$1.50

THE NAVY

The Magazine of the Navy League of Australia

Registered by Australia Post Publication No NBP 1482

JULY, 1982

THE NAVY

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Vol 44 **JULY, 1982** **No 3**

The retiring Chief of Naval Staff, Vice Admiral Sir James Willis, is rowed ashore in traditional naval style at Russell Hill, Canberra, after a farewell parade. The vessel HMAS JIM WILLISABLE was modelled on HMS INVINCIBLE. Sir James was succeeded on 21st April, 1982, by Vice Admiral David Leach. (Photo — RAN)

ADVERTISING AND PUBLICATION:
PERCIVAL PUBLISHING CO PTY LTD

SYDNEY	ADELAIDE	PERTH
862 Elizabeth St Waterloo NSW, 2017 Phone: 699 2600	17 Currie St Adelaide, 5000 Phone: 51 6225	5th Floor, Eagle House 10 William Street, Perth, 6000 Phone: 322 4072
MELBOURNE	**BRISBANE**	**HOBART**
Greenan Publications Pty Ltd 388 Bourke Street Phone: 67 1461	3rd Floor 460 Ann Street Brisbane, 4000 Phone: 31 2531	123 Murray St Hobart, 7000 Phone: 34 4098

COVER PHOTO
HMS INVINCIBLE (Photo — Royal Navy)

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Editor's Comments . . .

Recent events in the Falkland Islands have demonstrated the tactical advantages that the Royal Navy task force possesses over the Argentinian fleet.

The principal reasons for this are the two British aircraft carriers, INVINCIBLE and HERMES, each equipped with squadrons of Sea Harriers and Sea King *anti-submarine helicopters. The versatility of the* former, supported by the large weapon platforms of the latter, have allowed the British carriers to roam at will, launch strikes against airfields on the Islands and equally importantly, sink one heavy cruiser, a patrol boat, destroy a submarine, plus inflict damage on other patrol craft, corvettes and aircraft.

For her part in the conflict, INVINCIBLE, like the older HERMES, has embarked 10 Sea Harriers, a similar number of Sea Kings, as well as a few search and rescue helicopters. Coupled with her own self-defence in the form of the Sea Dart missile system, INVINCIBLE has proven to be a complete offensive/defensive unit.

It was announced by the Federal Government on 20th April that INVINCIBLE would be renamed HMAS AUSTRALIA when she commissions into the RAN in 1983. In the meantime, HMAS MELBOURNE is being destored and will be placed in contingent reserve on 31st October.

In this issue "The Navy" examines the background to the INVINCIBLE/AUSTRALIA decision to purchase the STOVL carrier, including articles both for and against the ship. The Fleet Air Arm point of view is also published, together with the Navy League comments and some suggestions that have been raised in Victoria and Queensland to preserve HMAS MELBOURNE.

Naval Air Power, the principal theme for Navy Week 1982 will also be highlighted in the next issue. The main articles currently being prepared include; the seaplane carrier HMAS ALBATROSS; a pictorial of *all* Fleet Air Arm aircraft; the future of the Fleet Air Arm; a resume of the world's flattops, plus more on the new HMAS AUSTRALIA.

As usual "The Navy" has been supported by the Royal Australian Navy, including Command Public Relations at Sydney and HMAS STIRLING, Navy News; Command Photographic, HMAS ALBATROSS and the Australian War Memorial.

More specifically, thanks are due to Harry Adlam, A. D. Baker III, Commodore T. A. Dadswell, Geoff Evans, Steve Given, Vic Jeffery, Ted Madden, Stephen Malpass, Antony Preston, the Royal New Zeland Navy, Joe Straczek and Ron Wright.

THE DEADLINE FOR THE NEXT ISSUE IS 18th JULY, 1982.

HMS INVINCIBLE at launch. (Photo — Royal Navy)

Senators Query Carrier Need

Following the Government's announcement on 25th February that HMS INVINCIBLE would be purchased from Britain to replace HMAS MELBOURNE, the Senate against the wishes of Government members carried a motion which resulted in the Defence Sub-Committee of the Joint Parliamentary Foreign Affairs & Defence Committee opening an inquiry into Australia's need for an aircraft carrier and associated matters.

The Defence Sub-Committee, or Katter Committee, as it is generally known, commenced hearing evidence on 10th May and invited the recently retired Chief of Defence Force Staff (Admiral Sir Anthony Synnot), the Federal President of the Navy League (Commander Geoffrey Evans) and the Executive Director of the Australian Defence Association (Mr Michael O'Connor) to appear before the Committee at Parliament House, Canberra, on that day.

The following is the text of the Navy League's submission:—

General view of the defence scene

The Navy League believes, without wishing to seem pretentious, that by and large, the Defence Department is well-run. There are many very competent people at all levels in both the civil and military elements and the sense of dedication might well be envied by any large company or organisation.

The League agrees completely with the pronouncements of successive Governments that the future is very uncertain. The League is not so sure that all members of Governments have appreciated just how quickly events can happen, but it is likely that lessons will be as a result of recent events in the South Atlantic.

Given an uncertain future, the League believes the core-force concept — a defence structure capable of expansion in any of several directions — is correct, and in the maritime sphere the equipment on hand, on order or planned, fits the concept. Such reservations the League has relate to the rather leisurely pace at which some new equipment is coming forward, and the rate at which expansion could take place.

The Navy League believes very strongly in collective defence — we consider it to be the best way, possibly the only way, to prevent global and regional wars. Despite all the strains imposed on the participating countries, NATO, to date, is a good example of a collective defence effort deterring aggression in Europe and because of the involvement of the United States, beyond the NATO boundaries.

The League considers that in the long term, Australia's greatest problem is the fact that we are a relatively small number of people living in a very large land-mass, and doing so very extravagantly: The sooner Australians appreciate this, the more likely we will survive as a nation.

The Navy League rejects charges that Australia's defence objectives have not been made clear to the community, or rather, claims that no effort has been made to do so. In the Defence Force itself, no one could have tried harder — as many appreciative audiences would agree — to "explain" defence than the recently retired Chief of Defence Force Staff, Sir Anthony Synnot, for example — CDFS address to the National Country Party at Townsville on 25th July, 1981. The League doubts that the Media has been as helpful as it could have been in conveying the message to the community-at-large.

Terms of Reference of the Sub-Committee

(1) The relevance of an aircraft carrier to Australia's current and perceived strategic environment.

Australia has operated carriers since 1948. The Fleet Air Arm was engaged in Korea and Vietnam. In more recent years MELBOURNE has been active in the Pacific and Indian Oceans, working with other RAN units and ships of several other countries.

The RAN has been, and still is, generally regarded in maritime circles as a smallish but balanced and effective Navy. From 1948 to the present time the aircraft carriers SYDNEY and/or MELBOURNE have been the major RAN fleet units and contributed in no small way to the RAN's reputation. The reputation of a country's armed forces is not unimportant in the business of keeping the peace in its area, and beyond, if it is known to be linked with other respected armed forces.

So far as the future is concerned, the League has listed on a separate sheet a number of possible eventualities, but bearing in mind that the future is very uncertain anyway, it believes Australia should continue to have a carrier-based air capability, mainly for the following reasons:—

(a) One of the areas that is extremely vulnerable is at sea — in nearly all conceivable circumstances we would be required to move ships and in most circumstances over long distances.

(b) No one disputes that ships — merchant and naval — require aircraft to support them and in many situations the only aircraft available, either in time or at all, will be those with the ships.

(c) The most cost-effective way of taking appropriate aircraft to sea is in a vessel built for the purpose, i.e. an aircraft carrier.

(d) Aircraft carriers of varying capabilities play a major part in the deterrent capability of the Western communities. As previously stated, co-operation between countries is essential if major wars are to be avoided. Apart from Australia's need for a carrier in its immediate environment, referred to in the following section, it is a valuable contribution to the combined deterrent forces of the West.

(2) The role of an aircraft carrier in the defence force structure of Australia.

The Navy League sees the role of the carrier as primarily:—

(a) To form part of the "system" required to detect and destroy hostile submarines in Australia's sea approaches.

(b) To perform the "commmand and control" function in a naval task group.

(c) To maintain the "state of the art" so that if circumstances demanded, Australia could expand its maritime-air capabilities at short notice, possibly by requisitioning suitable merchant ships and converting them into temporary aircraft carriers, as has been done by Britain during the last few weeks.

(d) To perform the often-abused and greatly under-rated "showing the flag" function.

(e) To act as a troop transport in appropriate circumstances.

There are a number of civil tasks an aircraft carrier can perform, especially when large numbers of people or volume of equipment is involved (e.g. in the aftermath of Cyclone Tracy in the Northern Territory), but the objective of Government and the Defence Department must be to ensure that the Defence Force has the equipment to influence the outcome of an armed clash. There is no point in maintaining a defence force unless there is a reasonable expectation that it can defeat an opponent.

(3) The effects of the purchase of an aircraft carrier on the future defence procurement programme.

In September 1980, the Defence Minister announced the Government's intention to acquire "a purpose-designed ship to be equipped with helicopters for anti-submarine warfare, but with a potential for operating also short take-off and vertical landing (STOVL) aircraft". It must be assumed therefore that provision has been made for a carrier in forward budget planning for several years commencing about 1983/84.

It can be said with certainty that a carrier acquired three or four years hence would cost a great deal more than the £175 million sterling to be paid for HMS INVINCIBLE. It follows that the acquisition of INVINCIBLE will not affect the projected procurement plan in the long-term at all and should, in fact, result in considerable savings.

The Navy League considers the cost of the Invincible project — ship price, modification and support costs — at $478 million to be relatively low, and the terms of payment reasonable. We understand the ship price will be paid in three instalments of approximately $100 million each, spread over three budgets, while modification costs ($5 million) and support costs will be paid as they are incurred and over a longer period.

The three annual payments for the ship represent less than 2.5 per cent of the defence vote, based on the 1981-82 estimates, and as the vote will undoubtedly increase during the next three years, the percentage will be even less. Bearing in mind that the carrier would normally have a "life" of 25 or more years, the acquisition cost is very small for a platform capable of taking successive generations of maritime aircraft.

The League believes, however, that one of the several lessons to be learned from the Falkland Islands' dispute points to the need for weapon systems to be complete and able to fully discharge their intended function. This means that in the case of the INVINCIBLE the ship should be equipped with a full complement of aircraft, including STOVLs, and a close-in weapon system much sooner than is at present envisaged by the Government.

While obviously this would add to the cost of the project in the early years, measured against other Government expenditure or against the strength it will add to Australia's defence capabilities, the price would be well worthwhile.

The League considers the present tendency to tailor the Defence Force to a given sum of money — approximately 3 per cent of GDP and 10 per cent of Government expenditure — is becoming rather risky: It would seem more appropriate to determine the country's defence requirements and then raise the money to pay for them. Three per cent of the GDP (it has been rather less for some years) is middling to low on the international scale of defence spending.

CIRCUMSTANCES WHICH WOULD REQUIRE AN EFFECTIVE AUSTRALIAN DEFENCE FORCE

(Not in order of possibility)

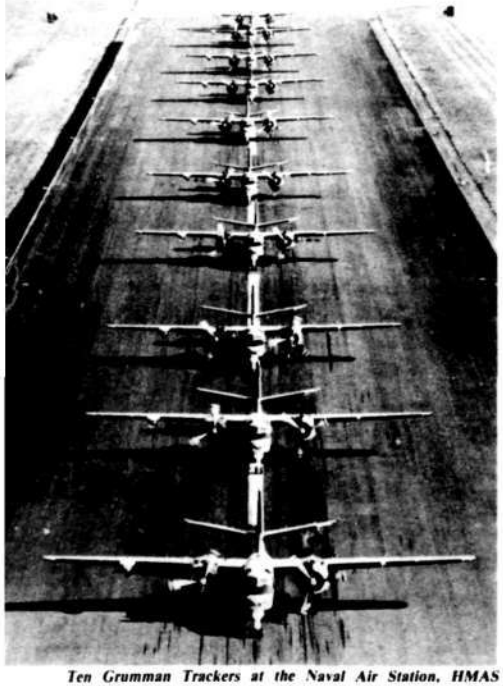
- **In the event of a war between NATO and the Warsaw Pact nations without the use of strategic nuclear weapons (it is unlikely to be restricted to boundaries).**
- **In the aftermath of a nuclear exchange in the Northern Hemisphere (exodus of survivors to the Southern Hemisphere; complete change in balance of power in Asia).**
- **In the event of a war involving one or more of the ASEAN countries (de-stabilisation in Australia's region).**
- **If Indonesia threatened or moved against PNG.**
- **If any country threatened or moved against New Zealand.**
- **If USSR influence grew significantly in the Western Pacific, or in the small Island States in the Central and South Pacific.**
- **If the USSR dominated the Middle-East oilfields (threat to economic security of NATO and Japan, among many other countries, and not excluding Australia).**

HMAS ALBATROSS AND THE INVINCIBLE DECISION

The announcement on the 25th February by the Minister for Defence, Mr J. Killen, that the Government had decided that Australia would purchase the aircraft carrier HMS INVINCIBLE from the United Kingdom to replace the aging HMAS MELBOURNE, was greeted with enthusiasm and delight at HMAS ALBATROSS.

Such a reaction is hardly surprising as HMAS ALBATROSS is the RAN Air Station situated at Nowra, some 160 km south of Sydney, and as the RAN's sole air station is the "Home of the Fleet Air Arm". Those who chose naval aviation as their specialisation in the Navy can expect a career that will take them from the Air Station to the carrier and back again to the Air Station. This cycle may be broken from time to time with the occasional posting to other areas, sometimes the gem of all postings, overseas, but in the main the Fleet Air Arm personnel look to ALBATROSS as their home away from home. Whilst the tin huts at ALBATROSS have been slowly disappearing from the scene to make way for modern brick buildings, the living and operating conditions on board MELBOURNE have remained spartan and austere, to say the least. So the two thoughts that quickly came to mind as the Minister made his historic announcement were — a new modern ship to work and live in and an assured future for the Fleet Air Arm.

Fairey Firefly. (Photo — HMAS ALBATROSS)



Ten Grumman Trackers at the Naval Air Station, HMAS ALBATROSS in April, 1982. (Photo — HMAS ALBATROSS)

However, as the celebrations died down and the initial euphoria created by the announcement receded, a note of caution crept into the discussions — if the days of MELBOURNE were numbered and INVINCIBLE cannot operate conventional type fixed wing aircraft, then what is the future for the A4 Skyhawks and S2 Trackers? What is the future of the people who maintain and fly the aircraft?

The Minister had, in September 1980, alluded to the new carrier being "equipped with helicopters for anti-submarine warfare, but with the potential for operating, also Short Take Off and Vertical Landing (STOVL) aircraft". The Minister went on to say that the Australian Government was not committed to the acquisition of STOVL aircraft and a decision on STOVL would not be made before 1983. We had the carrier, but no fixed wing replacement aircraft.

For the Fleet Air Arm it seemed as if someone has turned the clock back some 23 years to 1959 when the Government of the day announced that fixed wing flying in the RAN would cease in 1963. The 1959 decision resulted from technical studies in the United Kingdom which indicated that metal fatigue could lead to structural failures in the wings of the Sea Venoms and Gannets from 1963 onwards. The actual time of failure would depend on the amount of flying the aircraft were subjected to in the following four years. A programme of running down the fixed wing training process, together with the early release of a considerable number of experienced aircrew, was initiated. In 1960-61 further calculations were carried out on the stress factors associated with the wing loadings of the Venoms and Gannets and these showed the initial calculations to be in error. The wings would not fall off as predicted and the aircraft could continue in service until 1968.

Sea Harrier aboard HMS HERMES. (Photo — Royal Navy)

Skyhawk two seat trainer. (Photo — HMAS ALBATROSS)

It seemed logical at the time that the decision to cease fixed wing flying in the RAN would quickly be rescinded, but it was not to be. Strong opposition to the proposal to reverse the 1959 decision was encountered and it was not until mid 1963, just a few weeks before the decision was to take effect, that an announcement was made that fixed wing flying would continue in the RAN. But those years of waiting for the decision to be reversed were to have a lasting and damaging effect on the structure of the fixed wing squadrons. Training had been stopped, experienced aircrew and maintainers had left the branch and stores support had been allowed to run low.

The capability and/or capacity to operate aircraft squadrons, whether they be land-based or sea-borne, is not something that can be turned off and on at will. The skills of flying, the skills of maintaining complex machines and associated equipments, the stores backing, usually with a lengthy lead time, all impact heavily on the time it takes to regenerate a squadron capability, once it has been allowed to lapse. These factors are self-evident and any proposal or suggestion that Navy should cease fixed wing flying seems to suggest that sufficient heed has not been taken of the lessons of history, nor proper consideration been given to the long-term consequences of such drastic action.

The A4 and S2 squadrons currently flying at ALBATROSS still have much to offer to the nation. The Trackers are an ideal surveillance vehicle, as proved in the mid-1970s when they were deployed to Broome and Darwin to cover the waters to the north-west of Australia. The A4s are the best close air support strike aircraft in Australia. This would appear to be an area that needs closer examination, an examination that Army would probably support wholeheartedly. The A4s also have a useful and important role in providing the Fleet with a number of exercise facilities, such as aircraft for strike, air direction and target towing. These services are vital to the Fleet and are far better carried out by naval pilots operating naval aircraft in an environment in which they have been trained.

The arguments for retaining fixed wing flying in the Fleet Air Arm are compelling. Certainly, they no longer have the facility; i.e. the carrier deck, from which they can operate in their original primary role, however, the A4 and S2 aircraft currently held in the Australian Defence inventory are able to make a very valuable contribution to the defence readiness of the Australian Defence Forces and it is in this light that their immediate future should be viewed. It does not make political or military sense to scrap weapon systems that still have a number of years of valuable service remaining. So while they await a decision on the future of the A4s and S2s, the men that fly them and the men that maintain them continue to ponder what the future holds for them. Meanwhile, the personnel of the helicopter squadrons seem to have no worries with regard to their future.

The future of the helicopter force of the RAN is assured as the helicopter capacity of INVINCIBLE, together with the helo carrying capability of the FFGs, TOBRUK and the SUCCESS, means a larger helicopter fleet for the RAN than ever before. Helicopters are also an integral part of the naval hydrographic service. The need for new aircraft has been recognised and acquisition strategies are currently being processed in Canberra. Perhaps a valid criticism could be made that the helicopter projects are running behind schedule and need to be given greater impetus, as it is disappointing to see the FFGs arriving in Australian waters without an organic air weapon system embarked and operational. On the credit side of the balance sheet is the performance of the aging Wessex aircraft, which keep flying some 20 years after the first Wessex graced the Australian skies. These aircraft are a further testament to the skill and dedication of the men of the Fleet Air Arm.

One can accept that in the fullness of time the helicopter branch of the Fleet Air Arm will emerge with a new outfit of aircraft capable of providing the Fleet with a wide range of increased capability in such fields as ASW, vertical replenishment, hydrographic support and search and rescue, to name a few. But the question of future fixed wing operations remains unanswered. Even if the A4s and S2s continue flying in the immediate future, what happens after they reach their life of type? This is the question being asked in the crewrooms and messes at ALBATROSS.

The Government has stated that it will not consider before 1983 the question of acquiring STOVL aircraft. It would therefore appear that to exercise patience is the best advice available to those personnel worried about their careers in the fixed wing flying world of the Navy. Patience is a virtue, but when you are young and trying to plan your future, it's not easy to sit around and wait hopefully that all will come right in the end. These men, indeed the Navy, have a need to be reassured that naval fixed wing flying, a vital and essential element of the Australian Defence Force, will continue into the foreseeable future. The Navy's arguments for its own organic air power, for its own air defence force, its own air strike force, are as valid today as they were in 1947, when the formation of the Fleet Air Arm was approved. The arguments remain as valid today as they were in the 1960s, when it was decided to purchase the A4 and the S2s. It is accepted that the RAAF fighter force is an essential part of the RAAF. The fixed wing element of the Fleet Air Arm is just as essential to the RAN as the tactical fighter is to the RAAF.

The Role of the Navy's New Aircraft Carrier

THE role the Navy's new aircraft carrier will perform in the Fleet is a key factor in the decision to buy the ship, its aircraft and support facilities. The role of HMS INVINCIBLE, in our existing and potential threat environments, answer the question "Why are we buying the ship?"

by A. W. GRAZEBROOK

TASK FORCE COMMAND SHIP

Perhaps the most misunderstood aspect of the proposal to purchase INVINCIBLE is the roles the ship will perform for Australia.

In the minds of the general media, and therefore of much of the general public, an aircraft carrier is an aircraft carrier, whether the ship is a Conventional Take Off and Landing (CTOL) aircraft carrier, or a Short Take Off and Vertical Landing (STOVL) aircraft carrier, or a Helicopter Carrier.

Of course, as readers of "The Navy" know, there is a world of difference between the CTOL and STOVL aircraft carrier. A CTOL carrier, as used by the United States and France (and, shortly, by the USSR), is capable of all the things of which a STOVL aircraft carrier is capable, but also much, much more.

The much more expensive CTOL carrier is capable of launching a major strike, across major ocean distances, against a target ashore which is defended by first class combat aircraft. A CTOL carrier, equipped with the right type of aircraft, can establish and maintain air superiority in an area in which it is planned to launch a major amphibious assault.

This CTOL carrier capability is neither what Australia needs, nor what our new carrier will be able to do. After she joins the RAN, if the Government buys the essential STOVL aircraft, HMS INVINCIBLE will perform the following basic roles:

- She will act as a Task Force Command Ship — the operational headquarters that will direct the actions of the Fleet or group of ships she is tasked to lead.
- By means of her helicopters, she will provide anti-submarine coverage for war and merchant ships.
- She will provide medium range anti-aircraft defence with her surface to air missile system.
- Her STOVL aircraft will provide longer range protection against air threats, attacks by fast missile armed craft, and be able to attack hostile surface war or merchant ships.

task. It requires a variety of sensors, whose information is often used most effectively if it is checked against that received from another sensor (perhaps in another ship or aircraft). This requires automated data handling systems in the headquarters ship. These systems can mean a large amount of space, both in the Operations Room and for the aerials, etc, on the ship. The major command decisions are made in the Operations Room — thus, INVINCIBLE will be the nerve centre of the Fleet or Task Force, capable of controlling the whole force's anti-air, anti-submarine and anti-surface effort simultaneously.

The space required for all this automated data handling equipment, sensors and communications gear, necessitates a large ship. There would be insufficient room in a frigate or destroyer. If INVINCIBLE had not been purchased, the Navy would have had to acquire some other big ship to serve as Task Force Command Ship. Thus, a significant portion of the cost of INVINCIBLE would have had to be incurred anyway.

ANTI-SUBMARINE COVERAGE

INVINCIBLE can accommodate a maximum of twenty-two SEA KING Mark 50 anti-submarine helicopters. Six of these are already in service with the Royal Australian Navy, and another two are already on order. The shore maintenance equipment is already bought and paid for, the required operational and maintenance skills developed and the effectiveness of the SEA KING in the Australian Fleet, in our regional waters, has been proven conclusively over some years.

The SEA KINGs are equipped with medium range active sonar, radar and a tactical display. They provide the Fleet with a number of vital capabilities:—

- A rapid reaction capability for dealing with submarines before they get within hitting distance of our surface war or merchant ships. The SEA KING's speed is some five times that of a nuclear submarine, much less a conventional submarine.
- The SEA KING can operate up to 250 nautical miles from her parent ship, use her sonar to detect and track the submarine, attack the submarine with her own Mark 46 ASW torpedo or direct the IKARA anti-submarine missiles of an Australian RIVER Class DE, or DDG, on to the submarine.
- Today's submarines have no weapon which they can use against the SEA KING — our ASW helicopters are invulnerable to attack by submarines.
- The SEA KING can approach the enemy submarine undetected by that submarine — today's submarines have no sensor which can detect helicopters.
- The SEA KING's high speed, compared with that of her target submarines, confers upon the helicopter an unpredictability of movement. The submarine never knows where the SEA KING will pop up next.

However, the SEA KING is large as helicopters go — too large to fit onto the Navy's FFG's or Follow On destroyers. If the Government had not decided to buy HMS INVINCIBLE, some of that money would have had to be spent anyway in procuring larger destoyers to handle the SEA KING helicopters the Navy already has in inventory.

STOVL AIRCRAFT — SEA HARRIERS

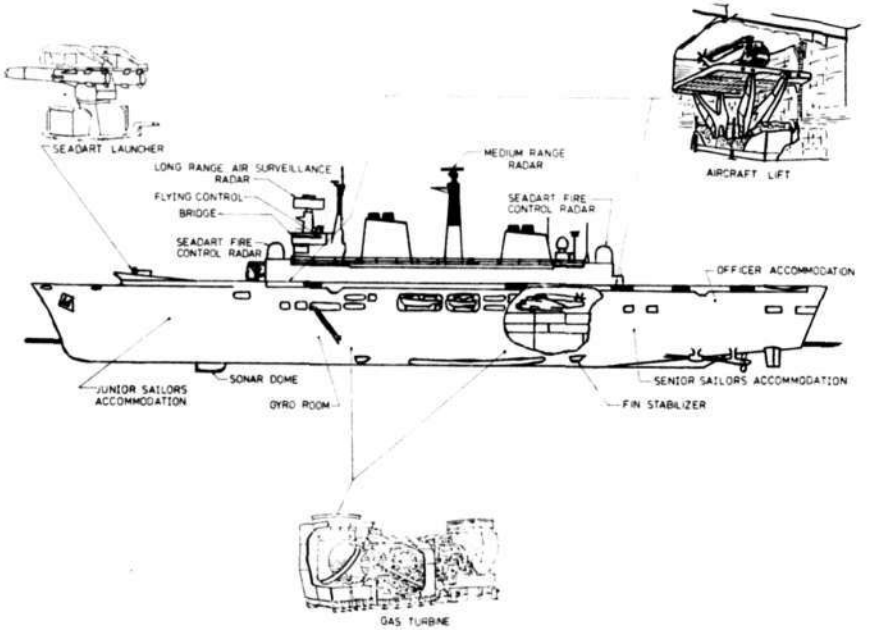
HMS INVINCIBLE has the capability to operate SEA HARRIER short take off and vertical landing aircraft for protracted periods. INVINCIBLE has proven her capability to do this in the Atlantic. INVINCIBLE (and her much older companion HMS HERMES) have proven at sea the ability of the SEA HARRIER STOVL aircraft to:

- Intercept, drive off and/or destroy enemy reconnaissance and strike aircraft (INVINCIBLE'S SEA HARRIERS have intercepted Russian BEAR long range aircraft equipped with stand-off missiles).
- Provide our Fleet with maritime reconnaissance and surveillance.
- Provide air defence for our Fleet — drive off attacking aircraft before they can get close enough to fire their air to surface missiles against our ships.

The STOVL aircraft is the only way to achieve this if our Fleet is to operate anything more than a few hundred miles from our own coastline.

It is important to realise that the STOVL aircraft is the outer line of the in-depth defence required against attack from the air. The inner line is provided for INVINCIBLE by her SEA DART surface to air area defence missile system which, it is to be hoped, the RAN will retain in the ship.

Thus, it can be seen that INVINCIBLE is a vital part of our Fleet. She is the nerve centre, through which our national leaders can exercise control, both in time of war and, particularly important, in times of tension, when up to the minute co-ordination of naval and diplomatic activity is vital.



A Sea Harrier leaves HMS INVINCIBLE's 6½ degree ski jump at 80 knots.
(Photo — Royal Navy)

INVINCIBLE will co-ordinate the Fleet's weapons and sensors, ensure that they are used when they are needed and that two systems are not used against the same target.

INVINCIBLE will provide the Fleet with defence against air attack, both at a distance and close to the Task Force.

The ship will perform a role vital to Australia's defence. She may be required to convoy a group of vital merchant ships, or to ensure the passage of independently routed merchant ships through a particularly dangerous or focal area, or to ensure the passage of merchant ships with supplies for our allies.

Right Idea Wrong Ship Wrong Time

by LCDR BRUCE SWAIN

USS TRIPOLI, an LPH completed in 1966. (Photo — RAN)

Until the new HMAS AUSTRALIA eventually berths for the first time at Garden Island, the controversy over the decision to purchase a carrier replacement for MELBOURNE — and particularly, the decision to acquire HMS INVINCIBLE — will continue.

I feel that any further debate is an exercise in futility, and that the ultimate acquisition of INVINCIBLE is fait accompli — unless something disastrous occurs in the Falklands!

But while the RAN is breathing a lot easier that now not only a decision to purchase a new carrier has been made, but **which** carrier, has been decided, there are many in the Service who are aware of the ramifications on the Navy of today. INVINCIBLE is a mixed blessing — she's cheap, she's available (soon), and she meets most, if not all, the requirements of a MELBOURNE replacement. While she is cheap in terms of dollars, however, her cost in other terms is very dear to the RAN.

For a little over two years, from 1977 until 1979, I worked in the Directorate of Tactics, Action Information Organisation and Navigation (DTAN) in Navy Office, Canberra. It was a two-man directorate — the Director, a Navigation specialist, and myself, the Deputy Director, a Direction specialist. Because of the rather all-encompassing title of the directorate, we found ourselves involved in many projects — satellite navigation equipment, E.M. Logs, the FFG project, the DE modernisation project, SWAN and TORRENS Modernisation, WATSON AIOTT update — and the aircraft carrier project. Where automated AIO systems were involved, we worked closely with the personnel at the Combat Data Systems Centre (CDSC), Fyshwick, and with various technical directorates at Campbell Park.

The aircraft carrier project at that stage was down to a "short list" — the American LHA ("Tarawa" class), the LPH ("Iwo Jima" class), the British through-deck command cruiser ("Invincible" class), the Spanish "sea-control ship" (basically an American design), the Italian helicopter-cruiser ("Garibaldi" class), and a conventionally-powered version of the French nuclear-powered helicopter carrier.

Preferred by most RAN personnel involved was the LHA, being four ships in one — an aircraft carrier (for helicopters and VSTOL), a command and control ship, an amphibious landing ship, and an oiler. The initial cost was high, but little modification would have been required to adapt her to RAN requirements. All other designs would have required modification to a greater or lesser degree, either in the *type of equipment* or the amount.

INVINCIBLE appeared to require the most changes, and at that stage her cost was also high — around the $1 billion mark. While she had an automated data system — ADAWS — this was entirely incompatible with existing and planned RAN automated systems. The DDGs were fitted with the Naval Combat Data System (NCDS), an enhancement of the American JPTDS (Junior Participant Tactical Data System), and based on the Sperry-Univac AN/UYK-7 computer.

The FFGs also have a Sperry-Univac based system, and the software for both can be supported by CDSC.

It was proposed that any carrier we did buy would either have or be fitted with an American system compatible with those fitted in the DDGs and FFGs. The software support problems were so significant that compatibility was essential.

INVINCIBLE was fitted with the Ferranti computer system ADAWS, and this was not compatible with the American systems. Her radius of action was too short, her electronics were also different from that fitted in the DDGs and FFGs (and now the DEs); throw in the high cost, and delete INVINCIBLE from the short list.

Now, INVINCIBLE is all the rage. The RAN hierarchy is telling the lower echelons what a magnificent ship she is, and how she answers all the RAN's prayers.

I would liken it to a wheat-farmer praying for rain and getting a hail storm: the hail might melt and water the ground, but what a hell of a battering the wheat would take!

And the RAN is now taking a battering.

The previous Federal Government reduced steaming time, flying time and ammunition expenditure of the three Services to meet costs it was incurring elsewhere. The present Federal Government promised to restore what had been taken away: it did not. In 1975, Mr Fraser promised that $12 billion would be spent on defence in the period 1976-81, but very quickly reneged on that promise. The "prevailing financial climate" saw many defence proposals shelved through lack of funds, and the allocation of funds in the 1977 Budget for defence was one of the lowest since World War II. In October 1978, Mr Killen at least had the good grace to announce formally that the Government's 1976-81 defence programme had been scrapped — something that had been obvious for two years!

Then, with elections looming, a "new" five-year plan was announced in late 1980, which promised that defence spending would be increased to a new "high" of 3% of the Gross Domestic Product by 1984-85. (During the Vietnam war, the highest value reached on defence spending was 5.5%; China currently spends 10% of its GDP on defence, the Philippines 3.4% and Indonesia 3.5%.)

In an article published in March last year, I wrote that I felt the Government's proposed great boost to the Defence Force may be little more than a political smoke screen. I leave it to the reader to decide if I was right.

Defence spending certainly was increased in the last budget, with similar increases anticipated in future budgets to pay for new equipment. The bulk of this money was to go to the new carrier and the RAAF's new fighters — but over quite a few years.

New equipment projects take many years from concept to realisation — as anyone who has been involved in one knows. It firstly takes anything up to three years of development in Canberra, where the proposal has to go before seemingly interminable committees, before it receives Government approval. During the "project development" stage, costs are continually updated to allow for inflation and exchange rates, and "spreads" of financial authorisation and expenditure are prepared. These show the proportion of the project costs to be authorised and expended during each year — i.e., the money cannot be spent until authorisation is received — which, if the project has been approved by the Government, and included in the Defence budget, should be automatic. However, it is part of the bureaucratic process, and keeps a lot of public servants employed.

For instance, the project in which I was most involved was the updating of the Action Information Organisation Tactical Trainer (AIOTT) at HMAS WATSON, to include facilities for the training of personnel on NCDS equipment. Once approved, that project was planned to take five years from start to finish, which included the time spent on design work, equipment acquisition (from the USA), installation and check-out. The total cost in 1980 prices was some $16 million — spread over the five years. This meant an "average" expenditure of just over $3 million per year, but in fact costs normally start off low, "peak" during mid-cycle, then tail off as the project nears completion, so the spread may have been $1-$3-$8-$3-$1 million.

And that is how it would have been had the new carrier been one especially built for the RAN, albeit of an existing design, slightly modified. A ship of the size planned could have taken up to eight years to build, with a cost around $1 billion; the "spread" therefore may have been $50-$100-$120-$150-$250-$150-$120-$60 million — not allowing for escalation over the period.

Instead, because INVINCIBLE is being purchased "off-the-shelf", most of the cost has to be paid in one lump sum. A "down-payment" of $28.5 million has been agreed by the UK, with, presumably, the bulk of the "sail-away" cost of $285 million to be paid on delivery. A refit after delivery, training equipment, training courses, in-country and other support, etc, bring the total project cost to $477.8 million.

So instead of something like $1 billion being spread across eight years, half that amount has to be made available in the next two years at most.

The Government **could** boost defence spending by $0.5 billion to cover it, but of course it will not. The money for INVINCIBLE has to be found in funds already allocated for defence as a whole, and that means cut-backs in other projects and areas of expenditure, such as fuel and ammunition consumption. Thus, not only have the steaming and flying times and ammunition allowances not been restored to their pre-Whitlam levels, they have been cut further. To pay for INVINCIBLE. And the recent pay rise.

For the Government to agree to significant pay increases for the Services, then to say that a large part of the cost must be absorbed by the Defence budget is criminal. I cannot see even the most patriotic of Servicemen refusing the pay rise so that much-needed equipment may be bought, or an extra missile fired. The situation may be likened to a man telling his wife she can have a diamond necklace, but she has to pay for it out of the housekeeping money: if she gets her necklace, the kids starve.

And the Services are starving — or soon will be. Many sailors may be happy about the extra time in port, but the RAN can hardly maintain its efficiency tied up at Garden Island. Nor can a weapons system be evaluated and proven, and the users become proficient in its operation, if only one live firing is permitted per year. If that firing is successful, the system is assessed as 100 per cent efficient! Is it, therefore, 100 per cent inefficient if the shot fails?

The Government gave Defence its money. Defence had its plan of how that money was to be spent. P-3C aircraft, new helicopters for the RAN and RAAF, modifications to the Mirage force, patrol boats, follow-on destroyers . . . Now, throw in $0.5 billion that had not been budgeted for, and the plan is in chaos. The bean counters draw their finely honed blades, and splash! $1 million here, another million there, and projects grind to a halt, or at best, slow down.

But INVINCIBLE will be paid for.

I only hope that when she gets here, she is able to spend **some** time at sea! And that some escorts are able to go with her . . .

INVINCIBLE is certainly a very capable ship, within the limitations of her design, as is being proven at this moment in the South Atlantic. But when I was in the UK from 1971 to 1974, opposition to the design was rampant. The proposed new strike carrier for the RN (CVA-01) had been scrapped by the Labour Government in the '60s, but ARK ROYAL (even older than MELBOURNE) was still running, operating Phantom F-4K, Buccaneer strike aircraft, Sea King helicopters and Gannet AEW aircraft. The Harrier was in the air, although not then operational, but the RN could see where the future of the Fleet Air Arm lay if there were no more "conventional" aircraft carriers — i.e. those fitted with catapults and arrester gear. Already RAF pilots

Skyhawks from No 5 Squadron aboard HMAS MELBOURNE. *(Photo — RAN)*

were being slowly integrated into RN squadrons, flying Phantoms and Buccaneers, while RN Gannet crews were ashore teaching the RAF about airborne early warning.

The writing was on the wall.

VICTORIOUS was scrapped. EAGLE (with more modern equipment than ARK ROYAL, but not modified to operate Phantoms) was decommissioned, and HERMES was converted into an amphibious assault ship ASW carrier. Then, finally, ARK ROYAL paid off, and the RAF got her Phantoms and Buccaneers.

Then along came INVINCIBLE. Originally called a "through-deck cruiser" (or "see-through cruiser" by those opposed to the concept), she now bears the title "Cruiser Assault Helicopter" (CAH). *Note there is no mention* in that term of the strike or ASW potential of the aircraft she is presently operating.

There were many changes made to the original design: the ski-ramp, the re-siting of the main air-warning radar (the original site was too close to the fore-funnel, and the radar waves would have been distorted by the hot fumes!), the installation of Sea Dart.

Now the RN seems quite happy with the design. Navy pilots are flying fixed-wing aircraft still (along with a spattering of "light blue"), but the "back seat" Phantom and Buccaneer fliers are out of a job. "Now you're going to have to learn to think!" I heard one Phantom observer say to a pilot.

The RAN put its jet aircraft observers out of a job some time ago, when it replaced the Sea Venoms with Skyhawks, and I must admit **most** of the pilots have been able to think **most** of the time . . . Some observers became pilots, some went to helicopters, some went to Trackers, and some just went.

Presumably now, Skyhawk pilots are hoping the RAN will acquire Sea Harriers — but they certainly will not be within the present budget! Sea King crews are assured of a job, but for the Tracker crews, there are always P-3Cs . . .

The decision to purchase INVINCIBLE has accelerated the demise of MELBOURNE, which is being "rabbited" of various bits and pieces for not only her replacement, but the entire fleet.

So those are some of the immediate problems posed by INVINCIBLE/AUSTRALIA. But even if the RAN manages to overcome these, there are plenty more in the future.

As I mentioned earlier, in recent years the RAN has been striving to achieve commonality in the areas of weapons systems, radars and ancillary equipment. For years we were plagued by the logistic support and operational problems associated with an unholy mixture of British, Dutch, French, Italian, American and Australian equipment, which meant that personnel almost required re-training every time they changed ships. I found myself in exactly that situation in 1975, when having been trained and cut my teeth on British designed ships and equipment I found myself direction officer of HMAS BRISBANE. I spent my first month on board with my head in text-books on SPS-40, SPS-52 and the Tartar system.

When the RAN was looking for a replacement for the Daring class destroyers, there were many options in many countries. In the US there was only one option — the FFG. It was single-screw, had a totally new propulsion system, and only a 76 mm gun, but we went for it, because it was (relatively) cheap and (relatively) quickly built. And its combat data system was compatible with that in the DDGs, and the software could be supported at the same facility — CDSC.

But CDSC has not been without its problems. Its designed function was that of software support for the DDG system, but because the RAN did not have a training facility for NCDS operators available when the first system arrived in Australia in PERTH in 1976, the training role was assigned to CDSC. As each of the other two DDGs was fitted with NCDS, so the load on CDSC increased, to the extent that it was spending more time and effort on user and maintainer training than on software support. Government-imposed manpower ceilings precluded additional staff at the centre, until it was finally realised that the FFGs could not be supported as well without an increase in personnel to do the job. The increase has been implemented, but the training load will remain until the updated AIOTT facility becomes available in 1984-85.

So CDSC has neither the personnel nor the facilities to take on the extra load of software support for INVINCIBLE. Based as it is on Ferranti computers, the Automatic Data and Weapons System (ADAWS) is not compatible with NCDS, and must be supported separately — and the users must be trained separately. A software support facility dedicated to one ship hardly seems cost-effective.

The only radar fitted in INVICIBLE presently in use in RAN ships is the Type 1006 I-band navigational radar. The Type 1022 air-search and Type 992 surface search will be the only ones of their kind in RAN service.

The future of the Sea Dart system is as yet undecided. With the DDGs and FFGs sharing common missiles (Standard, Tartar and Harpoon), the establishment again of separate support facilities for a "one-off" missile system is of doubtful viability. The replacement of the Sea Dart system by the SM-1 (Standard) system would be a far more expensive venture than incorporating the system into the original design, as had been done with the "base-line" RAN LPH. It would not be surprising to see INVINCIBLE/AUSTRALIA fitted with the Seacat system from the first DE to de-commission!

It has been stated that as INVINCIBLE is not equipped with TACAN (aircraft homing equipment), the system will be removed from MELBOURNE and installed in her replacement. The TACAN in MELBOURNE is the AN/URN-20, the only one of its type still in service in the world. While in Navy Office, I had input into the planned "enhancements" to MELBOUNRE to keep her operational during the 1980s, and one of the first pieces that obviously had to go was the TACAN. It was being kept operational with spares acquired from a USN carrier in Pearl Harbour, prior to that ship's de-commissioning.

The radar interrogation equipment (IFF) in MELBOURNE is also to be removed for installation in INVINCIBLE. It is to be hoped that the latter's air conditioning equipment is more efficient than MELBOURNE's, as the IFF suffered extensively in that ship from overheating!

The FFGs introduced the gas-turbine propulsion system into the RAN, and the "base-line" LPH would have had a similar system. INVINCIBLE, however, while being gas-turbined, has 4 Olympus engines, so yet another propulsion system has to be learned by the users and maintainers, and supported. That will prove expensive — and so would sub-contracting maintenance and repair work to Rolls-Royce.

A document recently circulated in ships and establishments (presumably emanating from the Directorate of Public Relations) contains arguments for (many) and arguments against (few) the acquisition of INVINCIBLE, ship characteristics, capabilities and limitations, costs, and comparisons with other considered designs. On page 2 it states "the total project cost and through life costs for INVINCIBLE were significantly less than for other designs".

Agreed — the project cost of $478 million is less than the $1 billion for an LPH. But on page 30 of the document it compares the annual operating costs of the LPH and INVINCIBLE: the latter will cost $6.2 million more per year ($32.1 million against $25.9 million).

It is also stated that "there is a lesser risk factor in the acquisition of a ship in service, rather than acquiring through design development and construction". The keyword there is "development" — with the Battle and Daring class destroyers, the River class frigates, the DDGs and the FFGs, the basic design was "developed" and enhanced **during** construction to allow for RAN improvements and requirements. The same could have been done with the LPH, but instead the RAN is accepting a vessel that was built to UK/RN standards, a design to which the RAN had no input. In each of the classes of ship developed we ended up with a better design — the Battles with new turrets and a more modern fire control system, the Darings with better ASW capabilities, the River class with long-range air warning radar, the DDGs with Ikara, the FFGs with a better (Australian)-designed operations room. Surely the opportunity to implement such improvements outweighs the alleged "lesser risk factor".

The PR document contains many *"Questions" and "Answers" on* INVINCIBLE concerning her capabilities, limitations, advantages and disadvantages. Every answer given is in favour of INVINCIBLE, and the undesirable qualities and disadvantages suggested in the questions are overcome. I would suggest that the answers to the same questions on the same ship would have been vastly different in 1979, when INVINCIBLE was axed from the short-list "principally on the grounds of cost".

The decision to acquire a new carrier to replace MELBOURNE was, in my opinion, the correct one, if the RAN is to maintain credibility as a maritime force and a deterrent. I have been a staunch advocate of seaborne autonomous air power since I joined the RAN, and I was both delighted with and relieved by the Government's decision in 1980 to acquire "an anti-submarine warfare helicopter carrier with potential to operate STOVL aircraft".

INVINCIBLE is such a carrier: she can operate both fixed-wing STOVL aircraft and helicopters, act as a task force/group command ship, refuel escorts, carry troops, etc. She is, as I said, a very capable ship. And being available "now" means the problems of what to do with MELBOURNE for the next few years and the cost involved in keeping that ship running are solved.

But what I want to point out in this article is that INVINCIBLE and her immediate purchase do have drawbacks, and she is not the "gift from the gods" that many are making her out to be.

She is a carrier, and to purchase a carrier is the right idea.

But she is of a design previously discounted, not only because of cost, but because of lack of commonality of equipment. In the long-term view, therefore, I feel she is the wrong ship.

MELBOURNE **could** have gone on for a few years yet — with a lot of effort and a lot of money. But the cost of keeping her going had been estimated and allowed for in defence spending; INVINCIBLE involves a very large financial outlay in the very near future, and all three services have to bear the burden of this sudden and unexpected cost by cutting back expenditure in acquisition and operational areas. The department was not prepared to outlay such a vast amount at this stage, especially when it has to pay for the pay rise to its members. It is therefore the wrong time.

THE AUTHOR

LCDR Swain joined the RAN college in 1960 and graduated in 1963. He served in HMA Ships MELBOURNE, BRISBANE, DERWENT, DUCHESS and STALWART, as well as the Dept of Defence (Navy), HMS ARK ROYAL and the RN air station, Yeovilton. While in MELBOURNE he served as Direction Officer and has successfully completed courses in the UK ("D" course) and at HMAS WATSON ("d" course). In October 1980, LCDR Swain left the RAN, but began duties as, XOR, SPD on 1st January, 1981.

INVINCIBLE

Leading Particulars

The launching of HMS INVINCIBLE by Her Majesty, Queen Elizabeth II, on 3rd May, 1977. *(Photo — Royal Navy)*

Builder: Vickers Shipbuilding and Engineering Ltd (VSEL), Barrow-in-Furness.
Ordered: April 1973.
Laid Down: July 1973.
Launched: May 3, 1977, by HM The Queen.
Accepted: March 19, 1980 by the Royal Navy.
Commissioned: July 11, 1980, by HM The Queen.
Other Ships of Class — HMS ILLUSTRIOUS, launched December, 1978; HMS ARK ROYAL, launched June 1981.

DIMENSIONS

Length Overall	206.6m (677')
Length Waterline	192.8m (632')
Beam Maximum	35.0m (115')
Beam Waterline	27.5m (90')
Length Flightdeck	182.6m (599') (includes ramp)
Width Flightdeck	31.9m (105')
Draft Deep	8.8m (29')
Displacement Standard	16,000 tonnes
Displacement Full Load	19,860 tonnes
Ramp (Ski Jump)	7 degrees

HMS INVINCIBLE on sea trials, June, 1979.
(Photo — Royal Navy)

PROPULSION

- 4 Rolls-Royce Olympus TM3B Marine Gas Turbines rated at 83,500 kW (112,000 SHP)
- 2 David Brown triple reduction reversing gearboxes
- 2 shafts with fixed pitch propellers
- Speed in excess of 28 knots
- Range in excess of 4000 nautical miles at 18 knots. (It should be noted that the RAN plans modifications to extend this range.)

POWER GENERATION

- 8 Paxman Valenta 16 cylinder diesel generators (8 x 1.75 mW)

AIR CONDITIONING

- 7 540kW Hall Thermotank air conditioning units

COMBAT DATA SYSTEM

- Action Data Automation Weapon System (ADAWS) Mk 6 incorporating two Ferranti FM 1600 computers

RADARS

- Marconi/Hollandse Signaal type 1022 — long range air surveillance
- Marconi Type 922R — Medium range air and surface target
- 2 Kelvin Hughes Type 1006 — navigation and aircraft control
- 2 Marconi Type 909 — Missile fire control and tracking

MISSILES

- British Aerospace Dynamics Sea Dart Surface to Air Missile System

NAVIGATION

- Ships Inertial Navigation system (SINS Mk2)
- Omega
- Loran

COMMUNICATIONS

- Marconi Integrated Communications System (ICS-3) covering VLF, MF, HF, VHF and UHF
- Satellite communications terminal — SCOT 2 (to be replaced with RAN compatible equipment)

ACCOMMODATION

- 131 officers
- 265 senior sailors
- 609 junior sailors

1005 Total

AVIATION FACILITIES

- Hangar — 16 aircraft capacity; 3 decks high 6.92m (22.5 ft) head room
- Workshops for first and second line support
- Aircraft Elevators — 2 MacTaggart Scott hydraulic lifts
- 7 degree ski jump
- Aircraft Visual Landing Systems HAPI and CAI
- Fixed and mobile firefighting facilities
- Fixed and mobile cranes
- Aircraft supplies of power, low and high pressure air, liquid and gaseous oxygen, nitrogen, de-mineralised water
- Magnetic loop communications system for flight deck personnel
- Tele-brief system for aircraft on deck

OTHER FACILITIES

- Capability to replenish and be replenished by other ships
- A variety of seven boats, including two 11m (36') work boats and an 11m (36') fast motor launch
- Two pairs of non-retractable stabiliser fins

GENERAL DESCRIPTION

HMS INVINCIBLE has clean uncluttered lines with a distinctive long island structure, dominated by the large twin raked funnels, which are the exhausts for the gas turbine main engines. Another very distinctive feature is the curve of the forward flight deck section where it forms the 7° ski jump to assist the launch of short take-off aircraft.

Below the flight deck there are another seven deck levels. HMS INVINCIBLE is 206.6 metres long overall and her full load displacement is 19,860 tonnes (not dissimilar to HMAS MELBOURNE's 211.3 metre length and 20,214 tonne full load displacement).

The flight deck provides just over 180 metres of runway, which includes the ramp which gives short take-off aircraft an initial 7° upward vector. The advantages of this simple but ingenious arrangement have been described as "runway in the sky" because the upward vector imparted to STOVL aircraft as it leaves the ship provides for additional payload and safety margins that otherwise would require many additional metres of flat deck take-off roll.

Deck facilities for handling aircraft and equipment include the usual tractors, forklift trucks and mobile crane, while there is a fixed crane forward of the island. Servicing arrangements and firefighting facilities are arranged around the edge of the flight deck, as in previous carriers, providing fuel hoses, electric supplies, high pressure air and distilled water. Aircraft on deck are connected to the ship's internal communications system by tele-briefing leads.

Centrally located and immediately below the flight deck is the three deck-high hangar. It is linked to the flight deck by two aircraft lifts of completely new design, which are hydraulically operated with a cantilever scissor-arm arrangement. At hangar deck level the lifts are accessible from three sides.

The hangar is backed up with the usual workshop services, such as aircraft, mechanical and engine workshops, component repair shop, instrument maintenance room, air ordnance workshop and ejection seat workshop, etc.

ACCOMMODATION

High standard accommodation is provided for just over 1000 men. Officers and warrant officers are provided with single cabins, chief petty officers have four-berth cabins and petty officers six-berth cabins, with junior sailors' messes limited to not more than 18 occupants. One main galley serves three separate dining halls for warrant officers and CPOs, POs and junior sailors, while a further galley serves the wardroom. The ship is fully air conditioned.

HMS INVINCIBLE. (Photo — Royal Navy)

MACHINERY

HMS INVINCIBLE is powered by four Rolls-Royce Olympus gas turbines rated at 83,500 kW. They drive two fixed pitch propellers through David Brown triple reduction reversible gear-boxes to give the ship a top speed of better than 28 knots. HMS INVINCIBLE is presently the largest gas-turbine powered warship in the world.

Electrical power is provided by eight Paxman Valenta diesel generators. Special care has been taken in the design to provide adequate removal routes for all items of equipment, in keeping with an "upkeep by exchange" policy.

Remote controls for all the various forms of machinery are grouped together in the Ship Control Centre (SCC). However, the main engines can also be controlled directly from a partial control console on the bridge.

Manoeuvrability is enhanced by twin rudders, while stabilisers provide a steady deck, which will be particularly appreciated by aircraft handlers and pilots alike.

SENSORS AND WEAPONS SYSTEM

Mounted above the bridge is the large antenna of the Type 1022 long range air surveillance radar. Topmost on the main mast is the Type 992 for air and surface warning and target indication. There are two 1006 navigation radars, one of which is also used for helicopter control and aircraft recovery. Two distinctive domes fore and aft on the island house the 909 fire control radars for the Sea Dart surface-to-air missile system.

The twin arm Sea Dart launcher is mounted to starboard of the ski jump with its 3 deck-high magazine and handling system below. Sea Dart can engage surface targets as well as aircraft.

At the heart of the weapons systems is the ADAWS 6 Combat Data System, which provides the captain with a central command position from which he can monitor both the above and underwater tactical plots. A separate tactical plot and tote display is provided for the task group commander. Around the outside of the Operations Room are arranged the usual weapons system and sensor control displays.

The main communications office is approximately the same area as the operations room it adjoins. It houses the ICS 3 integrated communications system, which comprises four main subsystems covering transmitting, receiving, distribution and supervisory and automatic telegraphy functions. Automatic link facilities are included, as well as satellite communications. Internal communication is provided by the Rationalised Internal Communication Equipment (RICE) which controls shipboard telephone, intercom and loud speaker systems.

ANNUAL OPERATING COSTS

Direct Operating Costs	LPH ($M)	Invincible ($M)
Manpower	10.1	10.3
Spares/Repair Parts	0.5	0.6
Fuel	6.1	6.2
Indirect Operating Costs		
Manpower	0.7	1.5
R & M	1.4	4.0
Training	1.4	2.4
Contractor	0.3	1.7
Refits/Dockings	5.4	5.4
Total	25.9	32.1

HMS INVINCIBLE, ESTIMATED PROJECT COST

1. Sailaway Cost	285.0
2. Initial Refit, On Board Spares, Trials, etc	43.9
3. In Country Support	87.0
4. Other Support	32.9
5. Training Equipment	8.0
6. Training Courses and Travel	12.2
7. Australian Industry Assistance	8.8
Total Estimated Project Cost	$A477.8M

What future for HMAS Melbourne?

by TED MADDEN

With the Australian Government's purchase of HMS INVINCIBLE, the redundant aircraft carrier HMAS MELBOURNE could well end her days as a tourist attraction on Port Phillip Bay.

The idea was first suggested by Melbourne Herald journalist Alan Dearne. It received such overwhelming and immediate support from bodies like the Joint Boating Committee (Victoria), the Royal Volunteer Coastal Patrol, the Boating Industry Association of Victoria and the public generally, that the politicians, under the impetus of a State election campaign, were provoked into immediate and unusual action.

The then Leader of the Opposition, John Cain, expressed unqualified support for the idea. The Prime Minister thought it would be a good idea.

Not to be outdone by anyone, the former Premier commissioned a feasibility study by an expert committee headed by Sir John Holland, chairman of the Holland Construction Group.

The Group includes representatives of the Port of Melbourne Authority, the Ports and Harbours Division of the Public Works Department, the Department of Employment and Training and a naval architect consultant.

The committee got to work right away and within a day or two were checking over MELBOURNE at Garden Island dockyard where, saving something being done along the lines of the Port Phillip Bay proposal, she is destined to quietly rust away until she is sold for scrap.

There was an alternative proposal from Queensland that she become a tourist ship on the Great Barrier Reef. There appeared to be no follow-up, as there has been on the Victorian proposition. If using MELBOURNE proves feasible, therefore, it's an odds-on proposition that Victoria will get her.

The question then arises: where, and in what manner?

All sorts of suggestions have been advanced — tourist hotel; convention centre; restaurant; naval museum; communications centre for the police boating squad; training centre for volunteer rescue organisations.

The comments quoted by Alan Dearn in his series of Herald articles seem to rule out the most popular suggestion, that she be located close to the inner city area. There is no available pier space and putting her somewhere in Hobson's Bay would create serious problems in an already overcrowded Melbourne port area.

HMAS MELBOURNE leads the American Seventh Fleet carrier USS MIDWAY during exercise Beacon Compass 81.
(Photo — RAN)

Since this article was written it now appears that HMAS MELBOURNE will not be taken to Melbourne as stated.

These limitations, coupled with the absence of parking facilities in an area of heavy traffic congestion, seem to rule out the plea of the St Kilda City Council, that she be located at the end of St Kilda pier.

There are two other practical suggestions so far.

The Royal Volunteer Coastal Patrol pointed out that if she were moored in the centre of Port Phillip Bay, she would be a valuable half-way refuge, halving the distance many small craft would have to run in emergency situations.

In this position, she would be ideally located to serve as a communications and co-ordination centre for the police boating squad in search and rescue operations.

Failing this, the Patrol suggested MELBOURNE should be located close inshore, so as to serve as a breakwater providing a protected approach to one of the difficult boat harbour entrances around Port Phillip Bay.

At this stage, what could well prove the most practical and attractive proposition of all, which seems to promise the best of many worlds, came from Whaler's Cove Marina managing director, Des Jackson.

Set MELBOURNE in concrete a mile or so off the mouth of Patterson River, he suggested, where the water is only a metre or two deeper than her unladen draught and link her to the shore by monorail railway.

Far enough offshore not to affect tidal flow and cause foreshore problems, the ship would provide protected water for boats entering and leaving the narrow mouth of Patterson River — the Bay's most congested small boat harbour entrance, which is currently taxed to the utmost with traffic of more than a thousand boats a day, at times.

This entrance is very difficult to negotiate in a seaway and is easily blocked if a boat broaches-to on the bar. As things stand, in a sudden severe blow, many boats could be trapped at sea with, as Jackson fears, a local version of the Fastnet disaster ensuing.

The big ship's lee would also reduce erosion of the beaches and Patterson River's deposit of silt at the mouth, cutting dredging costs, while the monorail would not interfere with boat traffic.

The big plus for Patterson River, which seems to give it a clear advantage over any other possible location, is that there is room for extensive parking facilities, access is by free-flowing major roads and freeways and the monorail terminal would be locataed alongside Carrum railway station, linking the MELBOURNE project with the public transport system.

MELBOURNE's major role could be as a convention centre; international visitors could be flown aboard by helicopter, direct from Tullamarine airport, or from the heliport on the Yarra River.

And every youngster in Victoria would be clamouring to make the visit to the historic aircraft carrier by monorail.

The ball is now at the feet of Sir John Holland's committee. But whatever is the outcome of the MELBOURNE proposal, a major step forward has already been achieved by Victoria's boating community.

An Inside Look at the New Carrier

(All photographs courtesy of Navy News)

No 1 briefing room.

PO's six berth cabin.

Captain's dayroom.

Departmental heads' cabin.

Machinery spaces.

STOP PRESS

Invincible at War

by GEOFFREY EVANS

WHEN the Australian Government accepted the British Government's offer of HMS INVINCIBLE *in February this year, neither government could have* known that within two months the carrier would be engaged in a war, a war moreover involving use of the most sophisticated non-nuclear weapons available.

It must be accepted that INVINCIBLE may not become HMAS AUSTRALIA at the end of 1983, or possibly ever. The worst possible thing that could happen would be loss of the ship due to enemy action — not unthinkable, as the carrier must be a prime target for Argentina's Navy and Air Force — at what might be called the other extreme — INVINCIBLE may prove so successful that Britain will decide to retain the ship; our Prime Minister has recently made this decision easier to take by saying the Australian Government will not hold Britain to its offer of INVINCIBLE.

Between the two extremes there are other possibilities, but it is safe to say the outcome of the fighting in the Falkland Islands war will have a profound effect on Australian defence. It will not only be a matter of lessons learned by defence planners, but the way in which public thinking on defence develops as a result of the highly publicised events that have been taking place.

It is improbable that the loss of one or more modern ships to missiles in the South Atlantic will cause a reduction in the number or importance of surface warships — for the most purposes there is simply nothing in sight to take their place: Methods of defending surface ships are already receiving attention and rapid developments can be expected in this area.

If anything has been demonstrated by the latest sea-air war, it is the importance of organic naval airpower, obtaining the right balance between offensive and defensive weapons, and having adequate numbers on the spot and in reserve. Precluded as they have been from attacking shore-based Argentinian aircraft at source, the British forces, with a relatively small number of seaborne aircraft — helicopters and STOVLs — have achieved some remarkable feats.

Sickbay.

Operating theatre.

Nothing has happened in recent weeks to suggest that Australia's need for seaborne aircraft has in any way been diminished, although the capability to operate STOVL aircraft, as well as helicopters has become a much more obvious requirement. In the event of INVINCIBLE not being available, where would Australia seek another carrier?

The Australian-American team studying US carrier designs has been disbanded, but could be re-formed and the evaluation completed fairly quickly. Even so, it would be several years before an American-built vessel with Australian modifications could be brought into service.

The early availability of INVINCIBLE made it possible to de-commission HMAS MELBOURNE sooner than anticipated and avoided an expensive refit: Also, the change-over period was not so long as to create a problem with aircrews, except that the decision not to acquire STOVLs "for the time being" placed a question-mark against future naval fixed-wing flying activities. A three or four year gap would, however, severely restrict use of the Navy's ASW helicopters and leave a hole in the country's maritime defences for what must be considered an unacceptable period.

The options would appear to be:—

(1) To refit and re-commission MELBOURNE for another two or three years' service. Bearing in mind the vessel's age, this must be a doubtful proposition, but better than nothing.

CPO's recreational space and dining room.

(2) To "borrow" an unmodified American LPH if there is one to spare; USN manning problems could have a bearing on this. Pending the availability of an "Australianised" version a general similarity-of-type would seem to offer some advantages to the RAN.

(3) To purchase outright an LPH, again if the USN had one, it could afford to do without, and carry out such modifications as were possible in a ship already built.

It has to be said that the Australian Government's readiness to relinquish its claim to INVINCIBLE is hard to understand. If the British Government decided it was in that Government's interest to retain INVINCIBLE, at least until ILLUSTRIOUS and ARK ROYAL were available, the Australian Government would have been so informed and very little could have been done about it.

As it is, doubts have inevitably arisen concerning the sincerity of the Government's commitment to Australia's defence *needs and its generosity may well cost the country dearly in the* future.

In a signal last June, following the Defence Review, the first Sea Lord emphasised the need to find major economies in support, manpower and training, to ensure that the maximum resources were devoted to maintaining the most effective fleet.

THE ROYAL NAVY
Plans for the Future

Much work has now been completed towards restructuring the Navy for the future and although many studies refining matters of detail are still continuing, the purpose of this article is to inform you of the main decisions and their consequences for the way ahead. Subsequent announcements will be promulgated through the normal command chain.

The size and shape of the future fleet have been adjusted since the Defence Review. In broad terms:

(a) **SSBN** 4 to remain in service.

(b) **CVS** 2 to be retained in service. INVINCIBLE will be sold to Australia in late 1983, when ILLUSTRIOUS becomes operational, and HERMES will run on until ARK ROYAL enters service in 1985.

(c) **SSN** Build up to force level of 17 continues.

(d) **DD/FF** Force level of 50, of which up to 8 will be in the standby Squadron. New type 23 frigate to be introduced as early as possible in the second half of the decade.

(e) **SSK** New class to be introduced as early as possible in the second half of the decade.

(f) **LPD** 2 to remain in service with present operational pattern and tasks.

HMS BROADSWORD (above) and her sister Type 22 frigates were the Royal Navy's first all metric warships and are currently the most modern frigates available. Following the cancellation of all mid-life modernisations a new, less costly, Type 23 frigate will be constructed. *(Photo — Royal Navy)*

(g) **MCMV** Continue to introduce Hunt class MCMV, followed by new single ROLS minehunter. Order 4 of new class of fleet minesweepers in late 1982.

(h) **RFA** The size of the Royal Fleet Auxiliary will be commensurate with reduced surface fleet. We will procure a new torpedo for submarines and (jointly with the RAF) the Sea Eagle anti-ship missile. Sub-Harpoon, Stingray and Sea Skua are due to enter service this year and a programme to enhance Sea Wolf has recently been announced. Further improvements to our armoury will be sought.

The flag list will be reduced in line with overall manpower reductions. There will be no radical reorganisation of the command structure, but some flag posts will lapse.

The total uniformed strength will reduce by some 10,000 to about 62,000 by 1986/87. It is not possible to project the strength accurately beyond 1986/87, but it is probable that the rundown will continue on about the same scale for some years thereafter: The need for the later reductions will be kept under review in the light of resources at the time. The overall reduction will be achieved to the maximum extent possible by a combination of natural wastage and cutting back on recruiting. However, by 1986/87 some 4,000 redundancies are likely to be unavoidable: They will affect mainly, but not entirely, the more senior officers and ratings.

The new ship upkeep policy takes account of the decision announced last year to abandon mid-life modernisations and to reduce dockyard capacity. The aim has been to produce maximum ship availability within these constraints. In broad terms, the ships most affected by the changes are CVS, gas turbine destroyers and frigates, OPV, survey ships and Hunt Class MCMV. Refit intervals for these ships will be extended substantially with, in the case of destroyers and frigates, only one refit (for restorative purposes) during a shortened ship's life. There will continue to be DEDS between refits. The extent to which equipment in ships can be updated is being studied.

A new fleet operating pattern for surface ships will be introduced during the next 3 years taking account of the revised upkeep cycles, new training and drafting patterns and allowances for leave and home port time. For destroyers and frigates the pattern will be based on a 3 year cycle with an initial training period (ITP) every 18 months, the IPTs, of up to 6 weeks' duration, will be programmed to match the arrival of the drafting, quote, batches, unquote, who will then undergo training in whole ship and branch subjects, with the ship initially in harbour clear of planned maintenance periods, and then at sea for a shakedown. Thereafter, the ship will carry out operational sea training before proceeding for normal fleet duties. Similar cycles are being considered for other types of ship.

We intend to re-establish the pattern of group and mini deployments: INVINCIBLE will lead O Group to the Indian Ocean and East Asia later this year and there will be subsequently mini deployments to the western side of the Atlantic and the Mediterranean.

Gulf of Oman patrols and the provision of a ship in the Caribbean will continue for the foreseeable future.

A fundamental element of the fleet operating pattern will be the basing of ships and submarines in typed squadrons in their home ports. The main changes from the existing arrangements will be that eventually all Type 42S will go to Portsmouth and all Leanders (except JUNO, ACHILLES and DIOMEDE) and the survey flotilla, will go to Devonport. Arrangements for the Type 21S are still under consideration, but home ports will be announced by mid-1982 and dockyard ports in the following months: There will be no change from Devonport before late 1983. With the reduction of Portsmouth to a naval base special manning arrangements will be made during the refits of Portsmouth ships in Devonport or Rosyth.

For the Type 42S there will be garage streamed refits similar to those recently undertaken in Gibraltar. It may not be possible to do this for other classes of ships, so alternative methods of manning are being examined with the aim of minimising turbulence or separation due to ships refitting out of their home ports.

Nevertheless, with only two dockyards after 1984 a substantial number of ships and submarines will have to refit and DED away from their home ports.

All the present Fleet Air Arm establishments will be retained. The number of aircraft types in the FAA will be reduced to make manpower training and support savings. Older helicopters such as the Wasp, Wessex 3 and Wessex 5 will be phased out over the next few years as Sea King and Lynx numbers increase. The policy of typing people to aircraft will continue and training will remain largely unchanged.

Training patterns for the submarine flotillas will not be changed significantly, but further study is being made to establish if any benefits would arise from a revised operating pattern similar to that planned for surface ships. SSN refit intervals were extended to the optimum shortly before the defence review.

The final size of the surveying flotilla depends upon continuing negotiations with other government departments over the requirements for civil hydrography. A new coastal survey vessel for the civil task is likely to be ordered soon.

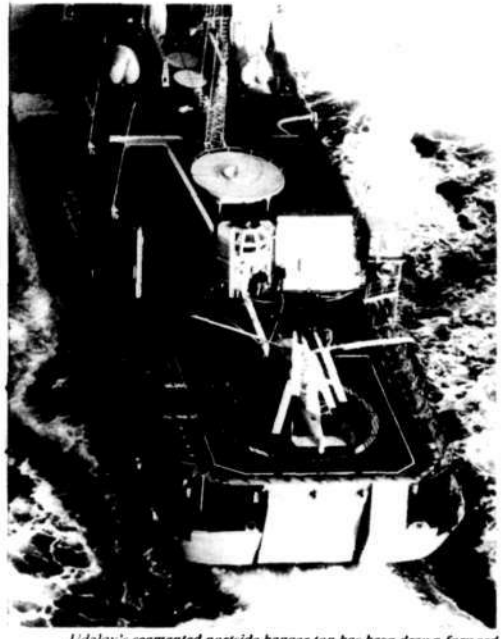
The operational roles and tasks of the Royal Marines will remain essentially unchanged. Detachments will, however, be withdrawn from frigates and destroyers because of the need for improvements to the facilities in naval bases, and provision to catch up on the considerable backlog on maintenance and building work in shore establishments. As yet, I cannot predict the outcome of this work, which has wider implications.

In this difficult period of readjustment we must keep clearly in the forefront of our minds that the Royal Navy's roles and tasks will remain essentially unchanged and that we will continue to bear the responsibility of being the leading maritime power in Europe and the largest Navy after the super powers. Our primary task, with our allies, is to deter: That is, to maintain peace by preventing war. But should this fail, we must then, again with our allies, win the war. Effective deterrence involves maintaining a high state of readiness, being well equipped and trained, and operating and deploying wherever and whenever the situation demands. It means making clear to any potential enemy that escalation to conflict would carry too great a risk to make it worthwhile for him. The Royal Navy and the Royal Marines will continue to have unique responsibilities for maintaining peace and stability: The current Standby Squadron (SBS) at Chatham will be disposed of and will be replaced by 1984 by one at Portsmouth which will include REAS. Additionaally, 1 LPD will from time to time be held in a state of preservation by operation in Portsmouth while awaiting recommissioning or refit. The size, roles and tasks of the reserves will remain substantially unchanged. The fleet minesweepers to be ordered this year will be for the RNR. The abandonment of major mid-life modernisations will reduce our procurement requirements for updating ship weapons and systems. Substantial manpower cuts have already been made in the PF and more are planned. Separate studies are in hand of the future structure of controller of the Navy's organisation and the possible rationalisation of the related research and development establishments.

By being responsible for the British Strategic Nuclear Deterrent Force by deploying ships and men, both within and outside the NATO area as required; by being ready to counter Soviet Naval dispositions through surveillance operations at short notice: and, at the lower end of the spectrum, by routine patrols to protect our offshore resources and other interests, the Royal Navy is a fully occupied force.

In tension or war the Navy would make a major contribution to the alliance's overall maritime effort. After the strategic deterrent the most important tasks for the Royal Navy would be to provide ASW support for the US carrier battle groups in the NATO striking fleet Atlantic and to contribute both directly and through forward operations to the protection of the huge amount of reinforcement and resupply shipping which would cross from the United Sates and, to a lesser extent, from our own country to Europe. The Royal Navy would also have to keep open and safe the ports and shipping routes in the shallow waters around the United Kingdom and would deploy the UK/NL amphibious force to its operation areas as early in tension as possible. The retention of the LPDS will mean that this force retains its flexibility for amphibious operations, both in support of NATO and out of ARFA. These demanding tasks will involve submarines, surface ships, RFAS, helicopters and maritime VSTOL as well as RAF shore-based aircraft.

Udaloy, as seen during the ship's first Atlantic voyage. The empty circular probable SAM director platforms can be seen above the bridge and above the sliding doors covering the twin helicopter platforms. Note the four paired stacks for the gas turbine propulsion plant. (Photo — USN)



Udaloy's segmented portside hangar top has been drawn forward and the hangar deck elevator is in the down position, permitting a view into the interior of the ship. To starboard is a microwave landing control radar mounted in a box whose legs straddle a large searchlight. (Photo — USN)

UDALOY (the name means "courageous"), the Soviet Navy's newest and largest destroyer, deployed from the Baltic to join the Northern Fleet in October of 1981. The second ship of the *Udaloy* class, *Vitse-Admiral Kulukov*, was running trials off Leningrad at the same time. The *Udaloy's* are typed by the Soviet Navy as BPK's *(Bol'shoy Protivolodochnyy Korabl')* — large antisubmarine ship — a type designation created in the early 1960s as part of the response to the US Navy's Polaris programme and since applied to ships of the *Kresta, Kashin* and *Kara* classes.

Rather than employing code names for new Soviet ship classes, NATO now assigns the new ships provisional names until the actual name for the first ship of a class becomes known; thus before *Udaloy's* name became known, the design was known as the "Bal-Com-3" (for Baltic Combatant 3 — under the new nomenclature system, the third new major combatant design to have been discovered building in the Baltic area).

As the type designation BPK implies, *Udaloy* is primarily an ASW ship. The principal ASW weapons are the eight SS-N-14 cruise missiles carried in the two quadruple nests of fibreglass-sheathed tubes mounted beneath the bridge wings. Aft, a twin side-by-side hangar houses two Ka-25 Hormone A ASW helicopters or — as were carried by *Udaloy* on its maiden voyage — two newly-introduced helicopters nicknamed "Helix" by the west.

Udaloy is the first Soviet combatant smaller than the *Moskva*-class guided missile/helicopter cruisers to carry more than one aircraft. Rounding out the ASW ordnance package are two 12-tubed RBU-6000 rocket launchers, just forward of the hangar, and two quadruple nests of 53 cm torpedo tubes on the main deck, just abaft the forecastle break.

For self-defence, *Udaloy* carries two single rapid-fire 100 mm dual-purpose gunmounts forward, while flanking the after pair of stacks are four 6-barrelled 30 mm Gatling AA guns. Visible only in aerial photographs are eight 2 metre diameter

cover plates for what will apparently become vertical launch magazines for a short-range SAM system. Four of the SAM tubes are buried far forward on the forecastle, two are paired athwartships in the small deckhouse between the torpedo tubes, and another pair are mounted fore-and-aft between the RBO-6000 rocket launchers. Two directors for the SAM system have not yet been installed, but they will apparently be carried on the large circular platforms atop the bridge and atop the helicopter hangar.

Rounding out *Udaloy's* weapons package are two pairs of rails running down the sides of the main deck to the stern, where they terminate in "round-downs". Wherever possible, the Soviet Navy incorporates a minelaying capability in its ships, and *Udaloy* is following the tradition. These rails, as is common Soviet practice, are also used to carry stores-handling carts. Stores transferred to a constant-tension transfer station on either beam just abaft the torpedo tubes can be lifted by the crane between the tube nests onto another rail network that runs completely around the upper deck; the rails run between the Gatling gun foundations and the after stacks, then inboard of the Welin-type davits for the ship's two plastic-hulled motor launches, and appear again near the gunwales, to run forward and join in a wide-radius turn across the forecastle.

Helicopter arrangements on Udaloy are similarly elaborate. The hangar deck is at the main deck level, and the helicopters are elevated to the O1-level flight deck by means of two elevators which run on diagonal tracks. To clear the rotor heads as the helicopters rise, the two hangar roofs each slide forward in two telescoping sections. Helicopter flight control requirements are met by two cylindrical TACAN-like antennas mounted high on yardarms projecting from the after mast, while the outboard of the starboard hangar is a microwave landing approach radar. Landings and take-offs are controlled from a large glassed-in control cab between the hangars, and while there is no RAST-like deck-handling equipment, there are two crossdeck transverse chain pulls to move the helicopters onto and off of the flight deck from the elevator platforms.

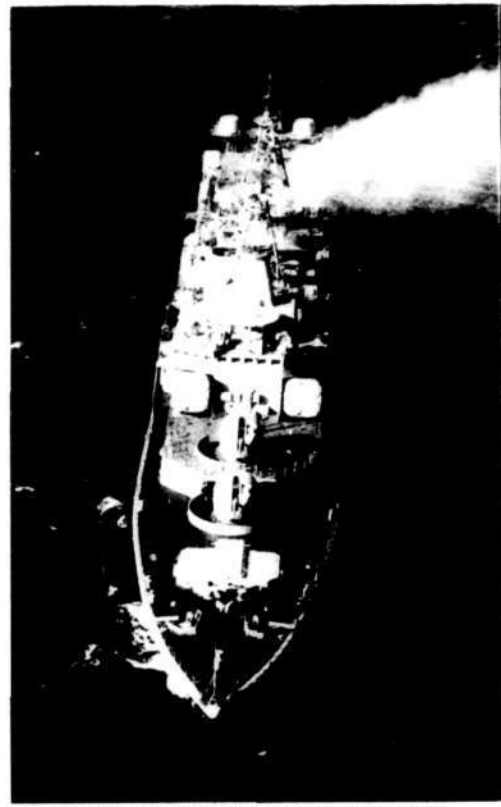
Udaloy's ASW sensors include a very large bow-mounted sonar dome and lens-shaped variable-depth sonar, whose handling gear is directly below the after portion of the flight deck. The two sonars probably duplicate the systems installed in the *nuclear-powered battle-cruiser Kirov*. As a ship intended only to carry a short-ranged SAM, *Udaloy* does not have the elaborate 3-dimensional long-range radar arrays found on other recent new Soviet large combatant designs, but there are two identical back-to-back reflector antennas for medium-range air search radars atop the two lattice masts.

Navigation and surface search are taken care of by three identical parabolic reflector antennas mounted on the forward lattice mast; they rotate together to produce overlapping coverage. There are two control radars for the SS-N-14 missiles, port and starboard atop the pilot-house, while a tall pylon on the forward superstructure supports the fire control radar antenna for the 100 mm guns.

What will apparently be a duplicate of the ECM/ESM antenna array installed in the *Sovremennyy*-class destroyers will be mounted later on platforms at the base of the after mast, while some equipment is already aboard at the aft end of the forward superstructure. Two twin-tubed chaff rocket launchers are mounted port and starboard on the forecastle near the bow.

A large ship, *Udaloy* is roughly the size of a US Navy *Spruance*-class destroyer. The hull is characterised by a pronounced flare over its entire length, with a prominent knuckle at the main deck level running forward from the forecastle break. The bow has an extraordinarily dramatic rake, in order for the anchors to clear the bow sonar dome, while the sheer line of the upper deck is a long S-shaped curve, making the forward part of the forecastle almost parallel to the waterplane.

Prominent rubbing strakes run down the hull sides, low near the waterline. As is so common with Soviet ships, the hull plating is frequently pierced by portholes. *Udaloy* is 531.5 ft overall by 492 ft at the waterline, while maximum beam is 63.3 ft and 56 ft



Udaloy's ***long, broad forecastle supports two single 100 mm dual-purpose gunmounts, controlled by a single radar director mounted above the bridge. The guns are water-cooled and probably have a high rate of fire. Also carried on the forecastle are two twin-tubed auto-loading chaff rocket launchers and the positions for four of the ship's eventual complement of eight vertical SAM launchers.*** *(Photo — USN)*

at the waterline. The full load displacement is probably about 8000 tons.

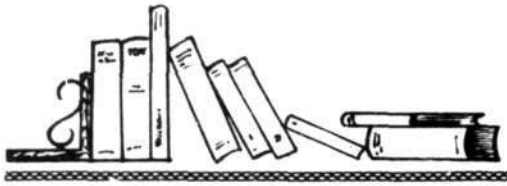
The four paired stacks and large air intakes provide firm evidence that *Udaloy* is a gas turbine-powered ship, almost certainly capable of speeds of 32 knots or higher on an estimated 110-120,000 maximum horsepower. The after pair of stacks are slightly larger in area and thus probably contain the exhausts for the electrical generating plant, as well as main engine exhausts.

Although the Soviets were the first Navy to introduce all-gas turbine propulsion in major warships, in the 1963-vintage *Kashin*-class destroyer, they are not completely committed to any one form of propulsion. Frigates and smaller combatants and auxiliaries usually have diesel prime movers (often combined with gas turbines) in their propulsion plants, while the still-building *Kiev*-class carriers and the new *Sovremennyy*-class destroyers are steam turbine powered. In *Udaloy* the use of one turbine to

The main battery on Udaloy consists of two sets of quadruple launchers for long range antisubmarine cruise missiles, nested beneath the bridge wings in pockets which direct the launch blast effects outboard. *(Photo USN)*

drive one shaft, while the other is trailed, should provide enough power and economy for ranges in excess of 5000 nautical miles at 20 knots, based on a conservative fuel consumption estimate of .5 lb/hp/hr and a fuel load of perhaps 18-20 per cent of the full load displacement.

As "large anti-submarine ships" the *Udaloys* will be expected to become proficient in formation ASW tactics under the control of a larger ship, perhaps a *Kiev*-class VTOL carrier/-ASW cruiser or a *Kirov*-class nuclear-powered battle-cruiser. They might some day form part of the screen for a true aircraft carrier, such as has long been rumoured to be planned for the Soviet Navy. Wherever they go on the world's oceans — and in whatever capacity — their formidable-looking design should provoke admiration and will undoubtedly contribute to the Soviet dictum that their Navy must convey to the world the genius and strength of Soviet industry and technology. *Udaloy* joins the equally-impressive *Kirov*-class battle-cruisers and *Sovremennyy*-class destroyers as major new Soviet surface warfare construction programmes for the 1980s; still to come is the 13,000 ton "Bal-Com-1" cruiser being built at Nikolayev.



BOOK REVIEWS

The Royal New Zealand Navy

by MICHAEL BURGESS
Published by
BURGESS MEDIA SERVICES
128 PAGES
Price $A7.50 plus p. & p.
REVIEWED BY ROSS GILLETT

The Navy magazine has always been a strong supporter of the Royal New Zealand Navy with a regular series of articles describing and illustrating its various warships, auxiliaries and branches. To mark the 40th anniversary of the Navy a number of publications have emerged from across the Tasman and are now available in Australia.

The latest, and in many ways the best, is "The Royal New Zealand Navy", a well written and equally well illustrated pictorial history. The book not only spans the four decades of the Kiwi fleet, but goes as far back as HMS PHILOMEL, the 1890s vintage cruiser which was to become the first ship of the New Zealand Division of the Royal Navy in 1913.

The book commences with a brief foreword from Rear Admiral John O. Ross, former Chief of Naval Staff, and then launches into the ships manned by New Zealanders from PHILOMEL. Following the cruiser section the author takes us through the frigates, sloops, corvettes, trawlers, minesweepers, patrol boats, support and survey ships, together with an odd assortment of requisitioned craft since World War II. In all, some 250 warships and auxiliaries are described via tables and brief narrative sections. The author has chosen to present the data in a "Janes" type format. In this way the book can be picked up at random, an important factor for those people who cannot, or desire not to, read books from cover to cover.

With few exceptions, photographs appearing in The Royal New Zealand Navy are top quality and to my knowledge have seldom been seen before (including this magazine's regular series).

The Harbour Defence Motor Launch Q1190 at Auckland during November, 1943.

In many cases the photograph occupies a full page, which incidentally measures ??? mm x ??? mm.

One interesting fact to arise from the book is the similarity of the RNZN in World War II to that of the RAN. Like the latter, New Zealand built and commissioned her own Fairmile B and Harbour Defence motor launches, saw the need for a more local patrol force in the form of a Naval Auxiliary Patrol Service and converted many small launches to satisfy these needs. However, unlike the RAN, the largest warships constructed locally were the 447 ton Castle class magnetic minesweepers (4 vessels) and anti-submarine minesweepers (9 vessels).

The front cover features a superb colour illustration of HMNZS ROYALIST on Pearl Harbour during 1961. This RNZN book is one of a number of publications compiled by the author during the past few years. Two smaller books describe the world's (1) Battleships and Battle-cruisers, and (2) Aircraft Carriers and Aircraft Carrying Cruisers. Other works are currently in preparation, including similar studies of the world's cruisers, destroyers, frigates and corvettes, submarines, fast attack craft and other classes.

To sum up, I found "The Royal New Zealand Navy" a very welcome addition to my library. The combination of excellent photographs and informative text and the wide coverage of all ships, down to requisitioned craft, make the book required reading for all naval historians and shiplovers. Orders may be placed direct to the publisher, Burgess Media Services Ltd, PO Box 2131, Wellington, New Zealand, for $11.00 including post and packing. **Highly recommended.**

HMNZS KILLEGRAY in November, 1942.

British Battleships of World War Two

by ALAN RAVEN and JOHN ROBERTS
Published by
ARMS AND ARMOUR PRESS
Review copy from
Thomas C. Lothian Pty Ltd
REVIEWED BY HARRY ADLAM
Price: $75.25

Battleships remain a very interesting subject for most people, and indeed the name is used by many to denote many types of warships. But to the serious student of naval history and naval warfare, the battleship has a definite status.

This book describes the battleships, and battle-cruisers, that served in The Royal Navy during WWII, and traces their origins and development through their service lives. This is not a ships' history book in the accepted sense, but rather a complete technical reference work. War histories are included in a general form, but each ship is fully covered with details of modifications, armament changes, etc.

The authors have certainly done their homework. Practically every detail one would wish to explore is covered. In particular, I was very impressed with the data provided in armament details. Each weapon mentioned is clearly identified with its "MARK", an item missed by many very well respected writers. Take the famous six inch gun, used as secondary armament in battleships, and as main armament in many cruisers. Usually we find some notation like "4 x 6 inch guns", which does not tell the student in this field a great deal at all. The old QUEEN ELIZABETH and ROYAL SOVEREIGN classes mounted six inch guns as the batttery, as did RODNEY and NELSON, but by identifying the particular "Mark", we find that RODNEY and NELSON were armed with a 6 inch that had almost twice the range of the older ships.

Illustrations in the book are nothing short of excellent. Many line drawings are provided. These were updated with each major conversion, leaving the reader with an excellent idea of what was altered in the ships. Even such details as boat stowage, and the types of boats carried, are shown. With most ships, the photographic selection begins with the battleship in question at the builder's yard, nearing completion, through to such dismal scenes (like the ones at the back of the book) showing some of them in the breakers' yards.

As a reference book on battleships, this book must be the acme. However, only twenty-one ships are covered, making the task of putting this work together slightly less difficult than if the full range of "battlers" had been covered. Even so, it takes 436 pages to cover the subject, including battleship designs, only projected.

An appendix describing gunnery details is provided, divided into three separate sections. Appendix 1 covers guns in general from 16 inch to 0.5 inch machine guns. Appendix 2 details fire control equipment, whilst Appendix 3 provides some interesting details of RODNEY's performance in her action with BISMARCK.

I, myself, have always liked the appearance of the "R" class battleships, and in particular, RESOLUTION, with her clinker screen. Perhaps the most famous of all British "battlers" was HMS HOOD, and indeed the most beautiful capital ship ever built. In this book the photographs show her to her best advantage.

It has been a pleasure to review this fine work, now in its second reprint. I consider that "British Battleships of World War II" is the most "complete" reference work produced for many years, and will become the standard reference. Thoroughly recommended to all.

Reports of Proceedings

by REAR ADMIRAL G. G. O. GATACRE, CBE, DSO, DSC, RAN (ret)
Published by *NAUTICAL PRESS AND PUBLICATIONS, SYDNEY*
REVIEWED BY HARRY ADLAM

Recently, a senior naval officer was heard to say "Admirals should not write books". Well, I hope this gentleman gets a chance to read "Reports of Proceedings", and he will then almost certainly change his mind.

To date, only three RAN Admirals have put their memoirs on paper. RA Gatacre's book is a review of some 43 years' service in the Royal Australian Navy, and follows the growth of the service during that period. It is, of course, an autobiography, but that doesn't stop it from being very interesting. G. G. O. Gatacre had a full life in the navy, and is very proud of his accomplishments, as he is justly entitled to be. His service commenced as a cadet at the Jervis Bay College in 1921 and ended as a Rear Admiral. During this time he was a qualified navigating officer, and as such missed out on obtaining his own command until promoted to Commander. But as a "pilot" RA Gatacre had some very good appointments, including the distinction of serving as navigator in many ships of the RAN and RN. Indeed, he was the pilot in HMS RODNEY during the chase and kill of BISMARCK. This is but one of many distinctions gained by R. A. Gatacre. To me, "Reports of Proceedings" is a well written book, full of interest, and superbly illustrated, definitely one for the library shelf. RA Gatacre was the original commanding officer of the light fleet carrier HMAS MELBOURNE, and it is appropriate that his book should appear at the time when the old ship is being paid off. The story of RA G. G. O. Gatacre is the story of the RAN over four decades. Thoroughly recommended.

HMAS Tobruk Sails to Sinai

by VIC JEFFERY
Navy Public Relations Officer, WA

February 26 saw the 5800 tonne Sinai-bound heavy lift ship HMAS TOBRUK make a two-day stop-over at HMAS STIRLING in Cockburn Sound, WA, before sailing for Ashdod in the Mediterranean.

Commanded by Commander Robert Walls, RAN, *TOBRUK* was making its first visit to Western Australia. It berthed at 0700 hours on the Friday and sailed the following Sunday at 1000 hours.

HMAS TOBRUK took eight days to make the voyage from Brisbane to HMAS STIRLING, where it arrived in immaculate condition.

On board the tank deck TOBRUK carried eight RAAF white-painted, unarmed Iroquois helicopters, to be used in an observer's role, patrolling boundaries and transporting supplies in the de-militarised zone of the Sinai. The helicopters are from No 9 Squadron, Amberley, Queensland.

During its brief visit to STIRLING the senior RAAF Officer in Western Australia, the Commanding Officer of RAAF base Pearce, Air Commodore Norman Ashworth and seven senior RAAF officers took the opportunity to view the ship.

The 100-plus Australian contingent was to be established at El Gorah by March 20.

Two white Iroquois helicopters from No 9 squadron lashed down in the landing ship's tank deck. *(Photo — RAN)*

HMAS TOBRUK arrives at HMAS STIRLING for a two-day stopover before sailing for the Sinai. *(Photo — RAN)*

An Iroquois is lowered from HMAS TOBRUK at the southern Israeli port of Ashdod. *(Photo — RAN)*

Berthed at HMAS STIRLING with OFL 1207 alongside. The nuclear powered cruiser USS TRUXTON is in the background. *(Photo — RAN)*

HMAS TOBRUK is farewelled by a RAAF Iroquois after the completion of a successful voyage. *(Photo — RAN)*

OUT OF THE PAST

Fairmile B Motor Launch 825 was built by Lars Halvorsen and Sons and commissioned in February, 1944. With her sisters, the boat was originally designed to be held at ready notice for the hunting of enemy submarines and, if required, for convoy escort work and stationary patrols. ML 825 was featured in "The Duel" in the last issue of "The Navy". Her skipper Hal Venables has provided further details of his boat's encounters with the Japanese in the "letters to the editor" section.

(Photo — Historical Studies Section)

This rather tranquil scene, taken in Sydney's Rushcutters Bay, depicts two of the smaller craft of the World War II period. On the left is the air-sea rescue vessel AIR SENSE (No 914) and the Fairmile B Motor Launch No 802 (right). The former served in the Northern Territory and New Guinea war zones and in 1947 was based in Brisbane. Two years later she transferred to the RAAF and was renumbered 02-104.

Fairmile No 802 was assembled at Sydney's Greenpoint Naval Boatyard and served in New Guinea. During 1944 she provided coverage for a group of RAN ships in Jacquinot Bay, New Britain, and in 1945 covered amphibious landings at Wide Bay. Like many of her sisters, M.L. 802 was sold by auction in 1947. Lying immediately above the Fairmile in the photograph is a second air-sea rescue vessel.

(Photo — AWM Neg No 87936)

NAVAL ROUNDUP

— Compiled by "GAYUNDAH"

13-GUN SALUTE FOR ADMIRAL

For the retiring Flag Officer Commanding Naval Support Command, Rear Admiral Andrew J. Robertson, a final harbour passage in the Admiral's barge and a 13-gun salute on 1st April marked the end of 43 years' service with the Royal Australian Navy. Rear Admiral Robertson had earlier handed over the Command to his successor, Rear Admiral Vonthethoff and then followed official farewells from uniformed and civilian staff of the Command.

Rear Admiral Robertson returns the salute as clearance divers fire a 13 gun salute from a Navy workboat. *(Photo — RAN)*

Senior officers and the Naval Support Command Band assembled on the foreshores of Sydney Harbour at the Naval Support Commander's official residence in Elizabeth Bay. After the final farewells, and to the strains of the Band and three cheers from senior officers, Rear Admiral Robertson, his wife and three children, boarded the Admiral's barge for the last time.

As the barge moved out, bound for Man O' War steps, clearance divers from HMAS PENGUIN fired a 13-gun salute using a small saluting cannon mounted on a Navy workboat. Rear Admiral Robertson began his career 43 years ago at the age of 13½ and is now headed for an overseas trip — a "De-Admiralisation period" with his wife on a barge on the canals of France before returning to Australia.

Leaving harbour together. *(Photo — RAN)*

THE "FFG TWINS" GET TOGETHER

The Navy's two newest ships, the FFG class guided missile frigates, HMAS ADELAIDE and HMAS CANBERRA got together at Sydney's Garden Island Naval Base in mid-April for the first time in Sydney. The only other occasion they have been alongside each other was a brief period in Seattle in the United States where the ships were built.

HMAS ADELAIDE (01), commanded by Captain Matt Taylor, arrived in Sydney from the United States last December 17, while HMAS CANBERRA (02) commanded by Commander Bryan Wilson, is the more recent arrival, having entered Sydney Harbour last March 29.

The two ships were berthed alongside one another at Garden Island's East Dock Wharf as they prepared for a busy exercise programme with other units of the fleet.

HMA ships ADELAIDE and CANBERRA at Garden Island. *(Photo — RAN)*

At sea exercising for the first time. (Photo — RAN)

HMAS BARRICADE pictured in the small boats harbour at HMAS STIRLING in early April, prior to the handover to the Indonesian Navy as the KRI SIGALU. (Photo — RAN)

WESTLAND COMPONENTS FOR FRENCH NAVY HELICOPTER FLIGHT SIMULATORS

A contract worth £443,000 has been won by Westland Industrial Division to supply major components for two flight simulators for training Lynx helicopter pilots of the French Navy. The contract was awarded by Thomson CSF, the French simulator manufacturers.

Westland will provide a large proportion of the cockpit structure, controls, instrumentation and furnishings. A data package is also being supplied to Thomson CSF, to programme all aspects of the Lynx flight and operational characteristics into the simulator's computers. These will be the French Navy's first Lynx Simulators.

The French Navy has 26 Westland Lynx, with a further 14 on order.

FLEET AIR ARM WORKING PARTY

The future of existing fixed-wing aircraft of the Fleet Air Arm is to be considered by a Defence working party.

Announcing this in early April the Minister for Defence, Mr D. J. Killen, said that along with the decision to purchase HMS INVINCIBLE and pay off the present flagship HMAS MELBOURNE, the Government had decided that the Tracker and Skyhawk aircraft should be paid off as soon as practicable. This decision would involve examination of current commitments of all Navy's fixed-wing aircraft.

As an interim measure, Fleet Air Arm front-line fixed-wing squadrons would be amalgamated with second-line training squadrons, and the number of aircraft to be retained in use would be reduced. As a result of this move, there would be a reduction in the requirement for Fleet Air Arm personnel in the short to medium term. It was, however, planned that this reduction would be achieved through normal wastage.

NEW GUIDANCE SYSTEM FOR THE IKARA ANTI-SUBMARINE WEAPON

The guidance system for Australia's Ikara anti-submarine weapon is being redesigned to extend its life into late this century. By taking advantage of present-day technology, reductions in size, weight and maintenance would be achieved, as well as providing improved reliability and enhanced capability.

An experimental version of the new system was being tested at Defence Science and Technology Organisation's Defence Research Centre at Salisbury, South Australia, where it had been developed. Several engineering models would be built before a final demonstration model became available in 1984. Substantial assistance was being sought from the Australian defence industry. About 60 per cent of the development funding would be spent in that industry.

The present research and development phase was aimed at producing a demonstration model of the Ikara guidance system. A decision would be made in 1983 on whether or not to go into full-scale production in 1984.

The design incorporated so many improvements and refinements that it had already attracted enquiries from other countries. Coupled with other aspects of Defence Force structure and development, its adoption by the RAN would enhance anti-submarine capability until the year 2000.

NEW SHIPPING DEFENCE COUNCIL FORMED

Senior executives of five Australian-flag shipping organisations and senior naval officers have formed the Australian Shipping Defence Council to co-ordinate liaison between the RAN and merchant shipping interests.

Announcing the formation of the council on 16th April, the Minister for Defence, Mr D. J. Killen, said the purpose of the council was to provide a forum between the navy and those organisations which controlled and operated Australian merchant shipping in times of peace in order to plan for its safety and protection in times of threat, tension, emergency and war.

Mr Killen said the council, which would normally meet twice a year, would be under the chairmanship of the Deputy Chief of Naval Staff. Merchant shipping representatives would be the Chairman of the Australian National Line, the General Manager, Transport, of the Broken Hill Proprietary Company Ltd; the Manager Director of Ampol Petroleum Ltd; the Chief General Manager of Howard Smith Industries Pty Ltd; and the Chief Executive of Bulkships Ltd.

He said other Government departments might be invited to attend when the council was discussing questions of interest to them. The inaugural meeting was expected to be held in late May or early June.

The Fleet band aboard HMAS MELBOURNE for the last time. (Photo — RAN)

FLEET BAND ENDS 27-YEAR LINK WITH FLAGSHIP

The Fleet Band played at "Colours" for the last time in the aircraft carrier HMAS MELBOURNE at Sydney's Garden Island Naval Base on 16th April, ending a 27-year association with the Flagship.

The Fleet Band's "home" has been the Flagship — an association which began in 1955 when the Band travelled to the United Kingdom to join HMAS MELBOURNE, newly commissioned into the Royal Australian navy, for the delivery voyage to Australia.

The 27-year association came to an end as MELBOURNE prepares for decommissioning and paying off. To mark the occasion, the band, under Musical Director, Lieutenant Jock Heath, played a series of request numbers and then marched off to the strains of "Auld Laing Syne" to join its new temporary home, the destroyer tender, HMAS STALWART.

LINKS WITH OLD AND NEW HMAS CANBERRAS

New links between the Navy's first HMAS CANBERRA and the second HMAS CANBERRA were forged on board the new ship at Sydney's Garden Island with a special presentation from the Canberra/Shropshire Association.

Led by their President, Mr Jim Brady, Association members presented a painting by Association member Mr Ron Russell showing the first HMAS CANBERRA, the 10,000 ton World War II County class heavy cruiser. The Association also presented a copy of the original HMAS CANBERRA's ship's crest. The original was "saved" from its position outside the Wardroom as the ship sank — the only item to be saved. The original is now in the War Museum.

ASSOCIATION LEADS "NAVAL NOSTALGIA" TOUR

Federal Secretary of the Naval Association of Australia, Colin McClymont, will lead the ANZ Bank's 19 day "Naval Nostalgia" tour to UK in August 1982. Those who do the "Naval Nostalgia" tour will enjoy an unforgettable experience. If you've any salt blood in your veins, this is your tour of a lifetime," said Colin McClymont.

Early enquiry is recommended, as it is anticipated that there will be a fairly strong demand for this unusual, first-time-ever, tour. A Tour Brochure can be obtained from any ANZ Travel Centre, or else by contacting Graham Evans, ANZ Travel (Conference & Group Travel Section), 55 Collins Street, Melbourne, 3000. (Telephone (03) 658 1209.) (For further particulars see the advertisement in the March issue.)

Canberra/Shropshire Association members with Commander Bryan Wilson after the presentation of the painting and crest. (Photo — RAN)

letters to the editor

61 Murrah Street
Bermagui, NSW

27th April, 1982

Ross Gillett Esq.
Editor, The Navy,
PO Box 653,
Dee Why, NSW

Dear Mr Gillett,

Your copy of "The Navy" is to hand, featuring the article "The Duel", about my Fairmile B exploits with the Japanese Zero. My memories of the events of March 1945 are still good, so here we go.

Firstly, ML 825 was the last Fairmile built, modified in that she had turbo silencers fitted which were water injected for silent running. Secondly, we were lucky enough to get the first set of Raytheon radar, model S.O. with PPI fitted. After some teething troubles the radar proved a rare delight and we used it considerably.

Having left Sydney well stocked with beer and spirits we were never short of food or spares for guns or radar whilst within the American sphere of influence and, as with all small ships, we ate better than off Aussie rations.

Whilst stationed in New Britain, I constantly exercised the crews of all guns with live ammunition, generally firing a parachute flare and giving 6 bottles of precious beer to the smartest gun crew. We soon discovered that the graze fused A.A. ammunition, as supplied by RAN, was quite ineffective and I then added, by the judicious application of Corio, 2 x .50 calibre heavy machine guns, loaded with armour piercing bullets. These were sited port and starboard in the front corners of the wheelhouse. As we regularly used about six times our allowance of practice ammo, we replenished these supplies with the above-mentioned Corio.

When Kawato attacked us, there was a stoker at the helm (we were always interchanging the crew to provide adaptability to all hands). Possibly, this is what threw his bombs so far off course.

The rest of the tale is as printed by you, except that the bridge 20 mm Oerlikon never fired, the first round was a dud. I believe it was our port .50 calibre Browning which ripped open Kawato's fuel tank.

We collected several hits: one in the port mess deck; two cannon shells in the bridge deck, while the machine gun got the .303 ready-use locker and wounded Signalman Crowe. Both engine room ventilators were holed as well. Kawato probably never knew how close he came to success, the port depth-charge in the thrower received cannon shell hit, only to ricochet off. The casing was torn open, leaving the Amatol oozing out with phosphorus from his tracer smoking in the cracks.

His last few m.g. rounds covered the wardroom hatch vicinity. This had me worried as I had previously poured a generous tot of my last bottle of Scotch for L/Comm Speed Gordon and left it on the deck about the hatch. Luckily, one bullet missed the bottle, but hit the glass, which was almost empty. We considered ourselves doubly lucky to have a tot left for the wounded.

The reason for our leaving the vicinity so quickly was that we had a contingent of army boys aboard for return to Jacquinot, about 23 of them, which doubled our complement and overcrowded the ship.

On return to port, we unloaded the wounded and Army bods, then a Jeep from Army HQ arrived with 2 bottles of Scotch from General Ramsay, plus his congratulations for our efforts. Before leaving for Brisbane I found I had been appointed to the SRD, but was shifted to Sea Transport, Sydney, to the end of the war.

Sincerely,
HAL VENABLES

* * *

Unit 13 "McKellar"
Janett Street
Yorkey's Knob
Qld, 4871

The Editor,
"The Navy",
PO Box 653,
Dee Why, NSW, 2099

Dear Sir,

Typical! was my immediate and angry reaction, upon reading in the April issue that HMAS ADVANCE had been assigned to the Sydney Division of the Reserve on retirement from the permanent service.

Perhaps North Queenslanders become too prickly over the sharing of the nation's resources, whether it be roads or warships, and unduly sensitive when the southern States get yet another slice of the pie, while the North must make do with the crumbs. Now another slice — ADVANCE — goes to the South.

My bitterness over this matter stems from the fact that I have for years been inquiring as to whether I might join the Naval Reserve. I have a real desire to serve in any capacity where I can be of some use, yet have been told again and again, "Sorry, we don't have a Reserve establishment in Cairns".

Yet we are also told that the North is a vital strategic area — the sharp end of Australia. A new naval base is nearing completion in Cairns, but it appears that there is no room for a Reserve Division. It seems hard to understand that the small effort of creating such an establishment is beyond the resources of the Navy when it would result in a northern "home grown" Reserve, who would be here whenever they are needed. Instead, those resources go to the South, simply for convenience, rather than usefulness.

"A Great Advance," your article was titled.

"Another Step Back" might have been more appropriate, and the vessel's name could rightly have been changed also — HMAS Retire.

However, I remain in full accord with the aims of the Reserve and the Navy League.

Yours faithfully
ROWAN PARTRIDGE

Despite the keenness of Mr Partridge to join a local naval force in Cairns, the Royal Australian Naval Reserves are currently organised into six Port Divisions at Brisbane, Sydney, Melbourne, Hobart, Adelaide and Fremantle. Each Division boasts from 100 to 300 personnel. It must be doubtful whether sufficient numbers could be recruited for a Cairns Port Division, especially when one considers that some of the cities still experience manpower problems in the larger population areas.

A $10 million patrol boat base and new support facilities entered service in 1981 at HMAS CAIRNS to cater for the new Fremantle class, which are being homeported to Cairns. — Editor)

Thai Warships Visit Australia

The 45-year-old Thai training ship HMTS MAEKLONG was the first warship from that nation to visit Fremantle and Australia. (Photo — RAN)

The first Thai Navy warships to ever visit Australia berthed in the Port of Fremantle for a five-day visit on Saturday, March 6, 1982.

They were the training ship MAEKLONG, commanded by Commander Pracong Tirapongpisut, RTN and PRASAE, commanded by Lieutenant Commander Aganit Muensri, RTN. The group was under the command of Rear Admiral Vinich Sripochnart, RTN.

During their visit various tours and sporting events were organised.

MAEKLONG is a 2000 tonne frigate built by the Uraga Dockyard in Japan and was commissioned in June, 1937. Its design origin is obvious with its classic Japanese lines and raked stack.

MAEKLONG's sister ship TACHIN was damaged beyond repair in a bombing attack in 1945 and was scrapped in 1950.

The present armament of MAEKLONG is 4-76 mm guns in single open mounts, 3-40mm Bofors guns and 20mm Oerlikons.

A former United States Navy patrol frigate, the 2100 tonne PRASAE was commissioned as the USS GALLUP in 1944 and transferred to Thailand on October 29, 1952. It was built by Consolidated Steel, Los Angeles, USA.

Along with her sister ship, TACHIN, PRASAE is the last active example of a US wartime class of 102 ships. The United States patrol frigates were the equivalent of the British and Australian River-class and bear a close resemblance to the former HMAS DIAMANTINA, except for the variations in armament.

PRASAE is currently armed with 3-76mm guns in single open mounts, 2-40mm Bofors guns and a number of 20mm Oerlikons.

The Thai ships sailed early on Thursday, March 11.

HMTS PRASAE prepares to berth in Fremantle Harbour on 6th June, 1982. (Photo — RAN)

H.M.N.Z.S. MONOWAI

New Zealand's First Armed Merchant Cruiser

DURING the Great War of 1914-18, the Royal Navy commissioned a large number of passenger liners, giving them the title of Armed Merchant Cruisers. Their roomy upper decks allowed a heavy gun armament to be mounted, and this, added to their good sea-keeping qualities made the AMCs, as they were usually referred to, excellent convoy escorts. It was only natural that the idea would again be used in WWII.

by HARRY ADLAM

Amongst those ships selected for an AMC conversion in New Zealand was the well-known trans-Tasman steamer MONOWAI, operated by the Union Steam Ship company of New Zealand. Built as the RAZMAK by Harland and Wolff in 1925, the ship was purchased soon after completion by the Union Company, and for many years was a familiar sight on both sides of the Tasman. She established a reputation for reliability on this run, and was a great favourite with her thousands of passengers. Following the outbreak of the Second World War, the steamer carried on for the first few months performing her normal communication duties between New Zealand and Australian ports before being requisitioned for war duties.

She was then taken in hand by the Devonport Naval Base in Auckland, the conversion proceeding along the standard lines of the Royal Navy. Little structural alterations were necessary, as gun supports had been worked into the selected ships whilst building. In many cases the original trade colour schemes were retained. This was the case with MONOWAI during her early AMC career. Although armed with eight old BL 6 inch Mark VII's and two 3 inch 20 cwt AA guns, the ship still little resembled a "pusser" fighting ship.

MONOWAI was classed as a 10,000 ton steamer, length 519 feet (oa), a beam of 63 feet 3 inches and a draught of 26 feet. Steam was supplied by four double-ended and two single-ended Scotch boilers, the main engines being twin four cylinder triple expansion reciprocating, driving two screws with 14,000 ihp, giving a service speed of 18 knots.

The conversion was a major effort for the small dockyard in Auckland, but was still carried out in a very professional manner. Her commissioning into the New Zealand Division of the Royal Navy in Augst 1940 was very well received, as MONOWAI was now able to relieve the solitary light cruiser on station of much of the convoy escort load.

At this time, one of the Division's light cruisers was usually retained in the limits of the New Zealand Station, whilst the other was attached to the Royal Navy. The advent of MONOWAI into the Pacific scene was a great boost. Her crew were a mixed bag of permanent service, Fleet Reservists, RNVR and wartime entries. Many varied tasks were alloted to MONOWAI, mainly convoy escort mixed with trooping runs.

By 1943, the full wartime shipbuilding programme was in full swing, and the need for the AMCs gradually diminished until none were required. As was the normal routine, the AMCs were converted into either troopships or Landing Ships, Infantry, Large (LSI(L)). MONOWAI was paid off in June 1943 at Liverpool in the United Kingdom, and turned over for conversion to LSI(L).

Her appearance was altered greatly during this refit. The 6 inch guns were removed, and replaced by one 4 inch HA, two 12 pounders, two 40 mm Bofors and eight 20 mm Oerlikons. Davits for handling landing craft were fitted, considerably altering her profile. Recommissioned in February 1944, MONOWAI took part in numerous landing operations, and was employed at various times as a troop transport.

When the war was over, MONOWAI soldiered on for a time, but was finally handed back to the Union Company in July 1946. Work began to get the old warrior back into harness on her normal trans-Tasman duties. She was now over twenty years old, but still had plenty of life left in her.

With the decline of the New Zealand-Australia passenger ship (mainly due to the aeroplane), MONOWAI found herself nearing the end of her useful life. She had served New Zealand in peace and war, and thoughout her life had rarely missed her scheduled sailings.

In 1960, the dismal sight of the once proud greyhound of the Tasman being reduced to razor blades could be seen in Hong Kong. Even if the old ship had gone, she was not forgotten. In August 1974, the Royal New Zealand Navy took control of the Cook Islands cargo/passenger ferry MOANA ROA, for conversion to a surveying vessel. She was sailed to Scott Lithgow Drydocks Ltd, in Glasgow, and completely refitted for her new job. In October 1977, the second HMNZS MONOWAI was commissioned for service.

HMNZS MONOWAI. (Photo — RNZN)

NAVY LEAGUE DIVISIONAL & CADET NEWS

VICTORIA

During the last few months, Cadets from TS MILDURA have erected a boat shed for the Unit at Lake Hawthorn. Under the command of Lieutenant H. A. Goodall, NRC, the Cadets put in several strenuous weekends digging footings, laying concrete and erecting the prefabricated shed.

For some years TS MILDURA had housed Corsairs and other craft in the boatshed of the Lake Hawthorn Sailing Club, or had to stow them next to the Army Drill Hall in Mildura, where the ship's company paraded. TS MILDURA, Australia's most inland Naval Cadet Unit, have planned a vigorous programme of camps, guard training, the annual CERBERUS trip and a number of weekends of sailing and pulling instruction for 1982.

The recent formation of an NRC Unit at Renmark, South Australia, has meant that there is another Cadet Unit now reasonably close to Mildura.

Although TS MILDURA was unable to take part in the annual Victorian Regatta this year, the same weekend was spent in yet another working party on the now completed boatshed. Sir Zelman Cowen, Governor-General of Australia, visited Mildura on 24th April. The Guard of Honour at the Civic Reception was provided by Cadets from TS MILDURA under the command of Lieut H. A. Goodall, NRC.

The Guard was inspected by the Governor-General and Her Worship the Mayor of Mildura, Councillor Diana Duck.

The Governor-General expressed his pleasure and surprise at seeing a Naval Cadet Unit in Mildura and complimented the *Guard on their turnout.*

SHIELD PRESENTATION

The newly appointed naval officer commanding Victoria area, Commodore Rory W. Burnett, ADC, RAN, visited Geelong on Saturday, 13th March, to present the Navy League Shield to the Geelong Unit Naval Reserve Cadets. The shield is awarded annually to the most efficient unit in Australia. TS BARWON has now won the shield three times, and the colour, as the most efficient unit in Victoria, 12 times.

Representatives from all Victorian Units paraded with the Geelong Unit on the Johnstone Park forecourt, beside City Hall.

The parade commenced at 1.30 pm with the inspection of the Guard of Honour, followed by the presentation and a March Past of all participants.

1982 also witnesses the 50th anniversary of TS BARWON, the unit being formed in April 1932.

A reunion barbecue was organised for Sunday, 18th April, at the Geelong Showgrounds for all ex-cadets.

WESTERN AUSTRALIA

April saw the Senior NRC Officer in Western Australia, Commander Geoffrey Curran, carry out his annual inspection of TS CANNING.

On parade with the NRC cadets of TS CANNING were the Girls' Australian Sea Cadet Corps detachment attached to the unit. The Western Australian Executive Council of the Navy League of Australia was represented by the President, Mr Arthur Bancroft and the State Secretary, Mrs Philippa Paramor.

The GASCC detachment is under the command of Lieut Commander Milton Morris, GASCC.

• • •

A new branch of the Navy League of Australia has been formed in Geraldton and is awaiting its Warrant of Commission. Geraldton is already the home of the NRC training unit TS MORROW.

• • •

The Western Australian Division of the Navy League of Australia at present boasts a membership of 134 to the end of April, 1982. This is believed to be the largest membership within Australia, narrowly surpassing New South Wales.

Imagine a game of Battleship where you knew the enemy's position.

It would give you a considerable advantage, to put it mildly.

As defence preparedness grows more technical, the advantages of working with experts are obvious. The Systems Engineering Division of CSA, working with highly technical defence systems, has built up a considerable bank of expertise.

CSA helped the RAN set up the Combat Data System Centre (CDSC) in Canberra. We developed real-time software for the Action Information Organisation and Tactical Trainer (AIOTT) at HMAS Watson.

We've worked with the RAAF in the Maritime area. And with the Army. We've designed Network Monitoring and Control systems. We've developed facilities for crew training, for post-operational analysis and for software updating of a complex, integrated tactical system.

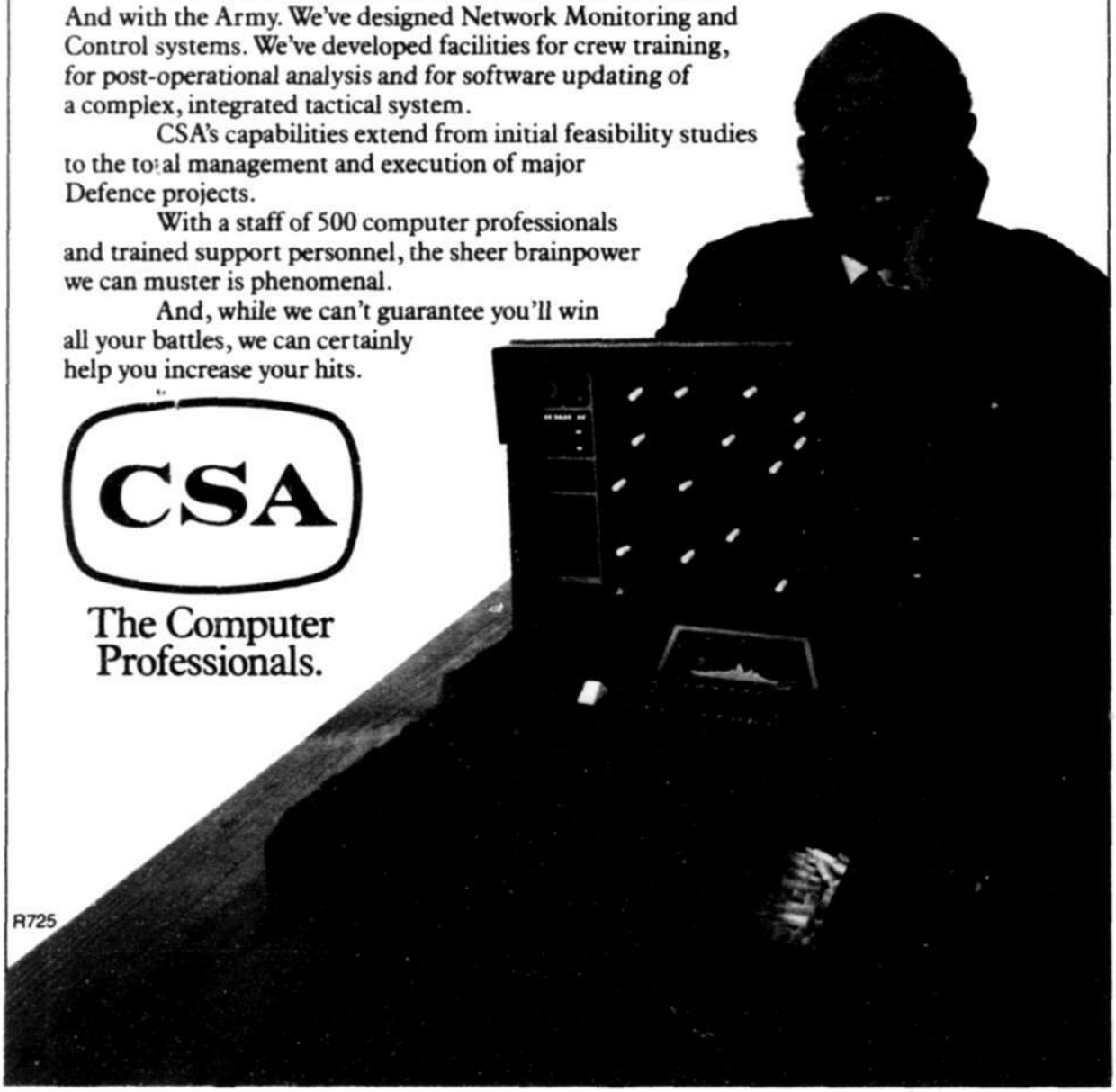
CSA's capabilities extend from initial feasibility studies to the total management and execution of major Defence projects.

With a staff of 500 computer professionals and trained support personnel, the sheer brainpower we can muster is phenomenal.

And, while we can't guarantee you'll win all your battles, we can certainly help you increase your hits.

CSA

The Computer Professionals.



R725

$1.50
OCTOBER, 1982

THE NAVY

The Magazine of . . .
The Navy League of Australia

Registered by Australia Post Publication No NBP 1482

NAVY WEEK
Maritime
Air Power

THE NAVY

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Registered by Australia Post Publication No NBP 1482

The magazine of the Navy League of Australia

Vol 44 OCTOBER, 1982 No 4

HMAS ALBATROSS, the fleet's first aircraft carrier, entering the Sutherland Dock, Cockatoo Island. *(Photo — RAN).*

FRONT COVER

(Top) Westland Wessex anti-submarine helicopters at the Naval Air Station, HMAS ALBATROSS during the mid-seventies.

(Lower) A Skyhawk A4G fighter-bomber is catapulted from the deck of the aircraft carrier HMAS MELBOURNE while another awaits its turn during exercise Tasmanex '79. *(Photos — Courtesy John Gardner, Command Public Relations.)*

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NAVY WEEK — 1982

SYDNEY — MAIN EVENTS

SUNDAY, 19 SEPTEMBER

Annual Submariner's Memorial Service at K13 Memorial, Carlingford.

RANR Band and Patrol Boat (HMAS ADVANCE) participation in Sydney Hospital Foundation "Blessing of Fishing Fleet" and "Seafood Fair" at Farm Cove.

MONDAY, 20 SEPTEMBER

12 HMA Ships depart Sydney at approximately 1000 for "Shop Window" with some 220 invited guests from news media, business and civil communities embarked. Ships enter harbour approximately 1530.

Band Recital — Hyde Park.

TUESDAY, 21 SEPTEMBER

Band Recital — Martin Plaza.

THURSDAY, 23 SEPTEMBER

1030 Ecumenical Church Service at St Andrews Cathedral followed by Changing of the Guard Ceremony at the Cenotaph and march through city streets to Hyde Park, for act of remembrance at the Pool of Reflection.

Navy Week Reception onboard HMAS JERVIS BAY at Garden Island and Beat Retreat.

FRIDAY, 24 SEPTEMBER

Band Concert and Diving Displays at Pier 1.

Warships open to visitors at Pier 2 Walsh Bay (and on 25 and 26 September).

NSW Area Sports Carnival at Randwick.

• Naval Awareness Symposium in Anzac House — hosted by the Navy League and Navalmen's Association.

SATURDAY, 25 SEPTEMBER

Garden Island and HMAS KUTTABUL open to visitors 1000-1700. Approximately seven ships open to visitors plus HMAS MELBOURNE flight deck with display of FAA aircraft past and present.

Garden Island displays will include: Submarine diving and surfacing; Clearance Diving Team; Helicopters; Guard Dogs; Band Performances; RANR; Naval Sea Cadets; Steam Truck Rides; Naval Historical Society; Dockyard Rigging Shed; Apprentice's Trades; Static Displays by HMAS ALBATROSS, NIRIMBA, WATSON, CRESWELL, PENGUIN and PLATYPUS.

SUNDAY, 26 SEPTEMBER

Garden Island and HMAS KUTTABUL open to visitors 1000-1700. Approximately seven ships open to visitors plus HMAS MELBOURNE flight deck with display of FAA aircraft past and present.

Garden Island displays as per Saturday, 25 September.

Service in HMAS WATSON Chapel.

Beat Retreat at Garden Island at 1630.

SOUTH AUSTRALIA — MAIN EVENTS

SUNDAY, 26 SEPTEMBER

Navy League to host luncheon at Clarendon Winery to entertain crew members of HMAS Canberra. All invited to attend.

Ecumenical Church Service to be held at Christ Church, North Adelaide. All invited to attend (1900).

MONDAY, 27 SEPTEMBER

Golf Day. (Open to Naval or ex-Naval personnel only).

TUESDAY, 28 SEPTEMBER

Beat Retreat Ceremony in Rundle Mall (1700).

Navy Week Reception (Invitation only).

WEDNESDAY, 29 SEPTEMBER

Naval Association Reception (Invitation only).

Naval Officers Club Dinner (Invitation only).

THURSDAY, 30 SEPTEMBER

Navy Week Reception (Invitation only).

FRIDAY, 1 OCTOBER

Wreath Laying service at the War Memorial, North Terrace. All invited to attend (1200).

Committee Luncheon.

Bowls Afternoon to be held at Beaumont Bowling Club organised by Corvette Association.

SATURDAY, 2 OCTOBER

Static and live displays plus the Naval Reserve Band in Rundle Mall (am).

SAJ/NAVY Race Meeting (1200).

Corvette Association Dinner (1800).

Navy Week Trots Meeting (pm).

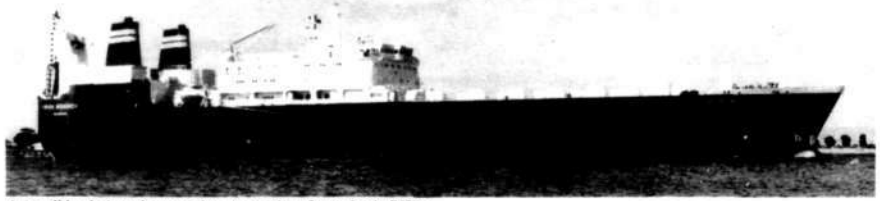
HMAS Canberra will be open for inspection during Navy Week. Inspections times will be advertised in the Local Press.

For other States, please contact your local Secretary.

ACKNOWLEDGEMENTS

This issue of "The Navy" was supported by Harry Adlam, Australian War Memorial, Peter Ballesty, Lieut Becker and photographers NAS Nowra, Michael Burgess, Geoff Evans, Tony Grazebrook, Ray Jones, Mark Lee, Malcolm MacDonald, Keith McCarron, Roger Nailer, Navy PR, Antony Preston, CDRE A. A. Robertson RAN (Ret'd), The Royal Navy, The RNZN, Joe Straczek and Williamston Naval Dockyard.

Carrier Air Power — The Future



A possible choice of conversion to an aircraft carrier is BHP's IRON MONARCH. (Photo — M. Dippy.)

by GEOFFREY EVANS

In the July edition of "The Navy" this writer said "it must be accepted that (HMS) INVINCIBLE may not become HMAS AUSTRALIA at the end of 1983, or possibly ever". And so it has come to pass — happily not because of the loss of the ship in the South Atlantic as was a possibility when the article was written, but because the RN will retain a ship that has proved itself operationally.

The Prime Minister, Mr Fraser, has been criticised for offering to relinquish Australia's "moral" claim to INVINCIBLE, but it has to be said that once Britain decided the country needed the capability the carrier provided, moral issues were unlikely to be of much significance anyway. It is a Government's duty to consider its own national interests first.

The unavailability of INVINCIBLE has created a very real problem for those responsible for Australia's defence and particularly for the Naval Staff. So far there is no indication that either the Government or the Defence Department has had a change of mind about retaining a tactical air support capability in the Navy, but it can be assumed that the Government at least will be under considerable pressure to do so in the coming months.

The pressure will to some extent be generated by financial considerations — governments in peacetime are not generally noted for their enthusiasm to spend money on defence equipment when there are other more electorally popular forms of expenditure — but it will be increased by those people who for one reason or another oppose the acquisition of a carrier and have been very vocal about the matter.

No responsible Government would give the country's defence planners a blank cheque to equip and maintain the national Armed Forces, but even so it is possible to wonder whether the present Australian custom of holding defence expenditure to a more or less fixed (and fairly low) percentage of the country's income is an act of responsibility either. Given the hostility and tensions that abound in the world today, and show no sign of lessening, rather than devise a defence force to fit a pre-determined sum of money it would seem sensible to determine the country's defence requirements and then raise the money to provide them.

Media comment on the carrier issue has, on the whole, been quite unhelpful if the object has been to inform the general public. Unfortunately commentators and writers appeared to make up their minds early in the argument to either support or denigrate a new Australian aircraft carrier and, come what may, nothing would change that "decision". To say that much of the adverse criticism has been unreasonable would be an understatement.

USS TRIPOLI, an LPH. (Photo — John Mortimer.)

MELBOURNE 30/6/82. (Photo — RAN.)

WHERE NOW?

Accepting the fact that Australia requires an effective maritime force — as well as effective air and land forces — and that it cannot be an effective maritime force without a tactical air support capability — where does the RAN turn now? Due to the years of procrastination in deciding what to do about replacing MELBOURNE's air capabilities, the options are limited and become more expensive with every day that passes without a decision.

The options appear to range from a second-hand American CTOL carrier such as ORISKANY to the simplest form of merchant ship conversion. Neither of these extremes are likely to be satisfactory — the first because of the age of available vessels and the large additional manning commitment, and the latter because the cheapest merchant conversion mooted relate to emergency or wartime measures.

In between are the "hardy annuals" — the modified LPH, Spanish Sea Control ship, and Italian Garibaldi-class; and since the HMS INVINCIBLE affair, an Invincible-class hull fitted to Australian requirements.

It would be easy to suggest the logical thing to do would be to re-open the LPH examination, which had progressed some distance when the decision to buy INVINCIBLE brought proceedings to a halt. However, the passage of time and inevitable increase in cost of the modifications, plus the intense interest of British shipbuilding interests, not to mention continuing Australian financial stringency, leave the field fairly open.

Of particular interest is the possibility of developing the Y-ARD (Australia) "Protean" concept of the mid-seventies. This was basically a hull similar to that of a conventional light fleet aircraft carrier, but with an inbuilt capacity to be modified or even "stretched" for varying purposes, eg Fast Transport, Replenishment Ship, small or large helicopter/STOVL carrier. The standard version was to have a diesel propulsion plant and the stretched or "jumbo" version gas turbines. Considerable use was to be made of changeable modules, ranging from modular operations and machinery-control rooms to sleeping accommodation and cafeterias.

The Protean ship was intended as a "full-time" warship, not to be confused with "temporary" warships such as container ship conversions in time of emergency.

SHORT TERM

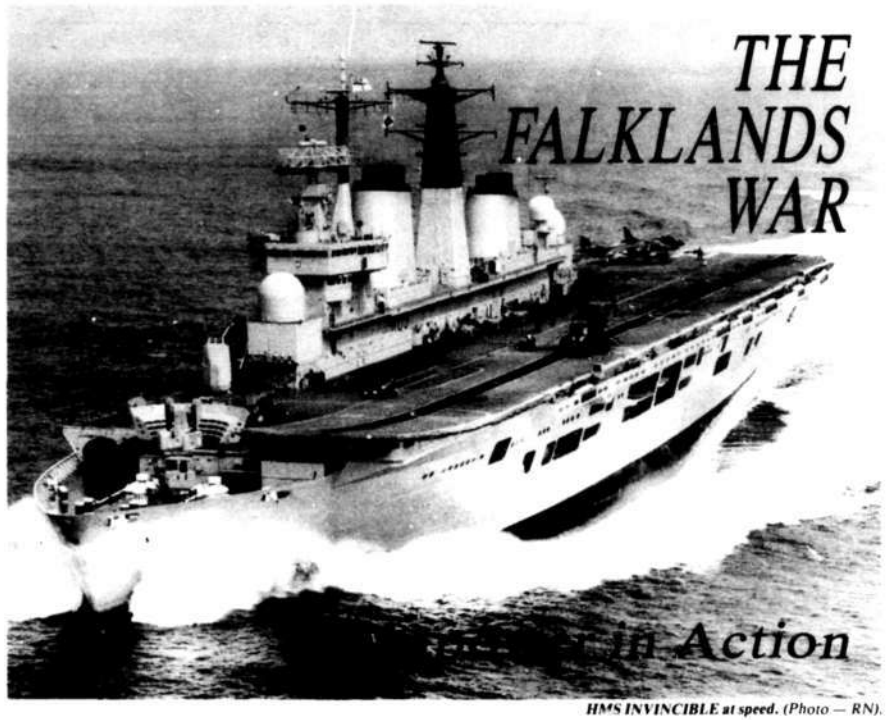
Whatever decision as to type is eventually made it is unlikely that Australia could obtain a new carrier until the late 'eighties. Bearing in mind that there is not a single RAN combat ship in service at the present time equipped with aircraft of any kind (the new FFGs have the capacity but not the machines) the Fleet Air Arm cannot be left in limbo, nor can the gap in the maritime defence force be regarded as acceptable. To allow a most highly specialised part of the Defence Force to be disbanded or to simply waste away would be scandalous.

It has been suggested that MELBOURNE be re-commissioned to fill the gap, but while this has some sentimental attraction — the ship has been part of the naval scene for nearly thirty years — and **does** belong to us — the offer of the slightly less-old British HERMES on a leasing arrangement, provided the "rent" was very low and STOVL aircraft came with the ship, would appear to be a better proposition. To purchase HERMES outright could not be regarded as a satisfactory arrangement. Such sense of urgency as may now exist to properly equip the Navy would disappear completely and the temporary arrangement would almost certainly become permanent. We would end up with two old carriers, one unserviceable and the other costing a small fortune to maintain.

When those Argentinian scrap merchants raised their little flag on South Georgia Island on March 18, 1982, who would have thought their action would among other things throw Australian defence planning into disarray? One can only hope that the inertia which has become such a feature of defence decision-making in Australia can be overcome on this occasion, and a revised carrier plan submitted **and** approved in the shortest possible time. Let us say by the end of October.

Lowering MELBOURNE's white ensign for the last time or was it? (Photo — RAN.)

THE FALKLANDS WAR



HMS INVINCIBLE at speed. (Photo — RN).

by Commodore J. A. ROBERTSON, RAN (Ret'd)

I SHOULD like to commence this article on the Falklands War by making a point about the use of armed forces to deter war.

No doubt many people have seen the opinion that, if Britain had not been in the process of running down her surface Navy, and had retained the capability of her one remaining strike carrier, the Ark Royal, then the Argentines would probably not have attempted to take the Falklands. In short, the retention of a strike carrier in the British inventory could have prevented the war occurring at all. If this is so, and I believe it is, it is ironic that Britain has had to fight a small but violent war which has cost it about 250 irreplaceable lives, hundreds of millions of dollars in daily running costs, and more hundreds of millions of dollars in military equipment which will have to be replaced; and the irony is that Ark Royal's capability was dispensed with, in the competing claims of various elements in the British force structure, in the belief that it would "save" money. The immediate conclusion is that it has proved to be a very false economy.

It is also sobering to reflect that Britain, like many other democracies, has failed to read the lessons of history so plainly available. Corelli Barnett in his book "Britain and Her Army" observed sadly that, if Britain had devoted the necessary resources to Defence in the 1930s it is highly probable that World War II in Europe would not have occurred at all. And this rearmament could have been achieved at a fraction of the cost it eventually took to fight the war. As it was, by 1945, Britain was, for all practical purposes, bankrupt, to say nothing of the horrors inflicted on so many innocent people.

Whoever it was observed that a study of history shows that peoples and governments learn nothing from a study of history certainly had a point.

We, in Australia, are no better as the current public discussion of our Defence force structure shows, day after day. Arguments are offered that we can only have a continental air defence system **or** an adequate Navy; or that equipment purchases for the Air Force and Navy can only be achieved at the expense of the Army; or that the Navy should have submarines **or** an aircraft carrier, but not both.

Of course there is a finite limit to what any popularly elected Government is prepared to spend on Defence when there is no direct threat apparent, but the intensive struggles over our very limited defence financial resources results in proponents of different elements going out of their way to denigrate what they see as competition for their own pet projects.

So I should like to make it absolutely clear that, though I am a convinced advocate of naval aviation for Australia, I also believe

HMS INVINCIBLE. (Photo — RN).

that we should have a proper continental air defence system. Indeed I believe it is a national disgrace that in 1982 Australia has no capability to control its national airspace except in a couple of very limited areas. Nor do I think we need anything less than an Army appropriate to our situation. But not at the expense of an adequate Navy either.

All the energy expended in stirring up conflict and antagonism to influence the allocation of our small Defence vote serves no noble purpose at all; and it could be more intelligently directed to increasing our Defence vote from 2.8% of GDP to something more realistic like 3.5% of GDP. With that sort of financial allocation we could go a long way towards providing the Defence forces this country really needs.

Having said that let me now turn to my assigned topic, the Falklands War as Seapower in Action.

To do this it is first necessary to understand that seapower is just another way of saying "maritime strategy". And that maritime strategy seems to me to be the most misunderstood aspect of conventional (non-nuclear) warfare.

Maritime strategy is only one of four major schools of military strategy; the other three are: continental strategy, which is about land warfare; aerospace strategy, which is about strategic bombing (whether nuclear or conventional) and, revolutionary warfare, which is the guerilla warfare of Mao, Ho Chi Minh, Nasution and Che Guevara.

None of these four schools is comprehensive enough to stand alone, however, and we need to appreciate that we may need to take something from each to apply to specific circumstances. So, though my prime interest is in maritime strategy, let me assure you that I am well aware of the need to use any or all of the others as they are appropriate.

But, since Australia's circumstances, by the hard and *unchangeable facts of geography, are essentially maritime, the* Falklands War, a war dominated by maritime strategic considerations, provides us with an excellent example of what maritime strategy is all about.

Maritime strategy is very different from continental strategy. It starts with the disarmingly simple concept that it is concerned only with three things:

One, preventing an enemy from using the sea;

Two, securing the use of the sea for yourself; and

Three, using the sea as a base to project power on to the land.

In the jargon of the trade these are called sea denial, sea assertion and power projection. The first two, sea denial and sea assertion together, are sometimes called sea control.

In Britain's case the ultimate military objective was to project power from the sea, over 8,000 miles from UK. To do that she had to exercise sea assertion, to secure the use of the sea and get her forces to the Falklands and keep them there in the face of an enemy bent on denying them the use of the sea; and, because the area was too remote from suitable land bases, the British naval forces also had to prevent both sea and air resupply of the Argentine forces occupying the islands.

So all the facets of maritime strategy were on display — sea assertion, sea denial and power projection.

Britain's sea denial mission was initiated by the declaration of *a blockade, and was successfully accomplished. Its effect was* brought home with great impact when the Argentine cruiser, the Belgrano, was sunk. There after the blockade area was extended from a 200 mile radius around the islands right up to the Argentine 12 mile territorial sea, and maintained so successfully that the Argentine surface navy was virtually excluded from the conflict. The obverse of that was that the Argentine sea assertion mission was frustrated.

Britain, on the other hand, not only achieved her sea assertion mission in the early stages, but was able to put the land forces ashore in the power projection mission which included naval gunfire support and carrier aircraft attacks on Argentina's ground forces in the Falklands.

This left the Argentines with only the sea denial mission; to use aircraft or submarines, or both, to try and prevent the Royal Navy from sustaining its initial successes.

What happened, or did not happen, to the Argentine submarines is a matter for speculation. What we do know is that the Argentine naval air arm operating from land bases with Super *Etendard aircraft and Exocet and the Argentine Air Force with* rockets and bombs made some very brave and damaging attacks on British surface forces. And this aspect, perhaps more than any other, seemed to be the most crucial part of the struggle. Certainly it dominated much of the news. In passing, it should be noted that the Argentine land based aircraft enjoyed the benefit of one of the political restrictions we so often see in limited wars — it was apparently deemed politically unacceptable to attack the Argentine air bases; the obvious military solution to the Argentine air threat. In effect the Argentines had sanctuary — as the Chinese did beyond the Yalu in the Korean War, much to General MacArthur's chagrin, and, as the Viet Cong had in Laos

HMS HERMES Sailing for the South Atlantic. *(Photo — RN).*

and Cambodia until the US bombed their Cambodian bases, but by then time was running out.

Fortunately there was no political limitation on attacks on the Port Stanley airstrip, and the RAF was able to put it out of action with runway cratering bombs. This vulnerability of fixed land bases rendering them useless, and the aircraft trapped on them ineffective, seems to have excited little interest. But, I suggest it is a significant reply to those who persist in harping on the vulnerability of ships and playing down the vulnerability of fixed land bases.

The British had to perform perhaps the most difficult task there is for surface maritime forces — power projection — and with weapons and systems designed with other objectives dominating their selection. INVINCIBLE and HERMES are Sea Control Ships, with a primary function of anti-submarine warfare and a limited air defence capability. Hence they were used as strike carriers providing both air defence and ground support, while their helicopters had to be used for both anti-submarine defence and troop carrying. Between them, the two light carriers could only muster some 20 Sea Harrier fighters to defend the force against some 100 to 200 Argentine aircraft — odds between 5-10 to 1.

And, in the air defence role they were severely restricted by the lack of naval airborne early warning aircraft which the Ark Royal had carried. To offset this deficiency the British, after the loss of the Sheffield, called in the RAF's big land based AEW Nimrods, but even with in-flight refuelling the Nimrods would have been unable to maintain a 24 hour patrol and when the Nimrods were not on station, the Harriers would have been limited to their own air intercept radars to detect intruders. No doubt it will come out eventually but I suggest that the Argentine air attacks mostly took place when there was no AEW aircraft on task. Even so, the Sea Harriers accounted for at least 30 Mirages and Skyhawks, together with Canberra bombers, Pucara strike aircraft, Hercules transports and helicopters. In the air combat role they took out all those Argentine aircraft and lost none, not one, to emeny aircraft.

It was, I suggest, one of the most impressive air defence operations ever mounted. The success of the Royal Navy pilots and their aircraft against such overwhelming odds by an enemy who pressed home his attacks with suicidal courage should go into history as one of the legendary stories of the British armed forces.

As for the other surface warships, most of the British escorts were ships configured for anti-submarine warfare to protect North Atlantic convoys under the protection of a comprehensive air defence system. Two in particular which were sunk, Ardent and Antelope, were cheap fast frigates with virtually no air defence of their own, but armed with Exocet surface to surface missiles. These two ships had to be employed in the demanding role of static defence around the beachhead at Port San Carlos providing naval gunfire support to the ground forces ashore.

It is hardly surprising that they suffered casualties, but the Royal Navy has a long tradition of staying by the Army despite its own losses. During the evacuation of Crete in World War II, for example, Admiral Cunningham was being urged by his own staff and even the Army commanders to leave the troops on the island to their fate because of the Navy's heavy losses from German aircraft attacks. Cunningham is said to have replied "It takes 300 years to build a tradition; it takes three years to build a ship. The evacuation will continue". I suggest that the RN's stoic acceptance of its losses and its unwavering support of the Army and Marines ashore were in the same tradition. And, far from pointing out the losses with such evident satisfaction as some Australian commentators have done, we should rather look at the task they discharged so faithfully with inadequate resources, and only admire the resolution and courage which sustained them.

I should also like to point out that fast corvettes or frigates, like the Ardent and Antelope, armed with surface to surface missiles are what some politicians have said they would like the Australian navy to employ — and, of course, no aircraft carrier for air defence. In hostilities this would restrict the RAN's surface ships to skulking round the coast in the few areas where they could be given land based air cover — assuming the RAAF's fixed airfields were not taken out by runway cratering weapons of course — or, alternatively, going out almost naked to an enemy air threat.

On the power projection business we saw again — as we have seen in the past — the flexibility of an amphibious assault to confuse a static fortress defence ashore, and land at a time and place of its own choosing.

In a more general sense the proponents of a Fortress Australia strategy for Australia might notice that the British employed all three of the classic methods of capturing a fortress. The three methods are:

— to subvert it morally, and the British made broadcasts and dropped leaflets on the Argentine forces;

— to starve it into submission or weaken it, and they imposed a blockade with some telling effect;

— and finally, to attack it frontally.

But proponents of the Fortress Australia strategy seem unable to comprehend that there is any other method than a frontal assault. So they constantly emphasise the bogus threat of invasion and disregard the other possibilities.

In this connection let me remind you of some wise and calmly objective remarks made by Dr Tom Millar as long ago as 1965. Dr Millar wrote:

"It is customary to begin a discussion of Australia's strategic position by pointing out that it is a continent of nearly three million square miles in area, with a coastline 12,200 miles long and a population of some twelve million. Therefore, says the strategist, Australia cannot defend itself by itself."

This, fortunately, is a grossly misleading and inaccurate deduction. The adequacy of defence is strictly relevant to the size and nature of the threat. Australia could not defend itself against a major invasion by the United States, but of course it does not need to. The Soviet Union also, if it so desired and if nobody came to our aid, could probably isolate, and, at least for a time, control Australia, although without having bases in the region or using nuclear weapons, it would be difficult. Again this is not a threat from which Australia appears to be in any danger, now or in the foreseeable future. The Soviet Union and the United States are probably the only two countries in the world which could today successfully mount an invasion and conquest of an unaided Australia.

Yet there are threats to Australian security and to Australian interests, and there are situations in which our armed forces could become involved. However, we are in no imminent danger of invasion or subjugation by a foreign power.

The first point to remember about the Australian island-continent is not that it is a continent but that it is an island. Any invasion could be mounted only by a substantial maritime and air power. *On the other hand, the protection the ocean provides also means that our external lines of communication and trade are vulnerable to sea-borne attack; and our own capacity to react to a defence threat near our borders, unless it were of the most modest size, would involve the slow and cumbersome sea transport of men, equipment and supplies.*

The point is that Australia has a major strategic requirement to be able to perform the sea assertion mission. And as we have seen in the Falklands that cannot be done without adequate air defence. There are limits to what land-based air can do from Australian bases, and those bases are by no means invulnerable, as opponents of naval aviation keep suggesting. To my mind this demands the maintenance of Australia's naval aviation and fixed wing aviation in particular, as a strategic requirement of the highest importance. That means we must have a carrier of some sort to maintain the necessary skills in this field. Not to do so would be to tell the world, and our potential enemies, that Australia had given up all ideas of sea assertion. Because, in the shadow-boxing world of force structure development when there is no conflict, of forces acquired and maintained to demonstrate that we are prepared to do certain things, if we give up our carrier capability we would be telling the world that we had lost interest in protecting our sea lines of communication beyond the limited range of land-based fighters. We would be leaving open a strategic requirement of vital importance to be exploited by a hostile power.

So I am back full circle to where I began. When the British got out of the strike carrier business it was a visible signal to the world, and Argentine in particular that they were losing interest in the power projection business, and so they ended up in a far more expensive war in the Falklands. So far as Australia is concerned, if we give up naval aviation at the modest level of the Sea Control Ship it will be an unmistakable signal to the world that Australia has relinquished its interest in sea assertion — and any minor "savings" we would make by giving up that deterrent could prove to be far more costly in the long run than we might bear to contemplate.

HMAS ALBATROSS
Maid of all Work

by LEUT J. H. STRACZEK RAN

HMAS ALBATROSS in Port Melbourne, 1929. (Photo — RAN).

ORIGIN

During the early 1920s the lynch-pin of Australia's defence policy was the development of a large British naval base at Singapore.

The intention was for Britain to base a naval squadron at Singapore which could destroy any fleet that presented a threat to Imperial security in the East. Hiding behind this proposed British Fleet, successive Australian Governments began to spend less and less on defence. Accordingly, when the British Labour Government decided to defer the Singapore Naval Base project in February, 1924, Australia had virtually no defence policy nor any modern naval forces.

With this reversal and the lack of modern naval forces the Government announced on June 27, 1924, that world-wide tenders would be called for the construction of two cruisers and two ocean-going submarines. The awarding of these contracts to British shipyards caused a nation-wide controversy, with the Labour opposition demanding that the ships should be built in Australia. By having these ships built overseas the Government was to save £1 million. However, on June 10, 1925, the Government announced that the money saved was to be used to pay for the construction of a seaplane tender at Cockatoo Island and that the ship would be named ALBATROSS.

HMAS ALBATROSS with a Seagull III in flight. (Photo — RAN).

At the time of the Government's announcement, the Royal Australian Navy had no requirement or plans to build such a ship. However, shortly after the announcement, a telegram was sent to the Director of Naval Construction in London requesting that they design a seaplane carrier for the RAN. Along with the request to design the ship were the RAN's specifications. These included:

(a) a maximum speed of not less than 21 knots; and
(b) a cost not exceeding £1 million.

Given the lack of detailed specifications and the fact that the type and number of seaplanes to be carried was not known, the designers faced an extremely difficult task. In an attempt to get around some of these problems, the design team decided to use the Fairey IIID, which was in service with the RAAF, as the aircraft around which to design the ship. Another arbitary decision made by the design team was that the ship would carry nine aircraft. Once these decisions had been made the design of the ship progressed rapidly.

Basically ALBATROSS was designed around a large hangar, which was divided into three bays and ran almost half the length of the ship. Above the hangar was the flight deck with the catapult, which was not fitted till 1936, and three large electric cranes. These cranes were designed to assist in handling the aircraft whilst on deck as well as lifting the aircraft into and out of the water. Surrounding the hangars were the aircraft

workshops, ship's company cafeterias and other amenities. The majority of the accommodation and administrative offices were located in the aft section of the ship.

Once the design work had been finalised, steel plates were cut and sections were shipped from the UK to Australia. After sufficient drawings and sections had arrived at Cockatoo Island the keel to Ship No 106 was laid, on April 16, 1926, and construction of ALBATROSS began in earnest.

Whilst under construction controversy once again surrounded ALBATROSS. This time the cause of the controversy was the fact that a large number of the ship's fittings were being procured in the United Kingdom as opposed to being purchased from Australian sources. The major exception to this were the engines which were built at Cockatoo Island. The Government's response to this criticism was to claim that the items being obtained from the UK were specialised fittings for naval vessels and could not be obtained from Australian sources.

Despite the paper war that was raging around her, work on the ship progressed steadily until finally on February 21, 1928, the largest warship to have been built in Australia was launched by Lady Stonehaven, wife of the Governor-General.

A stern view of the carrier. A seaplane is parked on the forward deck area. *(Photo — RAN).*

ALBATROSS were drawn from HMA Ships STALWART, SWORDSMAN and SUCCESS. The latter pair had been in refit from September, 1928, and were supplemented by men from various naval establishments.

Seagull III, No A9-3 being hoisted aboard. *(Photo — RAN).*

IN SERVICE

Shortly after the ship was launched, fitting out commenced and by the beginning of November, 1928, ALBATROSS was ready to commence her trials.

The majority of the trails crew for

ALBATROSS sailed for her gunnery trials on November 4, 1928. These consisted of firing four single shots at various elevations and bearings followed by 15 rounds rapid fire, again at various elevations and bearings. During these trials the No 3 gun (located on the quarter deck) failed to fire due to a faulty breech mechanism and so could not complete the trials. However, after minor modifications were made to the breech mechanism the gun successfully completed her trials. By the time the gunnery trials were completed ALBATROSS had used up the last of the 4.7 inch ammunition in Australia.

Final acceptance trials for the carrier commenced on November 16, 1928, and continued through till December 21, 1928. These included inclination trials carried out in the No 1 dock at Cockatoo Island on December 7, 1928. During these trials ALBATROSS exceeded her design speed and reached a maximum 22.87 knots. On completion of her trials ALBATROSS returned to Cockatoo Island to have a few minor defects rectified. Included in these were the addition of two extra cabins in the aft section of the ship as well as repairs to the bearing in the main engine gearings.

Whilst still undergoing trials, plans were being made to use ALBATROSS and her aircraft to assist in surveys of the Barrier Reef. This proposal, however, did not eventuate as it was overtaken by events when the government decided to use the ship for the Governor-General's tour of the mandated territories of Papua and New Guinea in late 1929. ALBATROSS was selected for this role because of her size and the availability of her aircraft.

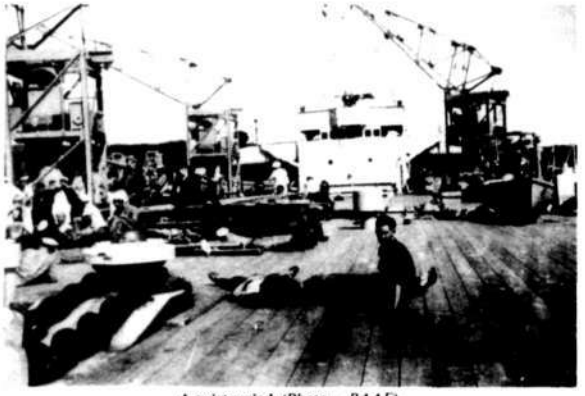
Finally, four years after being ordered HMAS ALBATROSS was commissioned into the Royal Australian Navy on January 23, 1929. The first Commanding Officer was Captain Denham M. Bedford RN. The majority of his crew were obtained from HMAS BRISBANE, which was being paid-off. Within a fortnight of commissioning, ALBATROSS sailed on her maiden summer cruise to Hobart where she took part in the annual regatta. After spending two weeks in Hobart ALBATROSS sailed north for Port Phillip Bay where she was to embark her aircraft for the first time. After receiving her aircraft on February 25, 1929, ALBATROSS sailed for Melbourne for a two week maintenance period as well as some leave for the crew. Due to the flaired design of her hull, ALBATROSS was required to berth alongside Station Pier using catamarans.

With the conclusion of her two week visit to Melbourne, ALBATROSS sailed on March 6 for the Jervis Bay exercise area to commence her work up period. Included in this work up were gunnery, aircraft, shiphandling and seamanship exercises. These duties were bought to a spectacular finish with a night time flotilla attack on ALBATROSS by the destroyers of the Australian Squadron. With the exercises completed ALBATROSS returned to Sydney where she arrived on March 26, 1929. Upon arrival ALBATROSS commenced a maintenance

period, using the dockyard's facilities, while her crew started their leave period.

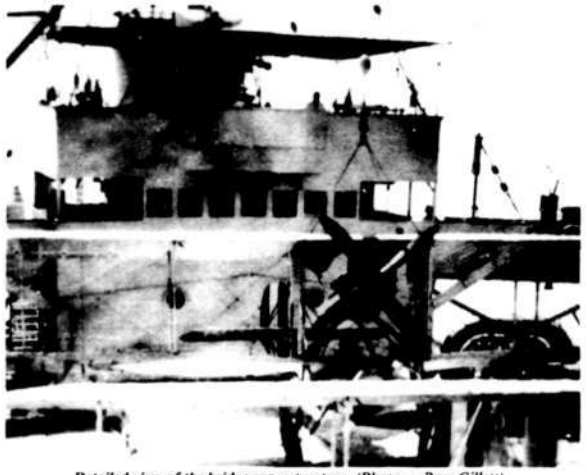
Whilst ALBATROSS' ships company were preparing for their short but well earned leave, another group of Australians were about to set in motion the train of events that would lead to one of the most controversial episodes of Australian aviation history.

On March 30, 1929, Charles Kingsford Smith, accompanied by Charles Ulm as co-pilot, M. A. Litchfield as navigator and T. H. McWilliams as radio operator, took off from Richmond aerodrome on the first leg of a flight to the United Kingdom. Shortly after take-off the aircraft lost its long-wave aerial, which prevented the Southern Cross from receiving any radio messages. After being told of the loss, Smithy decided to continue on to Wyndham. As a result of losing the aerial Smithy and his crew had no way of knowing that they were flying into a dust storm.



A quiet period. (Photo — RAAF).

Once in the dust storm, visibility was reduced to zero and it wasn't long before the Southern Cross veered off course and eventually passed to the north of Wyndham. The first group of buildings sighted by the Southern Cross' crew was Drysdale Mission Station, located north-west of Wyndham. After sighting the buildings, the Southern Cross circled overhead and a message was dropped requesting the direction to Wyndham. Unfortunately, the mission staff did not notice the message and indicated the direction to the nearest landing field, which was south-west of the mission. Smithy headed in this direction until they reached the Port George Mission. From the mission staff Smithy learnt that Wyndham was located approximately due east and headed in that direction. After travelling approximately one-third of the distance to Wyndham, Smithy decided to return to Port George Mission as he had insufficient fuel to reach Wyndham. The Southern Cross never reached Port George Mission. The last heard of the Southern Cross, on March 31, was an abruptly ending radio message: "Hopelessly lost in dense bush, faced with landing in a place we believe to be 150 miles from Wyndham in rotten country . . ."



Detailed view of the bridge superstructure. (Photo — Ross Gillett).

By April 6, 1929, the anxiety over the loss of the Southern Cross had reached the highest levels of government with enquiries being made as to the availability of ALBATROSS to assist in the search. However, ALBATROSS was undergoing a maintenance period at Garden Island and was not capable of proceeding to sea. As well as having diesels and other pieces of machinery dismantled a large number of her crew had gone on leave and others were preparing to go.

On April 10, 1929, the Naval Board signalled that HMAS ALBATROSS was to be made ready for proceeding to the north-west of Australia to assist in searching for the Southern Cross. Upon receipt of this signal all personnel were recalled from leave, the short fall in the ship's company was to be made up by borrowing personnel from HMAS PENGUIN. After taking on extra fuel and provisions ALBATROSS sailed for the search area on 12 April. Roughly six hours after she sailed ALBATROSS received advice that the Southern Cross had been located and she was to return to Sydney at her economical speed.

On return to Sydney ALBATROSS reverted to the normal peace-time routine of exercises and maintenance. In late May, 1929, ALBATROSS joined other ships of the Australian Squadron in exercises with ships of the New Zealand Division of the Royal Navy. After the exercises were completed the ships anchored in Hervey Bay where the RAAF provided some light entertainment for the sailors in the form of a seaplane race on the ship's stern.

After these exercises ALBATROSS returned to Sydney where preparations were made to embark the Governor-General and his party for their tour of New Guinea and the Mandated Territories.

HMAS ALBATROSS paying off. (Photo — M. MacDonald).

Prior to departing on the Vice-Regal Tour ALBATROSS embarked a Wackett Widgeon seaplane, for tropical trials, in addition to her Seagull IIIs. His Excellency the Governor-General, Lord Stonehaven and his wife joined ALBATROSS prior to the ship sailing for New Guinea on July 10, 1929.

The first port of call on the cruise was Rabaul where ALBATROSS arrived on July 15, 1929. Highlight of the stay in Rabaul was a spectacular night display which culminated in ALBATROSS illuminating ship. On completion of the cruise ALBATROSS returned to Sydney via Thursday Island, Cooktown and Brisbane. After her return to Sydney, questions were asked in Parliament as to the cost of the cruise. These were answered by the government claiming that there were no additional costs involved in having the Governor-General go on the cruise as the ship was programmed to go to New Guinea anyway.

With the Vice-Regal Tour completed ALBATROSS once again settled into the routine of a peace-time Navy. Her next major voyage was to Hobart in January, 1930, for the annual Kingston regatta. Whilst in Hobart, ALBATROSS' aircraft gave an impressive display of low level flying and bombing, and she combined with HMAS AUSTRALIA to give the citizens of Hobart a searchlight spectacular. After acting as flagship for the Kingston regatta, ALBATROSS joined the other ships of the Squadron in North-west Bay on February 24, 1930.

Towards the end of the 1930 Summer Cruise the first fatal accident involving one of ALBATROSS' aircraft occurred. On March 19, whilst observing the fall of shot from HMAS AUSTRALIA, Seagull No 9-4 crashed into the water killing A/Leading Telegraphist Donald McGowan. For the remainder of the year ALBATROSS continued to exercise with the ships of the Australian Squadron. During one of the regular maintenance periods between exercises a blast shield was fitted between X and Y gun mounts on the ship's stern.

As 1930 drew to a close the effects of the World Depression were beginning to be felt throughout Australia and in particular by the RAN. The operational strength of the RAN was being reduced to HMAShips AUSTRALIA, CANBERRA, ALBATROSS and one S Class destroyer with total manpower dropping to 3250.

During 1931, both Naval and Air Force officials began to recognise the unsuitability of the Seagull III for operational work with ALBATROSS. An illustration of the poor performance of the aircraft was given by a letter from the Rear Admiral Commanding HM Australian Squadron, dated February 18, 1931; "On 10FEB31, A9-5 in good flying condition failed to climb above 300 feet and lost height continuously." In an attempt to solve this problem various proposals were put forward. These included; equipping four Westland Wapiti aircraft with folding wings and floats or procuring new Fairey III F float planes. Both proposals failed to eventuate and the RAAF began to formulate plans to design and acquire new aircraft. These aircraft were eventually to materialise as the Seagull V or, as it was known by the RN, Walrus. In the immediate future, however, the aircraft complement was decreased to four.

In June, 1931, whilst returning to Sydney from Hobart, ALBATROSS called into Jervis Bay to pick-up Mr Francis Chichester who had landed the night before. Mr Chichester had just completed the last leg of his round the world flight when he landed on Jervis Bay on June 6, 1931. After failing to take-off his aircraft was towed to the Naval College where it was placed on the slipway under RAAF guard. The following day, during attempts to hoist the aircraft onboard ALBATROSS, Mr Chichester's hand was crushed and the top of his middle finger amputated. Once the aircraft was onboard, ALBATROSS sailed for Sydney arriving on June 12, 1931.

With the worsening economic climate within Australia during 1932, as a result of the world-wide depression, the activities of the Royal Australian Navy were drastically curtailed. Subsequently, steaming time for the fleet was also reduced, however, ALBATROSS did manage to visit Port Kembla in May, 1932. The reaction of certain elements of the community to this visit showed the deep divisions that were beginning to occur in the Australian community. When ALBATROSS arrived in Port Kembla they were greeted with the following leader in the Labour Daily, a workers' newspaper, "Is the Commonwealth Government attempting to terrorize and intimidate citizens by this unusual display of militarism and naval force." Fortunately today, the reaction of the *public does not follow that of the 1930s.*

Later, in 1932, ALBATROSS departed for a cruise to northern Australia. During this cruise ALBATROSS towed the collier HANKOW from Thursday Island to Darwin. Whilst at Thursday Island an OOW was overheard instructing the Coxswain of ALBATROSS' motor cutter to go to Man-O-War Steps and back. Unfortunately, history does not record the Coxswain's reply to the OOW.

TO RESERVE

With the arrival of 1933 came rumours of the impending paying-off of ALBATROSS.

These rumours were further fuelled when on March 20, 1933, Commander H. L. Howden RAN assumed temporary command of ALBATROSS from Captain C. J. Pope RAN, who was posted to PENGUIN as Captain Superintendant Sydney. These rumours were finally proven to be true when on April 4, 1933, Commonwealth Naval Order 52/1933 was

In RN service and with catapult fitted. The aircraft hatch is opened. (Photo — RAN).

issued. CNO 52/1933 contained the following instructions:

"It is notified that from March 23, 1933, HMAS ALBATROSS was detached from the Command of Rear-Admiral Commanding HMA Squadron and placed under the orders of the Captain Superintendant Sydney. HMAS ALBATROSS will be paid-off into E Class reserve on April 26, 1933."

Even though she was paid-off into reserve ALBATROSS continued to be used as an operating base for seaplanes visiting Sydney Harbour. As well as providing refuelling and mooring facilities for seaplanes, minor repairs were carried out onboard ALBATROSS. When ALBATROSS was activated to serve as an operating base the majority of personnel serving onboard came from 101 FLT at RAAF Base Richmond whilst the RAN provided personnel to operate the cranes.

After spending just under two years in reserve, action was initiated to recommission ALBATROSS. Included in the steps to bring ALBATROSS to operational status was the fitting of a type EIIIH rotating aircraft catapult. Shortly after fitting the catapult trials were carried out in Sydney Harbour using the new Seagull V seaplanes. This was the first time that ALBATROSS' catapult was used and also the first time ALBATROSS was fittd out as originally conceived.

The Seagull V (later designated Walrus I) was originally designed to RAAF specifications so as to operate on ALBATROSS. Unfortunately when the final product arrived it was found that the aircraft was too high to fit into ALBATROSS' hangar (which had a minimum clearance of 16 feet). To get around this problem special trolleys were constructed so that the aircraft could be moved around on deck and in the hangar whilst their undercarriage was retracted.

Certain administrative steps had also been taken to assist in the possiblle recommissioning of ALBATROSS. The first of these was the addition of new clauses, to the 1921 Washington Naval Treaty, which exempted ALBATROSS from inclusion into a restricted warship category. The other important step taken was to reorganise 101 FLT into No 5 Squadron RAAF and to establish a new air organisation with ALBATROSS as the carrier. Unfortunately, all the work put into bringing ALBATROSS up to an operational status was in vain as it was later decided to leave her in reserve.

Negotiations were commenced in 1938 with the Royal Navy to trade in ALBATROSS as part payment for the cruiser HMS APOLLO. Once the Royal Navy had agreed to the transfer, ALBATROSS was recommissioned, on April 19, 1938, and final preparations were made for the hand-over. To facilitate the commissioning of HMS APOLLO, as HMAS HOBART, the internal administration of ALBATROSS was changed to that of a cruiser.

Finally, on July 11, 1938, under the command of Captain Dyke-Ackland RN, flying a 400 ft paying off pendant and escorted by a flight of Seagull V amphibians, ALBATROSS slowly headed down the harbour towards the open sea.

TRANSFER

Amongst ALBATROSS' crew were two RN sailors who had deserted from HMS DORSETSHIRE.

They were to be handed over to the RN at ALBATROSS' first port of call, Singapore. Other ports on the voyage to the UK were: Colombo, Aden, Suez, Port Said, Gibraltar and finally Devonport. Whilst in Gibraltar the crew of the ALBATROSS witnessed a battle between a Franco cruiser and a Loyalist destroyer.

Heavy weather in the Atlantic, World War II. A seaplane is carried atop the catapult. (Photo — RAN).

After the battle the destroyer limped into Gibraltar where her dead were buried with full military honours. Members of ALBATROSS' crew formed part of the cortege for the funeral.

As ALBATROSS arrived in the UK events in other parts of Europe were pointing towards an outbreak of war. So the ship's company were quickly transferred to and commissioned HMAS HOBART whilst the RN commissioned HMS ALBATROSS. Once the Munich Crisis was over the Royal Navy decommissioned ALBATROSS and placed her in reserve, after removing her slightly used catapult.

ROYAL NAVY SERVICE

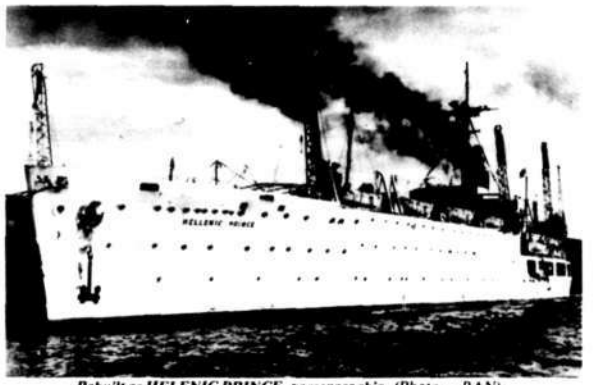
ALBATROSS was recommissioned in September, 1939, shortly before the outbreak of the Second World War.

After embarking six Walrus aircraft of 710 Squadron ALBATROSS sailed for Freetown from where her aircraft were to carry out anti-submarine patrols into the South Atlantic. Naval aircraft were used for this purpose because the RAF did not have the aircraft numbers or types to do the job.

When she arrived in Freetown ALBATROSS was the only aircraft carrier on the South Atlantic Station. Unfortunately as she did not have her catapult ALBATROSS' aircraft were of little use in the South Atlantic.

On June 24, 1940, Vice-Admiral George D'Oyly Lyon, C in C South Atlantic embarked in ALBATROSS and sailed for Dakar. Upon arrival he attempted to negotiate the neutralisation of the Vichy French Fleet in Dakar. Whilst these negotiations were being carried out, Walrus aircraft from ALBATROSS were shadowing the French battleship RICHELIEU which was cruising off the coast. The negotiations being carried out in Dakar eventually broke down and Vice-Admiral D'Oyly Lyon returned to Freetown. The French Fleet at Dakar was later neutralised by an attack by Royal Navy task force based around the aircraft carriers HMS HERMES And HMS ARK ROYAL. After returning to Freetown ALBATROSS' aircraft re-commenced their lonely Atlantic patrols. Yet once again, the lack of a catapult hindered ALBATROSS from fully performing assigned roles.

In May, 1941, ALBATROSS disembarked 710 Squadron to RNAS HASTINGS, the newly established air base in West Africa and prepared for a well earned refit. ALBATROSS sailed for Simonstown, in June, 1941, where she commenced a three month refit after her arrival. During this refit a catapult from HMS ORION was fitted to the ship. On completion ALBATROSS returned to Freetown and once again assumed her duties as the resident aircraft carrier in the South Atlantic.



Rebuilt as HELENIC PRINCE, passenger ship. *(Photo — RAN).*

After only three months on station ALBATROSS sailed from Freetown, this time for Mobile, USA, to undergo another refit. She arrived in Mobile on January 13, 1942, after calling in at Trinidad for a brief visit. Whilst ALBATROSS was undergoing her refit in Mobile, aircraft from the RAF finally arrived at Freetown to assume the trade protection duties which ALBATROSS' aircraft had been carrying out. ALBATROSS sailed from Mobile on April 2, 1942, and returned to Freetown to embark her aircraft. After the embarkation of 710 Squadron, now increased to nine aircraft, ALBATROSS sailed for her new war station on the east coast of Africa.

Shortly after she arrived at her new base at Kilindini (near Mombasa) two of ALBATROSS' aircraft were fitted with ASV radar to assist in their work. From May till August, 1942, ABATROSS' aircraft carried out regular but uneventful patrols along the coast and into the western Indian Ocean. In September, 1942, ALBATROSS sailed for Madagascar where she was to act as command ship for the final operation phase of the capture of the southern part of the island. ALBATROSS was to remain in Madagascan waters till November, 1942. During this time her aircraft were employed in carrying out reconnaissance and photographic patrols in support of the military operations. After the conclusion of the Madagascar campaign ALBATROSS sailed for Durban where she commenced a repair and maintenance period on November 30, 1942.

At the end of this maintenance period (on March 4, 1943), ALBATROSS sailed from Durban for Bombay. During part of the voyage she was escorted by HMAS QUICKMATCH, arriving on March 27, 1943. Whilst operating off the Indian coast, ALBATROSS served as a headquarters and training ship for Combined Operations. During this period she also carried out cruises to the Gulf of Kutch to locate suitable areas for Combined Operations training. ALBATROSS returned to Mombasa in August, 1943. This stay, however, was a very short one as she sailed as soon as all aircraft and aviation stores had been landed. Carrying 710 Squadron personnel and other passengers ALBATROSS departed Mombasa for the UK on August 17, 1943.

Shortly after arriving at Devonport, on October 6, 1943, ALBATROSS sailed for sea trials with the new Supermarine Sea Otter amphibian. At the conclusion of these trials she returned to Devonport and disembarked the last of 710 Squadron personnel. With all aviation equipment removed and the last of 710 Squadron ashore ALBATROSS again paid off into reserve, on November 5, 1943. However, on April 17, 1944, the ship was converted to a Landing Craft Repair Ship, recommissioning in May, 1944. ALBATROSS was ideally suited for her new role as a repair ship being fitted with her high capacity cranes and a large hangar, which was converted into workshops containing lathes, milling machines and a forge.

After completing her refit ALBATROSS sailed for Portsmouth in May, 1944, where she was allocated to SWORD Force for the invasion of Normandy. Once the invasion was underway ALBATROSS sailed for the beach head area where she was to provide invaluable assistance repairing damaged landing craft. Whilst carrying out her repair work ALBATROSS was attacked

by a JU 88 which she shot down, and engaged by two shore batteries, receiving a single hit which caused minor damage. On July 1, 1944, ALBATROSS was re-allocated to GOLD Force and moved to new position at Gooseberry 5, north of Ouistreham.

On the morning of August 11, 1944, ALBATROSS was hit near the port 4.7" magazine by a long-range circling torpedo, known as a Marder. The damage from the torpedo killed 50 of ALBATROSS' crew and caused the ship to list 15°. However, this was rapidly corrected. After emergency repairs were carried out ALBATROSS left the battle area for England.

During her period off the Normandy beaches ALBATROSS repaired almost 200 vessels which otherwise would have been lost.

Upon her return to Portsmouth temporary repairs were carried out but she was not made fit for further active service. From November, 1944, ALBATROSS acted as a Depot and Repair Ship for Portsmouth based mine-sweepers and escorts. With the end of the war in Europe rapidly approaching ALBATROSS was reduced to reserve in July, 1945, and moved to Falmouth where, on August 8, 1945, she was finally paid-off from the Royal Navy.

After being paid-off ALBATROSS was laid up off the Isle of Wight, with other surplus warships, until the Admiralty decided her fate. In 1946, the Admiralty sold ALBATROSS to a Bristol scrap dealer for the princely sum of £35,000 Shortly after buying the ship the scrap dealer resold her to the South Western Steam Navigation Company of Torquay. After her sale to the SWSN company ALBATROSS sailed, under the command of Captain Frank Dyer, for Chatham. Whilst on route to Chatham ALBATROSS rendered assistance to a man and his wife whose sailing barge was in trouble in the channel.

On arrival at Chatham ALBATROSS entered No 5 drydock where she was given a complete refit to convert her to a civilian ship. Once this work was finished ALBATROSS sailed for Torquay on December 30, 1946. After her arrival ALBATROSS spent the rest of the winter moored in the Binham Roads. By the time ALBATROSS was ready to sail in March, 1947, both her anchor cables had become hopelessly twisted as a result of the winter gales. In order to allow the ship to sail, a tug had to be hired to tow her by the stern in circles so as to untwist the cable. With her anchor cable free ALBATROSS weighed anchor and sailed for Millbay Docks, Portsmouth. After spending some time alongside in Portsmouth ALBATROSS was moved to Torquay where her owners intended to convert her into a floating cabaret, renamed PRIDE OF TORQUAY.

Fortunately, before she suffered this fate ALBATROSS was resold to a Greco-British shipping company known as the Yannoulator Group. ALBATROSS' new owners sailed her to Barry, Wales, where she underwent a £200,000 conversion to a migrant ship.

The conversion included installation of air-conditioning to all accommodation spaces, two cinemas and a dining saloon with a capacity of 560. Three hospitals, one each for males and females and an isolation hospital for children, were also added during the refit. Once this work was completed, ALBATROSS, now known as HELLENIC PRINCE, was chartered by the International Refugee Organisation to assist in the relocation of displaced persons. In this, her new role, the old ALBATROSS made several visits to Sydney and Melbourne carrying displaced persons from Europe to their new homes in Australia.

Shortly after her charter with the IRO was concluded ALBATROSS was chartered to transport troops from England to Kenya during the Mau-Mau uprisings. On one of these trips ALBATROSS ran aground and had to be towed into Mombasa Harbour. Not long after this the Yanoulator Group sold ALBATROSS to a Hong Kong ship-breaker.

From August 12, 1954, onwards, ALBATROSS was slowly reduced to scrap metal by the relentless flame of a cutting torch. Her chequered, but distinguished career had finally ended.

HMAS ALBATROSS
— Ship's Particulars

Designer:
Directorate of Naval Construction, London.
Builder:
Cockatoo Docks and Engineering Company Pty Ltd
Ordered:
June 10, 1925.
Laid Down:
April 16, 1926.
Launched:
February 23, 1928.
Launched By:
Lady Stonehaven, wife of the Governor-General.
Completed:
December 21, 1928.
Commissioned:
January 23, 1929.
Displacement:
As Built — Standard 4800 tons.
Full Load 6000 tons
1945 — Standard ... tons.
Full Load 6340 tons.
Dimensions:
Length — PP 422 ft 1 in.
OA — 433 ft 7 ins.
Beam — Nominal — 58 ft.
Over bulges — 60 ft 10 ins.
Over sponsons — 77 ft 9 ins.
Draught — Mean — 13 ft 9 ins.
Max — 16 ft 3 ins.
For'd at Full Load — 18 ft 0 in.
Aft at Full Load — 16 ft 5 ins.
Machinery:
4 Yarrow small — tub, boilers.
2 sets Parsons singled reduction geared turbines.
2 shafts.
12000 shp max designed.
10800 shp max continuous.
Fuel Stowage:
FFO — 942 tons.
Dieso — 48 tons.
Aviation — 8300 gallons.
Speed:
Max designed — 21 knots.
On trials — 22.87 knots.
RN trials — 22.3 knots.
Endurance:
Clean — 12150 miles at 10 knots.
4200 miles at 22 knots.
Foul — 10300 miles at 10 knots.
3570 miles at 22 knots.
Armament:
As Built — 4 x 1 4.7"/40 cal Mk VIII QF HA.
2 x 1 2 pdr AA on Mk II mountings.
4 x 1 Vickers MG.
10 x 1 303 Lewis MG.
5 x 2 303 Lewis MG.
4 x 1 3 pdr Hotchkiss saluting guns.
1929 — 2 x 1 2 pdr added.
1938 — 2 x 1 Vickers MG removed.
1939 — 2 x 1 3 pdr removed.
1942 — 2 x 1 3 pdr removed.
10 x 1 Lewis MG removed.
6 x 1 20 mm AA added.
1944 — 2 x 1 4.7"/40 cal removed.
4 x 1 2 pdr AA removed.
4 x 4 2 pdr AA added.
Final Armament — 2 x 1 4.7"/40 cal.
4 x 4 2 pdr AA.
6 x 1 20 mm AA.
2 x 1 Vickers MG.
Aircraft:
As Designed — 9 Seagull III amphibians (6 operational + 3 reserve).
1929 — 6 Seagull III amphibians.
1931 — 4 Seagull III amphibians.
1933 — All aircraft removed.
1939 — 6 Seagull V and 3 Walrus amphibians.
1940 — 9 Walrus amphibians.
1943 — All aircraft removed.
Magazine:
4.7" QF Cartridges — Semi AP 280 rounds.
HE (AA time fuzed) 600 rounds.
Target Smoke 60 rounds.
Star 50 rounds.
Practice 60 rounds.
2 pdr Cartridges HE 180 boxes.
Common pointed 150 boxes.
LA practice 40 boxes.
AA practice 10 boxes.
Practice 10 boxes.
Bomb Room — 250 lb SAP 36.
100 lb LC 72.
20 lb 100.
Complement:
RAN — 32 Officers and 310 ratings.
RAAF — 6 Officers and 24 airmen.
Costs:
To Build — £1,187,881.
To Run (does not include pay for ships company) 1929/30 — £44,937; 1930/31 — £40,000 (est).
In reserve (includes pay for ships company of 67) — £25,000 (annual).
Costs:
Amount paid by Royal Navy — £266,500.
Fate:
Broken up in Hong Kong during August, 1954.
Commanding Officers:
Captain D. M. T. Bedford RN — Jan 23, '29-Aug 14, '30; Captain H. J. Feakes RAN — Aug 14, '30-Aug 3, '31; Captain C. J. Pope RAN — Aug 3, '31-Mar 20, '33; Commander H. L. Howden RAN — Mar 20, '33-Apr 26, '33; Captain H. G. D. Acland DSO RN, for final voyage only.

Starboard quarter view of the former seaplane carrier. *(Photo — Mitchell Library).*

NAVAL AWARENESS SYMPOSIUM TO BE HELD IN SYDNEY

by PETER BALLESTY ***President, NSW Division, Navy League of Australia***

The New South Wales Division of the Navy League, in conjunction with the New South Wales Section of the Naval Association of Australia, has planned a public symposium to be held at The Anzac Club, College Street, Sydney on Friday September 24, 1982, from 1.30 pm till 5.00 pm. Entry to the Symposium is free.

The aims of this function are to:

- increase community awareness of the Navy's philosophies.
- promote a better public understanding of the Navy's development strategies.
- encourage a more active interest in maritime matters.
- provide a suitable forum for the Navy to project its aims and needs.
- allow influential community leaders and members of the public to initiate pertinent questions and advance their own ideas.

The Chief of Naval Staff, Vice Admiral D. W. Leach, AO, CBE, MVO, RAN, has been most co-operative and in response to our requests has provided the services of senior RAN Officers who are highly skilled in the topics we have chosen for discussion.

Naturally the symposium will be open to all interested parties (we can accommodate approximately 290). However our invited audience will include prominent men and women from the community, leaders of business and industry, officials from both State and local government, together with representatives from community organisations and media.

Three major subjects will be addressed by the symposium.

1. Naval Force Structure and Requirements or The Navy Today and Tomorrow — RADM J. W. KNOX, RAN.
2. Tactical Naval Air — CDRE N. RALPH, AM, DSC, ADC, RAN.
3. The Navy's Industrial/Commercial Requirements in the Sydney area — CAPT D. YORK, RAN.

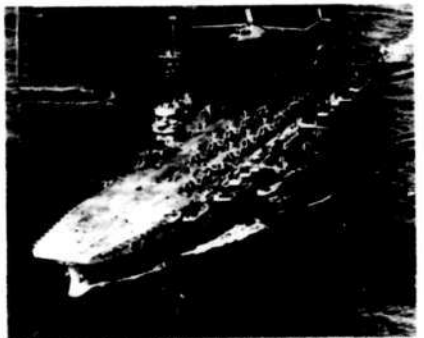
Each topic will be followd by a discussion/question period of twenty minutes.

The symposium will be fully sponsored and administered by the Navy League and the Naval Association, and both organisations will provide ancillary speakers.

Anyone who wishes to attend the symposium and would like to have a reserved seat allocated, should telephone either **John Jeppeson (business 212 1011) or Peter Ballesty (AH 451 3594).**

The Light Fleet Carriers

HMAS SYDNEY, sailing Plymouth 1948, not long after commissioning into the RAN. *(Photo — RAN).*



Until the arrival of HMAS MELBOURNE, HMS VENGEANCE was commissioned in the RAN. Nineteen aircraft are parked on the flight deck, together with a mixture of vehicles aft. *(Photo — RAN).*

HMAS MELBOURNE leads USS BENNINGTON and HMS ARK ROYAL during SEATO exercise "Sea Devil" held from April 16 to May 1, 1962. Four Gannets are parked forward. *(Photo — RAN).*

HMAS AUSTRALIA with a Sopwith 1½ Strutter taking off from her 12-inch twin turret. *(Photo — RAN).*

Sopwith Baby being hoisted onboard Brisbane in World War I. *(Photo — RAN).*

AUSTRALIAN NAVAL AIR POWER
from the beginning

by LCDR RAY JONES

THE EARLY YEARS

The first operation of aircraft by RAN ships was during the First World War when float and wheeled bi-planes were operated by various ships.

HMAS BRISBANE was first when she briefly operated a float fitted Sopwith Baby seaplane in the Indian Ocean while searching for a German commerce raider. After the search the aircraft was handed back to the Royal Naval Air Service.

In the North Sea, HMA ships AUSTRALIA, MELBOURNE and SYDNEY operated wheeled fighters (Sopwith Pup or Camel) from flying-off platforms built over, or on, gun turrets. The need for air defence against German Zeppelins was so great that the high probability of the fighter from these platforms ditching after its single flight was accepted. Theoretically the aircraft would be recovered from the water but this did not become a regular event because the submarine threat made ships reluctant to stop long enough to recover the aircraft.

Larger ships, battle-cruisers and battleships, among them AUSTRALIA, carried larger two-seat reconnaissance aircraft on one midship turret and a fighter on the other midship turret. This aircraft was available on the same one-flight basis as a fighter with the underlying theory that there would be enough in a Fleet to allow launch as required during a three or four day sweep in the North Sea.

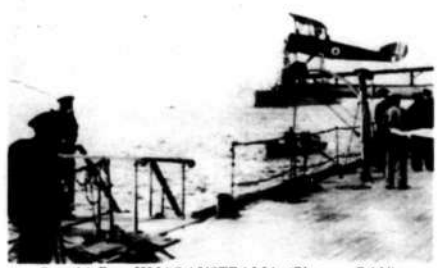
When the return of the RAN ships to Australia after the war was being planned the Australian Naval Board was advised by the Admiralty not to retain the aircraft unless an entire Naval Air Service was established. The RAN had ambitions towards a Royal Australian Naval Air Service but was meeting great difficulty in implementing plans so the aircraft were landed in UK.

INTER-WAR YEARS

In 1920 an Army Aviation Corps seaplane (an Avro 504K) was embarked in AUSTRALIA as a trial; it was stowed abreast the funnel and hoisted outboard by the coal derrick.

Operation in southern waters (Hobart and Sydney) was favourably reported upon but then the battle-cruiser paid off and the seaplane was transferred to the much smaller light cruiser MELBOURNE and many problems arose, especially in the tropics. The aircraft was landed in November, 1920.

A Sopwith Camel of the RNAS aboard HMAS SYDNEY. *(Photo — RAN).*



Sopwith Pup, HMAS AUSTRALIA. *(Photo — RAN).*

Avro 504L in Cairns during the 1920s. This aircraft was operated from HMAS MELBOURNE. (Photo — RAN).

During her tropic trials in 1929, ALBATROSS carried a Wackett Widgeon Mk 1. (Photo — RAN).

In her original RAN markings, the Fairy IIID was flown from HMAS GERANIUM. (Photo — RAN).

The Seagull III was embarked in the cruisers during World War II, as well as HMAS ALBATROSS. (Photo — RAN).

The Seagull V (later called the Walrus). (Photo — RAN).

The newly formed Royal Australian Air Force took over an order for six Fairey 3D seaplanes which were delivered wearing the marking 'ANA' (Australian Naval Aircraft) but served their brief careers in the Air Force. The Fairey 3D was a large seaplane which had been intended to embark in RAN cruisers but did not do so. The only RAN ship in which it served was the survey sloop HMAS GERANIUM operating on the Great Barrier Reef in 1923.

Six Supermarine Seagull Mark 3 wooden, boat-hulled, single engined bi-plane amphibians were ordered in 1925 as survey and training aircraft for the Air Force. Despite unfavourable reports from the United Kingdom the aircraft was bought because it was the only available amphibian and amphibious capability was essential for the surveying task envisaged for the aircraft. From 1925 to 1928 the Seagull 3 served in 101 (Fleet Co-operation) Flight surveying on the Barrier Reef from shore bases. In those years the flight was manned by naval and air force aircrew.

In 1929 the seaplane carrier HMAS ALBATROSS commissioned. Acquisition of new amphibians to replace the Seagull 3 and embark in ALBATROSS had been intended but, amid severe financial stringency and unavailability of a suitable replacement, the Seagull 3s were retained. Three more were obtained at scrap value from Britain to augment the original six.

Seagull 3s embarked in the seaplane carrier until 1933 when she paid off into reserve. With the carrier no longer available the amphibians continued to embark in the heavy cruisers AUSTRALIA and CANBERRA providing the aviation capabilities the RAN had grown to depend upon. The cruisers were not yet catapult fitted, and the aircraft was not stressed for catapulting, so Seagull operation depended entirely on suitable sea states prevailing.

In June, 1933, a few months after ALBATROSS paid-off, the prototype Seagull Mark 5 first flew. This metal hulled bi-plane amphibian had been built by Supermarine to a specification prepared by the Chief of the Air Staff for an aircraft suitable for ALBATROSS and RAN cruisers. 24 were delivered to Australia by 1937 and many hundreds were built for the British Services as the Walrus.

SECOND WORLD WAR

During the Second World War a single Seagull 5 (or Walrus) and cordite catapult equipped the heavy cruisers AUSTRALIA and CANBERRA and the light cruisers SYDNEY, HOBART and PERTH; for a short while CANBERRA carried a second operational aircraft.

The armed merchant cruisers MANOORA and WESTRALIA also carried an aircraft each but without a catapult.

Despite its aged appearance the Seagull 5/Walrus was sturdy, reliable and seaworthy. It provided the over the horizon reconnaissance essential in pre-radar days and spotted for gunfire when action opened.

Australian Seagull 5/Walrus served world-wide and three were shot down while operating in support of Naval forces. As the war progressed cruiser borne aircraft were increasingly replaced by alternatives but during the commerce warfare of 1940 and 1941 cruiser-borne aircraft were invaluable in sweeping large areas of ocean for radars. After Japan entered the War, cruiser aircraft performed valuable service in the Pacific. During the Guadalcanal landing, all anti-submarine air protection for the amphibious force was provided by aircraft embarked in Australian and American cruisers. Increasing availability of aircraft carriers reduced the value of the cruiser aircraft and they were removed in the latter years of the war. AUSTRALIA was the last RAN ship to land her aircraft in Momote (Manus Island) in October 1944 prior to moving on towards Japan.

POST-WAR FLEET AIR ARM

Wartime naval operations in the Pacific had convinced the RAN that aircraft carriers were an essential element of a modern Navy and plans were made to operate a post-war Fleet Air Arm.

The first generation of aircraft operated by this new branch comprised Sea Fury Mark II single-seat fighter bombers and Firefly Mark 5 two-seat reconnaissance aircraft. The latter aircraft was progressively replaced in embarked service in HMAS SYDNEY by the Mark 6 with more specialised anti-submarine equipment.

Sea Otter amphibians were embarked in SYDNEY as the search and rescue aircraft. This descendant of the Seagull 5 could take off from the carrier, alight on the water to rescue a downed crew then return to land on the carrier.

Firefly trainers Mk 2, early 1950s. (Photo — RAN).

Sea Otter landing on HMAS SYDNEY. (Photo — RAN).

Sea Fury Mk II from HMAS ALBATROSS, early 1950s. (Photo — RAN).

Wirraway trainer at the naval air station, pre-1955. (Photo — RAN).

Firefly Mk 5 anti-submarine aircraft from SYDNEY, early 1950s. (Photo — RAN).

The ubiquitous Tiger Moth was used for instructional purposes at Albatross, 1951. (Photo — RAN).

For ground training the Spitfire Mk V was also in use. *(Photo — RAN).*

A variety of aircraft were obtained for shore support and training. 16 Wirraway and 4 or 5 Tiger Moths were acquired as were the first two of the four Dakotas to serve in the RAN. The Wirraway was the Australian built pilot trainer used for pilot continuation training. Tiger Moths were basic pilot trainers similarly used for pilot continuation and refresher training. The twin-engined Dakotas served most usefully in the passenger and cargo roles often supporting Sea Fury or Firefly detachments around Australia. A few Fireflies were converted to dual pilot configuration with a raised second cockpit allowing the additional pilot a view ahead.

After 1951 SYDNEY made two trips to Korea taking her turn as the British Commonwealth aircraft carrier. The Sea Fury was ideal for the ground attack tasks required in Korea but the Firefly Mark 6 was not fitted with cannon in the wings so was temporarily replaced in SYDNEY's air group by the earlier Mark 5 which was cannon equipped.

While operating in Korean waters SYDNEY borrowed a USN helicopter for search and rescue duties and was favourably impressed by the helicopter's ability to extricate downed aircrew Helicopters on a more permanent basis were sought and the first three Sycamores were accepted by the RAN in March, 1953. The Sea Otters were immediately replaced as search and rescue aircraft.

Also in 1953 HMS VENGEANCE joined the RAN and operated Sea Fury and Firefly aircraft with SYDNEY. Deliveries of both aircraft types to the RAN concluded about this time after 108 Fireflies and 101 Sea Furies were taken oncharge by the Navy.

Aboard HMAS SYDNEY during her service in the Korean War, a Sikorsky S-51 was embarked. *(Photo — RAN).*

Auster J56 at HMAS ALBATROSS, pre-1956. *(Photo — RAN).*

Sea Venom. *(Photo — RAN).*

Bristol Sycamore HR 50/51 landing aboard MELBOURNE. *(Photo — RAN).*

A Gannet anti-submarine aircraft. *(Photo — RAN).*

VENGEANCE was on loan to the RAN pending modification to HMAS MELBOURNE allowing her to operate modern aircraft and most attention was directed towards this next generation of RAN aircraft. The Firefly's role of anti-submarine reconnaissance and attack was taken over by the Gannet while the Sea Venom took over the fighter and attack role.

The Sea Venom was a two-seat, single jet, all-weather fighter with an air interception radar in the nose, four 20 mm cannon under the cockpit and rails for three inch unguided rockets under the wings. Aircraft leased from the Royal Navy (Sea Venom Mark 20) were used for aircrew training beginning in 1955 in the United Kingdom and the entire order for 39 Sea Venoms Mark 53 for the RAN were transported to Australia in MELBOURNE on her delivery voyage.

Vampire trainer at Nowra during the mid-1960s. *(Photo — RAN).*

MELBOURNE also carried the first batch of Gannets to Australia. 20 of the three-seat, twin turbo-prop aircraft had been delivered to RAN squadrons training with the Royal Navy but one had crashed at sea and 19 were hoisted into MELBOURNE before she left for Australia. The remainder of the total order for 33 anti-submarine Gannet AS Mark 1 were delivered to Australia by merchant ships in following years. Unlike the Firefly, the Gannet had an internal weapons bay in which homing torpedoes, bombs or depth charges could be carried; a 360 degree scanning radar lowered from the fuselage aft of the weapons bay and rockets could be carried under the wings.

Sycamores were transferred to MELBOURNE's air group as search and rescue helicopters and the normal mix of aircraft in the late 1950s and early 1960s was Gannets, Sea Venoms and Sycamores.

Training support ashore was provided by additional Sea Venoms and Gannets for operational support augmented by other aircraft more suited for pilot categorisation or refresher training. These included three dual control Gannets in which the middle cockpit had been modified into an additional pilot's cockpit with a second set of controls. Vampire dual-control jet trainers provided the same facility to Sea Venom squadrons. The RAN operated a total of ten Vampires, six of them Australian built and the other four imported from the United Kingdom.

In 1961, 27 Westland Wessex helicopters were ordered. This anti-submarine helicopter, with a single turbine engine and four man crew, would lower a sonar transducer into the water from a low hover and use this sonar to detect submarines. Homing torpedoes could be carried on the side of the aircraft to attack submarines.

From 1963, when the Wessex was first embarked, MELBOURNE carried Sea Venoms, Gannets and Wessex. Sycamores were used ashore in reducing numbers until 1965 when the few remaining of the 13 acquired over the years were retired.

Westland Scout utility helicopter. *(Photo — RAN).*

Iroquois UH-1B. *(Photo — RAN).*

Wessex 31A landing on HMAS MELBOURNE. *(Photo — RAN).*

Deliveries of Iroquois helicopters began in May, 1964, and a total of seven were delivered to the RAN by October 1966. The Iroquois is a single turbine engined utility helicopter used for aircrew training, search and rescue, medical evacuation and general communications flying. It also served as a training aircraft for the RAN Helicopter Flight, Vietnam for 1967.

While the Wessex was still settling into squadron service in 1964 the intention to purchase a replacement fixed wing anti-submarine aircraft was announced. This was to be the Tracker S-2, a twin-engined aircraft with a crew of four carrying a range of equipment to find and attack submarines. A weapons bay in the fuselage carried torpedoes or depth charges while rockets could be carried under the wings. The main acoustic sensors were sonobuoys carried in tubes in the aft end of the engine nacelles.

Dakota C47A. *(Photo — RAN).*

Skyhawk A4 in final VF 805 markings, July, 1982. *(Photo — RAN).*

Sea King HAS Mk 50 dropping an anti-submarine torpedo with parachute. *(Photo — RAN).*

S2G Tracker of 816 Squadron. *(Photo — RAN).*

Bell 206B. *(Photo — RAN).*

In the following year the purchase of ten Skyhawk single-engined fighter bombers was announced. Included in the order for ten aircraft were eight single-seaters and two dual control trainers.

This third generation of fixed wing aircraft embarked in an extensively refitted MELBOURNE with a new version of the Wessex. During 1970 the last Wessex modified to Mark 31B had been accepted by the Navy; this model was the 31A airframe with a new engine, new technical system and longer range, deeper sonar.

New shore based aircraft were acquired as companions to the Skyhawk and Tracker. Vampires were replaced by Australian built Macchi dual pilot jets but since the Tracker was already fitted with dual pilot controls a special version was not needed. The last of the four Dakotas operated at NAS Nowra was retired at about the same time when the first of two HS 748 twin turbo-prop aircraft was flown from the United Kingdom. Eventually these aircraft would be fitted with equipment for training fleet units in electronic warfare.

A second batch of Skyhawks was added to the original ten after a few years and after most of the Trackers were destroyed in a fire at Nowra replacements were purchased from the United States.

Apart from MELBOURNE the only other ship regularly operating her own aircraft during the 1970s was the survey ship HMAS MORESBY which had routinely embarked one of the two Westland Scout helicopters obtained especially for survey flying. In 1973 the remaining Scout was replaced by the first Bell Jet Ranger (206); this is a small, single-engined helicopter well suited to the role.

A much larger acquisition programme involved the purchase of ten Westland Sea King Mark 50 to replace the Wessex in the anti-submarine role. The Sea King operated a variable depth sonar similar to that in the Wessex but with an improved tactical display and radar; the twin engines and emergency amphibious capability promised to be most useful. The first RAN Sea King flew in the United Kingdom in June 1974 and a year later the first flight in Australia took place.

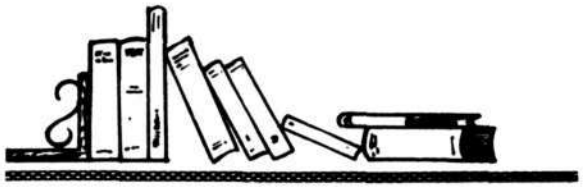
The sonar and tactical equipment was removed from the Wessex and they reverted to the utility role ashore and embarked as required in MELBOURNE, TOBRUK and STALWART.

The Sea King acquisition is the most recent new aircraft programme for the RAN. Selection of a helicopter for the FFGs is not finalised yet but this should be the next new aircraft in the Navy.

Macchi in early RAN markings. *(Photo — RAN).*

Wessex 31B, a utility helicopter. *(Photo — RAN).*

HS 748, as converted to an electronic trainer. *(Photo — RAN).*



BOOK REVIEWS

"Soviet Naval Developments 1982"

Published by
ARMS & ARMOUR PRESS
Review Copy from
THOMAS C. LOTHIAN PTY LTD
Price $23.95

REVIEWED BY ROSS GILLETT

"The flag of the Soviet Navy flies over the oceans of the world. Sooner or later the United States will have to understand it no longer has mastery of the seas." — S. G. Gorshkov, Admiral of the Fleet of the Soviet Union.

* * *

Soviet naval policy is based on a Russian drive to extend national influence by maritime activities, a drive that dates back almost 300 years. This effort is now being made by a combination of merchant and naval forces on a scale without precedent. The US Navy is constantly keeping track of the USSR's formidable ship building programme as well as all other aspects of Soviet Naval expansion — and now presents the results in "Soviet Naval Developments, 1982".

This book is a concise resume of the largest communist naval force in the world today. The book was written by Norman Polmar, an accredited naval writer, at the request of the United States Chief of Naval Operations.

Throughout the publication, comparisons are made to equivalent USN ships, tactics and future plans; but it soon becomes apparent that the Red Fleet is now number one, a place once held by the USN since the Second World War.

Each type of Soviet warship is described and illustrated with special sections devoted to Naval Policy, Personnel, Other Maritime Activities and The Navy Today, together with key questions, statements by leaders within the Department of Defence, order of battle, missile and aircraft descriptions.

All of the photographs within the 138 pages have reproduced extremely well and include new views of the Alfa class attack submarine, the 23,000 ton Kirov battle-cruiser, the Sovremenny DDGs, new missile hydrofoils and the first Soviet hospital ship.

Both endpapers and pages within the book feature excellent silhouettes of all Soviet warships and auxiliaries. The book is protected by an impressive dust jacket featuring a Kiev class V/STOL aircraft carrier.

Following the release of the book in America earlier this year, the Soviets set about publishing their own version, with a similar story-line on the United States Navy Today.

For only $23.95, "Soviet Naval Developments 1982" is required reading for all those interested in the super naval powers and for a better understanding of what "the blighters" are up to! Thoroughly recommended.

"The Royal Navy 1982" (3 Books)

Published by
MARITIME BOOKS
Review Copies from
BURGESS MEDIA SERVICES
PO Box 2131, Wellington, NZ
Price
$15.00 (3 books)
plus $3.50 (airmail) or $1.80 (seamail)

REVIEWED BY ROSS GILLETT

* * *

1. "British Warships & Auxiliaries" by Mike Critchley.

This 1982/83 edition describes and illustrates all Royal Navy warships, the Royal Fleet Auxiliary, Royal Maritime Auxiliary Service and the Fleet Air Arm. Each ship or class is allotted one page, including a table of dates, specifications and brief discussions on their current status. The book also features an eight page colour section and a special table of ships "at the end of the line", relegated to non-seagoing duties.

2. "Submarines of the Royal Navy".

A new book from Britain describing the only arm of the RN which is expanding. As well as the Polaris submarines, all fleet and patrol classes are described individually. Special sections are devoted to proposed classes, weapons, bases, life aboard and the Soviet submarine threat.

3. "Fishing Blades Over the Sea", by LCDR J. M. Milne.

The complete history of the helicopter in the RN since 1943, is condensed into this 104 page book. LCDR Milne, a serving Fleet Air Arm officer, has drawn on his own experiences and that of his predecessors to present an interesting story of the helicopter in the RN. Like the other books in the series, all colour and black and white photographs have been excellently reproduced. Nineteen different models of helicopter are fully described in table format at the rear of the book, plus a run down of the present day naval air stations and their squadrons.

* * *

All three books provide interesting reading and are most handy for ready reference. Recommended.

letters to the editor

Dept of Harbours & Marine
PO Box 1787
Cairns, Qld 4870
July 19, 1982

The Editor,
The Navy,
PO Box 653,
Dee Why, NSW 2099
Dear Sir,

In the July issue, 1982 letters to the editor, the letter from Mr Rowan Partridge concerning a Naval Reserve Contingent in Cairns is most appropriate, as not more than three weeks ago I handed a submission to the Minister of Defence, Mr Ian Sinclair when he was opening the new base.

I sympathise with Mr Partridge as I myself have been in a similar position and have been advised on numerous occasions that one would have to be in Brisbane to join the reserves.

Your comments underneath Mr Partridge's letter are not quite correct, for with the submission there were 58 names listed of personnel wishing to join the reserves, amongst these were a considerable contingent of technical personnel from North Queensland Engineering Agencies, the people who maintain and build these craft.

It is a fact that those names were collected in just four days with no advertising.

Further to this, Cairns has a very active Sea Cadet Unit which myself as a Navy League member help along by manning the T. S. TRITON with a small but keen bunch of volunteers. The Cadets on graduating into the private sector either join the Army reserves or drop it altogether; this I feel under the circumstances is very unfortunate.

As my submission states, the problem of manning and the future of the old base are the two pluses in this problem.

I hope this correspondence is of some use to you. The reserves should try and *increase their establishment by utilising* the very valuable contribution that the people and industry of Cairns and the North Queensland Area can make.

Yours faithfully
Captain P. E. C. Matthews

• • •

7 Joyce Street,
Elwood, Vic 3184
531 8906
July 1, 1982

The Editor,
The Navy
Dear Sir,

The editions of "The Navy" in the last two years have been much superior to their predecessors. In fact the July, 1982 edition (Vol 44, No 3) was the most improved and most comprehensive of them all.

In one's 89th year, with naval service from April, 1909 to September, 1953, and a membership of the Navy League since 1920 — the July edition was the most interesting and informative, especially in relation to the "modern" RAN. Many thanks and congratulations on an excellent production.

These days, one notices that what we old "feather dusters" knew as "appointments" for officers, are now "postings"; and "draftings" for "ratings" are now "postings" for "juniors" and "senior sailors". And — the Commanding Officer of the "3rd Destroyer Flotilla", *to us, was merely* "D3"; not "COMDESRONTHREE". One remembers General Macarthur's "German word type" American title: "COMSOUWESPACFOR".

As a protagonist of CONCISE and PRECISE English one loathes the American type of address. Let's keep the titles used in the Royal Navy,which *mothered and nurtured the infant Royal* Australian Navy.

Yours & C
R. S. Veale
Commander RANR, Rtd

• • •

Roger W. Jennings,
2 Sandham Street,
Elsternwick, Vic 3185
July 12, 1982

The Editor,
The Navy,
PO Box 653,
Dee Why, NSW 2099
Dear Mr Gillett,

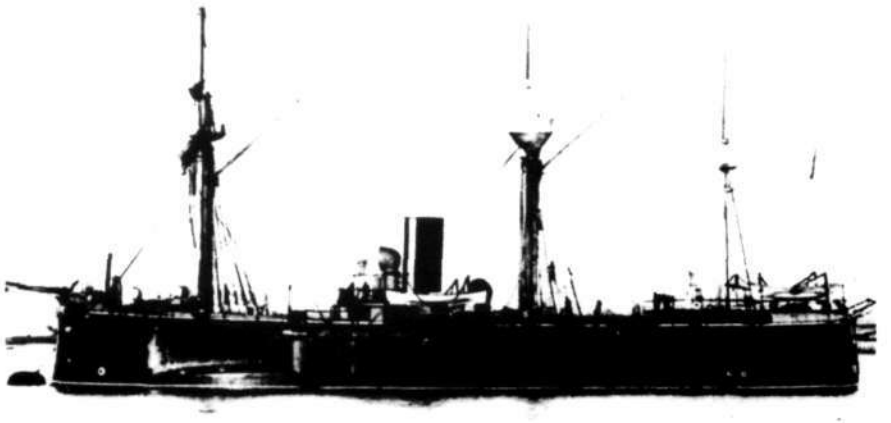
Recently, I visited Washington and spoke at length with a senior official of the State Department. The meeting was made possible by the official's high regard for the Navy League of Australia and its efforts to promote international maritime co-operation.

I came away with the realisation that Australia should mount a deliberate effort to educate a large number of high ranking staff in the United States Departments of Defence and State about Australia generally, the ANZUS treaty and our military and political usefulness to the USA.

This particular official informed me *that Australia is little known and* generally equated with New Zealand in senior US circles.

An annual allocation of $100,000 from the defence vote for tours and seminars for defence/foreign affairs policy makers of Australia and the USA would create strong personal links and in a time of crisis speedy diplomatic and military support.

Yours faithfully,
Roger Jenning



BLANCO ENCALADA. (Photo — Chilean Navy).

BATTLESHIPS OF THE CHILEAN NAVY

Long recognised as the most efficient in South America, the Chilean Navy has had many fine and interesting vessels since its inception early in the 19th century.

CAPITAN PRATT. (Photo — Chilean Navy).

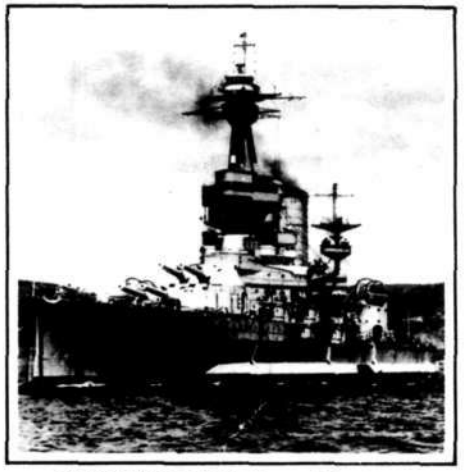
The three battleships on this page span a period of almost 90 years and might almost be considered a "pocket" history of battleship design from the experimental vessels which followed the "wooden walls" to the latest capital ships.

All three are included in the BMS Pictorial History "Battleships and Battle Cruisers" and are reproduced by courtesy of Burgess Media Services Ltd, PO Box 2131, Wellington, New Zealand, the publishers.

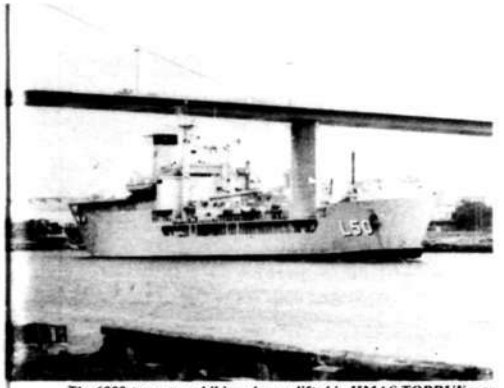
Blanco Encalada, ex-Valparaiso, was one of the two-ship Almirante Cochrane Class laid down for Chile in the 1870s by the British builders Earle. Iron-hulled, barque-rigged, with fighting tops on the main and foremasts, she was one of the interesting interim types between the old sailing ship of the line and the modern battleship. Known as a "central battery" ship she had in effect an iron box enclosing her six 9 in muzzle loaders. Blanco Encalada was sunk by the torpedo gunboat, Almirante Lynch, on April 23, 1891, during the Chilean Civil War. This was the first known successful use of a self-propelled torpedo against an armoured ship.

Although the father of the Chilean Navy was the British Admiral Lord Cochrane, not all Chilean vessels were British-built. Capitan Prat was built by the French yard, La Seyne, and launched in 1888. Quite modern for her day, she was the first warship to have electrically-manoeuvred turrets. With a main armament of four 9.4 in guns, she displaced some 7,000 tons and had a speed of 18 knots. The above photo shows her after her stacks had been raised during a 1909-1910 refit. Late in life Capitan Pratt was used as a submarine depot ship until stricken around 1935.

Almirante Latorre was laid down by Armstrong, Elswick, in 1911, for the Chilean Navy but was taken over by the British during WW1 and completed as Canada. Under this latter name she served at Jutland and was considered a fine vessel, in fact one of the best battleships in the Royal Navy. Returned to Chile in 1920, and re-named Almirante Latorre, she served as Chile's flagship. After the Japanese attack on Pearl Harbour in 1941, negotiations were begun between the United States and Chile for the charter of Almirante Latorre to the US Navy for the duration, but these were unfruitful. The battleship was stricken in 1958 and scrapped in 1959, the last major veteran of Jutland.



***ALMIRANTE LATORRE.** (Photo — Chilean Navy).*



The 6000-tonne amphibious heavy-lift ship HMAS TOBRUK was the first RAN ship of her size to pass under Victoria's Westgate bridge when she recently visited the port of Melbourne to embark cargo, tanks and Army personnel for an exercise and trials at Rockhampton later this month. *(Photo — Mark Lee).*

HMAS TOBRUK enters Port Melbourne where she ran her bows aground on Webb Beach to unload two Army Leopard tanks as part of her trials before sailing to Rockhampton. *(Photo — Mark Lee).*

NAVAL ROUNDUP

— Compiled by "GAYUNDAH"

NAVY'S FIFTH PATROL BOAT COMMISSIONED

HMAS WHYALLA, the fifth of 14 Fremantle class patrol boats to be built for the RAN in Australia, was commissioned at the recently opened naval patrol boat base at Cairns, Queensland, on Saturday, July 3, 1982.

HMAS WHYALLA was launched by the Mayor of Whyalla, Mrs Aileen C. Ekblom, at Cairns on May 22, 1982. After working-up in the Cairns area, HMAS WHYALLA will be based at HMAS Waterhen in Sydney.

* * *

CONTRACT SIGNED FOR ORION AIRCRAFT

A firm price contract for $A258m with the Lockheed Corporation of the United States for the supply of ten new Orion P3C long range maritime patrol aircraft was signed in late June.

The Minister for Defence, Mr Ian Sinclair, said the contract price is after buy-back of the RAAF's ten older P3B model Orions.

The total net project cost is $A362m which includes provision for the supply and fitment of the Barra sonics system, essential spares, ground support equipment and project management costs.

Mr Sinclair said that the Government had taken this step in recognition of the need to redress the erosion on capability of the P3Bs which have been in service with the RAAF for some 13 years. While these aircaft remain useful for surveillance and training, technological advances in submarines, ship and associated weapon systems have degraded the effectiveness of the on-board sensor and weapons systems of the P3B.

The Government had considered options for upgrading the equipment fit of the P3Bs. However, to restore the relative fit of the P3B as an anti-submarine, anti-shipping and maritime reconnaissance system, extensive redesign and rebuild of the on-board systems would be necessary.

As an alternative to the update option, the Lockheed Corporation in 1981 proposed that Australia might simply replace the B model aircraft with new P3Cs and that Lockheed, would buy back the P3Bs, crediting their value against the sale price.

With bow in mud, front door open, loading ramp down, all eyes were on the first Army Leopard tank to go ashore from HMAS TOBRUK at Webb Beach. *(Photo — Mark Lee).*

The Government decided to pursue the Lockheed proposal, not only because of the relatively high cost of the P3B refit, but also on the grounds that there are substantial operational and logistic benefits in having a common fleet with an effective service life extending well beyond the year 2000.

The new aircraft will begin to be delivered in November, 1984, and the tenth aircraft will be handed over in the United States in March, 1986.

Four units of the RAN's Australian Submarine Squadron cut an impressive swathe through the waters of Sydney Harbour on Friday, July 23. Her Majesty's Submarines (from left) OXLEY, OTWAY, ONSLOW and OTAMA made a ceremonial entry following the highly successful exercise Operation Black Orchid held off the South Coast of NSW. Although six of these Oberon-class conventional submarines currently serve in the RAN, two were undergoing extensive refit at Vickers Cockatoo Dockyard in Sydney.

TWO NAVY SQUADRONS DISBANDED

The two Fleet Air Arm front-line squadrons, VF 805 and VS 816, which formed the Carrier Air Group aboard HMAS MELBOURNE, were disbanded at a parade held at the Naval Air Station, Nowra, on Friday, July 2.

As an interim measure until the future of fixed wing aircraft of the Fleet Air Arm was decided, the two front-line squadrons, which have been in continuous service for 34 years, are now amalgamated with second-line training squadrons, at NAS Nowra, but the number of aircraft to be retained in use will be reduced. There will be some reduction in the requirement for personnel which will be achieved through normal wastage.

VF 805 Squadron comprises Douglas A4G Skyhawk fighter bombers, and VS 816 Squadron is made-up of Gruman S2G Tracker anti-submarine aircraft.

In a message to the squadrons as they were about to pay off, the Chief of Naval Staff, Vice Admiral D. W. Leach said: "I wish to acknowledge the dedicated commitment of all personnel associated with the squadrons during the 14 years that the Skyhawks and Trackers of VF 805 and VS 186 have been in service.

"The squadrons' contribution to the operational effectiveness of the fleet, and HMAS MELBOURNE in particular, has been of significant importance to the Navy, the Australian Defence Force and to the nation, and all personnel can be justly proud that their job has been well done.

"The Royal Australian Navy will miss its inaugural 20th Carrier Air Group squadrons. I hope that in the future these squadrons may be required for further service in the RAN."

SHORT LIST ANNOUNCED FOR THE RAN HELICOPTERS

Four helicopter types — one from the United States and three from Europe — are to be evaluated for use on the RAN's guided missile frigates and as Fleet utility aircraft.

The aircraft are:

- Sikorsky Seahawk (US);
- Aerospatiale Super Puma (France);
- Aerospatiale Dauphin (France); and
- Westland Lynx (UK).

The aircraft had been selected after consideration of the report made by a team of Navy, RAAF, and civilian personnel from the Department of Defence which visited the United States and Europe last year.

The mission had reported that none of the aircraft evaluated was presently equipped with the type of weapon and sensor systems sought for the primary FFG helicopter roles of surveillance and Harpoon missile targeting.

To enable a selection to be made, it had been decided to invite all three manufacturers to participate in funded studies to define and cost suitable weapon and sensor systems.

Manufacturers would also be asked to put forward proposals for participation by Australian industry involving, where feasible, the design and development of the sensor and weapon system integration and the manufacture and support of this system, and the airframe, engine, and ship interface equipment.

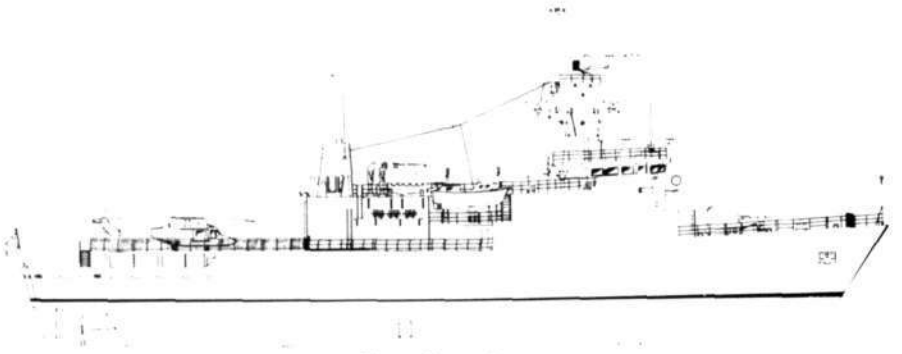
Although only a relatively small number of aircraft would be bought initially, both the Navy and the Air Force had proposals for similar size helicopters to perform other roles. Up to 100 aircraft could eventually be acquired, depending on priorities.

PHALANX FOR THE NAVY

The Government recently approved the acquisition of two Phalanx close-in weapon systems from the United States for the Royal Australian Navy.

The Navy had an accepted requirement for Phalanx to be fitted to the first two guided missile frigates, HMAS ADELAIDE and HMAS CANBERRA, at an appropriate time. Phalanx had not been available for these ships when they were ordered, although there was provision for it to be added. Their sister ships, HMAS SYDNEY and HMAS DARWIN now under construction in the United States, were being fitted with Phalanx.

The estimated total project cost of the two systems, which would be bought through the US Foreign Military Sales Arrange-



The new Irish patrol vessel.

ments, would be about $15 m at May, 1982, prices. The systems would be delivered late in 1984.

The system was designed specifically to counter anti-shipping missiles such as the various Soviet systems, the Harpoon now in service with the RAN and RAAF and the French Exocet. The Phalanx system is a single computerised, fully automatic unit, including search and fire control radars, and a six barrel 20 mm Vulcan gun.

Mr Sinclair said the Phalanx anti-missile system had been chosen by the US Navy for fitting to a wide variety of its surface warships. It was also being acquired for several other navies.

NEW IRISH PATROL VESSEL

The Irish Republic has decided to guard its coasts and coastal waters with a new P31 patrol vessel. The ship will be equipped with the DA 05/4 surveillance radar, which can be used for both surface and air surveillance. The ship will also be supplied with an autonomous weapon control system, LIOD, and two Target Designation Sights (TDS).

The TDS is manned, fast-reaction, pedestal-type sight, used above deck. Bearing and elevation data are transferred to the data gathering system.

LIOD stands for Lightweight Optronic Director. It is a small autonomous weapon control system, equipped with passive optonic sensors, and a computer incorporated in the optronic control console. This system communicates with the larger weapon control systems. The main tasks of the P31 patrol vessel will be to protect fishery and perform police duties, air/sea rescue, and air/surface surveillance. Radar and optronic systems are the tools which enable the latter task to be performed.

HMS INVINCIBLE NOT AVAILABLE FOR SALE TO AUSTRALIA

Following is the statement made by the Minister for Defence, Mr Ian Sinclair, in London on July 13, 1982.

"During my visit to London I have had very full discussions with John Nott, the Secretary of State for Defence, on a range of subjects of mutual interest, and I have also had discussions with the Prime Minister, and the Foreign and Commonwealth Secretary.

"I have had the opportunity to visit British Aerospace at Kingston-on-Thames where I have seen the Sea Harrier production line.

"The Ministry of Defence gave a most useful briefing on the Falklands operation which clearly produced many valuable lessons for the Australian Defence Force.

"I was also briefed on the proposed new British frigate — the Type 23 — and plans for the successor to the Sea King anti-submarine warfare helicopter.

"It has been agreed that there should be discussions between our two Ministries of Defence later in the year about the Falklands. There will also be discussions between our Defence scientists.

"The main purpose of my visit was to discuss the plans for the Royal Australian Navy to acquire HMS Invincible. John Nott has explained to me that he wishes, following the Falklands experience, to retain HMS Invincible so as to have two carriers available for out-of-area operations.

"On my return to Canberra I shall be reporting back to the Australian Government the full discussions on this subject so that we may consider the best way forward for the Royal Australian Navy.

"In this respect the Australian Government will want to examine closely all possible options, including the possibility of building a new Invincible class carrier. Mr Nott understood the difficult position in which we were now placed and offered to make HMS Hermes available on favourable financial terms at an early date to fill the immediate capability gap should we decide to build a new carrier. This could involve leasing or outright sale of HMS Hermes.

"Whilst I have been in London I have also explored with the Ministry of Defence the possibilities of greater Anglo-Australian naval co-operation, both in terms of joint exercises and the possibility of Australia acquiring more British-made equipment, including aircraft. We have arranged that an Australian team visit the United Kingdom to carry out a full appraisal of the Sea Harrier aircraft."

ADDITIONAL SEA KING, LYNX AND GAZELLE HELICOPTERS

The intention to go ahead with the Anglo-Italian Sea King replacement helicopter has been re-affirmed by the United Kingdom Government. At the same time new orders for Westland Sea King, Lynx and Gazelle helicopters were announced.

In opening a debate on defence in the House of Commons, The Right Honourable John Nott MP, Secretary of State for Defence said, "The intention is to develop the helicopters in collaboration with Italy and jointly with industry. Good progress has been made with the Italian Government. Commercial and military versions of the helicopter are also planned to increase numbers and keep down unit costs."

The Sea King replacement, to be developed jointly by Westland Helicopters and Agusta, will operate from the new

A new Royal Navy frigate, the Type 23, is to have a specially designed platform for a new helicopter, the Sea King replacement. The helicopter, the EH 101, is to be built on a collaborative basis by Westland and Agusta to meet the needs of the navies of both nations. *(Photo — Westland).*

Type 23 frigates for the Royal Navy, speaking of which he said, "The most important feature of the Type 23 for ASW will be a specially designed platform for a new helicopter, the Sea King replacement.

"This will be heavier than the existing Sea King but it will be very much more agile, enabling it to operate safely from small ships in foul weather. It will have a much greater load carrying capability and will carry Stingray as well as advanced sonics — in this respect it will have some of the characteristics of the Nimrod which will make it a formidable ASW system. It will provide a full capability in one helicopter both to detect and kill enemy submarines at longer range."

HMAS YARRA COMES OF AGE

HMAS YARRA has reached that ripe old age of 21. On July 27, YARRA turned 21 after being first commissioned at Williamstown Dockyard in 1961. The ship is the third to hold the name of YARRA with YARRA I & II seeing service in both World Wars.

The present YARRA has served the Navy and Australia well after steaming over 610,000 nautical miles and spending over 43,000 hours at sea. In 21 years of service, she has completed nine South-East Asian deployments, four RIMPAC exercises in the Hawaiian area, joined in five New Zealand exercises and visited the west coast of the United States.

Since the ship's half life refit, the ship has been actively involved with trials of the Australian designed Mulloka Sonar. More recently the ship participated in RIMPAC '82 and after an annual inspection and leave period commenced weekly exercises near Jervis Bay. YARRA sailed on August 23 for the ship's 10th South-East Asian deployment.

HMAS YARRA. *(Photo — RAN.)*

INTO BATTLE

HMS HERMES with a full complement of Sea Kings and Sea Harriers embarked, leaves Portsmouth for the Falkland Islands. (Photo — RN).

For troop assaults, HMS FEARLESS and her smaller landing craft provided a useful amphibious assault force. (Photo — RN).

HMS INVINCIBLE accompanied the flagship HERMES for her voyage south. She carried six Sea Harriers and four Sea Kings on the flight deck. (Photo — RN).

The P&O liner CANBERRA was converted to a troop carrier. Her midships swimming pool was covered over and employed as a helicopter landing pad. (Photo — RN).

The largest troop ship was the Cunard liner QE2, shown here fully loaded with men for the Falklands. (Photo — RN).

For the transport of additional Army and Marine equipment, the Townsend Thorsen, cross channel ferry, BALTIC FERRY was requisitioned. (Photo — RN).

North Sea ferries provided the roll-on/roll-off vessel NORLAND for both troops and equipment. (Photo — RN).

To service the large hospital ship UGANDA, the survey vessel HERALD was converted to a hospital ship. (Photo — J. Goss).

CANBERRA in the Falklands and showing the effects of the long voyage. (Photo — P&O).

New Water/Fuel Lighters for Fleet

Since the dark days of the Second World War, the Australian fleet has received valuable support in the form of the 1,200 ton oil fuel lighters (OFLs) and 300 ton motor water lighters (MWLs) to keep the ships continually "topped up".

New water-fuel lighters under construction at Williamstown, 1979. (Photo — RAN).

But the years of continuous service have finally caught up with the war-built vessels and to progressively replace them four new lighters are being built, all for delivery in 1982. Three units will be based Sydney/Jervis Bay area and the fourth in Western Australia.

Launching of WF-8002 in January, 1982. (Photo — RAN).

Description

The new lighter is constructed of corrugated steel plate without transverse or longitudinal framing. Corrugations in the deck and shell run longitudinally. Those on internal bulkheads run vertically. Tank cleaning is simplified and spaces trapping contents or spores of contaminants are avoided.

The hull is sub-divided into tanks for Diesel Oil (2 aft, 2 fwd), Fresh Water, Demineralised Water, Sullage and Submarine Backwater Ballast treatment, with cofferdams bordering the water tanks. The fore peak contains a chain locker (starboard) and store (port), while the aft pumproom contains the main and auxiliary cargo pumps.

The deckhouse on the main deck aft contains a mess space, store, crew shelter, changeroom and washroom with shower and toilet on the lower level, and an enclosed navigating bridge and pumping control station at the upper level.

Enclosed diesel engines driving 360° steerable propellers are mounted on the main deck at the bow and stern, and are controlled by one man on the bridge. The vessels are double ended and capable of being propelled in either direction.

Discharge and filling of diesel oil tanks is carried out through a single pumping system. However a separate system is provided for the refuelling of submarines. The main oil cargo pump is driven via a power take-off from the aft engine and is located in the aft pumproom together with electrically driven pumps for submarine fuelling and tank stripping. Two additional pumps are deck mounted, one for fresh and demineralised water, the other for fire, bilge and sullage.

WFL 8002 being fitted-out for service. (Photo — RAN).

Service

Each lighter has been designed to transport and deliver to ships and submarines in harbour, diesel fuel oil, fresh water and demineralised water; and to receive and treat backwater ballast from submarines, receive and hold oily bilge and sullage from other ships. All will be able to undertake short coastal voyages when partially loaded, under escort in calm weather, and longer voyages under tow.

Dimensions and General Particulars

Dimensions

Length	38.0 m
Beam	10.2 m
Depth	4.7 m
Draft (deep condition)	3.98 m

Displacement:

Displacement (deep)	1206 tonnes
Displacement (light)	265 tonnes
Cargo Capacity:	95%
Diesel Fuel Oil	564 tonnes
Fresh Water	107 tonnes
Demineralised Water	104 tonnes
Sullage	93 tonnes
Backwater Ballast	73 tonnes

Complement: 5

OUT OF THE PAST

***KANIMBLA** was first commissioned as a Royal Navy Armed Merchant Cruiser and was transferred for conversion to an Infantry Landing Ship (LSI). While in RN service she was crewed by Australian reservists. (Photo — AWM Neg No 109364).*

***MANOORA** in Simpson Harbour on September 10, 1945. At this time the LSI was transporting troops for the occupation of Rabaul. (Photo — AWM Neg No 117054).*

***WESTRALIA** in Darling Harbour, Sydney, during late World War II. One of the LSI's LANDING CRAFT (W3) is off WESTRALIA's starboard bow. She carries a full load of troops. (Photo — AWM Neg No 124555).*

From New Zealand Navy News

HMNZS Taranaki Bows Out

Her Majesty's New Zealand Ship *TARANAKI* was the Royal New Zealand Navy's resource protection and training frigate. Launched in 1959 by Lady Freyberg at Cowes, Isle of Wright, *TARANAKI* was commissioned on March 28, 1961, as an improved Rothesay class anti-submarine frigate. In 1977 she was placed in reserve, and after a refit was re-commissioned into her new role on January 25, 1979.

Dimensions: Length 113 metres or 370 feet; Breadth 14.3 metres or 41 feet.

Displacement: Approximately 2600 tons.

Armament: Twin 4.5 inch guns. 40 mm Bofors AA gun. 2 x 20 mm Oerlikon guns. 2 x triple-barrel torpedo launchers.

Machinery: Twin shafts. Impulse steam turbines, 30,000 hp; Speed about 30 knots.

Complement: About 200 officers and men.

New Zealand's exclusive economic zone is extensive, covering an area of some 1.4 million square miles. Protection of New Zealand's precious reserves is of course a team effort involving the RNZAF and other units of the RNZN, but *TARANAKI* was the only ship totally dedicated to the task, and her role was therefore a careful balance between the special needs of training and those of resource protection. As befitted her training role (which was usually carried out concurrently with resource protection), a large number of young men under training passed through the ship each year. In 1980, for example, some 95 junior ratings were taken to sea for basic training together with 31 weapons electrical and marine engineering apprentices, 15 junior officers and 200 personnel on short training courses of one or two weeks' duration. Additionally, a number of officers and ratings of RNZNVR received specialist training in *TARANAKI*.

TARANAKI steamed great distances in the course of her work which took her from the Tokelau and Cook Islands of the South Pacific down to the sub-Antarctic fishing grounds near the Auckland Islands. In 1979, for example, she steamed over 28,000 miles in the course of her duties.

In mid-1982, *TARANAKI* was to have commenced an extensive conversion which would have better suited her to her specific roles and extended her career into the 1990s. Her steam turbine propulsion machinery was to have been removed and replaced by gas turbines, a helicopter deck fitted at the stern of the ship, and accommodation and training spaces upgraded.

Things didn't work out that way and her position in New Zealand's Navy will be replaced by a Leander class frigate, HMS *BACCHANTE*, purchased from the Royal Navy. Her commitment to officer training will be taken over by *HMNZS OTAGO*, which is being converted to provide the extra accommodation and training facilities.

TARANAKI decommissioned on June 18, 1982 — our first frigate, built specially for us, to go the way of all things, flesh or metal.

NAVY LEAGUE DIVISIONAL & CADET NEWS

NEW SOUTH WALES

TS CAMPBELLTOWN

Saturday, June 26, was a very important day for T.S. CAMPBELLTOWN. It was the official opening of the reconstructed ships deck, the communications centre and seamanship school.

About 300 parents and guests turned out to see the ship's company being reviewed by the Reviewing Officer, Commander P. Ballesty, RD, RANR. After inspecting Divisions, Commander Ballesty presented annual trophies, took the salute at the march past and then proceeded to officially open the reconstructed unit.

The ship's drum corps, under the direction of Sub-Lieutenant Ross Griffiths, RANR, played for the march past.

The VIP guest list included The Mayor of Campbelltown, Alderman Guy Thomas; President of the RSL Doug Purser OAM, JP: President Naval Association Campbelltown Sub-Section, Mick Torgett; The Board of Directors Ingleburn RSL Club and Sub-Branch; President Ingleburn RSL Youth Club, Mark Kennedy; Mr Gary Corbett, Naval Graphic Designer; Chief Instructor CPOVC David Bryant; Submarine Warfare System Centre HMAS WATSON, Commander David Mort ASCC (Ret'd).

Commander Balesty presented the Commanding Officer Lieutenant L. W. Mawer NRC with the Navy League plaque for display on the ship's deck.

The recent addition of girls, as directed by DNRC will certainly add a great potential for T.S. CAMPBELLTOWN. Already 14 girls have applied to join and six ladies have offered their services as instructors.

SA DIVISIONAL NEWS

This year of 1982 has seen some excellent progress by the Naval Reserve Cadets in South Australia. Two new Units have been recognised, they are TS STURT, located at Renmark and TS NOARLUNGA in the Noarlunga/Christies Beach area. This now brings the total number of Units in South Australia to seven.

We extend our congratulations to the TS AUGUSTA Unit at Port Augusta for gaining third place in The Duke of Edinburgh Ship's Bell Trophy, which is an international rifle shooting competition held annually. In recognition of this achievement the Unit was granted the Freedom of the City of Port Augusta.

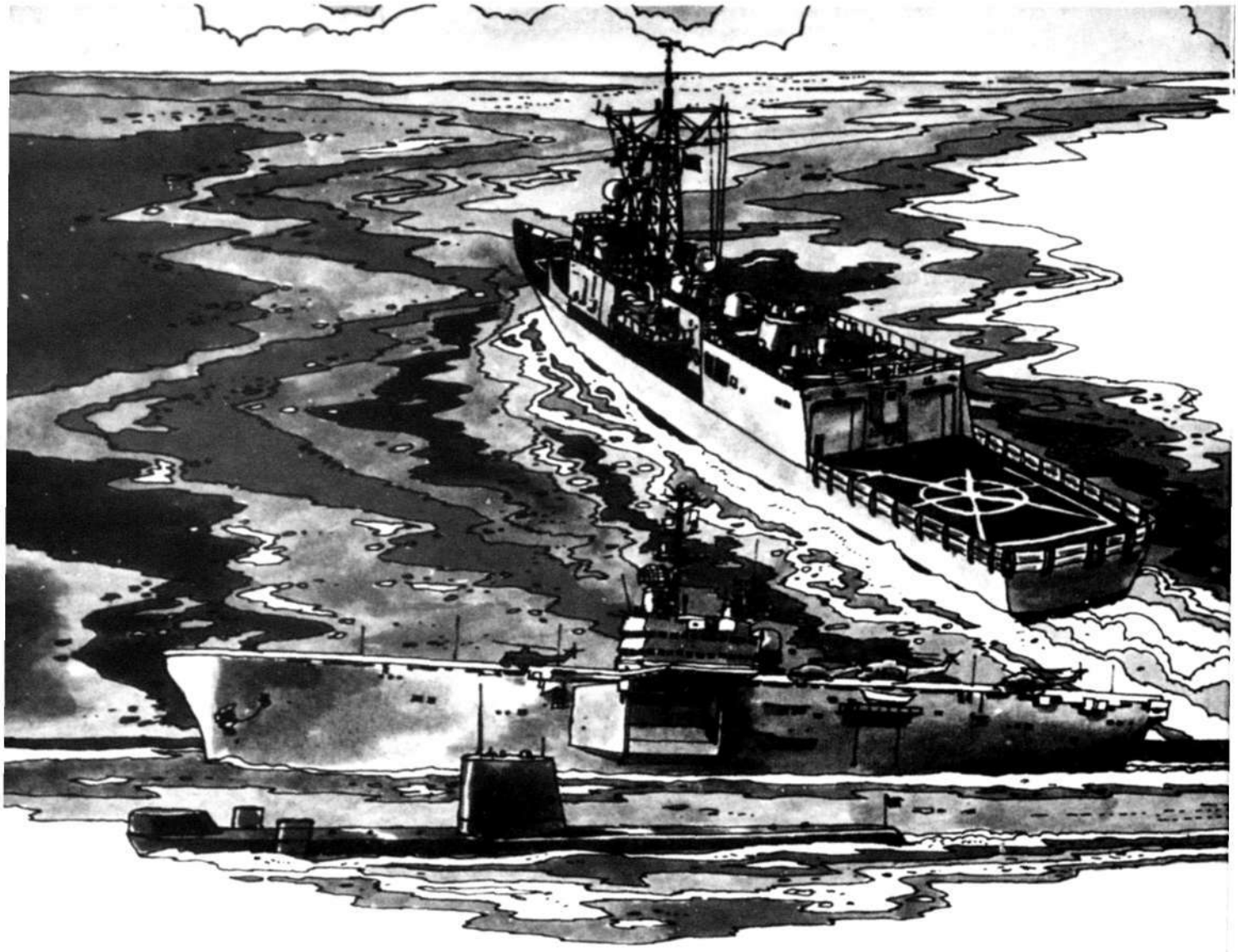
There are a few social functions coming up in the near future which we hope members of the South Australian Division will support. Firstly the Annual General Meeting will be held on September 15, 1982.

We are looking forward to entertaining members of the crew of HMAS CANBERRA on Sunday, September 26, at the Clarendon Winery and hope for a good roll-up.

The date of Saturday, October 16, has been set for the Cabaret to be held in the Drill Hall at HMAS Encounter, and this promises to be another very enjoyable evening.

We plan to wind up the year with a barbecue at the winery of Douglas A. Tolley Pty Ltd, at Barracks Road, Hope Valley on Sunday, November 28.

The Naval Reserve Cadet unit TS ANZAC has won the AMP Society Efficiency Shield for the most efficient unit in Western Australia. The award was announced at a parade onboard HMAS STIRLING on May 29. Nearly 200 Naval Reserve Cadets and officers were onboard for a week's specialised training and came from all over Western Australia. Pictured is the victorious complement of TS ANZAC displaying the shield and State Colours. The unit is commanded by LCDR Jim O'Neill and is based at Rockingham. *(Photo — TS ANZAC).*



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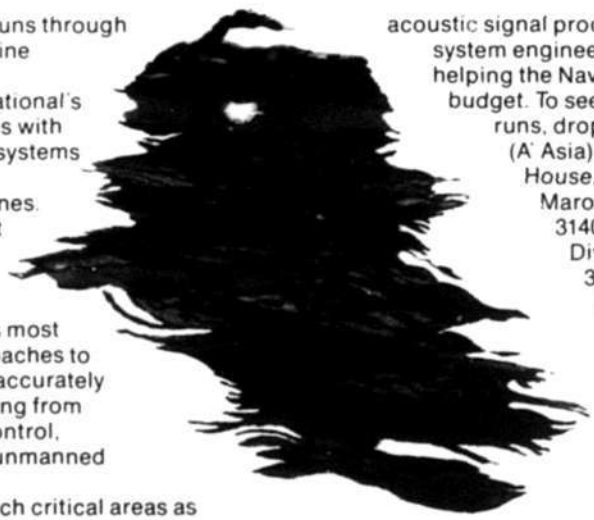

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