THE NAVY

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AUGUST-SEPTEMBER-OCTOBER, 1979

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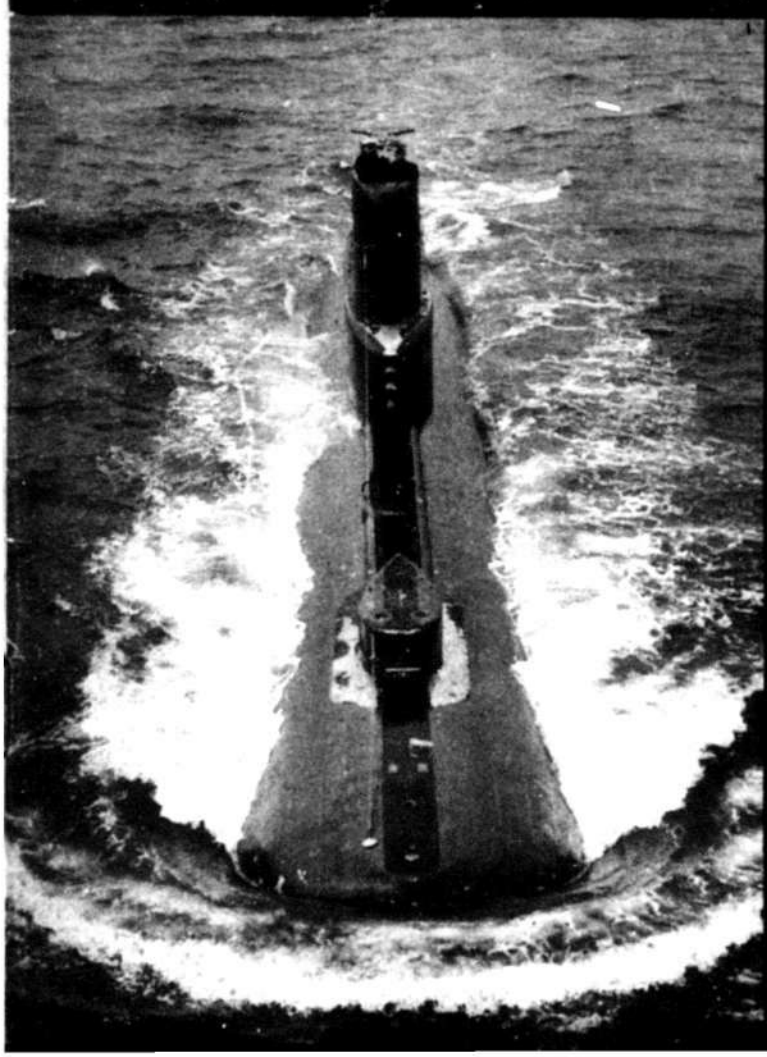
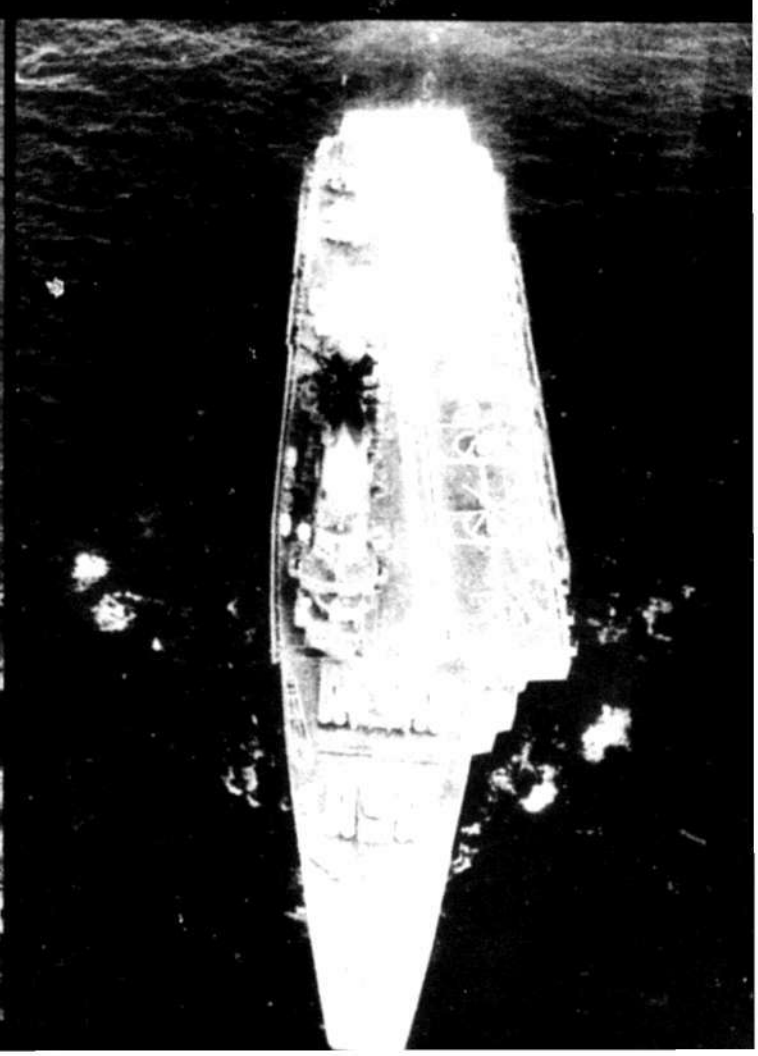
* FEATURING DETAILS OF NAVY WEEK IN AUSTRALIA





THE NAVY

The magazine of the Navy League of Australia

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Registered for posting as a publication — Category A

Vol. 41 AUGUST/SEPTEMBER/OCTOBER, 1979 No. 3

An impressive view of the bridge and forward gun turrets of U.S.S. WISCONSIN, the last American battleship — one of the 150 photographs from "Battleship Design and Development 1905-1945" by Norman Friedman, published by Conway Maritime Press and reviewed in this issue of "The Navy" on page 13

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Annual Navy Week
Message From . . .

The President of The Navy League of Australia

The present extended visit of a Royal Navy task group to Australia and the recent visit of a Dutch naval squadron to Western Australia are timely reminders of the value of our links with Britain and the West European nations.

In defence terms, for reasons which do not need to be spelled out Australians during the last quarter-century have been more conscious of the "American Connection" and ANZUS than of our older association with Europe. America on the other hand is clearly pre-occupied with Europe and pays comparatively little attention to Australia.

In fact, all nations large and small which share similar ideals, hopes, fears and aspirations need one another no matter where they happen to be located on the globe.

The advantages to Australia of a close association with North America and West Europe are obvious; much less obvious is the value to them of their association with Australia. Our *region* however with its huge population and natural resources is of considerable importance to the whole world, and if Australians had the will to "identify" with the many SE Asia and SW Pacific countries which form the region — without being swamped in the process — then we might go some way towards providing one of the bridges between East and West which everyone seems so anxious to find.

The question is — do we have not only the will, but the vision and imagination? One likes to think we do; circumstances caused earlier Australians to be realistic and innovative, and in recent years we have been boosted by an influx of people from forty or more countries with lots of fresh ideas. If we could only stop sniping at each other and cease belittling ourselves and our country, we have a future any nation might envy. If we don't we probably won't have a future at all.

GEOFFREY EVANS

Editor's Comment . . .

New contributors in this issue of "The Navy" include Mr. S. Brett, David Diment, Captain John Moore, Editor of "Janes Fighting Ships", and Mr. I. C. MacGibbon, New Zealand Defence Historian. Navy Public Relations, Harry Adlam, John Mortimer, the Federal German Navy, the Swedish Consulate and Brooke Marine have also lent valuable support.

To help reduce the length of time between closing date for contributions and the publication date, the following deadlines have been set: *Nov./Jan. Issue — 15/10/79; Feb./April — 14/1/80;* and *May/July — 14/4/80.*

ROSS GILLETT

HNLMS KORTENAER at Fremantle, 26th May, 1979. *(Photo — Ross Gillett).*

OUR COVER PHOTOS

Top: GOTA LEJON: Swedish Light cruiser in service between 1947 and 1971. Sold to Peru and now named LATORRE. *(Photo — Royal Swedish Navy).*

Bottom Left: U11 a Type 205 class submarine of the Federal German Navy. *(Photo — Federal Germen Navy).*

Bottom Right: Russian Aircraft Carrier MINSK. *(Photo — R.A.N.).*

4TH OCTOBER, 1913

BY DAVID DIMENT

The entry of the RAN into Sydney Harbour in October, 1913 illustrated a number of significant points in Australia's defence policies and plans at that time.

These included the local political consensus undertaken in Australia in response to increasing international tension which, in less than a year's time, would manifest itself in the outbreak of World War I. However, the most obvious thing illustrated in the Sydney press at the time was the tremendous popular enthusiasm which the entry of the RAN created.

From Saturday, October 4 to Friday, October 10 was designated "Fleet Week" with the accompanying "Fleetitis" reaching the heights of variety and intensity. Sydney papers had extensive coverage of events throughout Fleet Week with the greatest attention being given to the actual arrival of the fleet unit. This fleet consisted of AUSTRALIA, a 20,000 ton battlecruiser, SYDNEY and MELBOURNE, *light cruisers*, ENCOUNTER, a light cruiser on loan until HMAS BRISBANE was completed, and three destroyers YARRA, PARRAMATTA and WARREGO.

The people of Sydney congregated at every vantage point to see the fleet's arrival. The crowd was especially heavy at South Head:

"Great Armies of sightseers . . . the tram service on the south-head line was dreadfully congested. Every car looked like a hive of bees packed to suffocation. The roofs of the cars were not crowded only because after the visit of the American Great White Fleet new regulations forbidding such practice were introduced[1]". As the *Sydney Mail* explained:

> *. . . the memory of 16 American battleships had taken the edge of novelty from a naval demonstration but that was hardly the point. The sight of the fleet meant more to the Australian people than the visit of any foreign fleet. It was our expression of Australian patriotism ships of defence bought in love of country and empire . . .*[2].

The arrival of the fleet was witnessed by "many thousands" ashore and afloat. Those ashore were congregated not just at South Head but also at Farm Cove and Macquarie Point where the scene was "picturesque and animated and the popular enthusiasm unbounded. . .[3]". Also on the north side of the harbour "all the headlands . . . were thickly thronged and there would have been more on Bradley's Head and Georges Head . . . had the tram service been able to cope . . .[4]".

In fact, people were on headlands as far south as Maroubra and Long Bay. These spectators, however were to be disappointed because the entry of the Fleet was calculated to stir the imagination and create an impact so the ships stayed away from the coast.

Weather for the entry into the harbour was perfect with "the sun . . . shining brightly and the harbour waters . . . as peaceful as a lake . . .[5]". One slightly jarring moment occurred during the fleet's entry when a man ascended in a balloon at Watson's Bay and proceeded to throw out "bombs" in order to demonstrate the possibilities of balloons *in wartime. However, this spectacle only* held "for a minute or two the attention of the people who in their thousands were crowding the foreshores and the boats that lay within the harbour . . .[6]".

AUSTRALIA (the biggest warship that had ever entered the harbour) was described as "majestic and beautiful, yet *a grim portentious thing*[7]". *In a sense,* this remark could equally apply to the fleet as a whole. The entry of the fleet was a brilliant spectacle but, equally, it was a sign that the international situation was tensing and preparing for World War I.

1: *The Daily Telegraph* Monday 6/10/1913 p. 11.
2: *Sydney Mail* Wednesday 8/10/1913 p. 27.
1: *Sydney Morning Herald* Monday October 6th 1913 p. 1.
2: *Ibid.*, p. 6.
3: *Ibid.*, p. 5.
4: *Ibid.*
5: *Ibid.*

THE NAVY LEAGUE OF AUSTRALIA

PATRON IN CHIEF: His Excellency the Governor-General.

FEDERAL COUNCIL
President: Commander F. G. Evans, MBE, VRD, RANR.

Vice-President: Commander D. M. Blake, VRD, RANR.

Vice-President: Mr A. W. Grazebrook.

Secretary: Lieut Cmdr O. V. Dimmitt, VRD, *RANR. Box 227, PO Hawthorn, Victoria, 3122.* Telephone 29 6294.

New South Wales Division
Patron: His Excellency, the Governor of New South Wales.

President: Lieut Cmdr E. Bryden-Brown, VRD, RANR.

Honorary Secretary: Lieut Cmdr Bryan Rowland, RD, RANR, 39 Waratah Road, Turramurra, 2074. Phone: 440 8124 (home), 239 1022 (office).

Victorian Division
Patron: His Excellency, the Governor of Victoria.

President: B. J. Bird, Esq.

Secretary: Lieut Cmdr O. V. Dimmitt, VRD, RANR, Box 227, Post Office, Hawthorn, Victoria, 3122. Telephone 29 6294.

Queensland Division
Patron: His Excellency, the Governor of Queensland.

President: *Surgeon Commander* A. H. Robertson, RANR.

Hon Secretary: Lieutenant E. W. Crooke, RANR, 780 Gympie Road, Chermside, 4032.

Australian Capital Territory Division
President: Commander D. M. Blake, VRD, RANR.

Hon Secretary: Lieutenant F. Whetton, 66 Bradfield Street, Downer, ACT, 2602.

South Australian Division
Patron: His Excellency, the Governor of South Australia.

President: Mr D. G. Schrapel.

Hon Secretary: Miss A. Fitzgerald, Box 1529M, GPO Adelaide, SA, 5001.

Tasmanian Division
Patron: Vice-Admiral Sir Guy Wyatt, KBE, CB.

President: Mr. D. M. Devitt.

Hon Secretary: Mrs B. McMeekin, 32 Alanvale Road, Launceston, Tas, 7250.

West Australian Division
Patron: His Excellency, the Governor of Western Australia.

President: Lieutenant Commander J. J. Johnson, MBE, RAN (retd).

Hon Secretary: Mr T. K. Whitelaw, 99 Bridgewater Drive, Kallaroo, 6025.

NAVY WEEK

Programme of Events Throughout Australia

NEW SOUTH WALES

29th September — 1st October

H.M.A. Ships MELBOURNE, HOBART, VAMPIRE, ONSLOW and OTAMA open for public inspection between 1.30 and 5.00 p.m. (Note Melbourne not open 1st October).

29th September

T.S. CONDAMINE (Manly Vale), T.S. HAWKESBURY (Point Clare, Gosford), T.S. VENDETTA (Coffs Harbour), T.S. VAMPIRE (Tweed Heads) and T.S. TOBRUK (Newcastle), open to visitors 2.00 p.m. to 5.00 p.m.

30th September

Navy Week Ecumenical Church services to be held at 10.30 a.m. in the Garden Island Dockyard Chapel.

4th October

Changing of the Guard ceremony at Martin Place Cenotaph.
Navy Week reception at H.M.A.S. WATSON, South Head.

SOUTH AUSTRALIA

26th September

Naval Association Reception at Naval House at 6.00 p.m. (by *invitation*).

27th September

The Naval Officers' Club Dinner.

28th September

12.00 noon Commemoration Service and wreath laying ceremony in memory of our fallen at the State War Memorial on North Terrace.
P.M. — RAN/RANR Reception at H.M.A.S. ENCOUNTER (by invitation).

29th September

The South Australian Jockey Club racing calendar honoring Navy Week.
P.M. — *The Navy League dinner at* H.M.A.S. ENCOUNTER (by invitation).

30th September

7.00 p.m. — Non-denominational church service at Christ Church, North Adelaide.
Naval Cadet units to hold similar services at Port Lincoln, Mount Gambier, Port Augusta and Whyalla.

1st October

Navy Week Golf Tournament at Riverside Golf Club.

TASMANIA (Launceston Branch)

3rd October

Cocktail Party at T.S. TAMAR.

7th October

March by the Navalmans Association, Launceston sub-section, followed by a service at the Cenotaph.

27th October

Navy League Ball at Paterson Barracks, Launceston.

VICTORIA

30th September

9.30 a.m. — Church Service, St. Augustines, Bourke Street, Melbourne.
11.00 a.m. — Church Service, St. Lukes, Dorcas Street, South Melbourne.
Open Day H.M.A.S. CERBERUS, Crib Point.

1st October

Golf Day, Waverley Golf Club.

2nd October

NOIC Victoria Reception, H.M.A.S. LONSDALE (by invitation).

3rd October

Bowls Day, Hampton Bowling Club.
Lunchtime band concert, City.

4th October

Greyhound meeting, Sandown Park, with marching display by the band from H.M.A.S. CERBERUS.

5th October

Navy Week Ball, H.M.A.S. LONSDALE.

6th October

Open Day, CASTLEMAINE, Williamstown.

7th October

10.30 a.m. — Seafarers' Service, St. Pauls Cathedral.
2.30 p.m. — Commemoration Service, Shrine of Remembrance.
3.30 p.m. — Re-assemble H.M.A.S. LONSDALE.
Navy League Cup, Open Yacht Race, Royal Yacht Club, Williamstown.

QUEENSLAND & WESTERN AUSTRALIA

For details of activities in these states please contact Divisional Secretaries.

NAVAL ROUNDUP

Her Last Farewell

Compiled by "Gayundah"

The former Air-Sea Rescue boat, H.M.A.S. AIR SPRITE, made her final voyage under tow from H.M.A.S. PERTH, on 17th May, 1979. Later the same day she was sunk by a dummy Standard missile fired from H.M.A.S. BRISBANE. The 19 years old vessel felt the full weight of the impact with the stern section sinking almost immediately. The forward section remained afloat until small arms fire commenced. The accompanying photos (supplied by Lt. Comm. R. Cawthorn. Surface Weapons Trials Officer, R.A.N.), depict AIR SPRITE during the closing stages of her final day.

The dummy missile leaves H.M.A.S. BRISBANE.

The result of impact!

Lieutenant R. Smith from RANTAU rigging recording equipment immediately prior to the missile firing.

AIR SPRITE — her last farewell.

H.M.A.S. DIAMANTINA. (Photo — R.A.N.).

Ensign for Naval Reserve Cadets

Naval Reserve Cadets now have their own official ensign. The ensign, which incorporates the White Ensign and the crest of the Naval Reserve Cadets, has only recently been approved throughout Australia. In due course all Units will receive an Ensign to fly at their establishments.

Oldest R.A.N. Warship to be Decommissioned

The Minister for Defence, Mr. D. J. Killen, announced on 11th June, 1979, that H.M.A.S. DIAMANTINA, the oldest warship in the Royal Australian Navy, will be decommissioned at Garden Island, Sydney, during next December.

Built in Australia during World War II, H.M.A.S. DIAMANTINA was launched in April, 1944, and took part in the surrender of Japanese forces at Nauru and Ocean Island. She was decommissioned in 1946, but recommissioned 13 years later as oceanographic research ship, based at Fremantle, W.A.

H.M.A.S. DIAMANTINA, together with the R.A.N.'s second oceanographic research ship, H.M.A.S. KIMBLA, is engaged in military and civilian oceanographic research, including work for the C.S.I.R.O., universities and other research establishments. DIAMANTINA consistently spends more time at sea than any other ship in the R.A.N.

Her replacement, H.M.A.S. COOK, was launched in August, 1977, and is expected to be commissioned in the next six or seven months.

Officers Graduate at Naval College

The first Women's Royal Australian Naval Service (WRANS) Officer cadets to graduate from the Royal Australian Naval College, H.M.A.S. CRESWELL, at Jervis Bay, participated in the Passing Out Parade at the College on 5th July. The eight WRANS Officer Cadets and 28 male Midshipmen paraded before the Governor-General, Sir Zelman Cowen, who reviewed the parade and later presented the prizes to the top graduates.

German Navy Orders Westland Lynx

Twelve Westland Navy Lynx helicopters have been ordered for service with the Federal German Navy. The contract, with spares and training, is worth approximately £30 million.

This latest order for Lynx, a N.A.T.O. project, means that Navy Lynx will now be operated by six European nations — Germany, Great Britain, France, The Netherlands, Denmark and Norway. It is already in service in Great Britain, France, The Netherlands and additionally, Brazil and Argentina. Orders for the Navy and Army versions of the Westland Lynx Helicopter currently stand at 299.

Deliveries of the German Navy Lynx are planned to start in mid 1981, for use on the six F122 frigates currently under construction. The helicopters' primary role will be anti-submarine warfare, for which they are to be fitted with the new lightweight Bendix AN/AQS18 dipping sonar developed under a German Ministry of Defence Contract. In addition the Lynx will be used in the anti-ship missile defence role.

The Training Ship Barwon

Geelong Unit, Naval Reserve Cadets

On any Sunday, off the western shore of Corio Bay, you will find a fleet of small craft scudding over the water propelled by oars, an outboard motor or sails. They are the boats of the Naval Reserve Cadet unit, T.S. Barwon. With cadets straining on oars, clutching tillers or hauling in the sheets, young men of the city of Geelong are taking instruction in practical seamanship.

The 65 cadets of this unit have two, thirty year old, 14 ft. clinker built sailing dinghies (one of which is used mainly for pulling instruction) one recently received replacement training craft, two bondwood dinghies and one aluminium rescue boat powered by a 25 h.p. outboard motor. Coupled to the base, situated in the unit headquarters, by radio, these boats are controlled by the Training Officer during their manoeuvres.

Evidence has been found that Sea Cadets were in Geelong as far back as 1915, although the unit as we know it today had its beginnings in 1930. Uniforms, supplied by the government, cost 21 shillings. A far cry from today's cost of $150.35!!! By March 1932, 50 cadets had been enrolled and paraded at the Geelong Anzac Day service.

The King's Colours was won by T.S. Barwon in 1937 and, during the war, many members enlisted and served with the R.A.N. with distinction.

The present site of the headquarters, right on the water's edge on Corio Bay, was obtained in 1940 when the Geelong Harbour Trust placed a shed at the unit's disposal for a nominal fee. In 1949, a late president of the Geelong branch of the Navy League, bequeathed a sum of money to the unit.

Success has come frequently to this extremely efficient unit, being awarded the Navy League of Australia Efficiency Trophy in 1959 and, in the same year, won the Queen's Colours. Following these successes, Barwon won the Queen's colours in 1960, 1962, 1963, 1967, 1970, 1971 and 1976. In 1964 the Geelong unit was awarded the Lonsdale Trophy, and, last year, 1978, it was awarded the Cocked Hat and epaulettes being the trophy for the best guard in Victoria.

A band is being formed within the unit, and at its first public appearance just prior to Christmas, was more than favourably received by the audience. It is believed to be the only Naval Reserve Cadet band in Victoria and will soon be seen and heard leading the ship's company of Barwon through the streets of Geelong.

With its dedicated and extremely enthusiastic band of officers and instructors, the Geelong Unit of the Naval Reserve Cadets is destined for a great future assisted by its loyal unit committee.

Lieutenant R. H. Appleton, C.O., T. S. BARWON, LSMN B. Heatlie, Guard Commander and Commander J. H. Speed, Commanding Officer H.M.A.S. LONSDALE (who presented the cocked hat and epaulettes shown on the table). (Photo — T. S. BARWON).

NAVY LEAGUE NEWS

South Australia

South Australia will be host to two Ships of the Royal Navy Task Group during their tour of Australia. The Division has made arrangements to entertain the Commanding Officers and members of the crew of H.M. Ships DIDO and FALMOUTH at a Sunday lunch at the Old Mill Restaurant at Handorf in the Adelaide Hills.

Monday, 17th September, 1979, has been set aside for the annual general meeting and members are requested to keep this night free to help plan the objective for the next twelve months. It is hoped that Commander C. K. Callins, R.A.N., Naval Officer Commanding South Australia, will be able to attend on that evening to give his views on The Navy Today and the ways in which Navy League can be of help to the senior service.

This year the South Australian Division plans to join in Navy Week activities by holding a formal dinner at H.M.A.S. ENCOUNTER on Saturday, 29th September. This will be the first time the Navy League has held such a function and the Committee are looking forward to South Australian members and their friends making the evening a great success.

Navy League Submission to Parliamentary Enquiry

At the end of 1978, the Federal President and Vice-President made a joint submission to the Defence Sub-Committee of the Parliamentary Foreign Affairs and Defence Committee (the "Kater Committee").

The Papers presented by Commanders Geoff Evans and Tony Grazebrook were comprehensive and the subjects covered included our present defence situation, foreseeable future influences affecting Australian security, and the need for greater self-sufficiency in naval shipbuilding.

The submission has been incorporated in Hansard and copies of the Papers may be obtained from the Federal Secretary, P.O. BOX 227, Hawthorn, Victoria, 3122.

Naval Dockyard Problems

Recent industrial troubles at the Williamstown Naval Dockyard received uncustomary media attention due perhaps to the novelty of the workforce 'doing its own thing' and engaging in the building and repair of naval vessels without the burden of management to advise and direct. While the absence of bosses may seem near-Utopian to many, the Navy League believes the continual dislocation of work in the dockyards is highly unsatisfactory and that the causes of industrial unrest must be identified and if possible, eliminated. The League however considers that labour troubles are only a part of a generally unsatisfactory situation in the dockyards, and that financial problems are at least as important.

Financial restrictions placed on a dockyard, or management/labour discord, affect very few people compared to similar restrictions or discord in industries such as power and transport, where the effect may be felt by tens of thousands of people immediately a breakdown of output occurs. The effect in the dockyards is both short- and long-term; ships exceed by months their planned refit programmes with a consequential effect on training programmes, exercises with other navies and on the morale of crews of ships "trapped" in the yards; generous ship-construction timetables prove hopelessly inadequate (e.g., the oceanographic vessel HMAS COOK due to enter service last year is still unfinished at Williamstown); and naval planners inevitably tend to look to more stable shipbuilders overseas for new ships. It is all very costly and unhelpful to Australia.

The Navy League does not pretend to know all the reasons for dockyard problems but believes some stand out and are capable of solution. For example, Williamstown is primarily a "building" dockyard and although millions of dollars have been spent in the last few years upgrading the yard for this purpose, it is engaged mainly in repair work requiring a quite different balance of trade skills. The yard has no significant building orders on hand and no immediate prospect of continuity in shipbuilding work, with the very real possibility that our expertise in warship construction will soon fall to a dangerously low level.

It would of course be foolish to build ships for the sake of doing so or to keep the dockyards content, but the present government has acknowledged a continuing need for the RAN to have destroyer-type vessels, to be locally built (the current modernisation of the Williamstown yard is for this very purpose). The requirement is for new-generation ships from about the mid nineteen-eighties onwards but to achieve this target a decision as to type, number, etc., is already overdue. The Navy League suggests that the decision be made without further delay. The League also suggests that dockyards with a sense of purpose and knowing where they were going would have far less industrial strife than is the present case.

Apart from the financial aspects of dockyard troubles and certainly contributing to them, the Navy League believes that a keen awareness by some militant unions or union leaders of the dependence by the seagoing navy on dockyard facilities to keep ships in service, is a significant factor in employee unrest, which at Garden Island and Williamstown dockyards during the last seven or eight years has cost some two million man-hours in lost time. Whether this loss is due to genuine industrial grievances or a result of ideological beliefs, for either reason it is unacceptable.

The League has noted suggestions that the Navy should "run" the dockyards; if this means the replacement of civilian workers by uniformed personnel the League believes the idea to be impracticable and in any event unnecessary — the majority of dockyard workers are skilled men and women who take pride in their work and in the RAN. In administrative terms, within the Defence Department the Navy already administers the dockyards but whether it controls them in the true sense of the word — in particular, has the authority to 'hire and fire' potential or known mischiefmakers at management's discretion — is another matter.

The naval dockyards (and the non-government Cockatoo Island dockyard) are valuable national assets and a vital part of Australia's security. It is pointless to go on indefinitely moving from one financial or industrial crisis to another and the Navy League believes the Federal Government must at a very early date:

(a) Determine a firm shipbuilding programme; and
(b) Provide the Navy with whatever legislative support it needs to achieve stability in its industrial relations

if the situation is to be improved. The nettle has to be grasped sooner or later, and the sting is unlikely to lessen with time.

GEOFFREY EVANS
Federal President

Navy League of Australia

Notice is hereby given that the Annual General Meeting of The Navy League of Australia will be held in the Conference Room of the Embassy Motel, Adelaide Avenue, Hopetoun Circuit, Deakin, A.C.T. at 8.00 p.m. on Friday, 9th November, 1979.

BUSINESS

(1) To receive the report of the Federal Council and to consider matters arising therefrom.
(2) To receive the financial statements for the year ended 30th June, 1979.
(3) To elect office-bearers for 1979/80 as follows:

(a) Federal President
(b) Federal Vice Presidents (2)
(c) Federal Council Members
(d) Auditor.

Nominations for the above to be lodged with the Secretary prior to the meeting.

(4) General Business.

By Order of the Council.

O. V. DIMMITT
Federal Secretary

P.O. Box 227,
Hawthorn, Vic. 3122

The Navy League of Australia (Victorian Division)

Notice is hereby given that the Annual General Meeting of the Victorian Division of The Navy League of Australia will be held at The English Speaking Union, 146 Toorak Road (West), South Yarra on Wednesday, 5th September, 1979 at 7.30 p.m.

BUSINESS

(1) To receive the report of the Executive Committee of The Victorian Division for the year ended 30th June, 1979.

(2) To receive the accounts for the Division for the year ended 30th June, 1979.

(3) To elect the Executive Committee for 1979/80.

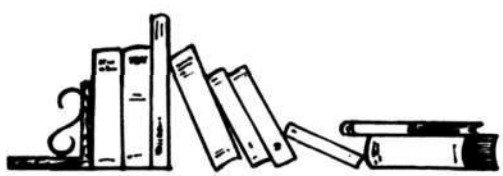
(4) To appoint an Auditor.

(5) General Business.

By Order of the Executive Committee.

O. V. DIMMITT
Secretary

P.O. Box 227,
Hawthorn, Vic. 3122



BOOK REVIEWS

THE U.S. WAR MACHINE

Consultant: Dr. James E. Dornan Jnr.
Published By: Salamander; Our Copy Supplied by Paul Hamlyn Pty. Ltd.
Price: $12.95.

Reviewed By: ROSS GILLETT

This book, the latest in a series which has featured, "The Russian War Machine", "Soviet War Machine" and "Japanese War Machine", claims to be, "an encyclopaedia of American military equipment and strategy" — and so it is. For such a small outlay, the buyer obtains a 272 page book, profusely illustrated with colour photographs, more than 120 technical drawings, maps, charts, comparative tables and 150,000 words of authoritative text and other data.

"The U.S. War Machine" is published by Salamander and is written by fourteen individual authors, including Hugh Lyon and Bill Gunston. It is subdivided into sixteen chapters, covering such aspects as: The History of the U.S. Armed Forces: The Strategic Triad; Army; Air Force; Marine Corps; and of course, The United States Navy.

The naval chapters span forty-five pages with the Marines a further ten. A brief but concise discussion of current U.S.N. strategy is followed by technical descriptions of most U.S. warships, beginning with the Nimitz class aircraft carriers, through to the major classes of support ships. Details are also given of the various torpedoes employed aboard ships. This section is set out somewhat like "Jane's", however it contains less colour prints per page than other sections of the book; it appears the U.S.N. lack colour photographers, while the U.S.A.F. chapters include almost all colour.

The U.S. Strategic Triad, mentioned earlier, discusses the three forms of strategic attack; the S.L.B.N., I.C.B.M. and bomber. Table 1 lists the Polaris/Poseidon building table, while another diagram displays the growth of U.S. Fleet Ballistic Missiles from the Polaris A1 in 1960, to the Trident C4 in 1979. Types of missiles employed onboard ships are also covered in the chapter entitled, "U.S. Rockets & Missiles". A comprehensive index is also provided.

All said and done, this publication is a very readable and enjoyable addition to the library. It is a book able to be perused at any time, providing a goldmine of facts and figures for those interested in "The U.S. War Machine".

PRACTICAL POINTS ON BOAT ENGINES

by Hans Donat

Published By The Nautical Publishing Company
Review Copy Supplied By The Australasian Publishing Co. Pty. Ltd.
Price $11.25
Reviewed By "The Dustman"

Practical Points On Boat Engines is designed to meet the requirements of both boat owner and boat designer alike. *It is a practical book on how to* select and repair boat engines, and is indeed a well written text book. It is not, however, a book that would be purchased by the average ship lover, unless of course he was a boat owner or boat designer as well.

Various types of internal combustion engines are discussed, as are the various types of transmissions that can be used to propel the boat. The important incident of engine compartment ventilation is discussed. We are all aware of the number of fatalities that have occurred through neglect of this feature.

As I have already intimated, this is a technical book, dealing with engines for small craft, not a book for the ship lover. The owner of a small motor boat, as well as the owner of a high speed cabin cruiser, could not go wrong by investing in a copy of Practical Points On Boat Engines. Many of the problems that beset small craft owners are very annoying and take some solving, but this book may just be the reference book needed to help the owner overcome his difficulties.

SHIPS OF THE TWENTIETH CENTURY

Edited by Pat Hornsey

Published By The New English Library
Price $12.95
Reviewed By "The Dustman"

On first viewing this rather large paged book, I was of the opinion that it was aimed at the younger reader, but after reading it from cover to cover I changed my mind. Ships Of The Twentieth Century is a book that will be of interest to young and old alike.

Basically the book is divided into twenty five chapters, each being devoted to one type of ship. Marine casualties, such as "Titanic" of 1912 and "Wahine" of 1968, are also dealt with, the narratives being well researched. The use of colour photography has really been exploited to the full, and I particularly admired the two page spread of "QUEEN MARY", the most beautiful passenger ship ever to be produced by a British shipyard.

The illustrations are well selected, but being a British publication we naturally *find more British ships than we do of* other nations. For the proud Australian individual there are a few shots taken in Sydney Harbour, including the Sydney-Manly hydrofoil "Dee Why" and a wonderful shot of the nuclear powered aircraft carrier U.S.S. "Enterprise" steaming in through the Heads.

I particularly enjoyed the "Titanic" disaster and the chapter on the "Torrey Canyon", both of which were well written and illustrated.

Taken all round, I found Ships Of The Twentieth Century a well written, well illustrated, enjoyable book, one for the average ship-lover who enjoys both merchant and naval ships.

SUBMARINES OF WORLD WAR II

by E. Bagnasco

Published By Arms & Armour Press
Our Copy Supplied By Thomas C. Lothian Pty. Ltd.
Price $39.50
Reviewed By "Gayundah"

"Submarines Of World War II" describes all of the classes and types of submarines employed by each combatant during the years of war 1939-45. Midget submarines to the German U-Cruisers, as well as projected and experimental designs, are also presented.

In typical "Janes" fashion, all technical data is given via such headings as Builders, Normal Displacement, Dimensions, Machinery, Maximum Power, Maximum Speed, Range, Torpedo Tubes, Guns and Complement. A concise discussion of each class then follows, completing with a table listing the various fates of each vessel. It is here, however, that letters are used to signify the exact fate of each submarine. For instance, the British "T" class submarine TALENT is listed as "R". Reverting to page 7 we find the abbreviation "R" can mean:

1. Reduced to reserve;
2. Stricken;
3. Scrapped;
4. Employed for other purposes;
5. Interned in neutral country; or
6. Ceded to another country.

What *exactly happened to the vessel is* apparently left to the reader's imagination.

This aside, "Submarines Of World War II", is a well written work. It is illustrated by some 500 photographs and line drawings, each superbly reproduced. Details of over 2500 submarines are given, a force credited with sinking 23 million tons of merchant shipping.

Australia's former OXLEY and OTWAY are given due mention, as is the KIX, although the author fails to note the latter's brief career in the R.A.N.

BATTLESHIP DESIGN & DEVELOPMENT 1905-1945

by Norman Friedman

Published by Conway Maritime Press
Reviewed By "Gayundah"

Having been a devoted battleship 'fan' for many years I was indeed pleased to see the release of Norman Friedman's latest publication "Battleship Design & Development 1905-1945". The book claims to be the *first layman's guide to the design,* construction and subsequent evolution of the battleship, but upon closer examination this was not always the case. The degree to which research has been undertaken is without doubt extensive to say the least, but the actual story line becomes so involved at certain stages that it is beyond the average reader's interest.

In addition, by commencing at 1905 (DREADNOUGHT), a question arises about the earlier battlewagons which it must be remembered dated from many years previous. Thus, the effects of the first true battleship conflict, void of aircraft and submarines, is missing, i.e., the battle of Tsu-Shima.

Nevertheless, the chapters dealing with armament, protection and seagoing performance I found both readable and extremely interesting. The photographs accompanying the text are of superb quality and many in number. A brief mention is made of the pre-dreadnought era of capital ships and appendices cover such subjects as normal displacement and capital ships 1905-1945.

"Battleship Design & Development 1905-1945" was released for sale in England during early 1979, and will shortly be appearing on local bookstalls. I strongly recommend this publication to genuinely interested battleship 'fans', but for those whose interest lies only in the ships' careers and war activities this is not the book for them.

SHIPSHAPE

The Contrary Sea

In 1922, the United States Coast Guard cutter TAMPA carried out a rather startling measurement of sea water temperature. TAMPA was on the ice patrol on the east coast of the American continent, working near the *famous Gulf Stream. The cutter was* placed as accurately as possible across the "cold wall", i.e., the edge of the warm Gulf Stream. Temperatures were taken at bow and stern. The bow reading was 34°F. and the stern recorded 56°F., a difference of 22° in 240 feet.

Marine Bookshop

A new marine bookshop, offering new and secondhand nautical books, as well as professional paintings and ship's photographs, has recently opened in Macleay Street, Kings Cross, just up from Kuttabul barracks. Various "Navy" readers have written in concerning this new outlet, which, I understand also buys unwanted books, etc.

Admiralty Instruction, Issued 1747

"No ship shall be selected as a transport with a height between decks of less than four feet six inches, in order that the troops might be comfortable".

Future Issues

The groundwork for various articles to appear in 1980 is now in progress, but some photos are required. If you can assist with such ships as GERANIUM, MARGUERITE, MALLOW, PIONEER, PSYCHE and the Auxiliary Minesweepers of World War II, please drop a line to the Editor.

New Zealand's Spar Torpedo Boats

The New Zealand torpedo boat **TAIAROA**. *(Photo — New Zealand Defence Historian).*

by I. C. MacGIBBON *New Zealand Defence Historian*

On 2nd February, 1884, the s.s. **Lyttalton** *set out from Britain for New Zealand, carrying on her deck two torpedo boats. She was followed in May by the s.s.* **Peter Stuart** *with two more. Although not the first boats acquired by New Zealand — small gun boats had been purchased for service during the Maori wars in 1864-65[1] — they marked a new beginning of local naval activity and were the first vessels acquired by New Zealand for the purposes of external defence.*

New Zealand was taking advantage of the Colonial Naval Defence Act 1865, which authorised the colonies to maintain small non-seagoing vessels for local defence.

The origins of the decision to purchase the craft can be traced to the visit to New Zealand early in 1880 of Colonel P. H. (later Sir Peter) Scratchley RE to report on its defences. The Anglo-Russian war scare of 1878 had awakened [illegible] New Zealand authorities to the need for local preparations to meet the danger of raider attack. Twenty-two heavy guns had been obtained from Britain but were as yet unmounted.

Among detailed proposals for fortifications at the various major ports, Scratchley suggested the need for **'offensive** torpedoes to support the batteries on shore'. In his opinion, the kind best suited for New Zealand harbours was the spar torpedo 'which can be adapted for use from boats of almost any size, such as ordinary steam launches and pinnaces'. Such boats would 'afford a considerable degree of protection' should war occur before the gun batteries were completed[2].

Spar torpedo boats derived their name from their method of attack, which was based upon using a spar, about 40 feet long, to bring an electrically connected explosive charge up against the hull of an enemy vessel. Scratchley explained the modes of operation: the attacking boat would approach as stealthily as possible, dusk or dawn being especially suitable times for attacks; 'at 200 or 300 yards distance, according to circumstances, the spar should be rigged out, the boat put at full speed and steered for the point intended to be struck; at about 30 yards off the engines should be slowed, so that the torpedo may be brought into contact without risk of the outrigger breaking off, and the instant the torpedo touches the side it should be exploded'. Several boats could attack from different directions, aiming at the 'vital parts of the ship, viz., the engines, boilers and screws'[3].

Scratchley certainly was not over-stating the case when he admitted that such an attack would be a 'service of great danger'. The charge only had to be too large and the torpedo boat itself was likely to suffer damage. Moreover, the enemy vessel could be expected to fire at it with every gun available. The boats could be fitted with bullet proof shields to provide cover for the men working the outrigger and for the steersman, while covering the boat forward would prevent water being shipped when the charge was set off[4]. In spite of the dangers, Scratchley was confident that volunteers would be forthcoming and he recommended that twelve boats be obtained, enough for three at each of the four main ports.

The advantages to be gained from the employment of torpedo boats are many. They are admitted to be most formidable weapons against ships in the hands of daring and determined men. They could be procured almost at once, and are not very costly either to purchase or to maintain. They do not require specially trained men for working them, beyond the seamen and engineers who are to be found in every port. Lastly they can be utilised in time of peace for the Government service[4].

The British authorities were asked to provide drawings of suitable craft, but nothing further was done until 1882, by which time Scratchley had changed his mind about New Zealand's requirements. Faster, and hence more expensive, boats would be necessary, precluding the acquisition of as many as twelve. The New Zealand Parliament, reminded of the Russian 'threat' by the visit of a Russian squadron to the South Pacific from December 1881-March 1882, and by another minor war scare which erupted in Victoria, voted £50,000 to be spent on putting the harbour defences in order, along the lines proposed by Scratchley. While in the event little of this sum was actually to be spent on the planned fortifications and the guns remained unmounted, it did finance the four second class torpedo boats which the New Zealand Government ordered in England in September 1882[4]. They were to be built by J. J. Thorneycroft Ltd. of Chiswick at a cost of £3150 each[7].

As a model for the procurement of weapons, this order left a lot to be desired. The Admiralty, the Empire's chief authority on naval matters, were not impressed and soon made clear that the type was 'not one which would have been approved by the Admiralty if they had been consulted beforehand . . .[8]'. In October 1883, when the vessels had been completed, the New Zealand Minister of Defence was surprised to be told that such a craft 'had not been tried with the torpedo actually fired: there is, perhaps, an unavoidable risk that with such a charge of gun cotton as would probably be necessary in active service, the boats themselves might receive more or less injury from the explosion'. He refused to allow any trials, which, if anything went wrong, would have been at New Zealand's expense[9].

The boats, which were 63 feet long and displaced 12 tons, had a top speed during their trials of 17¼ knots, at which, it was reported, the wave that followed was higher than the deck and a sharp turn sent water spouting up from the rudder 'like a small Niagara[10]'. They could steam for 24 hours at a rate of 10 knots. A crew of five was carried.

After further consultations with Scratchley, one of the boats was fitted with cradles at its side — Corner's dropping gear — from which Whitehead torpedoes might be fired, and the necessary equipment for the others was obtained for later fitting in New Zealand. This weapon was a type of fish torpedo, capable of carrying a charge of up to 80 lb at 25 knots for several hundred yards and obviously a more promising means of attack than the spar torpedo. A double barrelled 1-inch Nordenfeldt gun was also obtained, only the intervention of the economy-minded New Zealand preventing the acquisition of one of each[11].

Launched in September 1883, the boats, which were registered numbers 168 to 171, were tested and certain modifications carried out before they were pronounced ready in December. Upon their arrival in New Zealand, they were named **Taiaroa** (169), **Tamioha** (168), **Arai te Uru** (170) and **Jervois** (171)[12] and were dispatched to Port Chalmers, Lyttelton, Auckland and Wellington respectively. **Jervois**, which was named after Lieutenant-General Sir William Jervois, the Governor-General of New Zealand and trusted adviser of the government on defence matters, was the boat with the Whitehead dropping gear and the Nordenfeldt gun. **Arai te Uru** was also fitted with dropping gear in 1886. They were able to carry two Whitehead Fiume Mark IV torpedoes. Manned at first by the Naval Artillery Volunteers, the boats were later taken over by the regulars of the Torpedo Corps of the New Zealand Permanent Militia set up in 1886.

In light of the dangers of the spar torpedo mode of attack it is perhaps just as well that the boats were never required for active duties. In fact, as early as 1886, the Commandant of the New Zealand Military Forces admitted that the spar torpedoes were 'of little value[13]'. Nor were the boats well suited to the use of Whitehead torpedoes; as was noted by an inspecting British officer in 1893:

> *The boats could not live in any sea-way. The dropping of one of the torpedoes would at once capsize the boat. Even in smooth water it is haphazardous to drop a torpedo without having men on deck to change sides and counterbalance the loss of weight immediately the torpedo is discharged. It would be perfectly hopeless to attempt using these boats in daylight against a vessel carrying quick-firing guns.*

On the other hand, some role was still seen for the boats in night operations, 'giving to the defence a great moral effect, and fast boats for use as guard-boats[14]'. They lingered on into the 1900s, no longer regarded as of much importance to New Zealand's defence system. By August 1904 three had been broken up[15] and the fourth, at Port Chalmers, suffered the same fate soon afterwards.

European Navies

By
J. E. MOORE, Capt., R.N.

A friend from the North-West Pacific said, "What a pity the Chinese have such a meagre naval force." When he was told that they muster the third largest submarine fleet and the largest number of fast attack craft in the world he was justifiably astonished.

Similar ignorance exists over the naval forces of the European countries — in any consideration of naval balance an instant comparison is made between the USA and the USSR without any consideration of the fact that there are well over 1000 miles of Arctic coastline belonging to the USSR in Europe and that Astrakhan on the Caspian Sea is a European city. Thus, three of the four major Soviet fleets are based within European waters and the US Navy is represented only by the comparatively small Sixth Fleet in the Mediterranean as an enclave on the southern flank. Reinforcement from the USA in time of crisis would be a lengthy process — from Norfolk, Virginia, to Iceland is a minimum of 2600 miles or 4.3 days at 25 knots and to Gibraltar 3330 miles — 5.5 days at the same speed. The NATO commands hug the phrase "warning time" very closely — if this is less than 4.3 days the majesty of the US Atlantic Fleet (those ships that are not in upkeep) would still be steaming hopefully past Cape Farewell in Greenland as the crisis erupted.

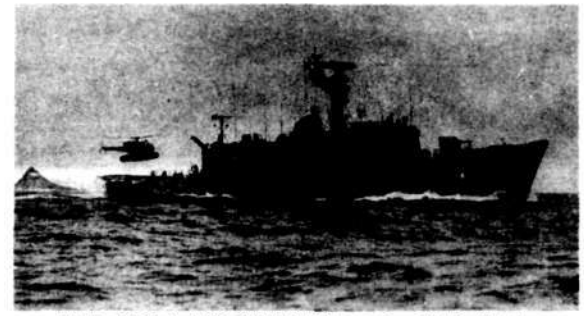
The navies of European NATO, as well as those thrust into the conflict by the fact that the Soviet Union is as little likely to pay regard to neutrality as Germany was in the last two wars, will, very literally, have to paddle their own canoes. A recent British Defence White Paper spoke hopefully — "The defence of the United Kingdom remains firmly based on the North Atlantic Alliance, since it is only through collective effort that the West can ensure its own defence." The police provide "collective effort" but are rarely at the scene of the crime when the family jewels are plundered. Too much reliance is placed on the policing capabilities of the USA when modern technology has allied with speed of movement to provide ever greater threats to the households of Western Europe. The impressive Soviet reinforcement of its Mediterranean Fleet in October 1973 during the Arab-Israeli war put it in a position of great strength compared to the US Sixth Fleet which could never be well placed for engagement in the Eastern Mediterranean, within easy range of Warsaw Pact based aircraft.

Thus, in the event of a crisis becoming a conflict, the European navies will be required to bear the brunt of the initial action unless the warning has been sufficiently electrifying to call for the early deployment of the US Atlantic Fleet. All have a maritime tradition of varying antiquity but here it is sensible to consider their possible contributions on a geographical basis. On the northern flank Norway's border marches with that of the USSR, less than a hundred miles from the main base of the Soviet Northern Fleet in the area around Murmansk. This is the centre for a huge assembly which, in round numbers, comprises 55 ballistic missile submarines, 60 nuclear attack submarines, half of which carry cruise missiles, 30 diesel submarines, a third armed with missiles, a carrier, 10 cruisers with missiles, 20 destroyers and 50 frigates and corvettes, many of which are missile armed although a number carry only surface to air missiles. Very considerable Light Forces, Minewarfare Forces and a large amphibious group complete the major order-of-battle, an impressive gathering for their next door neighbours to consider.

The four Scandinavian countries, Norway, Denmark, Sweden and Finland, all have comparatively small populations and defence budgets to match. Although each has a considerable merchant fleet none has the financial resources for anything more than a coast-defence navy. Both Norway and Denmark are part of the northern defence area of NATO, but the minority Labour government of the former consistently refused to allow the basing of foreign troops or their equipment on its territory. From the naval point of view this will mean a very considerable maritime reinforcement effort in the event of a major crisis and, as the Norwegian fleet is stronger in submarines and fast attack craft than it is in major surface ships, this will require detachments from other NATO forces. Denmark and Sweden have made a similar choice of ship types as the Norwegians, the latter having paid off the majority of her larger surface combatants. Finland, however, is limited by the Treaty of Paris 1946-47 to a total of 10,000 tons and is prohibited from operating submarines and torpedo boats. In lieu of the latter she runs both missile and gun-armed fast attack craft. The southern neighbours of Finland beyond the Soviet territories of Estonia, Latvia and Lithuania are Poland and East Germany, both busy ship-building areas for merchant and naval vessels. The fleets of these two Warsaw Pact countries are very similar in their make-up — one or two frigates, a number of missile and patrol craft, strong minewarfare and amphibious forces with, in Poland's case, four elderly submarines.

By contrast the West German navy has a strong submarine force built to the designs of Ingenieurkontor at Lubeck, the most advanced yards for non-nuclear submarines in the world, which possess a large representation in many navies,

H.M.S. GLASGOW, type 42 destroyer. (Photo — M. Lennon).



The Danish frigate HVIDBJORNEN. (Photo — Janes Fighting Ships).

including, in Europe, those of Norway, Denmark, Greece and Turkey. Also built to German plans are the considerable number of missile craft and mine-sweepers, as well as some of the older frigates and destroyers which will eventually be replaced by the Type 122 frigates now under construction. These are modifications of the Netherlands "Kortenaer" class, which is a success story by any standards, resulting from close co-operation between the naval staff, the designers and the builders. All current Netherlands construction is to their own designs with one exception, the Tripartite minehunters. These are the result of a centralised effort by Belgium, France and the Netherlands — each country is building its own GRP hulls while Belgium provides the electrical installations for all three countries, France the mine-hunting gear and the main propulsion machinery is Dutch. Naval HQ at The Hague have planned their navy for four strong ASW groups, six patrol submarines, three MCM groups, three squadrons of LRMP aircraft and two Commando Groups. Although at one time there was strong political pressure for defence cuts, the new construction programme currently includes two submarines, ten more "kortenaer" frigates and fifteen Tripartite mine-hunters.

In Belgium a programme of four 2300 ton frigates has been completed, a radical departure for a navy previously concerned almost solely with mine-countermeasures. These, the "Wielingen" class, were designed in Belgium but mount equipment from a number of other NATO countries. Similar saving of research and development funds was achieved by the Tripartite minehunter design and the construction of ten, possibly fifteen, of these ships will absorb the majority of the new construction budget in the near future.

Across the Channel in Great Britain, Royal Navy plans have been moving steadily ahead despite very vocal opposition from the left wing of the Labour Party. A decision on the replacement, or not, of the small ballistic missile submarine force will be needed in the fairly near future and plans are currently in hand for the construction of a class of non-nuclear submarines. In view of the areas in which British submarines are best placed to operate, this decision would make good sense. Nuclear boats cannot achieve their full potential within the large continental shelf surrounding the UK and the comparatively narrow gaps of the Greenland-UK chain could well be patrolled by modern, silent non-nuclear submarines. Outside these areas nuclear boats are pre-eminent but within them they are a waste of capacity and, therefore, money.

The "Leander" class frigates were amongst the first in the world to carry a helicopter. Despite the great success of this aircraft in the ASW role, follow-on designs, the Type 42 and 21, continued to carry only one and it is not until the Type 22 that provision has been made to carry two Lynx. The Leander hull is a beautiful hull but the weapon load of the conversions is strangely at variance with the achievements of other countries. The Australian "River" class carry an Ikara ASW weapon and a twin 4.5 inch turret — in Chile the turret has been supplemented by four Exocet missiles aft — in the Dutch "Van Speijk" class current modernisation includes the replacement of the 4.5 inch turret by a single 76 mm OTO Melara Compact forward and the fitting of eight Exocet. In the UK the "Leanders" with one Ikara or four Exocet have had their turret removed, leaving them with a gun armament of two 40 mm. At a time when the number of hulls available is of great importance, as ever, the maximum weapon fit possible requires achievement.

But the Type 22, a ship of 4000 tons, manned by 223 men, having wide and spacious areas within, carries only two Sea Wolf SAM systems and four Exocet missiles. Gunnery is represented by two 40 mm pieces and, apart from the helicopters, A/S weapons consist only of Mark 46 torpedoes. Once the Exocets have been launched, surface action depends on helicopter-launched Sea Skua missiles whose range of only about five miles renders their fairly slow-motion parent aircraft vulnerable to SAM fire.

In the "Invincible" class the only ship-borne weapon is the twin Sea Dart launcher which is a SAM with a surface to surface capability. But in these ships ten helicopters are to be supplemented by eight Sea Harriers, a reasonable aircraft complement for a 19,500 ton ship. Since the Ministry of Defence in 1966 was misled by the Royal Air Force into believing that aircraft of that service could provide adequate maritime air cover for the fleet the question of embarked air groups has only just been retrieved from limbo. Nevertheless, the Royal Navy is still seriously deficient in ship-borne helicopters and unless or until the AV-8 B version of the Harrier is adopted will lack adequate protection against fixed-wing aircraft, adequate strike capability and adequate reconnaissance. There is no use shedding tears over the passing of the last Ark

Italian helicopter cruiser CAIO DUILIO. (Photo — M. Lennon).

TRONDHEIM, a Norwegian Oslo class frigate, was completed in 1966. (Photo — M. Lennon).

Royal — a fleet which is to operate in the Atlantic must be provided with both V/STOL and rotary wing aircraft on as many platforms as possible. This must mean the construction of more, much cheaper ships of comparatively small size to achieve two ends, dispersal and manpower saving. The second of these is a vital element at a time when the late Labour government's service pay policy has robbed the Royal Navy of so many men that their departure has resulted in the immobilisation of a number of major warships.

The French have kept their two fixed-wing carriers and are providing them with Super-Etendard aircraft, capable of nuclear strike. Their new Type C70 destroyers carry only four Exocet and SAMs of varying types with two Lynx helicopters, A/S torpedoes and one or two 100 mm guns. The fitting of Exocet is continued in the 1170 ton Type A69 frigates which are being built in a continuing programme. As in so many other cases France is having financial problems in her armed forces but has taken the decision to build a sixth ballistic missile submarine and to prepare designs for a replacement class. Using the nuclear knowledge gained from these monsters a class of 2700 ton nuclear attack submarines is being built but, as in the British case seventeen years ago, they have abandoned the construction of non-nuclear boats. This decision may well be questioned in years to come.

All in all the French navy, more widespread in its deployment than any other fleet, apart from those of the USA and USSR, has developed a sensible building programme with one or two strange omissions. Tripartite minehunters will soon be in commission but the very popular 'Combattante" design of fast attack craft has been ignored for the home navy. With wide-ranging squadrons it was not until 1976 that the first modern replenishment ship **Durance** was commissioned, to be followed by two more. At the same time France is not immune from manpower problems, although so far this has resulted in dilution of complements rather than the paying-off of ships.

Spain has the same strategic requirements as France, the need to protect two coastlines, one in the Atlantic, one in the Mediterranean. In addition her commitments in the Balearic and Canary Islands require a wider deployment of her fleet than would at first be expected. Once again, as in most European countries, we find the majority of Spanish naval surface shipping coming from their own shipyards, while their submarines are built in Spanish yards to French designs. Only seventeen year's ago the Spanish navy planned to re-equip their fleet from British shipyards, a project which was demolished by the offensive remarks of the then leader of the British opposition. In the following ten years after this disaster Spanish merchant-ship building accelerated to almost double that of British yards and, today, the ships of Bazan in Cartagena, Ferrol and Cadiz are amongst the most competitive in the world. New construction includes the V/STOL/helicopter carrier building at Ferrol, new frigates to the American "FFG7" design, the Spanish-designed "Descubierta" class of frigates and a multitude of patrol craft of local design. As Spain is poised for entry into the EEC and the passing of dogmatic objections may, before long, see her as part of NATO, so this proud country will continue to advance in the ship-building arena of the world. Although Spain's neighbour, Portugal, has small building yards around Lisbon, the political instability and financial insecurity of the country have prevented a much needed naval improvement programme — modernisation of her small frigate force is in hand but the deletion and transfer of many ships consequent upon her withdrawal from Mozambique and Angola has reduced the flexibility of the Portuguese fleet.

A little over 800 miles separate Madrid from Rome and in Italy we find a virile and enthusiastic building programme which is controlled from naval headquarters but which is largely the responsibility of the Melara Club, a group of eight Italian firms concerned with ship-building and the provision of weapons and engines. While this organisation is unique, so also is the Legge Navale which, as a parliamentary law, has set the future programme for the Italian Navy. Although financial restrictions have curbed this plan it is clear that Italy intends to have a strong force of A/S helicopters at sea by the mid-1980s, to have hydrofoils, submarines and mine-hunters available and to provide adequate afloat support. Italy has the great advantage of a central geographical situation in a maritime area of great importance. In the past, even in Mussolini's era, the Italian fleet relied on its own bases. Current programmes suggest that future plans may encompass moves beyond these constrictions.

Such plans bring to mind Italian aspirations against Malta thirty-seven years ago but, today, the Premier of Malta is linked more with Colonel Gadafi of Libya, the supporter of insurrection in Northern Ireland and most other areas where terrorists oppose the lawful government, and, as the Colonel builds up a navy which is stronger in ships than manpower, the Italians must be watching events with alert interest, particularly to see where the Soviet Mediterranean Fleet gains freedom to use new ports. In all aspects of surveillance the Italian submarines, their new 13,250 ton small aircraft carrier (with a V/STOL as well as a helicopter capability), the smaller **Vittorio Veneto** and the considerable force of destroyers and frigates all have an important part to play.

Across the Adriatic the Yugoslavian navy has escaped from its dependence on Soviet and other foreign building yards, although the hulls built in Kraljevica, Pula, Split and Belgrade are fitted out with weapons and sensors from both Western and Soviet sources. The main emphasis of the current programme is on submarines, missile craft, minewarfare and amphibious craft. Operated with vigour by a dedicated group of officers and men this fleet might well be involved in some form of action when the departure of President Tito could precipitate invasion from without and insurrection from within.

Since the rift between Albania and the USSR in 1961 the somewhat erratic support of the Chinese has provided the only comparatively modern craft in the Albanian navy, some fifty boats with guns, missiles or torpedoes. None of these is more than a coastal defence vessel and

H.N.L.M.S. DE RUYTER. Note Harpoon cannisters amidships. (Photo — M. Lennon).

some are passing from the modern to the outmoded. The same stricture is true of the Greek navy next door. All her destroyers and frigates, three of her submarines, several of her minesweepers and a high proportion of her amphibious forces are well over twenty years old, all her destroyers being on or past their thirty-fifth birthday. A resurgence of national building is, however, producing a considerable number of light forces, some to the French "La Combattante III" design, others to Greek plans. With eight German-designed submarines available now or in the near future this fleet is achieving a sensible balance for the main task, defence of the Aegean.

It is here, too, that the Turkish navy is now concentrated. The long worn-out plans for death-or-glory forays across the Black Sea have for some years been replaced by a determination to support the Turkish First Army in Thrace and to protect the logistic lines for the other armies covering the Black Sea coast and the passes from Erzurum to the south. The main Turkish strength lies in its army — the task of the other services is to ensure its support and protection. This is the NATO aspect, a vital hinge on which the alliance depends to prevent itself being outflanked in the Mediterranean. The perennial bickering between Greeks and Turks, an inevitable backwash of the centuries of Ottoman suzerainty in the Balkans dating from the fifteenth century, has blinded many, particularly the Congress of the USA, to the true values of the problems of South Eastern Europe and the Balkans. Civil rights and other well-worn cries would be of little use when the Turkish forces, starved of Western support, are faced by major problems from the North West, the North and the North East. Their naval building programme, based on the yards at Golcuk and Istanbul are now producing submarines and missile craft — valuable these would be but no country in NATO these days can hope for self-reliance. Before Turkey slips into the same disastrous imbroglio as Iran the remainder of the NATO alliance must appreciate the fragility of their South Eastern flank.

Lastly in this European journey lies the navies of Bulgaria and Romania, ineffective in their own right but providing logistic support and backing for any Soviet move towards the Turkish Straits. It is this point which is of primary importance when considering the navies of Europe — the Warsaw Pact fleets are continually at a geographical disadvantage and, provided the NATO naval forces are of adequate strength, high availability and sensibly deployed they will retain an advantage at all times. The Greenland-UK gaps, the Danish Straits and the Turkish Straits must be breached if the Soviet navy is to have freedom of action. Courage and determination on the part of Western politicians can prevent such operations and the resultant disaster.

Fact File No. 4

Ship: ARDITO (Italian Navy).
Type: Guided Missile Destroyer.
Displacement: 3600 tons standard; 4400 tons full load.
Dimensions: Length 446.4 feet; Beam 47.1 feet; Draught 15.0 feet.
Armament: 1 x Standard surface to air missile launcher; 2 x 5 inch 54 calibre single mounts; 4 x 3 inch (76 mm) 62 calibre single mounts (Ota Melara); 2 x triple Mk. 32 torpedo tubes.
Aircraft: 2 x AB204B or AB212 helicopters.
Engines: Two double reduction geared turbines, 73,000 shp, 2 shafts.
Boilers: Four Foster Wheeler type.
Speed: 33 knots.
Complement: 380 (30 officers, 350 men).

The three accompanying photographs depict ARDITO, second of two Audace D.D.G.s constructed for the Italian Navy between 1968 and 1973. ARDITO was laid down at Castellammare on 19th July, 1968, launched on 27th November, 1971, and commissioned on 5th December, 1973. Two improved Audace class ships are planned for the Italian fleet.

An AB 204B helicopter shares the landing deck with crew members as ARDITO enters Portsmouth. *(Photo — John Mortimer).*

ARDITO, starboard bow view, taken at Portsmouth, U.K., 29th June, 1977. *(Photo — John Mortimer).*

Amidships view showing ARDITO's single 76 mm mounts, triple torpedo tubes and single standard missile launcher right aft. *(Photo — John Mortimer).*

EUROPEAN CARRIERS
— A New Generation

The last month or so has seen H.M.S. INVINCIBLE, the first of Britain's new small aircraft carriers, get underway for the first time. Those fortunate enough to see her on the Arran measured mile were impressed — a "magnificent ship" wrote one correspondent to the writer.

By: A. W. GRAZEBROOK

However, the structural completion of INVINCIBLE heralds a great deal more than the pleasure of seeing a new generation of aircraft carrier at sea. INVINCIBLE represents a major step forward in the West's attempts to catch up with the Russian lead in "cut price" seaborne maritime airpower. KIEV and MINSK are the first purpose built VSTOL aircraft carriers in the world and the only ones so far in operational service.

Now, four Western European powers — United Kingdom, France, Italy and Spain — have ships in various stages of construction.

United Kingdom In The Lead

With INVINCIBLE already at sea on trials, ILLUSTRIOUS fitting out at Newcastle, and the order placed for the third ship (ARK ROYAL), the Royal Navy is in the lead in getting the VSTOL carrier concept operational in Western European waters. Designed as a multi-purpose anti-submarine carrier, like the Russians' KIEV, INVINCIBLE will carry five SEA HARRIER reconnaissance strike fighter FRS-1 aircraft, and ten SEA KING anti-submarine helicopters. INVINCIBLE will be equipped with a SEA DART area defence surface to air missile system which also has a surface to surface capability. The ship will be capable of acting as a task force command ship.

The SEA HARRIER FRS-1 will be armed with the P3T air to surface missile and SIDEWINDER AIM9L air to air missile both controlled by Blue Fox radar. The SEA HARRIER's payload will be increased by the use of a Ski-Jump take off ramp fitted on the port side of the flight deck for'ard. It is reported that, while INVINCIBLE's Ski-Jump is angled upwards by only six degrees, that of later ships will be considerably steeper. There are also reports that later ships will have their flight decks extended further for'ard than that of INVINCIBLE. As is well known, the SEA KING anti-submarine helicopters are considerably larger than the LYNX HAS2 and WASP HAS1 helicopters carried in smaller ships. The extra size of the SEA KING provides greater payload and longer range. Driven by four Olympus gas turbines, INVINCIBLE has a speed of 28 knots.

Laid down by Vickers (Shipbuilders) Ltd. at Barrow in Furness in July 1973, and launched in May 1977, INVINCIBLE has taken some six years to build. Her younger sister ILLUSTRIOUS was laid down by Swan Hunter Ltd. in October 1976, and launched in December 1978. Skilled labour shortages are reported to have delayed work on INVINCIBLE whilst much better progress has been made on ILLUSTRIOUS. However, work can be speeded up considerably if long lead items are ordered well in advance and this is believed to have been permitted by the British Ministry of Defence in the cases of both ILLUSTRIOUS and ARK ROYAL.

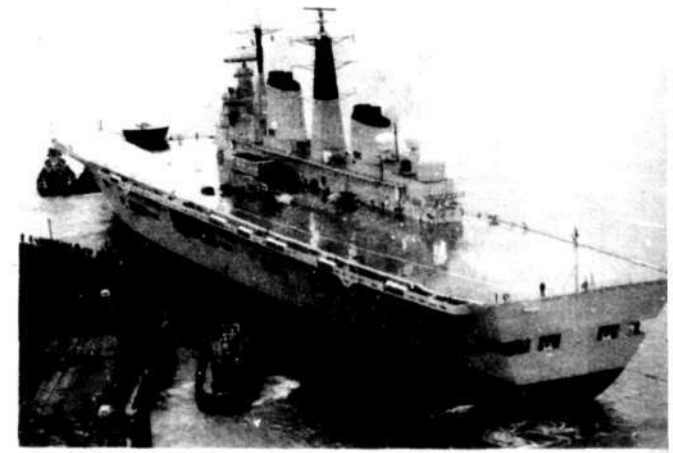
In equipping the three INVINCIBLE Class with SEA HARRIER FRS-1 aircraft, the Royal Navy has recognised that the fixed wing VSTOL aircraft will have sufficient air to air combat superiority to deal with those types of aircraft with the range to operate well out into the North Atlantic. Such hostile aircraft may be capable of launching air to surface missiles from outside the range of the surface to air missiles carried in many NATO escorts. SEA HARRIERS are seen as the only way to cope with such aircraft when outside the relatively short range of friendly shore based air superiority fighters.

With two CTOL aircraft carriers — CLEMENCEAU and FOCH — expected to remain in service for another decade or so, and their aircraft being updated or replaced with a new generation, France now has a seaborne maritime air force superior to that of Britain. However, the UK will tend to take the lead again as her early technology and operational experience in fixed wing VSTOL aircraft develop.

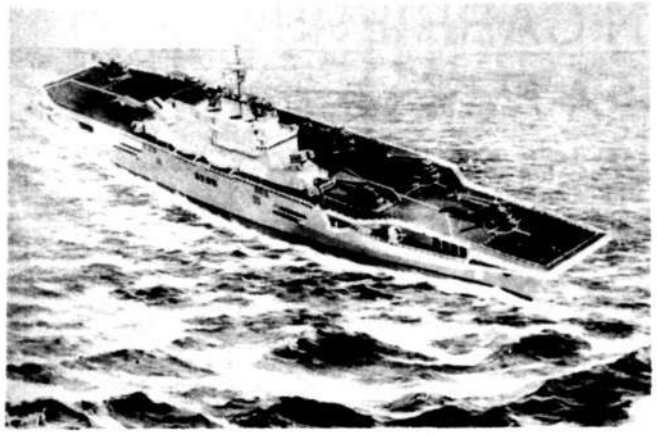
Nevertheless, the French are planning a major step forward in designing their first new generation carrier for nuclear power.

France's PA75

Planned for laying down in 1981, long lead items have been ordered for the as yet un-named 16,400 ton nuclear powered



INVINCIBLE leaving Barrow in Furness for trials. (Photo — Royal Navy).



GIUSSEPPE GARIBALDI

aircraft carrier PA75 that is to be the first of three such ships.

The ship will have two emergency diesel engines capable of driving the carrier at 18 knots for 3000 miles. Top speed under nuclear power will be 28 knots. Although designed primarily for operating anti-submarine helicopters, provision is being made for fixed wing VSTOL aircraft to be carried if the need arises — presumably as CLEMENCEAU and FOCH are withdrawn from service and their CTOL fixed wing aircraft cease to be available.

Her published aircraft carrying capacity — 25 LYNX WG13 ASW helicopters or ten of the larger SA32-1G anti-submarine and minesweeping helicopters or 15 Puma SA330B Army helicopters — reflects both the flexibility in role of the new type of small aircraft carrier and the extent of that flexibility envisaged for the ship by the French defence planners.

The possible use of the ship helicopters for combined operations purposes, in the vertical assault role, is reflected in the provision of exceptionally large medical facilities and accommodation for 1500 passengers on top of the ship's normal complement of some 900 officers and sailors.

The ship will be armed with two of the versatile French developed CROTALE surface to air missile systems and four new missile systems designed for defence against low altitude surface to surface guided weapons.

That France intends the PA75 type to perpetuate her ability to project power across great distances after CLEMENCEAU and FOCH retire is demonstrated not only by the virtually unlimited range imparted by PA75's nuclear power, but also by that type's ability to refuel escorts.

However, France is well behind Britain in the use of fixed wing VSTOL aircraft and, if she maintains the determination to develop her own weapons and aircraft for which she is noted, has ground to make up in VSTOL aircraft.

Like the French, the Italians are planning the initial aircraft complement of their new aircraft carrier to be comprised of helicopters only.

Giuseppe Garibaldi — Italy's New Carrier

As neither of her two wartime carriers were ever commissioned as such, the Type 1092 ship that has been ordered from Italcantieri will be Italy's first aircraft carrier as such. However, the Cruiser VITTORIO VENETO, commissioned in 1969, operates nine anti-submarine helicopters. Doubtless, the practical experience gained in operating this ship will be put to good use in the design and operation of GIUSEPPE GARIBALDI.

On a displacement of 10,100 tons (13,250 tons full load), the designers are ambitious in both complement of aircraft (18 helicopters of SEA KING size, or 16 SEA HARRIERs and one SEA KING) and armament. The ship will have four surface-to-surface missile launchers (with a maximum of 10 missiles on board), two ALBATROS point defence anti-aircraft missile systems (with a maximum of 48 missiles on board), three 40/70 Breda twin close-range defence twin gun mountings (with a maximum rate of fire of 300 rounds per minute), two multiple chaff rocket launchers, and six Mark 32 anti-submarine torpedo tubes.

The ship will be propelled by four Fiat-General Electric LM2500 Gas Turbines driving two controllable pitch propellers. These will give the ship a maximum speed of 29½ knots, or a range of 7000 nautical miles at 20 knots.

Air surveillance radar, surface surveillance radar, 3-D radar, four IFF systems, a radio navigation system, and Tacan, will be fitted as will an electronic counter-measures system and the hu'l mounted SQS23 sonar system.

The ship will be manned by 105 officers, 186 chief petty officers, 138 petty officers and 396 other sailors.

Although the ship will be somewhat shorter than Britain's INVINCIBLE, GARIBALDI's flight deck will be some twenty feet longer which (as the designers assume some flight deck stowage of aircraft in calculating aircraft complement) may contribute to the very satisfactory aircraft complement on a ship of 10,100 tons — 18 SEA KINGs compared with INVINCIBLE's 10 SEA KINGs and five SEA HARRIERs, on a ship of some 16,000 tons standard displacement.

On the face of it, the Italian ship compares very favourably with the British ship — much the same aircraft complement, speed, armament, etc., and some 6000 tons lighter.

However, the British usually build their ships heavier, to operate in the more demanding northern oceans and to withstand greater shock, etc., from explosions. These differences are difficult to compare between designs, there being no common measure, but they cost weight (and money).

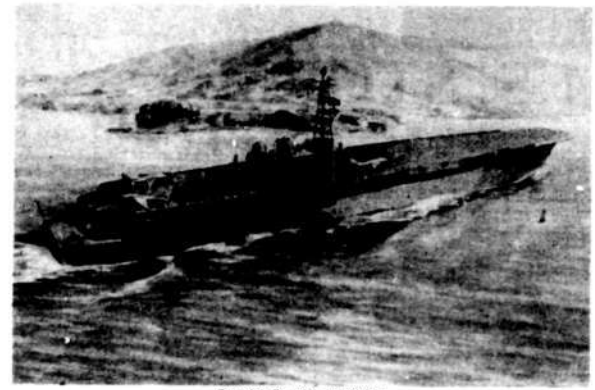
In the context of comparison of designs, it will be interesting to see what the Spaniards achieve with their new sea control aircraft carrier when more details of the Spanish ship are released.

Spain's Second Aircraft Carrier

Some twelve years ago, Spain commissioned her first aircraft carrier DEDALO to operate anti-submarine and vertical assault helicopters. More recently, the aircraft complement has been modified to include five AV8-A ground attack HARRIER type aircraft.

No doubt capitalising on their successful experience with this ship, the Spanish Navy has commenced construction (at Empresa Nacional Bazan's yard at Ferrol in north western Spain) of a new small aircraft carrier, the design of which is in the hands of the well-known company Gibbs and Cox.

As is well known, during Admiral Zumwalt's "watch" as Chief of United States Naval Operations, the US Navy conceived a need for a small aircraft carrier to be called a sea control ship. Although the project was subsequently cancelled, it had progressed to the detailed design stage (for which a contract was awarded to the National Steel and Shipbuilding Co. of San Diego).



Spanish Sea Control Ship

Details published by the Spaniards show that their new ship will be very similar to the US design.

Displacing 14,500 tons full load, and with an overall length of about 190 metres, the Spanish ship will be slightly larger than the Italian GARIBALDI. Her flight deck will also be slightly longer, and the aircraft complement very similar. The Spaniards plan various mixes of HARRIER VSTOL aircraft, anti-submarine helicopters and vertical assault helicopters. The aircraft complement will be varied according to the role envisaged for the ship at different stages of a particular deployment — along the same lines as the aircraft complement of MELBOURNE can be varied.

The Spanish Navy already has in inventory some ten AV8-A HARRIER type aircraft, 24 SH-3D SEA KING ASW helicopters, six HUEY COBRA helicopter gunships, and a number of IROQU'OIS troop carrying helicopters. They will need no new aircraft for their new aircraft carrier.

The Spanish ship will have limited armament — two close-in weapons systems for defence against surface to surface guided missiles. No doubt these will be the Spanish MEROKA system — which will also be fitted to the FFG7 type guided missile armed frigates now building in Spain.

The MEROKA system is of interest. The system is comprised of twelve 20 mm guns, which together give a maximum rate of fire of 3600 rounds per minute. It takes 0.2 seconds to re-aim the system and 0.6 seconds to fire twelve rounds. The relatively limited armament of the new Spanish aircraft carrier reflects her sea control role, no doubt in conjunction with the Spanish built FFG7s (of the same basic type as the RAN's guided missile armed frigates now building in the United States) which will provide an area defence surface to air missile system, and surface to surface guided missiles.

The Spanish Navy was the second in the world to put VSTOL aircraft to seaborne use. That practical experience of the advantages of seaborne VSTOL aircraft has led her to invest in a new aircraft carrier. The third navy to operate seaborne VSTOL aircraft was that of modern Imperial Russia.

Minsk — Russia's New Pacific Aircraft Carrier

In June this year, Russia's second aircraft carrier (MINSK) completed a two month deployment in the Indian Ocean and passed, with her consorts (an 8000 ton KARA Class guided missile armed cruiser and the new 13,000 ton amphibious warfare ship IVAN ROGOV), into the Pacific Ocean to take up her station in Russia's Pacific Fleet.

More than twice the size of Britain's INVINCIBLE, MINSK carries about twelve VSTOL aircraft and some twenty anti-submarine helicopters. The Russian ship is armed with surface to surface guided weapons, point defence anti-aircraft missile systems, and the new SA-N-4 anti-aircraft missile, the nature of which (point defence, area defence) is unknown to the west.

The size of the new Russian aircraft carrier, coupled with the fact that she has been operating tactically with one of the largest KARA Class cruisers, and the recent appearance (for the first time) of a "one-stop" carrier support ship (the first ship BEREZINA has been sighted operating in the Mediterranean with MINSK's eldest sister), demonstrate that Russia's seaborne airpower is available for use in the broad oceans.

Europeans Developing Smaller Aircraft Carriers

Four European nations have found the new generation of small aircraft carrier the most cost-effective way of providing their maritime forces with large anti-submarine warfare helicopters, with fixed wing VSTOL aircraft for ground attack, strike, air defence and reconnaissance capability. Ships of the Western European types are available for purchase by allied nations, on a selective basis. History has shown that totalitarian powers are much less discriminating in choosing recipients (often effectively free of charge) for their weapons, ships and aircraft. We have only to recall the Indonesian confrontation of the early 1960s to recognise that it is only a matter of time before regional powers are operating Russian built or designed seaborne VSTOL aircraft.

OUT OF THE PAST

H.M.S. STORM

In 1929 the Royal Navy introduced a class of medium patrol submarines, designated the "S" class, for service in Mediterranean and European waters. A major innovation of this class was the positioning of the fuel tanks inside the pressure hull, thus alleviating the problem of leaking fuel tanks which plagued earlier classes.

By S. BRETT

The class proved immensely successful, and at the outbreak of World War II the 12 boats in service performed sterling service, especially in Norwegian coastal waters. During 1939-45, the S class design was mass produced with a number of variations, and eventually over 60 units were built, making it the largest single class ever built for the Royal Navy.

H.M.S. STORM was launched on 18th May, 1943, at Cammell Laird's, Birkenhead. She differed from earlier units in having radar, air-conditioning, an oerlikon gun and also the capacity to carry oil fuel. This oil fuel capacity increased the boat's cruising range by hundreds of miles, making the boat more suitable for service in the vast areas of the Far East. H.M.S. STORM's armament in addition to the oerlikon was 6 x 21 inch torpedoes, and a 3 inch gun. Tonnage was approximately 830 tons (surfaced), 930 tons (submerged). Length: 217 feet. Beam: 23.6 feet. Draught: 14.3 feet. Propulsion: Surface: 2 Admiralty-pattern 8 cylinder brotherhoods, each engine generating 950 h.p. at full power. Underwater: 2 Metro-Vickers motors.

H.M.S. STORM, commissioned on 9th July, 1943, and after working up exercises, proceeded on her first war patrol off North Cape, inside the Arctic Circle. After completion of this short patrol, she was ordered to sail for the Far East, where she joined the 4th submarine flotilla based at Trincomalee, with the depot ship H.M.S. Adamant.

The duties of the 4th flotilla were to patrol the Andaman-Nicobar Islands area and Mergui Archipelago, with the task of stopping seaward supplies to the Japanese advanced bases. Due to the growing submarine force in the area, the Japanese resorted to sending small coasters and motor ships by close inshore routes in the hope of avoiding British submarines by losing them in the islands. Many of these small vessels were not worth the expenditure of a torpedo, so gun actions became the order of the day. In this sphere H.M.S. STORM built up an enviable record.

The vessel's first patrol in the area resulted in her first sinking, that of a 500 ton coaster, by surface action. The second patrol netted a 3500 ton merchant ship and a Japanese destroyer, both by torpedo, followed by a thrilling gun battle with an anti-submarine yacht. The 4th and 5th patrols accounted for a medium sized merchant ship by torpedo and no less than 5 coasters (varying tonnages up to 400 tons) and 2 patrol vessels, all by gun actions. A surface action with 2 landing craft was also fought.

However, for excitement and enterprise, H.M.S. STORM's 6th and final patrol from Ceylon to the Mergui Archipelago resulted in something of a mini-classic by way of submarine surface actions. On 2nd September, 1944, H.M.S. Storm attacked a convoy of 11 small vessels consisting of 2 escorts, 1 MTB, 1 gunboat and 7 coasters. In 36 minutes of action, 150 rounds of 3 inch shells were fired, and resulted in the sinking of 2 escorts, 1 coaster and the damaging of 2 coasters and the MTB.

After this patrol, H.M.S. Storm sailed to Fremantle to join the 8th flotilla and H.M.S. Maidstone, arriving on 22nd September, 1944. However, Storm only completed 2 war patrols from Fremantle and the accomplishments of the 8th flotilla were small due to the activities of the preceding American squadrons, who had plundered the area and then moved on to bigger things in the South China seas and the Philippines. In her last 2 patrols, Storm only sank 11 schooners used for carrying nickel ore, then sailed for the U.K. in late January. She arrived home in Portsmouth on 8th April, 1945, and payed off in the same month. H.M.S. Storm was subsequently broken up at Troon during November 1949.

The German Navy In The Alliance

The guided missile destroyer MOLDERS. (Photo — Federal German Navy).

By G. LUTHER

Vice Admiral, Chief of Staff, Navy

(Reproduced from Nato's Fifteen Nations 1978/79)

The German Navy has been built up since 1956 — practically from scratch. Now — after 22 years — with 273 ships and boats and 189 aircraft it makes an important contribution, together with the Army and the Air Force, to the external security of the Federal Republic of Germany. In unison with the other navies in the Alliance, the German Navy makes it clear that the North Atlantic Alliance is able and willing to defend peace and freedom not only on land, but also at sea, and thus contributes to the effectiveness of the deterrent.

To the German Navy, in the event of war, falls the task of ensuring, together with the navies of the other northern European parties to the Alliance, that the northern flank area remains defensible.

HAMBURG. (Photo — Federal German Navy).

To be able to size up the importance of this regional mission correctly, one must see it in the context of the overall concept of defence. The task is to ward off a large-scale surprise attack aimed at gaining rapid possession of Western Europe. Even if one assumes that the brunt of such an attack would be borne by the armoured and air armies of the Warsaw Pact in Central Europe, a glance at the map makes it clear that the main thrust in the central sector can be supported effectively, and perhaps even decisively, by co-ordinated operations on the northern flank. The strategic target of such a flank operation would be:

- to break the cohesion of defence between NATO's northern and central regions;
- to outflank forward defence in the central region from the sea; and
- to cut lines of communication between America and Europe.

The German Navy's mission, together with the Danish Navy, is to defend the Baltic Approaches from a naval attack, in order to:

- secure the territorial integrity of the north German coastal Lander and Denmark;
- to block the united Warsaw Pact fleets in the Baltic; and
- to maintain cohesive defence in Central and Northern Europe.

If they are to fulfil this mission, the available forces must be in a position, both quantitatively and qualitatively:

EMDEN (F221), KARLSRUHE and LUBECK in the North Sea. (Photo — Federal German Navy).

— to repulse and destroy amphibious operations in the Baltic against the main Danish islands commanding the Baltic Approaches and/or the German Baltic coast before they can land; and
— to assert or gain superiority at sea.

Under this concept the German Navy is adjusted to a mode of warfare which makes the best possible use of the very defensible geography of the Baltic Approaches and the depth of the theatre of operations in the Baltic demands a great effort on the part of an aggressor. Here one must proceed from the assumption that the Warsaw Pact possesses air and naval superiority in the sea areas to the east of the Danish island of Bornholm. To be in a position to engage enemy forces, especially amphibious forces, in the assembly areas far to the east and on the move towards their target, our own forces, operating well forward, must have not only the necessary combat power, but also great depth of penetration and the ability to achieve their goals. In the present state of the art, the main elements possessing these qualities are submarines and fighter/bombers with long-range air-ship guided missiles. They, then, are the spearhead of the defence system. The base of the system is extensive minefields blocking the main routes and possible landing beaches. In front of these minefields, fast attack craft, fighter/bombers, and, later, combat helicopters will form mobile elements to prevent the mines being swept and to attack enemy naval elements.

S52, a type 148 fast missile craft commissioned in July, 1974. *(Photo — Federal German Navy).*

Behind the minefields there is a floating supply and repair component under cover of the islands dotting the Baltic Approaches which enables the combat elements to operate independently of bases. This component in turn is resupplied from depots in northern Denmark and southern Norway.

For its missions in the Baltic the Navy has the following elements —

— 24 submarines of a type specially developed for Baltic warfare and using wire-guided long range torpedos. These boats are no larger than 450 tons, extremely quiet, and for all practical purposes amagnetic. This gives them the best possible protection against location by the enemy in the rapidly changing sea conditions in the Baltic.
— 112 naval F-104G fighter/bombers with the Kormoran air-ship missile as their main armament. In the near future, these will be replaced by the same number of MRCA Tornado fighter/bombers with the same main armament and an extensive arsenal of droppable weapons.
— 40 fast attack craft of various classes, 30 of which have four

Z5. (Photo — Federal German Navy).

MM 38 ship-ship missiles while 20 either two or four wire-guided long-range torpedoes and all of them have two 76 or 40 mm rapid-fire cannons.

The most modern type is the class 143, which in addition to her very respectable armament, also possesses a completely automatic data processing command and fire control system.

Ten of the older boats with ship-ship missiles will be replaced at the beginning of the 80s by ten 143 A class boats, which will have an additional mine carrying capacity:

— 39 minelayers and minesweepers of two classes, with light anti-aircraft weapons, which are also adapted to Baltic conditions, i.e., they are small, have a shallow draught, and are comparatively fast. The older boats will be replaced in the 80s by a modern type with a better performance.
— 19 utility landing craft with a beach-master company, being used mainly to support land-based elements of all three services in movements between the Danish islands and the continent.
— The afloat supply component consists of a large number of special units such as tenders, tankers, tugs and ammunition and spare part transports.
— The operations of all these units are controlled and co-ordinated by the Commander-in-Chief, German Naval Forces, from his HQ in Gluecksburg, which at present is being built up into a computer-controlled command and information system with a real time situation display.

The Navy's strength lies in its many small, combat-effective, mobile units equipped with high-quality modern weapons systems in the very defensible area of the Western and Central Baltic. An element of weakness is the proximity of its theatre of operations to enemy bases and the fact that it is positioned ahead of the NATO stationary air defence system. This makes it all the more important to secure the rear area, the North Sea, which is also a taxiway for the indispensable movement of reinforcements and supplies to North Germany, Denmark, and

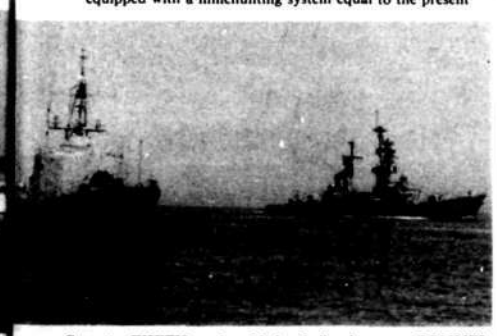
S62, a type 143 missile craft. Top speed 38 knots. (Photo — Federal German Navy).

DEUTCHSLAND, fleet training ship. *(Photo — Federal German Navy).*

Southern Norway. NATO control over it ensures the defensibility of the northern flank and its protective function both for the forward defence of Central Europe and for the lines of communication between America and Europe.

The Navy makes a considerable contribution to this task also. Its job here is to assert naval superiority in the North Sea and to protect reinforcement and supply movements from attack by submarines and aircraft and avert the danger of mines. To accomplish it the Navy needs elements which are designed for long periods at sea, can stand up to the harsh North Sea conditions, and which are fitted with combined submarine hunting and anti-aircraft systems. For this part of its mission, the Navy has —

— 17 destroyers and frigates of various classes, the oldest units of which — four destroyers belonging to the old U.S. World War II "Fletcher" class and six frigates of the "Koln" class dating back to the 50s — will be replaced w.e.f. 1981 with modern general-purpose frigates. These ships will be equipped with ship-air and ship-ship missiles and a highly effective submarine hunting system, including two helicopters per ship and a fully automatic command and weapon control system.
— 15 long-range "Breguet Atlantic" maritime patrol aircraft, the reconnaissance and ASW capacity of which is at present being considerably enhanced.
— 18 minesweepers and minehunters which keep open coastal routes and port approaches. This component is also going through a modernisation phase. Twelve boats are being equipped with a minehunting system equal to the present mine threat. Another six boats are being converted to control boats; each of them will exercise remote control over three unmanned minesweeping systems to deal with acoustic and magnetic mines.
— In addition, the Navy maintains a very effective search and rescue service in the North Sea and the Baltic, consisting of 20 Sea King SAR helicopters. They operate from standby centres in Kiel, Westerland and Borkum, by day and night, under the central control of Fleet Command.



Corvette THETIS and guided missile destroyer ROMMEL. *(Photo — Federal German Navy).*

The Navy is at present 38,000 strong. About two thirds belong to combatant elements; more than 10,000 are always in training, since the modern and complicated equipment in ships, boats and aircraft calls for a meticulous and consequently time-consuming schooling for the numerous specialists, particularly since young men are often employed in positions in which they have to act on their own responsibility, being the only men on board trained in their trade. The substance and methods of training are continuously adapted to the requirements of the mission and the user, viz. the fleet. There are nine schools, four autonomous special training detachments, and two training ships — supported by units of the Fleet as and when necessary — available for training purposes.

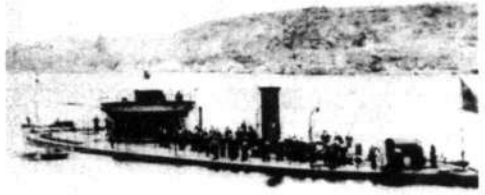
To sum up, then: the German Navy contributes in the Alliance to securing peace by preparing to carry out a mission geographically confined to the northern flank area but important strategically to the overall conduct of a war.

Although the forces at its disposal are numerically inferior, they are of high quality. Given a reasonable warning time as the prerequisite for the maximum exploitation of the geographical features, which in any case favour a defender, the Navy, in close collaboration with the navies of the other parties to the Alliance and the Army and Air Force, will be in a position to do what is expected of it.

WARSHIP PICTORIAL

(All Photos Courtesy Royal Swedish Navy)

SWEDISH WARSHIPS – PAST & PRESENT



The monitor, JOHN ERICSON.

The Coast Defence Battleship DROTTNING VICTORIA displaced 7,400 tons. She was authorised in 1915 and launched at Goteburg, Sweden, in September, 1917. Armament; 4 x 11 inch, 8 x 6 inch, 6 x 14 pdr., 2 x 6 pdr., 2 x M.G.s and 2 x 18 inch torpedo tubes (submerged). Length x beam x draught; 393 x 61 x 22 feet. Maximum speed was 22.5 knots. In 1927 and later between 1934-35 the ship was rebuilt, the armament modified and her funnels trunked into one. DROTTING VICTORIA remained active until 1952 as did her two sisters SVERIGE and GUSTAV V.

Nordenfelt's first submersible during trials at Landskrona, Sweden. Built at Stockholm during 1880-82, the vessel displaced 60 tons and was 64 feet in length. Two vertical propellers were driven by a 6 h.p. steam engine. This submersible was the first to carry a locomotive torpedo, the weapon being carried in a discharging tube outside the hull in the bow. In 1886, the boat was purchased by the Greek Government.

One of the twelve original Bredskar class minesweepers in the Swedish fleet, RAMSKAR first took to the water on 28th October, 1940. She displaced 530 tons full load and measured 187 x 25 x 7 feet. Armament: 1 x 4.1 inch, 2 x 25 mm. Deleted 1967.

WRANGEL, a destroyer built between 1915-1918, was originally armed with 4 x 14 pdr. and 2 M.G.'s and 2 or 4 torpedo tubes. Length x beam x draught; 236 x 21 x 9 feet.

The destroyer VISBY was originally built in 1943, but during 1965-66 underwent rebuilding as a frigate. With a full load displacement of 1,320 tons VISBY now carries 3 x 4.7 inch, 2 x 57 mm and 3 x 40 mm guns. In addition one bofors A/S rocket launcher is mounted. Length x beam x draught; 321 x 30 x 12½ feet. Three other sister ships were also converted, but all four will be paid off for disposal in the near future.

Acquired from the Royal Navy on 15th July, 1958, the midget submarine SPIGGEN was a former British X-craft. She was built by Vickers-Armstrongs Ltd., Barrow, and launched as H.M.S. STICKLEBACK on 1st October, 1954. SPIGGEN was sold by the Swedes in 1970. She displaced 35 tons and measured 53 x 6½ x 7½ feet.

Leadship and nameship of the class, torpedo-boat T121, SPICA, was first commissioned in 1966. She was soon followed by a further five 230 ton fast attack craft, each being armed with a 57 mm bofors gun forward and six 21 inch torpedo tubes. Currently all boats are having two twin missile launchers fitted in place of the after pair of tubes. Following the initial group of vessels an additional twelve T131 Spica class were delivered between 1973 and 1976. Top speed of all craft is + 40 knots.

Displaying the recognition letters "Shu", the submarine SJOHUNDEN is armed with 4 x 21 inch torpedo tubes and 2 x A/S tubes. Her complement is 23 officers and men. SJOHUNDEN displaces 1,125 tons standard and can dive to 500 feet. Maximum speeds are 15 knots surfaced and twenty knots submerged. There are five units of the class, all built from 1965 to 1969.

The minelayer ALVSBORG was ordered in 1966 and launched on 11th October, 1969, as a replacement for the submarine depot ship PATRICIA. She boasts facilities for one embarked helicopter and is defensively armed with three 40 mm guns. Top speed is in the region of 16 knots and principal dimensions 301.8 x 48.2 x 13.2 feet. A sister ship, VISBORG was commissioned in February, 1976.

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Application for Membership

To: The Secretary,
The Navy League of Australia,

(. . . . . Division).

Sir,

I am desirous of becoming a Member of the Navy League of Australia with whose objects I am in sympathy.

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

PLEASE PRINT CLEARLY

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

Enclosed is a remittance for $6.00 being my first annual subscription.

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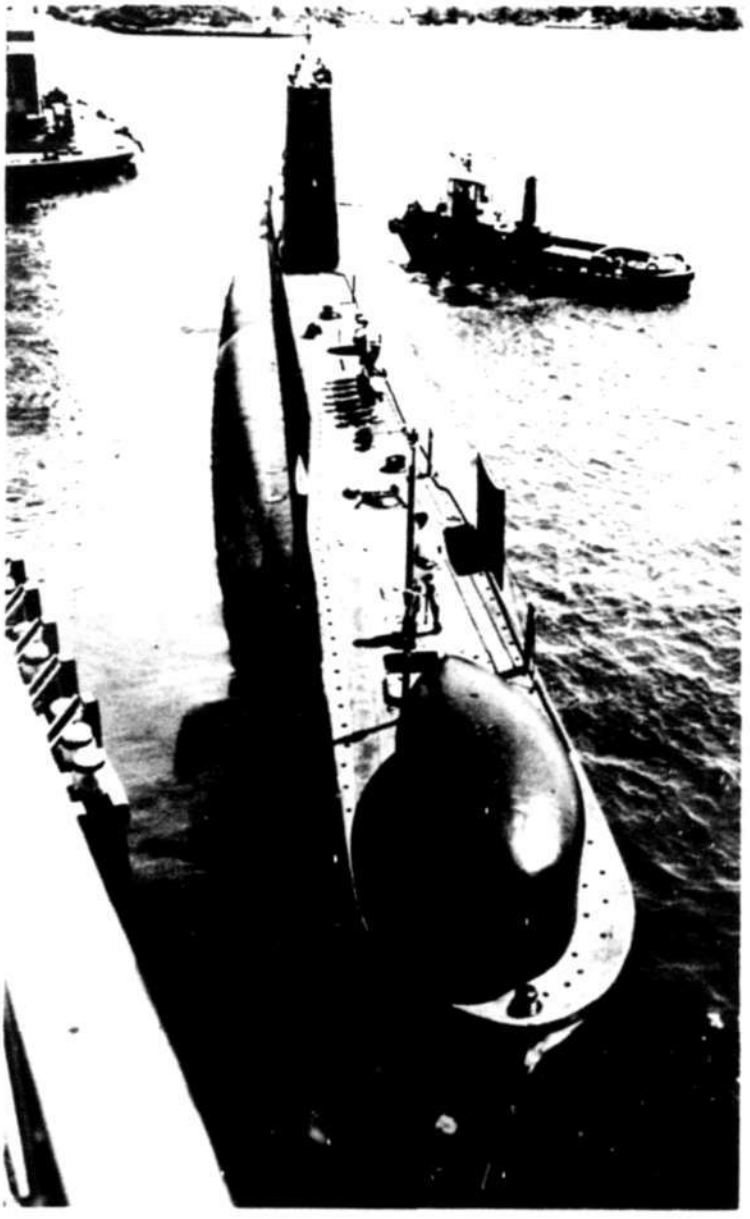

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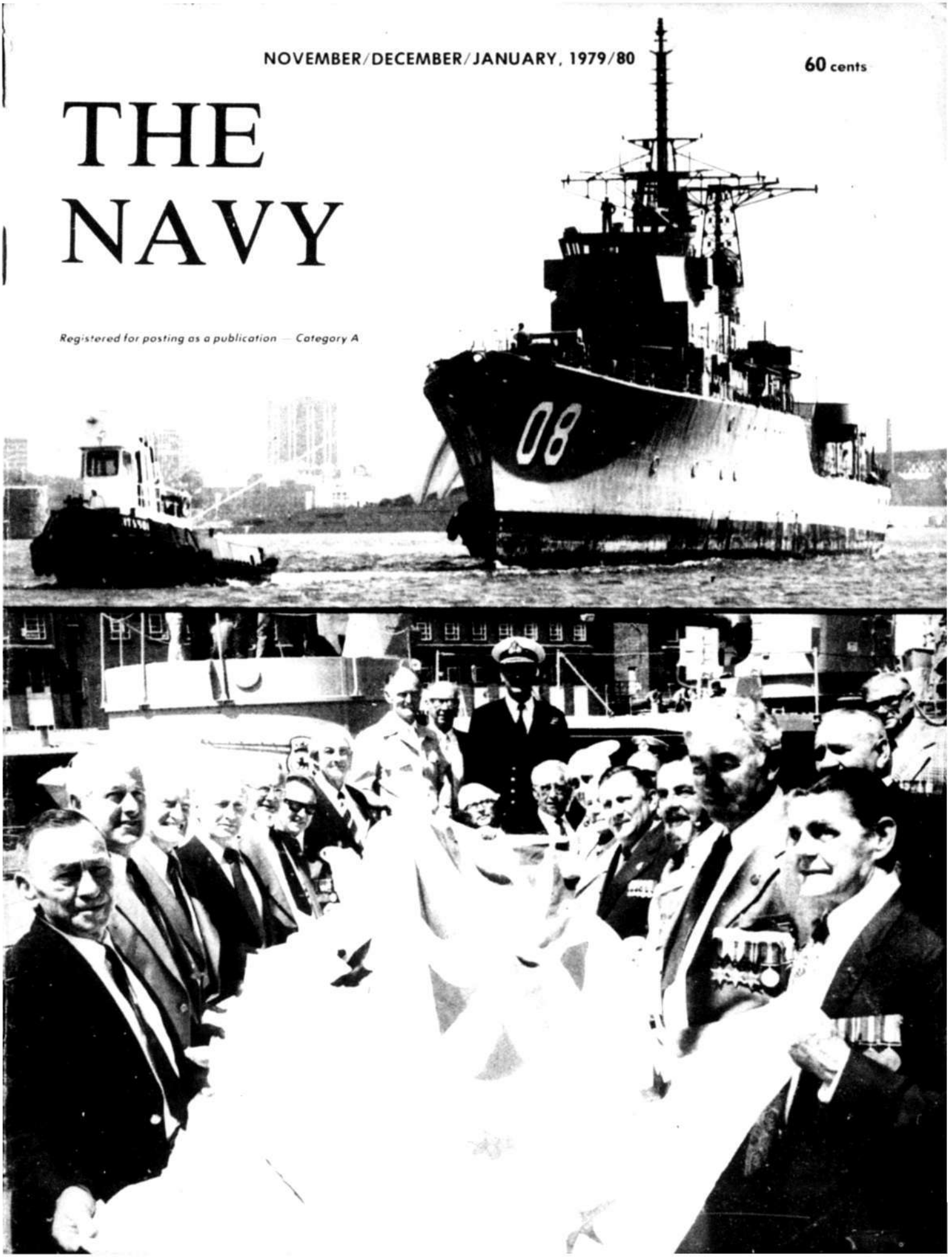

THE NAVY

The magazine of the Navy League of Australia

EDITOR
ROSS GILLETT
P.O. BOX 653
DEE WHY, N.S.W., 2099
Phone: 949 6994

Registered for posting as a publication — Category A

VOL 41 NOVEMBER/DECEMBER/JANUARY, 1979/80 No 4

HMS SPEEDY (see Naval Round-up). (Photo — Royal Navy Public Relations.)

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Editor's Comment . . .

The largest warship constructed for the Royal Navy since the Second World War, HMS INVINCIBLE, is scheduled to commission within the next few months. As a prelude to this important event in naval air power, "The Navy" publishes a brief, but informative, report on the ship, illustrated by a selection of photographs taken during trials off the Scottish coast.

Whether or not the Federal Government decides to purchase a similar vessel, the Spanish or Italian Sea Control Ships, or extend MELBOURNE's paying off beyond 1985, is still undecided at the present time. The need for effective air support for the fleet at sea has been dealt with in this magazine before.

In other features, Captain John Moore highlights naval developments in the Indian Ocean, while Harry Adlam reviews the Australian and New Zealand Flower class sloops. Three newly released warship books are reviewed in this issue, including "Conways All The World's Fighting Ships 1860 to 1905" and "Destroyer Weapons of World War II". The former is the subject of the first review article to appear in the magazine.

The response to requests for articles, long and short, brought forth several new contributors, but the editor is again short of material for future issues. This problem applies equally to Commanders of Naval Reserve Cadet establishments and the Secretaries of Navy League Divisions, who are invited to submit news, be it past, present or future.

February/March/April will focus upon the Australian Fleet, including articles on HMAS MELBOURNE, to mark the 35th anniversary of her launching (as HMS MAJESTIC); RAN frigates of World War II; and Out of the Past HMAS PENGUIN.

The editor would like to thank Navy Public Relations Sydney and Canberra, Royal Navy Public Relations, Harry Adlam, Tom Allen, David Diment, Cmdr L. Forsythe, Peter Hounslow, Capt John Moore, Ron Wright, Conway Maritime Press and Vickers Armstrongs for their support with this issue of "The Navy".

ROSS GILLETT

HMAS OVENS, July, 1971. *(Photo — Navy Public Relations.)*

OUR COVER PHOTOS

Top: HMAS VENDETTA makes her departure to the reserve fleet moorings on 10th October, 1979. *(Navy Public Relations.)*

Bottom: A sad but proud moment for members of the ex-VENDETTA Association when they briefly rejoined their old ship on the occasion of her paying off after 21 years service with the Australian Fleet. *(Navy Public Relations.)*

Report presented to

THE ANNUAL GENERAL MEETING

OF THE NAVY LEAGUE OF AUSTRALIA

by the Federal President

State of the Navy League

Judged by reports to hand from the Divisions the League appears to be in reasonably good shape. One would like to see however a further increase in the present strength of just on five hundred fellows and associates, and a wider spread of effort among members.

While the financial contribution of our "sleeping" colleagues is necessary and greatly appreciated, I often feel sorry that more people do not play an active part in the affairs of the League — even by simply attending some of the numerous functions arranged by Divisions throughout the year — so that they could see for themselves the work being carried out in their name by the "activist" members of the Navy League; I am sure they would want to do more in our particular spheres of interest, the cadet movement and the maritime security of Australia.

Maritime Affairs

In the latter part of 1978 a two-part submission was made to the defence sub-committee of the joint parliamentary foreign affairs and defence committee, one paper relating to the Australian defence outlook and the other to the need for a capability to design and build certain classes of naval vessels in Australia: Subsequently your vice-president, Commander Tony Grazebrook, and I appeared before the committee at a hearing in Melbourne.

Later the defence sub-committee (or "Katter" committee as it is generally called) sought the League's views on coastal surveillance and these were put forward after consultation with the Divisions.

Admiral Zumwalt: In February, following a major address at the Australian Naval Institute's "Seapower '79" seminar in Canberra, Admiral Elmo R. Zumwalt Jnr, former United States Chief of Naval Operations, accompanied by his wife, arrived in Melbourne as the guests of the Victorian Division of the League for a three-day visit.

The highlight of this rather strenuous period was an address to over 500 people at a "private" meeting arranged by the League and the Victorian branch of the Australia Defence Association.

Admiral Zumwalt shared the platform with the well-known commentator Mr B. A. Santamaria and had the meeting been publicised it is clear that a venue at least twice the size would have been required.

Unfortunately, the Admiral had to return to the United States earlier than expected and was unable to accept an invitation by the League to visit Tasmania, or to fulfil a program planned for him in Sydney by a number of organisations including the Navy League.

Despite these disappointments the visit attracted a great deal of publicity and attention to the maritime scene and must be considered a success.

Visit of Royal Navy Task Group: At the time of writing this report an RN Task Group (CTG 317.8) comprised of a destroyer, five frigates, two supply ships and two tankers is completing a four-month stay in Australian and New Zealand waters.

The League was asked by the British Defence Liaison Staff to assist and entertain the visitors in the 16 Australian ports of call and from advice received this request has been met wherever there are Navy League branches.

Relations with Other Organisations

It is pleasing to note an increasing tendency for the League and other defence and maritime-orientated organisations to work together, particularly in arranging meetings with leaders in the Australian and overseas communities: Not only is it a more attractive proposition for prospective guest speakers (they have a wider audience) but it is usually more "cost-effective" for the organisations involved. Bodies which come to mind are the Naval Association, the Naval Institute, United Service Institution and the Australian Defence Association, all of which share at least some of the League's objectives.

Overseas Connections

Due very largely to "exchange" visits by the United States and Australian Navy League presidents in 1975 and 1977, in the course of which many personal friendships were formed, and a longer association between Commodore R. I. Hendy, QC, RCNR, of the Canadian Navy League and myself, correspondence with North America has rather dominated our overseas communications. A further reason is the involvement of the parent of all Navy Leagues — the Navy League in the United Kingdom — with cadet activities, a lesser responsibility to the League in our country because of the government commitment.

It need hardly be said that our links with the United States and Canada are of considerable value to the League as we are kept aware of current thinking in these countries and this is helpful when we are considering our own situation. It must be a continuing aim of the Federal Council to maintain existing ties and to extend them wherever possible — not least with New Zealand and the United Kingdom.

"The Navy" Magazine

Although articles and other contributions have been prepared by members of the League and published in various journals and newspapers during the year, The Navy magazine is the outlet for the League's views on events and the best way to keep members in touch with what is happening within the Navy League: It's continued publication is quite vital to us.

Some months ago Mr Ross Gillett succeeded Mr Dennis Trickett as editor of The Navy which over the years Mr Trickett developed into an informative and very useful magazine for all those interested in naval affairs.

Plans to expand the content of The Navy have been prepared but nothing will be possible until the amount of advertising material is increased, and this in turn is likely to depend upon an increase in circulation which brings us back to the interest value of the magazine.

To overcome a seeming impasse I ask all members with appropriate commercial resources to start advertising their wares or services as soon as possible.

Cadets

It is not appropriate for me to comment upon the state of the Naval Reserve Cadets in this report; I hope this will be made known to the Federal Council shortly and published in a future issue of The Navy. I do not however believe the community is contributing to the cadet movement in Australia as much as it could, or would be prepared to do if actively encouraged by the government and the defence department.

Girl (sea) cadet units have been functioning under the auspices of the Navy League in Western Australia for some years, and more recently a unit has been formed in Victoria. This is an aspect of cadet training which will undoubtedly receive more attention in the near future.

The Months Ahead

With the strain on defence funds likely to continue it is improbable the NRC, Army and Air cadets will receive all the facilities they may require: It will be a continuing task for the League to pursue with Navy the best way of helping to overcome possible short-falls in equipment and facilities.

With regard to the maritime defence outlook, delays in making decisions on three widely publicised major equipment projects — the carrier TFF and follow-on-destroyer projects — no matter how it has come about have created a situation in which approval for the acquisition of all three in much the same time-scale must create tremendous financial problems, and a possible need to look at new ways (for Australia) to finance major equipment.

These matters are not the sole concern of governments and defence authorities — the decisions made (or not made) on projects such as those mentioned will affect every Australian in one way or another and organisations such as the Navy League must take an interest in them.

I venture to say the League is well-placed to understand the large defence issues involved and to explain them to our fellow-Australians: When all is said and done, this is the task the Navy League was established to perform.

I wish to conclude this report by thanking the office-bearers of the Navy League in Australia and my many friends in an organisation it has been privileged to lead (or at least be at the top) for the past eight years.

GEOFFREY EVANS

Balwyn, Victoria
12th October, 1979.

NAVY LEAGUE DIVISIONAL NEWS

South Australia

The Annual General Meeting of the South Australian Division was held on Monday, 17th September, 1979. It was a most disappointing roll-up of members, but we hope for much greater support from them during the coming year.

We were most fortunate that Commander C. K. Callins, RAN, Naval Officer Commanding South Australia, and Mrs Callins, were able to be with us on this occasion.

Mr Don Schrapel was re-elected as President and we are most grateful for his untiring efforts over the past year and wish him every success during the next 12 months. We are also very pleased to welcome Susan Burchell and Tim Wendt as new members of the Committee.

The Port Lincoln Division recently received a grant of $900 from the Queen's Silver Jubilee Fund to assist them in the maintenance of the boats owned by the TS Flinders Cadet Unit.

Tasmania

On Friday, 27th July, Mr M. Hodgman, MHR, an ex-cadet, officially opened the headquarters complex of TS DERWENT, watched by a large gathering of officials, supporters and representatives from other units.

It was with deep regret that the Division learnt of the death of Mr Arthur Gates, a previous Senior Officer Cadets (Tas). Arthur commenced as a P/O Instructor in 1954 at DERWENT, becoming CO and finally Senior Officer. His ashes were scattered in a private ceremony from the shore at TS DERWENT.

Officers and Cadets from EMU and LEVEN joined with an Army cadet camp for 10 days at Buckland during the September school holidays. The cadets enjoyed the experience despite the bad weather, leeches and scorpions.

During the same period, 30 cadets of TS MERSEY held a 10-day training camp at their HQ, but the extremely wet weather hindered an extensive boat-work program. TS LEVEN now appear certain to obtain the old wharf complex at Ulverstone to covert into a training HQ.

The storage shed, now being used as a fibreglass shop, will be partitioned into two halves, one to LEVEN, one to the State Emergency Service. Once LEVEN have completed their conversion, their old building, believed built around 1900, will be demolished.

On the 22nd September, CMDR A. K. Wertheimer, RANR, representing DNRC, and LCDR A. McPherson, RAN, inspected TS MERSEY for the Navy League of Australia Efficiency Award. LCDR McPherson later made informal visits to TAMAR and DERWENT.

It has recently been announced that DERWENT and EMU have been awarded grants of $2400 each from the Silver Jubilee Trust Awards for 1980. The awards are to be used to assist with the construction of their respective headquarters.

The Indian Ocean

IN today's world the appreciation of distance has been dulled by air-travel. Modern voyages can pass from Australia to Africa, to the USA in a few hours and make their appreciations of the country visited from the cloistered area of a transit lounge.

If one flies from Perth to Capetown direct it could take 10 hours or less — in a ship proceeding at 20 knots it would take a little under 10 days. And yet nearly 98 per cent (by weight) of the traffic across the Indian Ocean is carried in ships and no shore-based aircraft can offer more than a fleeting protection for these ships in the event of a crisis.

by
CAPTAIN J. E. MOORE, RN

The Lockheed P-3 Orion can remain on patrol for three hours at a radius of 1350 nautical miles from its base while the P-2 Neptune has a maximum overall range, with ferry tanks, of 3200 nautical miles.

Were Western P-3 patrol aircraft provided with landing facilities at Sri Lanka (an outside chance), Cocos Island and Mauritius it would be possible to cover the whole of the Indian Ocean if adequate numbers of aircraft were available.

Using only Cocos and Diego Garcia it would be possible to cover the majority of the important shipping lanes on a surveillance basis provided some 50 aircraft were deployed to these two centres. If Australian forces were involved, at best about half this total could be deployed, the remainder having to be found from external sources.

But the external sources around this ocean are very varied in their affiliations. Nearly half the population of both Africa and Asia live in states bordering the ocean or have connections with that Ocean. Well under a tenth of Australia's population is directly connected with this vast sea-area, although the fate of about a quarter of that continent's trade depends upon free passage on those vast ocean routes.

During the recent "non-aligned" countries' conference in Cuba only Iran, Pakistan, Thailand and the Republic of South Africa joined Australia in being the Indian Ocean states absent from that meeting.

So, theoretically, there should be little to worry about over the future of trade-routes in that area — there should be little danger of violent action. And yet what is the true state of affairs?

Of all the two dozen or so states of the Indian Ocean the status of only Australia and Thailand has remained unchanged since 1945. From the west to the east new governments, new problems have come to plague an unsettled world by the very fact of their instability.

Of nigh on 50 countries in Africa the Republic of South Africa can claim one major distinction, that of mounting elections at periods regulated by a constitution. As she is also a competently organised producer of minerals — amongst the world's top 20 in the provision of iron ore, copper and lead (Namibia), manganese, nickel, tin, uranium, silver, diamonds, gold and phosphates — this country has a major interest in the retention of free traffic upon the oceans.

To her north Mozambique espouses non-alignment with one arm, the Soviet Union with the other. Although this left-hand action has not yet been evidenced in the procurement of naval vessels, at least the provision of naval anchorages to the Soviet fleet is well documented.

Northward once more to Tanzania, a country with a low standard of living, health, production and equipment where the defence vote has been trimmed in an attempt to fortify a declining budget. The operations in Uganda have cost the country $(US) 500 million, a harsh blow in what is described as "a difficult period of reconstruction".

In the summer of 1979 heavy rainfall cut rail communications with Zambia, a dent in the Chinese-built Tanzan rail-link. But China is not the only provider for the Tanzanian navy — East Germany and the USSR also share this distinction — although the base at Dar-es-Salaam was built with Chinese co-operation.

Tanzania showed her attitude as a non-aligned state with the happy greetings to Queen Elizabeth II in July, 1979, but, with an economy that is shaky even by average African standards, aid may well bolster friendship.

Although Kenya's latest budget is £(K) 66 million in the red and 15 per cent of her expenses are funded from external aid her general stability is greater than that of her neighbours.

From the naval standpoint her seven patrol craft based at Mombasa are all British built and adequate for coastal operations but unlikely to be of much efficiency in the 200 mile EEZ during the middle of the South-East monsoon in July-August. It will probably not be long before action is taken to reinforce offshore patrols in this area.

Such action must already be needed in Somalia, whose navy is entirely provided from Soviet sources. With desultory actions still taking place on the Ethiopian border and remembering the Somali agreement with Egypt of 2nd May, 1979, it seems unlikely that very much Soviet support can be expected by the government in Mogadishu.

South African frigate SAS PRESIDENT PRETORIUS. *(Photo — R. Gillett Collection.)*

Indian Leander class frigate UDAYGIRI, photographed here on 26th June, 1977. *(Photo — J. Mortimer.)*

In a strategically important position at the bottom of the first of the two spurs of the Indian Ocean, the Red Sea and the Persian Gulf, Somalia is a country of great importance to the non-Communist world.

Non-aligned she may be at the moment but her Ethiopian neighbour claims the same status, whilst signing treaties of friendship with the USSR and welcoming the soldiers of Cuba, another so-called "non-aligned" member, and East Germany.

New Soviet bases in the Dahlak Islands, offering support to the missile and patrol craft provided for Ethiopia by the USSR, are well positioned opposite Hodeida in North Yemen for the interdiction of Indian Ocean traffic to and from the Suez Canal.

Both Yemeni states have a fair smattering of ex-Soviet light forces, while the South Yemen base at Aden provides an excellent port for the Soviet Indian Ocean squadron of Vice-Admiral Yasakov.

With the withdrawal of Soviet forces from Somalia during the Ethiopian War of 1977-78 and the consequent loss of the very extensive Soviet base and communication facilities at Berbera, Aden has become of even greater importance than before.

This harbour has become the centre of a network of Soviet havens and logistic support areas throughout the Indian Ocean, a web which was well reconnoitred in the early flag-showing cruises of 1968-9.

At that time visits were made to Madras, Bombay, Karachi, Bandar, Abbas, Umm Quasr, Berenice (Egypt), Mogadishu, Aden and Colombo by the first group and to Mombasa, Dar-es-Salaam, Massawa, Hodeida, Chittagong and Mauritius as additional visits by the second squadron.

Of these 15 ports those in the two Yemens, Ethiopia, Iraq and Mauritius are currently available to the Soviets while India and Singapore provide certain logistic facilities. Anchorages off Socotra, Chagos Archipelago and the Seychelles provide additional areas for support and maintenance; all in all a fairly satisfactory grouping for the Kremlin planners.

The entrance to the second spur of the Indian Ocean, the Persian Gulf, is flanked by Oman and Iran. While the second of these remains an unknown quantity the former now regards itself as the guardian of the Straits of Hormuz. Although Oman has one of the lowest incomes per head of any of the states on the western shore of the Gulf, past experience has provided an incentive to furnish effective defence forces.

At present the Sultan's navy centres around the re-armed missile craft of Brooke Marine design with a number of amphibious vessels of various types — not a formidable force but one which would be able to exploit the capabilities of their Exocet missiles in the 35-mile exit from the Strait of Hormuz.

Within the Strait the power of oil revenues is building up a series of important naval groups — those of the UAE, Qatar, Bahrein, Saudi Arabia and Kuwait. It will be worth watching this effulgence of maritime capability; it could close the Gulf to both Communist and non-Communist naval forces in a bid to protect the tankers which provide the wherewithal to produce a standard of living unknown in many other areas of the world and the naval forces called to protect that standard.

Compared with the conditions of her oil-rich neighbours Pakistan's citizens can only be considered as verging on the bread-line. Despite this she retains a navy of some pretensions, based in an area of total instability, with chaos in Afghanistan to the north, insurrection bubbling in Baluchistan and an internal political situation that frequently gives cause for alarm.

Sandwiched between the upheavals of Iran and the uncertain bulk of India there is little to surprise us in the emphasis placed on Pakistan's armed forces.

Of all the countries about the periphery of the Indian Ocean none has more cause to look to her own safety than this.

India will remain an enigma for many. With a population increasing by 20 per cent every 10 years and now probably numbering over 600 million she supports a standard of living only marginally higher than her eastern neighbour, destitute Burma.

It is over 30 years since Pandit Nehru said, "We are friendly with all countries — Our main stake in world affairs is peace." Unfortunately, the complications of international affairs and the magnitude of her internal problems have prevented the achievement of this aim.

War with Pakistan in 1965 and 1971 brought losses but today, with only about four per cent of her GNP devoted to defence, India has built-up a considerable naval force. Apart from Australia she possesses the only sea-borne naval air force in the Indian Ocean, using the elderly carrier VIKRANT, launched in 1945 only a few months after HMAS MELBOURNE.

Sea-Harriers have been ordered to re-equip the refitted VIKRANT but it must be more than time that a decision to replace this ship was taken. India's submarine fleet consists of eight Soviet "Foxtrot" class but their successors are planned to be of Western design built in India.

This dual approach extends throughout the fleet — Soviet alongside British destroyers, "LEANDERS" and "PETYAS", "NANUCHKA" and "OSA" missile craft from the USSR, "TON" class minesweepers from Britain, "NATYA" class from the Soviet Union.

The result, for a nation dedicated to peace, is an impressive force with considerable offensive potential. As the Indians are perpetually loath to discuss their maritime affairs with outsiders, a conclusion that this is more than a deterrent force is inescapable.

Many of the older officers incline to the West, many of the younger to their other providers — the future balance may depend upon the attitudes of the younger generation.

Tucked in at the north of the Bay of Bengal, Bangladesh is steadily expanding her naval strength by purchase from abroad and, more recently, by local building at Dacca.

At present, despite the two ex-RN frigates, this is no more than a coastal and off-shore defence force nor, as things

Indonesian Whisky class submarine. *(Photo — Janes Fighting Ships.)*

The Malaysian Yarrow-built general purpose frigate RAHMAT. *(Photo — Yarrow.)*

stand, would there seem to be a need for anything more potent.

The same is true of Burma, although in her case a considerable proportion of her numerous patrol craft is over-age and in urgent need of replacement. Orders have been placed for six "Carpentaria" class from Hawker De Havilland of Sydney and a further contract for a British-designed "Osprey" class patrol ship may shortly be completed in Denmark.

It is unlikely that Burma can afford much more than these vessels unless considerable extra aid is made available. A point of interest here is that a dictatorial, socialist non-aligned country has turned to non-Communist countries for her new equipment.

The same is true, under very different circumstances, of Thailand. USA, Italy, Singapore and Great Britain are the sources of Thai new construction. With persistent problems on her eastern land and sea frontiers there is little to spare for her 300 mile coastal area facing the Indian Ocean.

Not so for Malaysia — in the past naval bases have been at Kuantan on the east coast, KD MALAYA on Singapore Island and Labuan on the island of Borneo.

Now a new base — a headquarters, training complex and repair facilities — is under construction at Lumut on the west coast. This will be the main centre of the Malaysian navy and shows an interesting shift of emphasis, while other plans are in hand for doubling the number of RMNVR divisions. With a steady increase in the strength of the fleet itself, now being reinforced by four Swedish "Spica-M" class missile craft, a powerful force will be available at the northern end of the Strait of Malacca.

The southern entrance to this vital link is dominated by the 225 square miles of Singapore Island, with the main dockyard tucked away near Seletar on the Straits of Johore. This is the main base for a small navy consisting mainly of fast attack craft.

Of these, eight are equipped with five Israeli Gabriel missiles, so there is a steadily growing capability on both sides of what is a vital link between the Pacific and the Indian Ocean.

In plain figures the use of the Malacca Straits by a ship steaming to Aden from East Japan will involve a journey of roughly 6500 miles. The use of the Indonesian Straits to the south would add 750 miles to this total, the passage of Torres Strait 1500 miles and the voyage south of Australia would be one of 12,000 miles.

In the event of rapid reinforcement or supply being needed the figures speak for themselves. On the southern flank of the East Indies the sprawling bulk of Indonesia presents a huge physical barrier although her economic condition, despite oil and other mineral resources, is not yet in a position to support any more than a comparatively small naval force which includes a few frigates and submarines and expanding light forces.

The circuit is completed with the mainland of Australia which, to an outside observer, appears to have concentrated more on the northern and eastern sea frontiers than that to the west.

Admittedly only some 30 per cent of imports and 10 per cent of exports cross the Indian Ocean but the resolution of the strategic problems in that area could have profound effects, far outweighing these bald figures.

Lastly, and of considerable importance, are the islands in this huge ocean. Sri Lanka dwarfs all others, except Madagascar, in both size and beauty but, despite her fertile soil, has as many economic problems as several of her neighbours.

The defence votes allows for no more than a coastal force which is currently adequate but may need expansion to deal with the problems of a 200 mile EEZ. Some of the other islands have already been mentioned — the Chagos Archipelago, Seychelles, Socotra, Mauritius — all available as anchorages or a fuelling base for Soviet ships, with a regular Aeroflot service to the last named.

Diego Garcia remains a point of contention, despite which the UK/US base is steadily improved. Lastly, as a south-western monolith is the 900 mile length of Madagascar with five anchorages but, so far, still non-aligned in their use.

In the future the vast ocean area we have discussed will remain a necessary focus of attention, the affiliations of its surrounding states being of the utmost importance to the non-communist world.

Australia has freedom to all four points of the compass — a serious situation could well develop to the west.

RSS INTREPID, 9th April, 1979. *(Photo — R. Gillett.)*

HMAS "PSYCHE"

by

HARRY ADLAM

WHEN people discuss the work of the Royal Australian Navy in World War One, most seem to remember "SYDNEY" and perhaps "AUSTRALIA", but are at a loss when other names are mentioned. In particular, the name "PSYCHE" seems to be virtually unknown. She fought no heroic actions, but in her own way performed a wonderful, if boring, job.

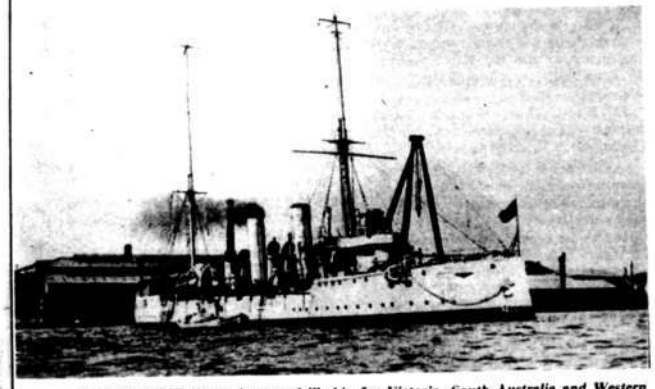
"PSYCHE" came to the Australian Station in 1905 as part of the Imperial Squadron, allocated as a "drill ship" under the 1903 Naval Agreement.

Her job was to train locally enlisted sailors, and her area of training centred around the southern states. She became well-known in Port Phillip, almost as much as the ship she relieved, HMS "KATOOMBA".

Her machinery was built by Keyham Dockyard and was of the twin screw triple expansion type. The cylinder dimensions were 20½", 33" and 54" with a 27 inch stroke.

A speed of 20 knots was to be obtained with 7000 ihp but this was very rarely made. The displacement was 2135 tons.

The main armament comprised eight four inch QF Mark 1 guns, backed up by



HMS PSYCHE shown here as drill ship for Victoria, South Australia and Western Australia. *(Photo — H. Adlam.)*

But before we examine "PSYCHE's" career, let us take a look at the ship herself.

"PSYCHE" was one of 11 third class protected cruisers of the "PELORUS" class, not a very successful group by any means. Three types of water tube boilers were tried out in the class, but otherwise they were extremely "old fashioned".

The sailors still stowed their hammocks in "nettings" around the waist bulwarks as they did in Nelson's time, and lived in similar crowded conditions. Being coal fired she could not be expected to be a really clean ship.

Laid down at Devonport Dockyard on 15th November, 1896, "PSYCHE" was launched on 19th July, 1898, and completed in 1899. Her length between perpendiculars was 300 feet, her beam 36 feet, and when fully loaded drew 17 feet 6 inches aft.

eight three pounders as an anti-torpedo boat battery. Two 14 inch torpedo tubes were carried, but were normally not mounted.

They were carried racked up inside the quarter deck and only mounted when required. A couple of Maxim's were carried for arming boats, as well as the usual field gun.

"PSYCHE" was outdated even when first built, but was still useful as a training ship, and so was ordered to Australian waters.

The years between 1905 and 1913 passed quite peacefully, "PSYCHE" didn't make any great headlines, but carried on doing her job in an unhurried manner.

On the 4th October, 1913, the new Australian fleet unit arrived in Sydney, and the days of the Imperial Squadron came to an end. "PSYCHE" remained in Australasian waters seeing much more of New Zealand than she had done in the past.

The outbreak of the Great War saw the 15 year old cruiser ready for action. Convoys to the German Pacific colonies were escorted by the old warrior, but as we all know the Pacific Campaign was of a very short duration, and so "PSYCHE" was not really needed.

A very small entry in her deck log of 22nd January, 1915, merely states "Paid off at 0900". The career of HMS "PSYCHE" came to an end. Probably she would have been left to rot in Sydney Harbour had not a chain of events in the Bay of Bengal area given her a second lease of life.

Although there were no German military or naval forces existing in the Pacific region, a valid cause of worry was the intrigue that had been brewing in India, sparked off by the Germans, naturally.

A scheme for an Indian revolution had been devised and had every chance of success. Gun running was planned, if not actually put into operation. One schooner, the "HENRY S" did try to get away from the Philippines with a cargo of rifles and ammunition, but the US Government thwarted the effort and confiscated her cargo.

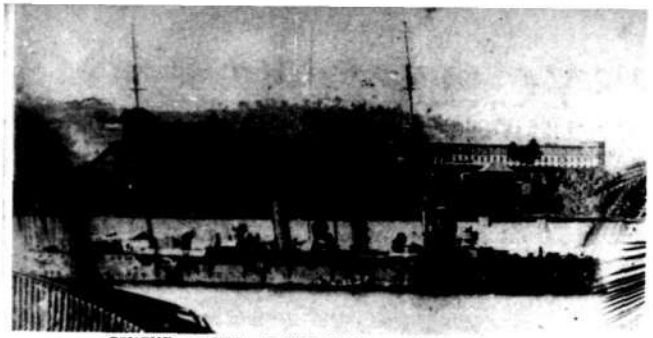
The British Government were quite concerned and requested Australia to commission "PSYCHE" and send her to the seat of the trouble.

On 21st June, 1915, the Australian Naval Board was asked by the Admiralty if they could commission "PSYCHE", and with the usual speed of the RAN, replied that "PSYCHE" could be commissioned on 1st July and ready to leave Sydney by the 15th.

On 1st July, 1915, His Majesty's Australian Ship "PSYCHE" was commissioned by Commander H. J. Feakes, RAN. The crew were to a large extent members of the Naval Brigade, as the reserves were known as in those days, and were mainly untrained.

Two of "PSYCHE's" four inch guns had been removed to give a respectable armament to the old survey sloop "FANTOME", but for the job in hand six guns were quite sufficient.

Working up commenced, the raw crew being knocked into some sort of order at the same time. The original destination was thought to be Shanghai, whilst "FANTOME" was to be deployed to the Persian Gulf, but the situation changed and both were ordered to the Bay of Bengal patrol area.



PSYCHE as an HMA ship 1915-17. (Photo — National Library).

On 24th August, 1915, both ships were at Thursday Island, and in early September, 1915, arrived in Singapore.

It would be very pleasing to say that "PSYCHE" was a very happy ship, taking a boring job under her wing without any trouble at all, but this does not seem to be the case. The reasons were varied, but when grouped together it is easy to understand why "PSYCHE's" crew became fed up in a very short space of time.

Some sections of "PSYCHE's" logs are missing, but from what is available we can get a reasonable idea of her movements and her troubles. A few extracts from the log may help to clear the air.

29/9/15 — Anchored, Basseine River.

30/9/15 — 9.10 am, Anchor weighed (at this time the 24 hour clock was not in use, all times being AM and PM).

1/10/15 — 8.40 am, Entered Rangoon River. Coaled with 360 tons.

2/10/15 — At Rangoon.

3/10/15 — 10.14 am, Slipped to sea.

9/10/15 — Warrant No 13 read.

The ship had been in commission only two months, yet there were 13 serious offences admitted. Worse was to come.

On 27th October, 1915, we see an entry in the log "Brushes painters, duster (Patt 4) lost by accident painting ship". Things were not going well in "PSYCHE".

With nearly every day at sea; anchoring overnight in some bleack anchorage; then off again in the early hours of the morning; and extended stays in harbour only when the ship needed coal; was not conducive to good order and naval discipline.

Coaling was hard, dirty work, and washing facilities were primitive. When leave was granted there was practically nowhere for the sailors to go.

In the bigger eastern towns the upper crust areas were normally out of bounds to the lower deck. And to top it all off, food was of a very poor quality. Most of the sailors would have preferred to have been sent to the fleet in European waters where they could have a crack at the Hun, but instead found themselves moping around trying to find an enemy who didn't seem to exist at all.

Sickness was rife, and as was the practice in Eastern waters, a group of Chinese labourers had to be employed as "ash and trimming party", so that the ship could stay at sea.

At times the routine was varied by some unusual event, and this did help to break the monotony. On the 12th November, 1915, we find some following notes in her log.

12/11/15 — In Bentinck Sound; 6.10 am — Landing party under Mr Yeo (12 ratings); 9.50 am — Sailed.

Special note in log for that day, "Lost, aperture backsight, one". Not only was the ship falling to pieces, it seems the rifles were, too.

And so the boring duties went on, day in, day out. Working from odd anchorages, like Port Blair in the Andaman Islands, "PSYCHE" did her share of patrolling, searching suspicious merchant ships, and still more patrolling. With all this sea time the old ship was in need of a refit.

From 5th July to the 13th August, 1916, the ship was in dockyard hands in Hong Kong, being drydocked between the 11th and 21st July. It appears that the ship's company were accommodated in HMS "TAMAR", the station depot ship, as there is much mention in the log of "Crew marched to 'Tamar'," etc.

A sad note appeared in the Special Notes for the 9th August, 1916. "3 pm — Stoker Frederick Brown died at the RN Hospital, Hong Kong. Pneumonia". On 10th August a small entry "Funeral party" indicated that the crew had paid a last farewell to one of their shipmates.

By 30th September, 1916, trouble was well established, as we find the following entries for that day.

"1.30 pm — Everybody aft. Read Warrant No 63. One rating discharged to Detention Barracks. 2.30 pm — One rating returned onboard from Detention Barracks."

Having personally seen the grim exterior of the Hong Kong Detention Barracks, I feel very much for the unlucky members of "PSYCHE's" crew.

Even if they were unhappy, "PSYCHE's" ship's company were at least seeing the east. The ship visited Penang, Singapore, Calcutta, Nancowry, Rangoon, and of course Port Blair. Tourists, today pay great sums of money to visit these eastern ports, but "PSYCHE's" crew were quite happy to see the end of them.

To them the job was quie boring, the ship was uncomfortable and not designed for the tropics, they would rather have been in other places.

Leave breaking seemed to be the main offence, and a note on 19th March, 1917, tells us that Warrants Nos 72, 73, 74 and 75 were read. The last Warrant recorded was No 94 on the 13th August, 1917. By this date the ship had been on station for two years and the end was in sight.

"PSYCHE" was at last ordered home, and didn't need much persuation to get under way. She needed another dry-docking, but the lads could wait until the ship reached Sydney for this particular exercise. The ship's bottom was very foul and for the trip home the cruiser had great difficulty in even attaining her economical speed, and it was with tired arms that the stokers fed the hungry furnaces.

This time they didn't mind. They were on their way home.

For once luck was on "PSYCHE's" side, as it was not known at the time that the German raider "WOLFE" was in eastern waters. "WOLFE" noted in her log that during the passing of the East Indies a British cruiser was once sighted at night.

Not wanting to give herself away, "WOLFE" gave the enemy a wide berth. It seems that the cruiser sighted was "PSYCHE", although some historians seem to doubt the incident.

However, "PSYCHE" was the only cruiser in the vicinity, and if indeed it was her that "WOLFE" sighted she was extremely lucky. In her condition she would have been no match for the German raider.

After being away for two years and five weeks, "PSYCHE" reached Sydney on the 28th September, 1917, and was formally paid off on 16th October. This should have been her last commission, but events in the Pacific decreed otherwise.

On 20th November, 1917, "PSYCHE" re-commissioned for coastal patrol work, with a very reduced armament. She now carried two 4.7 inch guns and two three pounders. The job was much the same as the Bay of Bengal effort, but in much better surroundings. This commission was quite short as the emergency soon passed, and on 26th March, 1918, "PSYCHE" paid off for the last time.

Tied up alongside her sister-ship "PIONEER", "PSYCHE" served for several years as an accommodation ship at Garden Island, but the end was in sight. The Admiralty had no use for the old ship, and asked the Australian Government to sell her, and so on 21st July, 1922, "PSYCHE" was sold as scrap and handed over to the Moreland Metal Company on 22nd August.

As a stripped hull "PSYCHE" was towed to Port Stephens, where she was used as a dumb lighter, but finally gave up the ghost and sank at her moorings. She lay quietly on the bottom for many years, and was eventually attacked by the naval clearance diving teams, who used her as a training target. By 1970, just about all traces of the old ship had gone.

Many of the old timers referred to "PSYCHE" as "The Fish", as they said she spent more time under the water than she did on the surface. They were probably right at that. If they were correct it was just one more reason why "PSYCHE" was not the happiest ship in the RAN.

THE NAVY LEAGUE OF AUSTRALIA

PATRON IN CHIEF: His Excellency the Governor-General.

FEDERAL COUNCIL
President: Commander F. G. Evans, MBE, VRD, RANR.

Vice-President: Commander D. M. Blake, VRD, RANR.

Vice-President: Mr. A. W. Grazebrook.

Secretary: Lieut Cmdr O. V. Dimmitt, VRD, RANR. Box 227, PO Hawthorn, Victoria, 3122. Telephone 29 6294.

New South Wales Division
Patron: His Excellency, the Governor of New South Wales.

President: Lieut Cmdr E. Bryden-Brown, VRD, RANR.

Honorary Secretary: Lieut Cmdr Bryan Rowland, RD, RANR, 39 Waratah Road, Turramurra, 2074. Phone: 440 8124 (home), 239 1022 (office).

Victorian Division
Patron: His Excellency, the Governor of Victoria.

President: B. J. Bird, Esq.

Secretary: Lieut Cmdr O. V. Dimmitt, VRD, RANR, Box 227, Post Office, Hawthorn, Victoria, 3122. Telephone 29 6294.

Queensland Division
Patron: His Excellency, the Governor of Queensland.

President: Surgeon Commander A. H. Robertson, RANR.

Hon Secretary: Lieutenant E. W. Crooke, RANR, 780 Gympie Road, Chermside, 4032.

Australian Capital Territory Division
Patron: Admiral Sir Victory Smith AC, KBE, CB, DSC.
President: Commander D. M. Blake, VRD, RANR.

Hon Secretary: Lieutenant F. Whetton, 66 Bradfield Street, Downer, ACT, 2602.

South Australian Division
Patron: His Excellency, the Governor of South Australia.

President: Mr D. G. Schrapel.

Hon Secretary: Miss A. Fitzgerald, Box 1529M, GPO Adelaide, SA, 5001.

Tasmanian Division
Patron: Vice-Admiral Sir Guy Wyatt, KBE, CB.

President: Mr. D. M. Devitt.

Hon Secretary: Mrs B. McMeekin, 24 Clemetina Street, Launceston, Tas 7250.

West Australian Division
Patron: His Excellency, the Governor of Western Australia.

President: Lieutenant Commander J. J. Johnson, MBE, RAN (retd).

Hon Secretary: Mr T. K. Whitelaw, 99 Bridgewater Drive, Kallaroo, 6025.

FACT FILE No 5

HMS INVINCIBLE

INVINCIBLE, first of the new class of Anti-Submarine Warfare Cruisers, left Barrow on 26th March, 1979, at the commencement of her sea trials. The 19,500 ton cruiser is the largest warship to have been built for the Royal Navy in 25 years, and entailed the installation of over one million components, served by 1000 kilometres of cables and 100 kilometres of pipes. As well as the "on ship" workforce, which peaked at 3500 during fitting out, 35,000 people in contractors' works throughout Britain were involved in her construction.

Five ships of the Royal Navy have borne the name INVINCIBLE. The present INVINCIBLE is the sixth in the famous line which began with the French 74-gun L'INVINCIBLE, captured off Finisterre in 1747. The second INVINCIBLE was a third-rate, 74-gun ship launched at Deptford in 1765. Her adventurous career included three historic sea battles and ended when she was wrecked off the Norfolk coast in 1801. *Number three was built at Woolwich in 1808*, and was again a third-rater carrying 74 guns. This ship was broken up at Plymouth in 1861.

INVINCIBLE number four, an armour-plated "broadside ship", was built by Napier on the Clyde in 1869. She mounted 14 guns and saw action in the Egyptian War before being relegated to depot ship duties at Portsmouth. She foundered off Portland while under tow in 1914. The fifth INVINCIBLE was built by Armstrong Whitworth on the Tyne in 1907. She was a battle cruiser, and saw action during the 1914-18 War off Heligoland before steaming off secretly and at speed to avenge a British defeat at Coronel in the Battle of the Falkland Islands. She blew up at Jutland, with the loss of all her complement, save six.

The present INVINCIBLE was laid down on 20th July, 1973, and launched by HM Queen Elizabeth II on 3rd May, 1977. At standard displacement the cruiser is 16,000 tons and has an overall length of 677 feet, a beam of 104 feet 6 inches across the flight deck and 90 feet at the waterline, with a draught of 24 feet. Her 550 foot long flight deck is angled at ½ degree to port and *terminates 80 feet from the bow.*

This leaves space forward for the provision of the twin Sea Dart missile launcher. In addition a ski jump has been built on the foreward section of the angled deck inclined at seven degrees. When commissioned in 1980 INVINCIBLE will be able to embark nine Sea King helicopters and five Sea Harrier aircraft.

This breakdown of aircraft types was arrived at after a detailed study of the vessel's roles and possible scenarios in which she might find herself entailed. The aircraft are housed in a hangar deck, having three bays. Two hydraulic lifts service this level, with one of the centre-line at the fore-end of a narrow central bay and one to port in the after hangar bay.

The hangar is supported by the usual workshop services such as component repair shop, aircraft mechanical and engine repair workshops, instrument maintenance room and air ordnance workshop, etc. An unusual and practical feature of the two elevators is that they can be loaded with aircraft from three sides, providing a greater utilisation of the hangar space.

Propulsion for the ship is via four Rolls Royce TM3B gas *turbines, developing 112,000 shp to provide a maximum sea* speed of 28 knots. Range of action at 18 knots has been set at 5000 miles and electrical power is provided by Valenta diesel generators by Paxman. To keep the ship at operational efficiency INVINCIBLE boasts accommodation for a complement of 1000 plus, including an Admiral, his staff and the ship's air squadron.

Two sister ships ILLUSTRIOUS and ARK ROYAL are presently under construction with the former due for completion in 1981 and the latter in 1985.

HMS INVINCIBLE, June, 1979. *(Photo — Vickers.)*

Leaving Barrow for sea trials. *(Photo — Vickers.)*

INVINCIBLE turns on the speed during trials off the Scottish west coast. *(Photo — Vickers.)*

The End of HMAS Australia

By **DAVID DIMENT**

"HMAS AUSTRALIA, the former flagship of the RAN was sunk 24 miles off Sydney Heads, due east, on Saturday afternoon."

With these words the **Sydney Morning Herald** announced the "death" of AUSTRALIA on 12th April, 1924. To read in the press, the sinking of the AUSTRALIA was, on one level, a national tragedy. The press stated that:

. . . it is a fitting thing that her last cruise — so short and yet so sadly long — should be associated with the solemnity and moving ritual of a national ceremony . . .

On another level, the sinking of the ship was likened to a personal tragedy with the actual ceremoney being a funeral. This theme was taken up by the people of Sydney who sent wreaths and other flowers to be placed on board:

. . . the regard for the old flagship was pathetically evident . . . a great pile of wreaths bore testimony to the sentimental attachment . . .

The sinking of AUSTRALIA was a result of the Washington Treaty which, in line with the general immediate post-war trend to outlaw war and promote disarmament, limited the size and number of capital ships which the principle naval powers could possess.

The navies of Great Britain, the United States, Japan, France and Italy were limited, relative to each other, in the ratios of 5:5:3:1.75:1.75 respectively.

AUSTRALIA was included in the British Empire total and as a result, although only a decade old but outdated due to war-time advances in design, was regarded as expendable and had to go to adhere to the treaty terms.

There was some opposition to the loss. The **Australian Worker** for example protested bitterly and called Prime Minister S. M. Bruce a "liveried lackey of overseas armament trusts" for allowing the vessel to go. These emotive words were not used in the larger dailies but the sense of loss was echoed.

The **Herald** contrasted the situation in 1924 with the AUSTRALIA's triumphal entry in October, 1913.

The **Herald** states:

. . . today a broken battered thing, rent from foremast to stern, dismantled, dispoiled of her brass embellishments bereft of all the grace and glamour of the halcyon pre-war days . . .

The press gave very detailed accounts of the preparatons for scuttling and the actual deed. The preparations were very thorough.

. . . the hand of her spoiler had touched every corner. Her anchors were gone, Her sides were streaked with grime, Her foremast cut off, Her midship funnels down . . . She had no deck rails. Her little guns, Her search lights, Her ladders were all in the breakers yard.

AUSTRALIA was towed up the harbour by four tugs and was accompanied by HMAS BRISBANE:

. . . She seemed almost reluctant to leave the heads and go out to sea. She was making little or no progress . . . The massive ship that at the surrender of the German fleet had led the starboard division of the British fleet was now being dragged to her doom . . . The old ship did not seem to like it. It was almost inexpressively sad . . .

In Sydney at the same time was the British Special Service Squadron which was visiting the Empire. The squadron consisted of the battlecruiser HOOD (the last-word in battlecruiser design) and the light cruisers DELHI, DANAE, DRAGON and DAUNTLESS. The smart appearance of these ships were contrasted in the press with the AUSTRALIA, "lying broken, *neglected and forlorn*".

The actual scuttling of AUSTRALIA in water of 150 fathoms was witnessed by BRISBANE, HMAS MELBOURNE who carried Prime Minister Bruce, HMAS ADELAIDE and the destroyer STALWART. Also present to pay their respects were "several large steamers crowded with sightseers". The British squadron saluted AUSTRALIA before turning north to visit Brisbane and two aeroplanes flew overhead.

According to the HERALD:

. . . shortly after half past two, amidst tense silence, a long, sullen roar rose from the AUSTRALIA. Like some sad lament . . . it rang out across the sea. The old ship was dying . . .

The scuttling of AUSTRALIA, achieved by opening her sea cocks and by internal explosive charges, marked the end of Australia's first and only battlecruiser. Although necessary in terms of the Washington treaty, it would have been interesting to see the situation if the scuttling had not taken place and AUSTRALIA was available in the Second World War. Modernisation would have been necessary but very possible as shown by the drastic alteration given to other pre-1914 battleships in other navies. It is an interesting thought.

SOURCES: Sydney Morning Herald — Daily Telegraph — The Australian Worker

In charge of tugs, AUSTRALIA leaves the Sydney Heads in her wake. *(Photo — "Sydney Mail".)*

With the destroyer HMAS ANZAC in the background, AUSTRALIA keels over and . . . *(Photo — RAN Historical Section.)*

. . . takes the final plunge. *(Photo — RAN.)*

BOOK REVIEW ARTICLE

CONWAYS ALL THE WORLDS FIGHTING SHIPS 1860-1905

The years 1860 to 1905 witnessed the introduction of the torpedo, breech loading gun, armour plating and turbine machinery. Coupled with these advancements, warship designs altered dramatically to change the entire composition and tactics of most navies. This period has, up to now, received little information in print, and it is with great interest that "The Navy" has been given the opportunity to review "Conways All The Worlds Fighting Ships 1860-1905", which is due for release in Australia during early 1980. The size and originality of the undertaking is immediately apparent and accordingly an appropriate review article has been prepared.

THE EDITOR

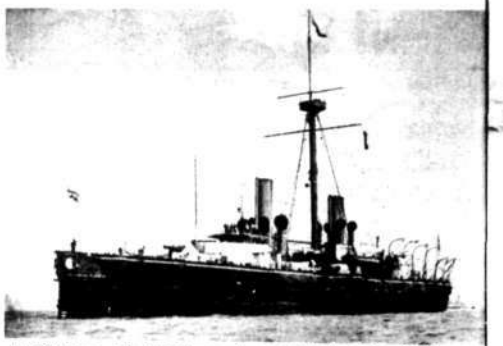
CONWAYS ALL THE WORLDS FIGHTING SHIPS 1860-1905

Price: *£30.* ***Published*** **Conway Maritime Press.**

Reviewed by "Gayundah".

"Conways All The Worlds Fighting Ships 1860-1905" must rank with the all-time great naval reference works. Within its covers, measuring 12¼ by 8½ inches, are 448 pages of mostly unpublished facts and figures, as well as 471 photographs and 506 line drawings. The degree to which the writings have been researched is plainly evident from the first page to the last. Naturally, the larger navies are well covered, under the heading "The Great Powers". "The Fleets of Great Britain and The Empire" are followed by "The United States of America", Russia, Japan, Germany, Austria-Hungary, France and Italy. Each nation is introduced by a resume of the economic as well as the political climates affecting each navy and then subdivided within each nation by warship type, which in turn is prefaced to cover the technical factors affecting the ships. The smaller or Coast Defence Navies are then featured, followed by the Minor Navies of which 12 and 23 nations are represented respectively. As stated in the foreword it would have been impossible to include every naval vessel of the period in a single volume, but as the book is concerned with fighting ships of the period, the following limits were set:

1. Only sea-going vessels were included, eg, patrol craft on inland waterways were not considered.
2. Generally speaking all warships down to 400 tons were included although torpedo boats displacing only 10 tons are covered, due to the fact that these craft assumed an importance out of all proportion to their size.
3. Only genuine warships were dealt with, thus ruling out auxiliaries, mercantile conversions and also vessels of Government agencies such as the army, coast guard, police, etc.



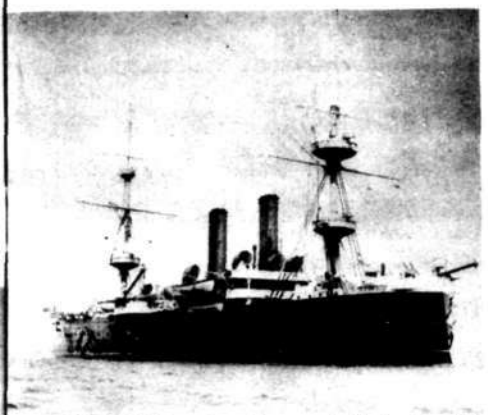
At 8500 tons the Imperieuse class armoured cruiser HMS WARSPITE was found to be unsuccessful in her role, largely due to being seriously over-weight when completed partly as a result of additions during construction, as well as inaccurate design calculations and inefficient control of construction material. In the above photograph she is shown as built with military rig. *(Photo — Conway Maritime Press.)*

HMS SEAGULL, a Plover class wooden gun vessel, was completed in the late 1860's and sold in 1887. At 755 tons displacement she carried one seven-inch MLR and two 40 pdr BL guns. *(Photo — Conway Maritime Press.)*

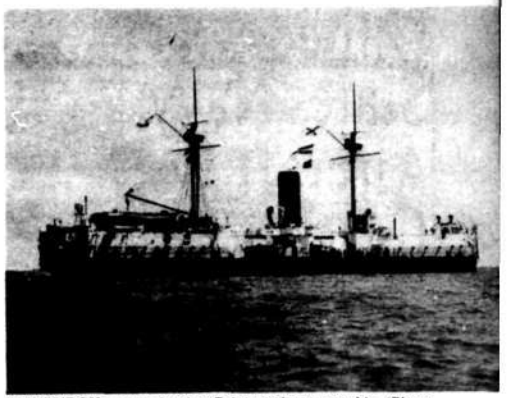
These restrictions aside, some 3700 warships of the period are still given coverage. As well, statements listing each navy's strength in the year 1860 appear at the beginning of each national section, allowing the reader to effectively gauge the relative growth of each navy.

Of all the world's navies, Great Britain and The Empire Forces are alloted a majority of space and even the Australian colonial forces are given mention. In respect to the latter, "Conways All The Worlds Fighting Ships" is the first book in recent years to correctly date the New South Wales torpedo boats ACHERON and AVERNUS as entering service in the 1878-79 period, and the fact that they were built totally in Sydney. Most publications have them completed in England during 1885. All colonial warships are given space, except the Queensland torpedo boats MOSQUITO and MIDGE, which for some reason are missed entirely, whilst their sister boats are included.

CERBERUS appears earlier in the book along with her sister ship MAGDALA. In the foreword the editor comments that it would be unrealistic to expect no errors or omissions, and apart from the earlier points mentioned and another statement describing a gun as both QF and BL, this book deserves naught but praise.



HMS SULTAN, constructed as a central battery iron clad, operated between 1871 and 1946, and is shown here following her 1893-96 reconstruction. *(Photo — Conway Maritime Press.)*



EDINBURGH as completed, a Colossus class turret ship. *(Photo — Conway Maritime Press.)*

Reverting to the book as a whole, the majority of large fighting ships are given a half page coverage of text, photo and/or line drawing, as well as a table of specifications, armament, etc. This format is employed throughout the book, down to minor navies, such as Hawaii, Persia, and Zanzibar, which boast only one or two vessels of note.

The quality of the photographs are for their age remarkable and the number of rare and previously unseen views is a tribute to the various contributors' powers of discovery.

A book such as the one described, obviously carrys a substantial price tag, but is still strongly recommended. "Conways All The Worlds Fighting Ships 1860-1905" is extremely well bound and features large blue covers, gold blocked on the spine and protected by an attractive dust jacket. It will be followed by two subsequent volumes, 1906-1922 and 1922-1945.

The following extract was taken from the Great Britain Section — Capital Ships and illustrates the style used throughout:

COLOSSUS class *turret ships*

Displacement: 9420t load
Dimensions: 325ft pp x 68ft x 25ft 9in *(99.06 pp x 20.73 x 7.85m)*
Machinery: 2-shaft, Maudslay *(Edinburgh* Humphreys) 3 cyl IC, 7488ihp — 16.5kts *(Edinburgh* 6808ihp — 16kts)
Armour: Citadel 18 inch-14 inch sides, 16 inch-13 inch bulkheads, turrets 16 inch-14 inch, CT 14 *inch, decks 3 inch-2½ inch*
Armament: 4-12 inch BL (2x2), 5-6 inch BL (5x1), 4-6pdr QF (4x1), 2-14 inch TT
Complement: 396

Name	Builder	Laid down	Launched	Comp	Fate
COLOSSUS	Portsmouth DYd	6.6.1879	21.3.82	31.10.86	Sold for BU 1908
EDINBURGH, (ex-MAJESTIC 1882)	Pembroke DYd	20.3.1879	18.3.82	8.7.87	Sold for BU 1910

Constructed under the 1878-79 Estimates, COLOSSUS and EDINBURGH were basically enlarged versions of the Ajax class with a slightly higher speed, a heavier secondary armament, increased endurance and improved handling and sea-keeping qualities.

However, they incorporated several innovations which marked them as a major advance over the earlier design — the substitution of BL guns for ML guns, the use of compound armour for the hull as well as for the turrets and the use of steel instead of iron for the majority of the hull structure.

The citadel was similar to that in AJAX but was larger and of oval shape with semi-circular end bulkheads to deflect projectiles. It was 123ft long and 16ft deep, the outer thickness of armour being compound.

The area fore and aft of the citadel, above the protective deck, was extensively sub-divided, the compartments at the ships' sides being cork-filled and bounded by cofferdams, while the inner compartments were employed as coal bunkers.

The CT gave good all-round vision, being placed forward of the mainmast with the charthouse on its roof. The stability level was even higher than in the earlier citadel ships and anti-rolling tanks and deep bilge keels were provided, but they had a long, fast roll making them bad gun platforms in a seaway.

They were difficult to handle and manoeuvre but were better in this respect than the AJAX class.

The ships were originally designed to carry the same *main armament as the* AJAX but this was altered to 12 inch BLs while they were under construction. They were the first ships to have a secondary armament of any significance, with one 6 inch on each side of the forward superstructure and one 6 inch on each side and one at the extreme aft end of the after superstructure.

These weapons were replaced by 6 inch QF guns in 1898.

Both ships ran trials during 1883-84, but completion was delayed because of the late delivery of the armament. COLOSSUS served in the Mediterranean until 1893 when she became a coastguard ship at Holyhead.

She was placed in reserve in 1901, and then became a tender to EXCELLENT in 1904. EDINBURGH served in the Mediterranean from 1887 to 1894, and then as the coastguard ship at Hull and Queensferry from 1894 to 1897.

In reserve from 1897 to 1899, she was tender to WILDFIRE at Sheerness from 1899 to 1905, and was finally employed as a target ship for experiments with shell and armour plate in 1908.

United States Navy Aircraft Carriers

By

PETER HOUNSLOW

In the past 57 years 146 aircraft carriers have commissioned into the United States Navy. These carriers fall into three groups as follows:

(a) Fleet Carriers which are ships fast enough to keep up with an attacking warship fleet also having large enough air groups to launch offensive as well as defensive attacks and sufficient armour and ordinance to offer a good defence if caught without their aircraft.

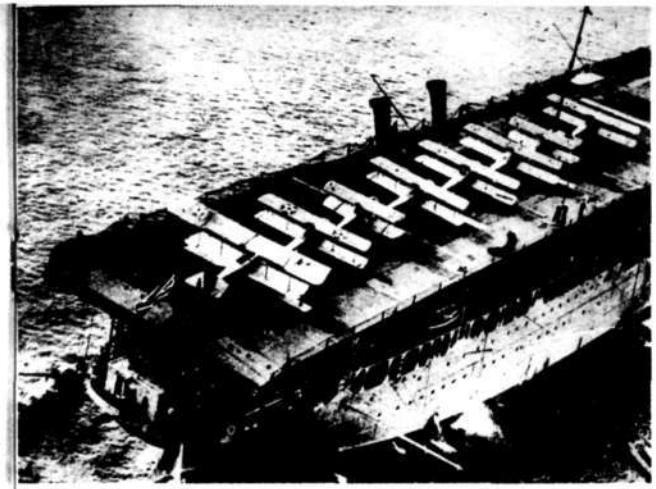
(b) Escort Carriers which were converted from merchant ship hulls were built during World War II to escort the many convoys as fleet carriers were not available in sufficient numbers for this duty. They were slow relative to fleet carriers and could not carry as many aircraft. The Escort Carriers' ranks were made up of classes such as "Long Island", "Bogue", "Sangamon", "Commencement Bay" and "Casablanca". Fifty "Casablanco" Class ships were built in just under a year. The first ship, "Casablanca", commissioned on 7/8/43 and the last, "Munda", on 8/7/44. Construction time for the final vessels was 3½ months, and the entire class was built by one builder.

(c) The third group consisted of two training carriers. Originally side paddle wheel commerce ships, they were taken in hand during World War II, given flight decks but no hangar decks or catapults and then commissioned into the USN to operate in the submarine free waters of the Great Lakes system.

Of the above group, I will only deal with Group (a), the Fleet Carriers.

To help readers understand the development of these ships, following is a table of US Fleet Carriers to date:

NUMBER	NAME	STANDARD TONNAGE	CLASS	LAUNCHED COMMISSIONED	FATE
CV1	Langley	11,050	Langley	20/3/22	Sunk Java Sea 26/2/42
CV2	Lexington	36,000	Lexington	3/10/25	Sunk Battle Coral Sea 8/5/42
CV3	Saratoga	36,000	Lexington	7/4/25	Target Bikini 25/7/46
CV4	Ranger	14,500	Ranger	25/2/33	Scrapped 2/47
CV5	Yorktown	19,800	Yorktown	4/4/36	Sunk Battle Midway 6/6/42
CV6	Enterprise	19,800	Yorktown	3/10/36	Scrapped 21/8/58
CV7	Wasp	14,700	Wasp	4/4/39	Sunk Solomon Islands 15/9/42
CV8	Hornet	19,900	Yorktown	14/4/40	Sunk Santa Cruz 27/10/42
CV9	Essex	27,100	Essex	31/7/42	Scrapped late 70's
CV10	Yorktown (II)	27,100	Essex	21/1/43	Scrapped late 70's
CV11	Intrepid	27,100	Essex	26/4/43	Reserve
CV12	Hornet	27,100	Essex	30/8/43	Reserve
CV13	Franklin	27,100	Essex	14/10/43	Scrapped 1/10/64
CV14	Ticonderoga	27,100	Essex	7/2/44	Scrapped late 70's
CV15	Randolph	27,100	Essex	29/6/44	Scrapped late 70's
CV16	Lexington (II)	27,100	Essex	26/9/42	Operational Training Ship
CV17	Bunker Hill	27,100	Essex	7/12/42	Scrapped 1/11/66
CV18	Wasp (II)	27,100	Essex	17/8/43	Scrapped 1/7/72
CV19	Hancock	27,000	Essex	24/1/44	Scrapped late 70's
CV20	Bennington	27,000	Essex	26/2/44	Reserve
CV21	Boxer	27,000	Essex	14/12/44	Scrapped 1/12/69
CV22	Independence	11,000	Independence	22/8/42	Target 29/1/51
CV23	Princeton	11,000	Independence	18/10/42	Sunk Leyte 24/10/44
CV24	Belleau Wood	11,000	Independence	6/12/42	Scrapped 1960
CV25	Cowpens	11,000	Independence	17/1/43	Scrapped 1962
CV26	Monterey	11,000	Independence	28/2/43	Scrapped 1/6/70
CV27	Langley (II)	11,000	Independence	22/5/43	Scrapped 1964
CV28	Cabot	11,000	Independence	4/4/43	Operational Spanish "Dedalo"
CV29	Bataan	11,000	Independence	1/8/43	Scrapped 1961
CV30	San Jacinto	11,000	Independence	26/9/43	Scrapped 1970
CV31	Bon Homme Richard	27,100	Essex	29/4/44	Reserve
CV32	Leyte	27,100	Essex	23/8/45	Scrapped 1/6/69
CV33	Kearsarge	27,100	Essex	5/5/45	Scrapped 1/6/69
CV34	Oriskany	27,100	Essex	13/10/45	Reserve
CV35	Reprisal	27,100	Essex	–	Cancelled 11/8/45
CV36	Antietam	27,100	Essex	20/8/44	Scrapped Late 70's
CV37	Princeton (II)	27,100	Essex	8/7/45	Scrapped 30/1/70
CV38	Shangri-La	27,100	Essex	24/2/44	Scrapped Late 70's
CV39	Lake Champlain	27,100	Essex	2/11/44	Scrapped 1/12/69
CV40	Tarawa	27,100	Essex	12/5/45	Scrapped 3/10/68
CV41	Midway	45,000	Midway	20/3/45	Operational
CV42	Franklin D. Roosevelt	45,000	Midway	29/4/45	Scrapped 30/9/77
CV43	Coral Sea	45,000	Midway	2/4/46	Operational
CV44	Unnamed	45,000	Midway	–	Cancelled 1/11/43
CV45	Valley Forge	27,100	Essex	18/11/45	Scrapped 15/1/70
CV46	Iwo Jima	27,100	Essex	–	Cancelled 12/8/45
CV47	Philippine Sea	27,100	Essex	5/9/45	Scrapped 1/12/69
CV48	Saipan	14,500	Saipan	8/7/45	Scrapped Late 70's
CV49	Wright	14,500	Saipan	1/9/45	Scrapped 1/12/77
CV50)					
CV51)					
CV52)	Unnamed	27,100	Essex	–	Cancelled 27/3/45
CV53)					
CV54)					
CV55)					
CV56	Unnamed	45,000	Midway	–	Cancelled 28/3/45
CV57	Unnamed	45,000	Midway	–	Cancelled 28/3/45
CV58	United States		United States	–	Cancelled 1949
CV59	Forrestal	59,060	Forrestal	1/10/55	Operational
CV60	Saratoga (II)	59,060	Forrestal	14/4/56	Operational
CV61	Ranger (II)	60,000	Forrestal	10/8/57	Operational
CV62	Independence (II)	60,000	Forrestal	10/1/59	Operational
CV63	Kitty Hawk	60,100	Kitty Hawk	29/4/61	Operational
CV64	Constellation	60,100	Kitty Hawk	27/10/61	Operational
CV65	Enterprise (II)	75,700	Enterprise	25/11/61	Operational
CV66	America	60,300	Kitty Hawk	23/1/65	Operational
CV67	John F. Kennedy	61,000	John F. Kennedy	7/9/68	Operational
CV68	Nimitz	81,600	Nimitz	3/5/75	Operational
CV69	Dwight D. Eisenhower	81,600	Nimitz		Building
CV70	Carl Vinson	81,600	Nimitz		Building



The stern section of America's first aircraft carrier USS LANGLEY is shown graphically in this view, with eight biplanes on her flight deck ready for launch. *(Photo — USN.)*

The first Aircraft Carrier in the USN was the USS LANGLEY, of 11,000 tons. She was commissioned on 20/3/22 with Captain S. H. R. Doyle in command and was originally built as the Fleet Collier USS Jupiter just before World War I.

Between 1919 to 1922 she underwent carrier conversion which included addition of a flight deck, a centre-line lift and the conversion of the coal bunkers to aircraft stowage holds. The superstructure of the collier was removed to the upper deck level and a wooden flight deck was installed supported aft by the remaining superstructure, about ⅓ths of the ship's length, with the remainder supported by steel columns up to the foc'sle.

This left an open area under the flight deck for the remaining ⅔ths of the ship. Aircraft were lifted out of the holds and transported to the centreline lift by two three ton overhead travelling cranes mounted below the flight deck.

Once on the deck the aircraft were assembled for launching. Despite this cumbersome method of aircraft handling, Langley could still stow 55 aircraft in her holds. She differed in appearance to later US Carriers in not having any island superstructure.

She had a quiet life of testing equipment and carrier techniques until being sunk in the Java Sea on 26/2/42 as an Aircraft Tender.

The second and third Carriers, "LEXINGTON" and "SARATOGA" were much larger than "LANGLEY". They averaged 36,000 tons and were conversions from Lexington Class, 49,000 tons, 16 inch, Battlecruisers which were to be scrapped under the Washington Treaty (which disposed of many fine ships including our own Battlecruiser, HMAS AUSTRALIA).

With their 184,000 shaft horse power pushing them through the water at 33 plus knots, 6" main belt and 7" bulkhead armour, and 90 aircraft embarked the "Lex and Sara" were mighty ships even by today's standards.

Both originally shipped 8 x 8" 55 cal guns in four twin turrets mounted at flight deck level, fore and aft of the island/stack (typical A, B, X, Y, in line turret arrangement).

These guns were fine for the heavy cruiser of the pre-war era for which they had been designed and had been used in the Pensa Cola Class, but considering bombardment of shore targets and protection against other ships was fast passing over the carrier's aircraft, these guns were becoming redundant.

The secondary armament consisted of 12 x 5" 25 cal guns. An unshielded version of this weapon was commonly found as a deck gun on US submarines for the period. Both ships were re-armed to cope in the AA department.

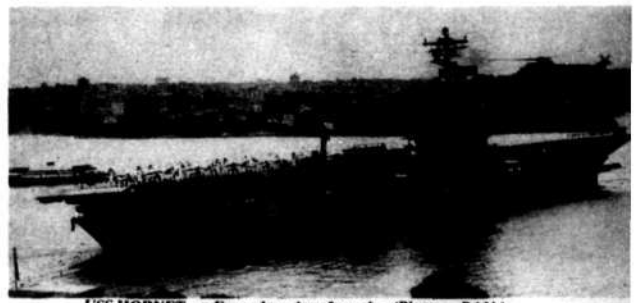
As LEXINGTON was lost at the Battle of the Coral Sea relatively early in the war, she was armed only with 4 x 3" 50 cal and 18 x 40mm, whereas the Saratoga, which survived the war was finally armed with 8 x 5" 38 cal in four twin mounts (similar to a Gearing Class Destroyer's main armament), 8 x 5" 38 cal in eight single turrets (as in a Fletcher Class Destroyer), 100 x 40mm in quad mounts and 16 single 20mm Oerlikon guns at the aft end of the flight deck.

The fourth Carrier, USS "RANGER", displaced 14,500 tons and was an attempt at getting as many aircraft — 86 as it turned out, into as small a hull as possible. However, to do this she sacrificed speed and armour and as a result was relegated to training in 1944.

The fifth and sixth Carriers, "YORKTOWN" and "ENTERPRISE", drew from experience in the design of "RANGER" and were therefore faster, better protected and of course heavier, 19,800 tons.

"YORKTOWN" was torpedoed by the Japanese Submarine I168 off Midway Island on 6/6/42, just after the Battle of Midway. The Destroyer "HAMMANN" (Sims Class) was also torpedoed alongside YORKTOWN while attempting to take off the Carrier's crew. The "ENTERPRISE" survived the War complete with 20 Battle Stars, an honour probably forced upon her, for at one stage in 1942, she was the only operational Carrier in the Western Pacific.

The seventh Carrier, the USS "WASP", was limited in displacement by the tonnage left available under the Washington Treaty after the other carriers' tonnage had been subtracted from the 135,000 tons allowed. This left her at 14,700 tons. She too was torpedoed by a Japanese Submarine, the I19 on 5/9/42 en route to Guadal Canal.



USS HORNET, an Essex class aircraft carrier. (Photo — RAN.)

The eighth Carrier was built to a "YORKTOWN" Class design. Named "HORNET" she had perhaps the most colourful if not the shortest career of any US Carrier. Commissioning in October, 1941, she launched the famous Doolittle Raid on 18/4/42, took part in the Battle of Midway 2 — 6/6/42 and was engaged in constant battles for the Solomon Islands right up to the Battle of Santa Cruz where she was bombed and torpedoed by aircraft and destroyers, 27/10/42.

The list of active Carriers at the end of 1942 was dwindling fast as this list shows:

CV2	Lexington	Sunk	8/5/42
CV3	Saratoga	Badly damaged	31/8/42
CV5	Yorktown	Sunk	6/6/42
CV6	Enterprise	Operational	
CV7	Wasp	Sunk	15/9/42
CV8	Hornet	Sunk	27/10/42

The "ENTERPRISE" must have been feeling quite lonely at this point, however, help was certainly on the way(s) in the form of the numerically large "ESSEX" and "INDEPENDENCE" Classes.

Built originally as the USS SAIPAN and converted to a communications relay ship between 1963-1965, the ARLINGTON remained in commission until 1970. *(Photo — RAN.)*

The time between Pearl Harbour and the end of 1942, approximately one year, had cost four Aircraft Carriers but this was the price which had to be paid to enable the American ship builders time to tool-up to build a large fleet.

The ninth Carrier USS "ESSEX" was lead ship of a Class of 24 of which 17 were commissioned during the War and none of which was lost. Of this Class the "FRANKLIN" should be mentioned at this point.

This ship sustained massive damage as part of Task Force 58 commanded by Vice-Admiral Marc A. Mitcher while conducting air strikes against targets on Kyushu, Japan as a lead up to the Okinawa landings.

As a result of battle she lost 724 dead, 265 wounded and after an order to all but key personnel to abandon ship over 1700 men were rescued from the water. She was taken in tow by the USS "PITTSBURG", CA72 a Heavy Cruiser of the Baltimore Class, but the following day was underway on her own power and went on to sail halfway round the world to New York via Hawaii for repairs.

Originally 32 Essex Class Carriers were projected, eight were cancelled leaving the remaining 24 to still constitute the largest class of fleet aircraft carriers ever built. Their building times during World War II ranged from 14 months to two years which must have added to the bewilderment of the Japanese in 1944-45 and bore out Yamamoto's words of "Awakening a sleeping giant".

Many served through the Korean and Vietnamese Wars after modernisation including enclosed bows and strengthened flight decks to take heavier aircraft. Angled decks were added to operational ships in the mid 50's as well as the more powerful steam catapult in some units.

Under fleet rehabilitation and modernisation (FRAM II) conversions sonar was added in the early 60's and so some of these ships became Anti-submarine Warfare (ASW) Carriers (CVS).

The next class of Fleet Carrier was the "Independence" Class. They were constructed on uncompleted "Cleveland" Class light Cruiser hulls and were built to fill in until the Essex Class units could be completed.

USS MIDWAY, CVA 41, shows off her teeth in the form of 70 combat aircraft, including A-6 Intruders and F-4 Phantoms, ranged on the forward flight deck. *(Photo — USN.)*

Being Cruiser conversions they were fast and relatively well protected. The one surviving unit of this nine ship class is now the Flagship of the Spanish Navy, "DEDALO PH 01".

The "Midway" Class was next to be launched. These ships at 45,000 tons were outsized only by the Japanese Carrier "SHINANO" a "Yamato" Class, 18" Battleship conversion.

A Midway Class Carrier could strike down 137 aircraft and the original design called for 18 x 5" 38 cal, 84 x 40mm, and 82 x 20mm guns and so were to be the ultimate in Carrier design.

Unfortunately, only three of the class of six were completed and even those three were too late to take part in any World War II actions. They have been extensively modernised and two are still in service today.

The "Saipan" Class (two ships) was built too late to take part in World War II. They resembled the "Independence" Class and at 14,500 tons were classed as light Carriers or CVL.

A one ship class, the USS "UNITED STATES" was laid down in 1949 and cancelled soon after. Her pendant number was CVB 58.

The "Forrestal" Class, CV's 59, 60, 61, 62, heralded the era of the Super Carrier and at around 60,000 tons, four steam catapults, 70 aircraft and approximately ¼-mile long, are something no other country has yet matched (or perhaps don't want to match).

"FORRESTAL", lead ship of the Class, was modified early in construction to enable her to be finished with an angled deck. The remainder "SARATOGA", "RANGER" and "INDEPENDENCE" were completed to a similar design.

A side effect of the angled deck was the extra aircraft handling and parking space made available by the now widened decks. One characteristic of the angled deck carrier is the huge deck overhangs along the side of these ships particularly obvious if viewed from the bow or the stern.

A stern view of the nuclear-powered aircraft carrier USS NIMITZ taken during September, 1976, whilst in the Mediterranean Sea, as a member of Task Force 60. *(Photo — USN.)*

The "Kitty Hawk" Class, CV's 63, 64, 66, 67, were an improvement on the "Forrestals" being slightly larger, having the island moved further aft and the lift positions changed.

The gap in the middle of the "Kitty Hawk" Class pendant numbers belongs to "ENTERPRISE" CVN 65, a one ship class which differs from the "Kitty Hawk's" but has roughly the same deck layout and the same amount of aircraft, 85.

She is nuclear powered by eight Westinghouse Reactors driving four Westinghouse geared steam turbines through four shafts delivering 280,000 SHP for 35 knots.

She is easily distinguishable by her island which not only lacks a funnel, but gives her a certain science fiction appearance. The "ENTERPRISE" was unarmed, except for her aircraft, for the first three years of her life when in 1967 a short range Sea Sparrow basic point defence missile system was added.

The latest class is the "Nimitz" comprised of CVN 68 NIMITZ, CVN 69 DWIGHT D. EISENHOWER and CVN 70 CARL VINSON. They are the heaviest carriers yet at 81,600 tons, can strike down 90 aircraft, have a crew of 6300 men per ship and are a far cry from poor little LANGLEY back in 1922.

One of the earliest views of CVA 59, USS FORRESTAL, taken whilst on trials during March, 1956 *(Photo — Newport News Shipbuilding & Drydock Co.)*

WARSHIP PICTORIAL

Royal Navy New Construction

(All photos courtesy Royal Navy Public Relations)

RFA FORT GRANGE, November, 1978. FORT GRANGE displaces 20,000 tonnes and measures 603 by 79 feet.

HMS BRECON, October, 1979, the first of five ships of the new "Hient" class of coastal minesweepers/minehunters displaces 725 tons full load and is manned by 6 officers and 39 ratings.

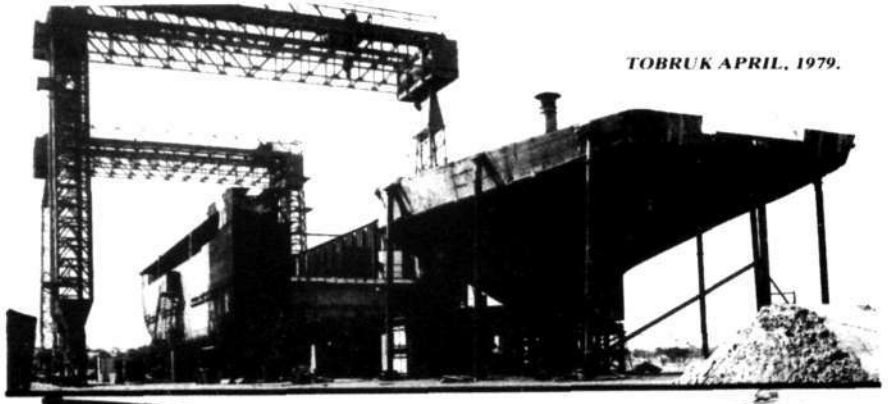
HMS INVINCIBLE, March, 1979, during sea trials.

Although not actually new construction, HMS DIDO shows off her new teeth after anti-submarine modernisation. Taken April, 1979.

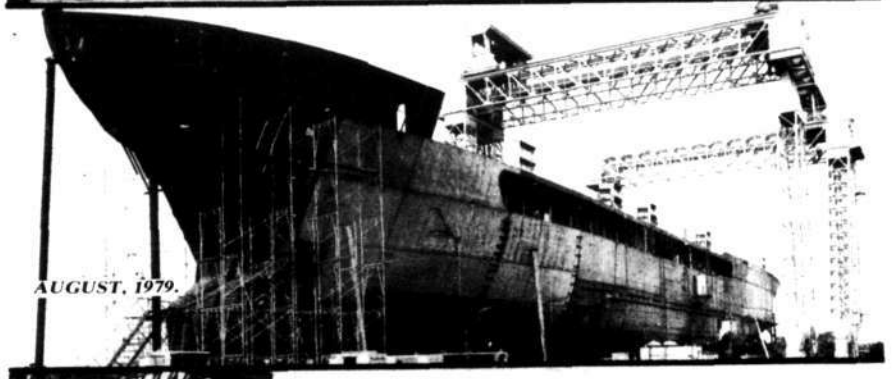
HMS BROADSWORD seen here on speed trials, May, 1979, is the first all metric British warship and the first to be built around an all missile armament.

TOBRUK

The accompanying photos (courtesy Navy Public Relations, Sydney) show three stages of construction during 1979 of the new amphibious ship now being built by Carrington Shipways at Tomago.

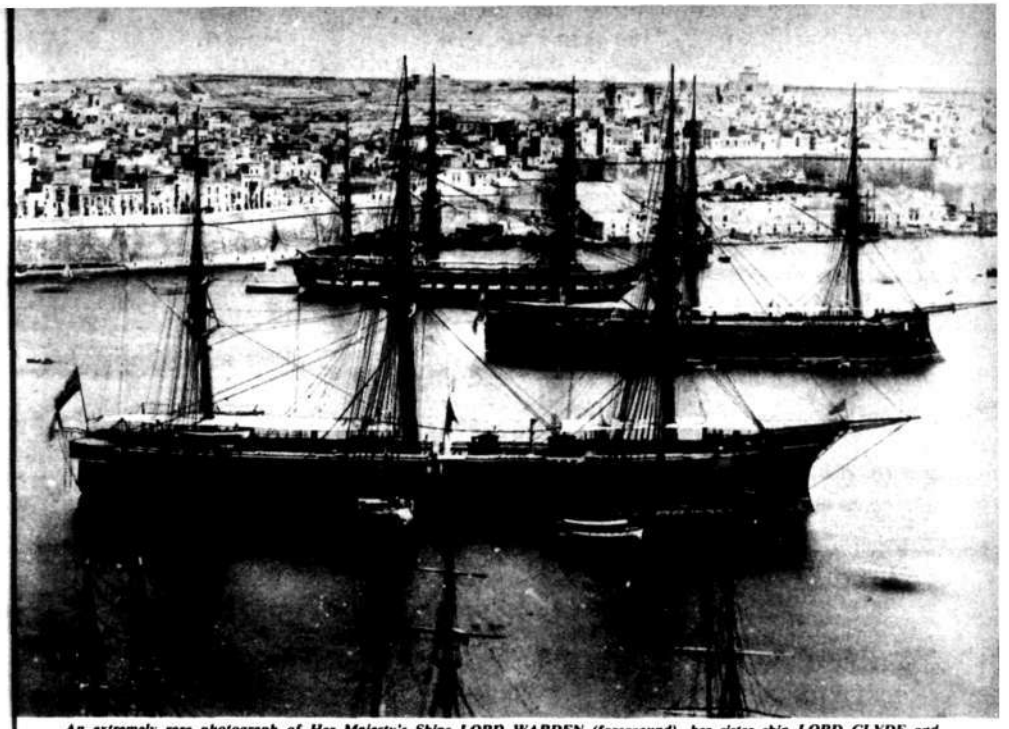


TOBRUK APRIL, 1979.



AUGUST, 1979.

DECEMBER, 1979.



***An extremely rare photograph of Her Majesty's Ships LORD WARDEN (foreground), her sister ship LORD CLYDE and ENDYMION (rear), lying at anchor in Valetta Harbour, Malta, during the early 1880's** (Photo — R. Gillett Collection.)*

OUT OF THE PAST

(From Conways All The World's Fighting Ships 1860-1905)

LORD CLYDE CLASS

The LORD CLYDE class were purpose built, wooden-hullen, ironclad frigates, and the last of the broadside ships. Construction was approved in 1863. LORD WARDEN was the heaviest wooden ship ever built. The ships were based on the design of BELLEROPHON with dimensions modified to suit a wooden hull and the battery armour extended the full length of the ship. The wooden hull had a 1½ inch iron skin and a waterline belt sheathed with 4 inch oak, and it was divided by iron bulkheads and strenthened by iron in some sections. LORD WARDEN, like BELLEROPHON, has a clipper/ram bow, whilst LORD CLYDE had a standard ram bow.

LORD CLYDE completed with 24-7 inch MLR, 23 being on the main deck (20 amidships, 2 forward and 1 aft) and one at the forward end of the upper deck protected by a 4½ inch semi-circular bulwark. The vessel rearmed in 1869/70 with 10-8 inch MLRs on the main deck in alternate ports, 1-8 inch MLR on each side on the upper deck, 2-7 inch MLRs at the forward end of the main deck and 1-9 inch MLR at the aft end of the main deck and 1.9 inch MLR behind the armoured bulwark at the forward end of the upper deck. LORD WARDEN was completed with this armament.

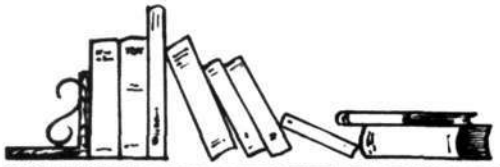
These vessels were ship rigged, the sail area being 31,000 sq ft. They were handy under sail but rolled heavily.

They were also good steam vessels but LORD CLYDE's engine deteriorated quickly and she was re-engined in 1869/70. In 1872 LORD CLYDE was found to have rotten hull timbers. Attempts to correct this were lengthy and unsuccessful and she was sold out of service early.

LORD CLYDE class wooden broadside iron clad

Displacement: 7750t load LORD CLYDE; 7842 load LORD WARDEN.
Dimensions: 280 ft pp x 59ft x 26ft *(85.34 pp x 17.98 x 7.92 m).*
Machinery: 1-shaft, Ravenshill 2 cyl HT (LORD WARDEN Maudslay 3 cyl RCR), 9 rectangular boilers, 6064 ihp = 13.4 kts (LORD WARDEN 6700 ihp = 13.5 kts).
Armour: Belt and battery 5½ inch amidships, 4½ inch ends with 6 inch wood backing CT 4½ inch.
Armament: 2-9 inch MLR, 14-8 inch MLR, 2-7 inch MLR, 2-20 pdr BL.
Complement: 605

Name	Builder	Laid down	Launched	Comp	Fate
LORD CLYDE	Pembroke DYd	29.9.1863	13.10.64	2.6.66	Sold for BU 1875
LORD WARDEN	Chatham DYd	24.12.1863	27.3.65	30.8.67	BU 1889



BOOK REVIEWS

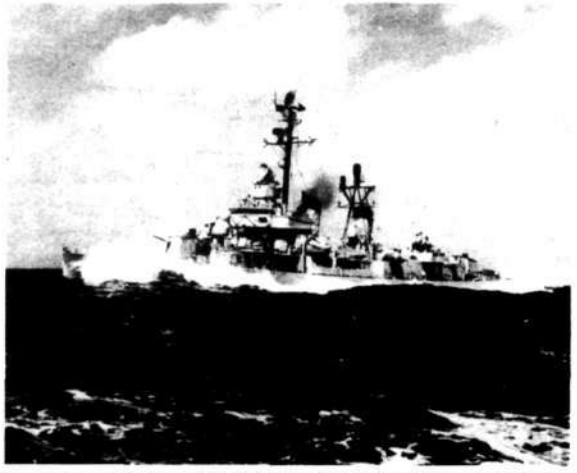
Destroyer Weapons of World War 2

By PETER HODGES and NORMAN FRIEDMAN
Published by
Conway Maritime Press
Reviewed by
"The Dustman"

A great failing by writers of naval reference books has been the lack of information supplied as regards armament. We often see such notations as "4 x 4 inch guns", and it is left to the reader to find out if the four inch guns mentioned were quick firing or breech loading, whether they were on pedestal or central pivot mountings, and all the other details necessary to find out just what the guns really were. In Destroyer Weapons of World War 2 many of these mysteries are cleared up, in the case of British and United States destroyers at least. Being an ordnance enthusiast, and a self confessed destroyer buff, I found this book to be one of the greatest possible additions to the great range of naval books that are now coming forward.

The book is divided into two seperate parts, section one deals with British destroyers and section two, the Americans. There has to be a starting point in all works of this type, and in this case both of the writers picked as their starting point the destoyers built after the end of the Great War. In the Royal Navy this of course meant the experimental "AMAZON" and "AMBUSCADE", the Americans new construction got under way with the "FARAGUT's". We follow the main and secondary armament of the destroyers of both nations, and we can appreciate the difficulties which gun designers were faced with. The Royal Navy had great faith in the famous 4.7 inch gun, being a breech loader in the case of "AMAZON" and "AMBUSCADE", followed by the change to the quick firing system in later classes. On the other hand the US Navy commenced its new construction with the dual purpose 5 inch 38 calibres gun, a weapon that was the standard weapon for all war built US destroyers. The development of the 4.7" is followed through, and the introduction of the now well known 4.5" receives the same type of attention.

In the case of close range weapons we see the various types that were used by both nations, and it is interesting to note that both ended up with weapons common to both nations. There are naturally the 20 mm Oerlikon and the 40 mm Bofors. All stages are well covered and the reader is left with a very clear understanding of the weapons "as fitted".



The American destroyer FLETCHER displays the post-war modifications applied to many US ships. These changes, as well as the principal wartime developments, are covered in detail in "Destroyer Weapons of World War II". *(Photo — Conway Maritime Press.)*

The book does not deal with guns only, we find all the other items of naval hardware such as torpedo tubes, depth charge throwers and gunnery control directors are described in great detail.

The book is well illustrated. Photographs and line drawings are provided for most types, and in the British section I think it would quite in order to say that for completeness of the subject this is the best we have seen yet. The American section is well illustrated but with fewer line drawings than the British section, but is well provided with photographs.

Many interesting points come to light, and I was surprised to find that the "FLETCHER" Class destroyers carried a grand total of 3005 rounds of 5 inch ammunition on board, 2775 rounds in the magazines and 250 rounds of ready use ammunition at the guns, and it is quite evident that all this shot was required when "Kamikazes" were met.

In the British Navy great faith had been placed in the old pom pom and the 0.5 inch four barrel machine gun mounting as being the answer to attacking aircraft. War experience proved that something better was needed, and the same applied to the US Navy's four barrel 1.1 inch machine gun. The answer came in the shape of the 20 mm and the 40 mm, guns that have become household words. The full range of these well known weapons are covered, and neither author is afraid to describe the actual value of them. When it comes to the failures they are equally frank, and this is an admirable trait, of which we could certainly hope to see other writers follow.

I would sum up this book as being one of the best works it has beem my pleasure to read. The text is well written, and the whole range of illustrations are excellent. Both writers understand their chosen subject, and as I said before they have closed a very large gap that has existed for far too long.

Destroyer Weapons of World War 2 is presented with the same high standard of quality, which we have come to expect from Conway. My only regret is that the famous old 4 inch QF MK V as fitted in the old "V & W" class was not covered, and that is my only regret. An excellent book, recommended to all shiplovers.

* * *

Australia's Ships of War

By JOHN BASTOCK
Published by
ANGUS & ROBERTSON
Price: $45.00
Reviewed by
Harry Adlam

This book was first published in 1975, as a leather bound volume retailing at $150 per book, but the present issue is presented in "paper back" type, a form which does not do justice to the work itself.

Surely this book justifies at least a hard cover. Otherwise, it does not appear to have been updated from the original issue. The cost, at $45. is still rather steep, but there is no doubt that the information contained between its covers is worth it. I still would have preferred to have seen a stiffer cover on the book, because I feel that the volume will not stand up to the constant use that would be given to it by a ship lover.

The book is well laid out and covers the truly Australian Ships of war, the Australian Auxilliary Squadron is well covered, as this force was paid for in part by the Colonies. Each RAN ship is identified, described, her career detailed, and in most cases is illustrated with a photograph.

The ships follow on chronologically from the individual state naval units, through the formation of the Commonwealth Naval Forces to the formation of the Royal Australian Navy. Any unusual feature of each ship listed is given a special note, and we find such notes as that "AUSTRALIA" (1) was the only ship of the RAN to round the southernmost part of South America.

There are quite a few mistakes regarding the early colonial navies and I would have hoped that these would have been corrected after the original issue of this book, but it seems that the book is a re-print and not a revised edition. In the case of the New South Wales torpedo boats "ACHERON" and AVERNUS", John Bastock states that these were built in Sydney in 1885, while actual fact they were built by the Atlas Works in the Haymarket, Sydney, in 1879. This is an error that is very common amongst naval writers. In the case of the Tasmanian torpedo boat "TB 1", this is said to have been transferred to South Australia in the late 1880's, a statement not borne out by Captain Creswell's report of 1905, where he goes to great details to tell how "PROTECTOR" was sent over to Hobart in 1905 to tow "TB 1" to Port Adelaide.

The famous "quad" pompom, the standard anti-aircraft weapon of British destroyers. *(Photo — Conway Maritime Press.)*

One can never be too sure about certain facts, but when one is actually serving in a ship at a certain time, the matter becomes more clear. I read that HMAS "TALLAROOK" was commanded in 1948 and 1949 by Lt Cdr J. J. Cody, RAN, and undertook surveys of Geelong and Hobson's Bay.

From my own personal experience I can definitely say that for the full year of 1948 Lt Cdr J. J. Cody was 1st lieutenant of HMAS "WARREGO" and did not command "TALLAROOK" during that year. I served in the survey ship "WARREGO" at that time, and the tender to "WARREGO" was "JABIRU", and "Tex" Cody did do survey work in that GPV at various times. This may seem a small point to stress, but it is hoped to illustrate the hard job a writer has to put together a co nplete story of every ship in the RAN. John Bastock took on a large order and did it very well. Minor points such as this are very easy to pick up but by the same token, they are exceedingly hard for the writer to uncover when gathering the material for a book such as this.

As regards the ships that served in World War 2, John Bastock has made a very good effort in showing practically every ship in photographic form. When we consider that there were at least 400 ships included in the navy lists during the war years, and almost half of these were impressed small commercial craft, this is a very creditable effort. In the cases where a photograph could not be found John Bastock has provided one of his very neat pencil drawings, which faithfully depict the ship concerned.

I am not in agreement with all statements made by the author, and in particular I take an Ex-"WARREGO's" umbridge at the statement that "BARCOO" was refloated under her own power from the beach at Glenelg. I feel that "WARREGO" did a lot of pulling in this incident. I was present in "WARREGO's" engine room during the whole refloating operations. I suppose I can claim "professional pride" for the little sloop in this case.

Apart from the small number of errors that come to the surface, I feel that Australia's Ships of War will be regarded as a first class referrence book for many years to come. Errors are a fact of life, and I doubt if any book has ever been written that did not have some mistakes. John Bastock has made less mistakes than many of the so-called "giants" in this field. My main concern is that for a book of this price the binding is not of the same calibre as the book. It certainly deserves a stronger presentation, and one point that does annoy me is that while the dust jacket is quite attractive, the actual cover of the book leaves a lot to be desired.

In short, an excellent reference book, well written and well illustrated, definitely a book of world class.

NAVAL ROUNDUP

Compiled by "Gayundah"

Canadian Exercises

Four Canadian Forces helicopter-equipped destroyers, an operational support ship and several anti-submarine patrol aircraft participated in Exercise Ocean Safari 79, a major NATO exercise in the wide areas of the North Atlantic and the Norwegian Sea from 24th September, to 5th October, 1979.

The destroyers, part of Maritime Command's Fifth Destroyer Squadron, under the Command of Captain John Harwood, including HMCS IROQUOIS, ANNAPOLIS and FRASER, as well as HMCS NIPIGON which recently joined the standing Naval Force Atlantic. The Canadian complement participating in Exercise Ocean Safari also comprised the supply ship, HMCS PRESERVER, and four Argus aircraft from 415 maritime patrol squadron.

A key part of the exercise was the passage of military supply and reinforcement shipping from North American ports, across the Atlantic to the Norwegian Sea in the face of "enemy" attacks from surface ships, submarines and aircraft.

Belgium, Canada, The Federal Republic of Germany, the Netherlands, Norway, Portugal, Britain and the United States all participated in Ocean Safari with over 17,000 men, 70 ships and 200 aircraft.

SIPV TULAGI. (Photo — RAN.)

Defence Aid Patrol Craft On The Job In Solomon Islands

A 16 metre patrol boat, provided to the Solomon Islands Government under the Australian Government's Defence Co-operation Program, has been demonstrating its operational effectiveness with extensive patrols, apprehending illegal fishermen and carrying out mercy missions.

The patrol boat, TULAGI, was built by de Havilland Marine, Sydney. The total cost of the project, including spare parts, training and advisory assistance was over $800,000. The boat was formally handed over to the Solomon Islands Government on 1st May, this year.

During its first three months of operation, the TULAGI arrested a Japanese fishing boat which was operating illegally, helped rescue the crew of a sunken vessel and carried out several mercy missions.

The TULAGI is the country's first patrol boat and is popular amongst the Solomon Islanders. The boat's crew for the delivery voyage from Australia included two marine engineer officers from the Solomon Islands. They, together with three other Solomon Islands personnel, had previously undergone maintenance training in Australia.

In appreciation of the Australian Government's gift of TULAGI to the Solomon Islands Government, the Prime Minister, Mr Peter Kenilorea, recently presented the Australian High Commissioner to the Solomon Islands, Mr A. J. Melhuish, with an inscribed plaque made from Australian copper and showing the TULAGI and her crew. In his address, Mr Kenilorea referred to Lieutenant Olney's, detached to provide advisory assistance and practical instruction in all aspects of the boat's operation, outstanding work and the good results that the TULAGI had already achieved.

Japanese Visitors To Portsmouth

The Japanese training ship KATORI and destroyer MOCHIZUKI, recently visited the British port of Porstmouth during a round-the-world cruise. The accompanying view shows KATORI tying up alongside the Railway Jetty in August, 1979 with the MOCHIZUKI following her in the background.

***KATORI and MOCHIZUKI arrive at Portsmouth** (Photo — RN Public Relations.)*

***Westland Sea King MK 4HC helicopter for the Royal Navy.** (Photo — Westland.)*

First Flight of New Westland Sea King Helicopter

The new troop transport and logistic support version of the Westland Sea King made its first successful flight on 26th September, 1979.

A total of 15 of the new Westland Sea King Mk 4HC have been ordered for the Royal Naval Air Commando Squadrons, based at Royal Naval Air Station, Yeovilton, England, and will be used in support of the Royal Marine Commandos.

Due to begin delivery before the end of the year, the new Westland Sea King is designed to carry 20 fully equipped troops or 6,000 lbs of cargo and will be able to operate in artic and tropical conditions. The new helicopter is equipped with folding main rotor blade and tail unit for operation from ships.

October Class

Vosper Thorneycroft of Portsmouth recently completed a major modernisation of two Egyptian "October" class missile boats. These vessels, built in Alexandria 1975-76, possess the same hull design as the Soviet "Komar" class and are fitted with Soviet diesels. The armament is now of Western European Manufacture including British electronics. Ottamat missiles are mounted in single ramps aft, backed up by two 30 mm guns. Up to six will be refitted by Vosper and another three in Europe.

***Egyptian "October" class running trials on 23rd August, 1979, after modernisation by Vosper-Thornycroft.** (Photo — R. Wright.)*

New Patrol Boat To Be Named Officially

***HMAS FREMANTLE on trials.** (Photo — RAN.)*

The first of 15 new fast patrol craft being built for the Royal Australian Navy, HMAS FREMANTLE, was to be officially named at a ceremony to be held at the British Brooke Marine Shipyards, Lowestoft, on Monday, 8th October. Lady Freeth, wife of the Australian High Commissioner to the United Kingdom, Sir Gordon Freeth, will perform the ceremony.

HMAS Vendetta Leaves The Navy

The Daring class destroyer, HMAS VENDETTA, paid off from the Royal Australian Navy on 10th October, 1979, ending a 21 year career with the Australian Fleet, covering service in peace and war.

Commissioned into the Australian Fleet in 1958, VENDETTA left the Navy, a shell of its former self, at a brief ceremony attended by the fleet Commander and members of the ex-VENDETTA Association. At 11.30 am a bugler sounded "Sunset" and the White Ensign was lowered for the last time. About 1½ hours later VENDETTA was towed from Garden Island Naval Base to the dolphins in Athol Bight (see cover photo) with possibly one last duty to perform — the provision of spares for the remaining Daring class destroyer, its sister ship HMAS VAMPIRE.

At Athol Bight VENDETTA joined DUCHESS, and together will both now await disposal by the Department of Administrative Services.

Built at Williamstown Naval Dockyard in Melbourne, VENDETTA completed its last voyage on 28th June last, when it steamed into Sydney flying a 110 metre paying-off pendant,

Hand-over of keys — following the paying off of HMAS VENDETTA the Fleet Commander, Rear Admiral David Leach (right), handed the keys to the Master Attendant, Commander Colin Bartlett, who then assumed responsibility for the ship. *(Photo — Navy Public Relations.)*

having steamed 671,000 nautical miles since commissioning in 1958. During its service with the Navy, VENDETTA saw extensive service in south-east Asia, the Pacific and Australian waters, taking part in numerous exercises. In November, 1966 it gave valuable assistance to the United States Navy submarine, TIRU, which had gone aground on Fredericks Reef, North Queensland.

Then, in 1969, VENDETTA became the first Australian-built warship to serve in South Vietnam and had the distinction of being the first Darling class destroyer to engage in the role for which it was primarily built — naval gunfire support.

The paying off of VENDETTA has released personnel required for the manning of the first two of the Navy's new guided missile frigates (FFGs), HMAS ADELAIDE and HMAS CANBERRA, being built in the United States.

When VENDETTA paid off it was a considerably lighter ship than its normal 3,670 tonnes, all guns and other equipment, including radio and electrical, having been taken off for use in various fleet units and for training purposes.

Members of the ex-VENDETTA Association boarded the ship at 11 am and at 11.30 am the Fleet Commander, Rear Admiral David Leach arrived for the brief paying-off ceremony.

HMS Speedy

HMS SPEEDY, the Royal Navy's first jetfoil was recently put through its paces in Puget Sound, near Seattle, USA.

Built by Boeing, the forty-five knot, waterjet-propelled vessel will be evaluated by the Royal Navy in a variety of roles, including off-shore patrol and is expected to go into service during 1980.

HMS SPEEDY. *(Photo — Royal Navy Public Relations.)*

HMS SPEEDY. *(Photo — Royal Navy Public Relations.)*

Uncle Sam Sails Into Sydney

Four powerful units of the United States Navy sailed into Sydney Harbour on 1st November, heralding a mini-invasion by thousands of American servicemen.

The ships formed Task Force Seven Five under Rear Admiral A. M. Sinclair USN and visited Sydney following the ANZUS exercise KANGAROO THREE.

The harbour rolled out the red carpet for the 18,000-tonne guided missile cruiser USS CHICAGO; the 30-helicopter capacity USS TRIPOLI, an 18,000-tonne amphibious assault ship designed to throw Marines into enemy areas by airborne invasion; the amphibious transport dock USS DULUTH, which can carry nine medium landing craft and six helicopters, as well as over 900 troops and the fleet oiler USS PONCHATOULA, which renewed an association with Sydney begun 14 years ago, when the 38,000-tonne ship first visited Australia.

USS TRIPOLI, LPH 10 — note VTOL AV-8 Harrier aircraft aft of the bridge structure. *(Photo — USN.)*

THE FLOWER CLASS SLOOPS

By **HARRY ADLAM**

RAN

Three little known ships of the RAN were the sloop-minesweepers GERANIUM, MARGUERITE and MALLOW, that were presented to the Commonwealth of Australia in 1919. These vessels were sent to Australia to sweep the minefields laid by the Germain raider WOLFE, and after the task was completed were to be turned over to the RAN for mine-sweeping training. The group carried out the sweep and were paid off in Sydney on 18th October, 1919.

On 17th January, 1920, GERANIUM commissioned in the RAN as a mine-sweeper and MARGUERITE com-missioned as a Reserves Training Ship. MALLOW was held in the reserve fleet.

The three ships represented two distinct types of the Flower Class. GERANIUM and MARGUERITE were members of the Arabis type, while MALLOW belonged to the earlier Acacia type.

The latter was built by the well-known Scottish shipbuilders Barclay, Curle. She was launched on 13th July, 1915, and completed in September, 1915, as a single screw coal-burning ship of 1200 tons standard displacement.

Her length overall was 262 feet, her beam was 33 feet and her maximum draught was 11 feet. The triple expansion engine driving MALLOW developed 1800 indicated horsepower, to give a speed of 16 knots.

When taken over by the RAN MALLOW was armed with one 12 pounder 12 cwt gun on the foc'sle and a 3 pounder AA gun aft.

The second group were slightly larger, having a displacement of 1250 tons standard, length overall of 267 feet 9 inches, beam 33 feet 6 inches and draught 11 feet. Horsepower in this type was increased to 2000 ihp to give the same 16 knots.

The two ships also carried a different scheme of armament. GERANIUM carried a 4.7 inch gun and two 3 pounder AA, whilst her sister ship MARGUERITE was armed with one 4 inch gun and two 3 pounder AA guns.

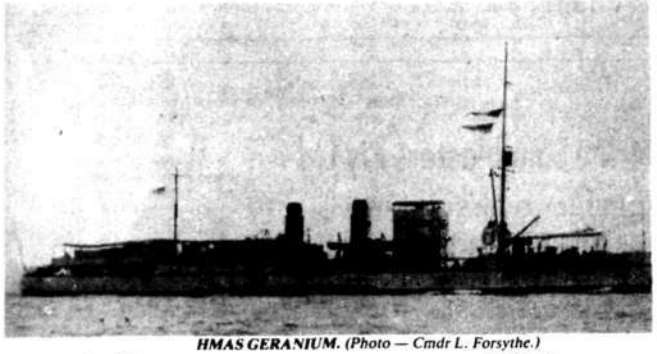
Their careers were varied. GERANIUM paid off as a minesweeper on 30th June, 1920, and recommissioned the next day as survey ship. In this role she was painted in the standard British survey colours of white hull and buff funnel and masts.

She became well-known in her new duties and at one time carried a Fairey seaplane to assist in surveying.

GERANIUM was fully employed bringing the Australian charts up to date, and was joined in 1925 by HMAS MORESBY (I). The latter had been built as a sloop of the 24 (Racehorse) class with the name SILVIO, being renamed on conversion to survey.

The depression era was coming into full swing, and it was inevitable that there would have to be cuts in the sea-going naval forces. One such cut was GERANIUM. On 10th November, 1927, the 11 year old sloop hauled her White Ensign down and paid off into reserve.

In the meantime, MARGUERITE had been carrying out her appointed role as a training ship for naval reservists. Most of her days were spent steaming on the east coast of Australia, although she did



HMAS GERANIUM. (Photo — Cmdr L. Forsythe.)

***HMAS GERANIUM — note Fairey Seaplane mounted above the stern, which was employed in conjunction with surveying operations.** (Photo — Cmdr L. Forsythe.)*

voyage to New Guinea and the Solomon Islands in 1924.

The vessel paid off and recommissioned as the needs for her services occasioned. MARGUERITE was laid up for the last time on 23rd January, 1929, joining her sister ship in reserve.

MALLOW lived a much easier life, spending a greater part of it as the Group Ship for vessels in reserve in Sydney. At times she was utilised for reserves training, but on the whole spent a fairly quite time during her service.

She was held in reserve at Westernport in Victoria for a time, and then steamed back to Sydney to lay up for the last time.

In 1932 the three ships were handed over to Cockatoo Island for scrapping. After the hulls had been stripped down, they were taken outside the heads and sunk. First to go was GERANIUM. On 24th April, 1935, the old surveying ship was taken in tow by the tug CHESTERFIELD and hauled out to the ships' graveyard.

The tow was cast off and the demolition charged fired. The first of the Australian Flower class sloops had gone. Almost four months later the other two, MARGUERITE and MALLOW were towed out and expended as gunnery targets. And so the Flower class vanished from the Navy list.

As regards to the ships themselves, they were a unique group. Designed for the dual purpose of convoy escort and fleet minesweeping, they were built by yards that normally did not engage in naval construction.

Numerous features of merchant ship practice were used in construction. In

***HMAS MARGUERITE.** (Photo — K. Brown.)*

many ways they resembled small coastal ships, their distinguishing features being a raised foc'sle, a long boat deck and two vertical funnels.

There was no poop deck, but the ships were fitted with steel bulwarks instead of the normal naval type guard rails. At the after end of the boat deck the bulwarks were carried to boat deck height to allow for extra accommodation if required, but this was not done in MALLOW.

In that ship the waist-height bulwarks were carried in a straight line to the stern. The ships were designed for working up mines, and for that reason they were triple hulled for'd.

Should a ship be unlucky enough to strike a mine, it would have a good chance of survival.

The trio had one feature that was followed in the later Bathurst class mine-sweepers, they were very lively at sea. It has been said that the Flowers were fairly stable in dry dock, but would roll on wet grass. When first built the sloops were issued with steadying sails, but it is uncertain as to whether these were ever used in the RAN.

The Flower class was one of the largest classes of mine-sweepers ever built for the Royal Navy, and some 72 of the ships were completed. A few saw service in the Second World War, but it was a great pity that they were not retained in the Royal Australian Navy.

GERANIUM had seen only seven years service with the Australian fleet and nearly three years with the Royal Navy.

The Flower class sloop-minesweepers were a part of the development of the RAN, but their names are practically unknown to the modern sailor. When WARREGO and BARCOO were engaged in the survey service after the Second World War, they were issued with 34 foot motor launches fitted with echo-sounding gear.

These boats were given names, one being GERANIUM. The survey service remembered the Flower class, why doesn't the RAN as a whole? When the Attack class of patrol boats were built, surely three of them could have been issued with the names MALLOW, MARGUERITE and GERANIUM.

Old timers who served in these ships often referred to GERANIUM as "The Old Jerker", so could we hope that at some later date we may hear a matelot talk about "The New Jerker".

Let us hope so.

RNZN

The three "Flower" class sloops in the RAN were not the only units of this type to operate in the Pacific. Two were on duty with the New Zealand Division of the Royal Navy, and between the pair, served a total of 25 years in New Zealand waters.

HMS "VERONICA" arrived in New Zealand in 1920, and was followed in 1922 by HMS "LABURNUM".

Both were of the "Acacia" type, and were launched in 1915. "VERONICA" was constructed by Dunlop, Bremner in May, 1915. "LABURNUM" by Connell & Co. in June the same year.

The two ships had been refitted prior to transfer to New Zealand, and were a much better proposition than the three RAN ships. Each was given a main armament of two 4 inch QF MK IV guns, controlled by a "light type" director, a far cry from the odd selection of guns carried by their Australian counterparts.

The operational control of the two sloops was shared by the Admiralty and the New Zealand Chief of Staff, the Admiralty being responsible for maintenance.

Life on the New Zealand Station was quite pleasant between the wars, although "VERONICA" went aground during the disastrous Napier earthquake in February, 1931.

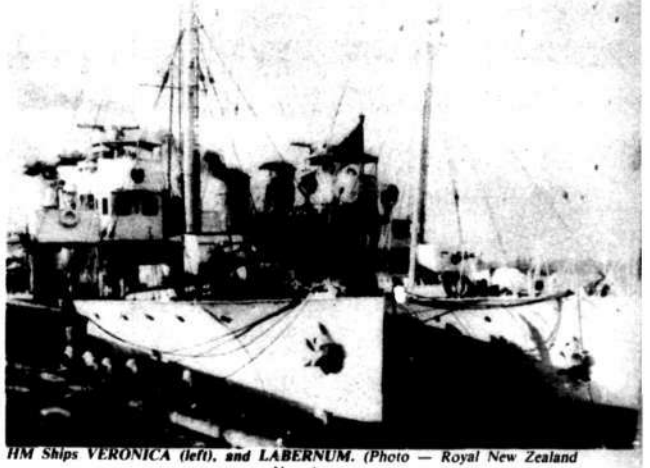
The sloops did good work on the station, and are remembered with great affection by those who knew them.

In February, 1934, the new "Grimsby" class sloop "LEITH" replaced "VERONICA" and in February, 1935, "LABURNUM" sailed from Auckland for the last time, being relieved by "WELLINGTON".

On return to the United Kingdon "VERONICA" was paid off, and sold out of service in 1935. "LABURNUM" was retained and ended up as a base ship at the new naval base at Singapore.

It is reported that "LABURNUM" was taken over by the Japanese in 1942. Some reports claim she was lost in Japanese service, whilst others report that she was recovered and scrapped immediately after the war.

However, one salient feature stands out. The sloops of the "Flower" class in New Zealand saw considerably more service than those in the RAN.



HM Ships VERONICA (left), and LABERNUM. (Photo — Royal New Zealand Navy.)

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