an adequate level of national military strength is heard and understood.

So, I want to preface my remarks today with some general observations concerning the country's defence posture in a time of domestic economic stress.

We are all aware of the strains which a defence budget approaching 100-billion dollars places on a national treasury already pressed by rapidly expanding mandated increases in other federal programmes.

I think three fundamental points must be kept in mind, however, concerning the military posture which the President has asked the Congress to support in fiscal year 1976.

The first is that the defence budget, if approved as submitted, will represent historically low demands on our country's fiscal, industrial, and manpower resources. Defence expenditures will represent about five per cent of capacity output — the lowest point

Address by Admiral James L. Holloway III, US Navy, Chief of Naval Operations, before the National Convention of the Navy League of the United States, New Orleans, 1975

since the pre-Korean demobilisation. As a burden on the economy, the Department of Defence has been cut almost in half since the Vietnam high. As a percentage of total government spending, at 16 per cent it reaches the lowest point since before World War II; and our military manpower has been reduced by some 600,000 compared to the mid-60s before we began our Vietnam expansion.

The second is that the Soviets currently have shown no abatement in the trend toward steady build-up of their own military capabilities. The most recent intelligence data show that in every meaningful category of defence expenditures, the Russians continue to invest more than we do. Calculated in dollar prices, the Soviets currently outspend us by 25% in military procurement, 20% in overall research and development, 20% in general purpose forces, and 60% in strategic nuclear offensive forces. In the period since 1960 the Soviet Union has expanded its military manpower by well over a million men and has deployed a massive capability in the Soviet Far East while simultaneously strengthening its capabilities opposite NATO.

In the area closest to my own professional interest, I observe that the Soviets have spent 50 per cent more than the US Navy for new ship construction over the past decade, and that they are currently outspending us by one-third in that category, despite our own increased

efforts to replace the World War II vintage vessels still in our naval inventory.

The third point that must be made is that these contrasting US and Soviet trends have occurred against the backdrop of shifting power relationships in the world — to which the changing US-Soviet military balance has itself contributed significantly.

We know that the Soviets continue to see merit in shifting that balance to their own advantage. For this reason, I would expect them to continue increasing their real spending on military power by the three to five per cent annually that has characterised their actions over recent years.

All of this suggests that we are entering a period of significantly changed relationships in the world, and that many of the comfortable assumptions concerning the ability of American military power to maintain peace, stability, and assure the protection of our own vital interests around the world may be challenged in the years ahead.

With that by way of background, I would like to turn now to the role of the Navy in maintaining the kind of military balance which I think is essential to our national security interests in the future.

In doing that, I believe it is important, particularly on this occasion, to outline for you the naval philosophy which I believe should guide our efforts. So, I shall deal with some rather basic questions: What is the Navy's primary mission? — Is that mission relevant in today's world? — What size should the Navy be? — And, finally, can the Navy carry out its mission?

First, we must remind ourselves that the primary mission of the

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United States Navy is to gain and maintain control of the seas, and to utilise that control in support of national policy. By "control of the sea" I mean the assurance that we will have continued free use of international waters wherever and whenever required by our essential national interests.

Into the foreseeable future, I am convinced there will be no diminution of the national requirements for this Navy mission. Indeed, a number of trends suggest it will increase. The United States is essentially an island nation. Two of our States lie overseas. Much of our foreign trade is intercontinental. The US is not independent in terms of raw materials. We must import 35 per cent of our current oil consumption. By volume, ninety-nine per cent of our overseas trade is carried by ship. Economic interdependence is a fact of modern day life.

Our political and security relationships equally involve us overseas. The United States has defence treaties with 43 other nations, and 41 of these lie overseas.

Our foreign policy, international trade, and import-needs determine our overseas commitments and the pattern of our essential sea lines of communications. Threats to the security of these vital overseas areas and the connecting sea lanes must be considered as threats not only to our allies but, more fundamentally, to our own security.

Therefore, a principal function of the Navy is to maintain a credible military presence overseas in those areas of critical importance to us and our allies, both to reassure our friends and to deter potential adversaries.

For years, our naval forces on station in the Mediterranean and in the Western Pacific have given our national authorities a credible, reliable and very flexible instrument for the support of our foreign policy, and provided an underpinning for our diplomatic efforts to maintain peace and stability in areas that matter to us.

In addition, since the oil embargo of 1973 our interests in the Indian Ocean has grown considerably. Our presence there is to demonstrate our concern for the security of the vital oil routes from the Persian Gulf, and

to reassure our friends in the Middle East of our continuing interest in their security as well.

But the ability of US forces to support our interests around the world, and to maintain our essential commitments, is becoming increasingly difficult.

For today we have a diminishing overseas base structure, with additional uncertainties for the future:

— Our relationships with Turkey are under stress.

— Greece is reviewing the status of her NATO relationships, and bilateral US base arrangements.

— We are currently renegotiating base rights with both Spain and Portugal, involving bases such as the Azores and Rota.

— The base structure in Thailand has been substantially reduced in the past years.

The Navy must not only provide a worldwide military presence in peace time, but must always be prepared to carry out its combat functions across a broad range of potential conflict scenarios. Maintaining this readiness posture is increasingly complicated by the continuing growth of the Soviet Navy — not so much in increased numbers of ships as in the steadily improving quality of their forces which translates into significant advances in overall warfighting capability in its broadest strategic sense.

Thus, it is against this backdrop of undiminished responsibilities, a troubled world, and a growing Soviet maritime capability, that we assess the adequacy of our own naval resources. Clearly, the challenge is formidable. This year, we have 502 active ships. Six years ago we had nearly twice that number. In fiscal year 1976, the Navy will have 490 ships, the lowest total in the active fleet since 1939.

Certainly our newer ships and aircraft are more powerful and capable than those they replace. But the weapons technology of our adversaries has advanced at a similar pace. And geography has not changed, so the Navy must still cover the same broad ocean areas. This means we must continue to be concerned with numbers as well as with capabilities. We need ships in proper balance among types: carriers, surface combatants, submarines, amphibious and support

ships. And within a constrained budget, we need a careful balance between high performance general purpose forces and less expensive limited mission ships we can procure and deploy in greater numbers. It is these two kinds of balance that go into the careful development of our shipbuilding programmes. These programmes will enable the Navy to maintain a modern fleet, sized to the needs of our future security requirements.

What should the size of the Navy be? First, it should include as a priority national programme, an adequate strategic fleet ballistic missile submarine force. Secondly, it should be large enough to maintain effective naval forces in the Eastern Atlantic, the Mediterranean and the Western Pacific, including periodic presence in the Indian Ocean.

By effective naval forces, I mean offensively powerful enough to prevail over potential hostile forces routinely deployed into the theatre of operations, and logistically equipped to operate in their area of responsibility independent of foreign bases which could be denied through either political or military action.

The Navy must be large enough to reinforce those forward deployed forces in time of crisis and alert, and to have enough ships of the right kinds to carry out — in conjunction with the other services — the tasks demanded by national strategy.

All this requires about 600 capable ships. To attain a fleet of this size by the mid-1980s, our shipbuilding programme must average about 34 ships a year. Inflation has severely constrained our fiscal year 1976 programme to a level of 23 ships. Yet I am encouraged that the fiscal year 1977 programme of 30 ships will start us along the path toward a properly sized Navy.

But ships and aircraft alone cannot do the job. We can never realise the full potential of these modern weapons systems without the capable people to maintain and operate them to the limits of their design capability.

The Navy must continue to develop a competent corps of career professionals. We must recruit high quality young men and women, and re-enlist a high percentage of the very best.

To do this in the all volunteer atmosphere is demanding. We must strive to make a service career as attractive as we can within the unavoidable limitations imposed by military life.

But we must be realistic. In spite of expanding commitments, diminishing force levels, increasing Soviet capabilities and the challenge of the all volunteer force, we must face today with what we have in hand. We cannot set aside our responsibilities while waiting for a 600 ship Navy. We must concentrate on getting the most we can out of what we have, to gain the highest possible level of capability, today.

To this end, the Navy has set for itself Five Primary Goals:

The first is readiness. Overall fleet readiness is our most important goal. The true measure of the Navy's value to the nation shall always be its ability to carry out its missions — whatever the place, time or circumstance.

The second is flexibility. Perhaps the major value of modern naval forces is their unique flexibility. Recent events have clearly demonstrated the worth of a navy capable of responding to a wide spectrum of tasks ranging from the projection of national power for the protection of American citizens and interests, to humanitarian missions. Because it is impossible to predict accurately in every instance where or how the Navy will be called upon to respond, we must pursue the concepts and capabilities that give us that flexibility.

The third is offensive capability. At the very heart of deterrence is the self-evident statement that nobody starts a war he expects to lose. Our ships and aircraft must be able to credibly demonstrate an ability to inflict unacceptable losses upon any enemy. A clear realisation of this ability by potential adversaries will significantly contribute to the prevention of a conflict.

The fourth is balance. Without proper balance, a military force loses its flexibility, becomes more easy to counter, and its effectiveness is reduced. Therefore, no single area of naval warfare — aviation, surface, submarine, amphibious, or support — can be excessively emphasised at the expense of others.

The fifth is personnel professionalism. No matter how modern

the ship or advanced the aircraft, we will never attain the full design performance of the available technology unless we have the experienced, motivated, and competent personnel to maintain and to operate our weapon systems.

This leads to the final question: Can the Navy carry out its missions and tasks in support of our national strategy today?

My answer to that question is a qualified "yes".

Qualified, because there is an infinite number of circumstances in which a US-Soviet conflict could be cast. But I consider that today, by a small margin in significant scenarios — particularly those involving vital US national interests — the US Navy could successfully carry out its mission against the Soviet threat, but not without suffering painful losses.

A second qualifier must refer to this particular time. Today we have the forces which provide the capability for marginal success. But further erosion of our force levels, or even maintenance of the status quo in the face of the continued growth of Soviet maritime capability, could reverse the balance for success which currently resides in our favour. Under these projections, the US would no longer be able to prevail at sea in the defence of our most vital national interests.

Today, we can accomplish our mission. We are facing our current responsibilities squarely and with confidence. Nevertheless, if current adverse trends were to continue, Soviet maritime power could gain a clear military advantage. Thus, the full support of the Congress for the Navy budget — now and in the critical years just ahead — is absolutely necessary if we are to maintain the same degree of confidence in the future. In short, and in a very literal sense, the

proposed Navy programmes represent a reaffirmation of US determination to remain a maritime power whose ability to use the seas for its essential national purposes can be successfully challenged by no one.

As the Secretary of Defence has recently observed, we are at the point in our defence capabilities now where any further significant reductions can put in peril our ability to defend those interests that the nation has categorised as vital over the three decades since World War II.

If we are to abandon those interests now, it should be done as a conscious act of national policy only after the most careful deliberation, and with a full awareness of all its consequences for the things we hold important.

I do not think the American people — even during a period of difficult internal stress — want to take so drastic an action.

I personally do not believe we could look to the future with any sense of confidence or security if we were to do so.

But we are in danger of stumbling into this situation unconsciously by continuing to cut away at our ability to maintain military balance, to deter actions hostile to our essential interests, and to support a diplomacy intended to bring peace and stability to areas that are important to us.

The Navy's plans for the future reflect a keen awareness that the United States will continue as a maritime nation and must, therefore, continue to possess the required maritime strength. That awareness needs to be shared by the citizens of this country, and you — the Navy League — can contribute importantly to this awareness. I urge you all to continue to work actively toward this realisation in the interest of your Navy and your country.



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