From the world's largest island comes one of the world's leading shipbuilders, ASI. Through design techniques, technological innovation and production efficiency, ASI has become Australia's largest producer of fleet vessels.

With many years of shipbuilding experience, ASI has the technology and facilities to design, build and maintain a wide range of vessels encompassing the most sophisticated offshore supply vessels, fishing trawlers, tugs, patrol and surveillance craft.

These vessels have given ASI an international reputation for high quality and superior workmanship. The growing number of international contracts is proof of this.

ASI can construct vessels to meet your specific requirements on time and within budget.

In addition, ASI also repair and refit to any specification and are well aware of the costs of downtime to the owner, and refit quickly and efficiently. — even under the most demanding circumstances.

If you're looking for an acclaimed shipbuilder, look no further than ASI. The recognized builder of the world's most innovative ships.
THE NAVY LEAGUE — A PERSPECTIVE

I was suggested that I should write this perspective in view of my comparatively long association with the Navy League. This association has been of two types: firstly as a member of the RAN and later as a member of the League.

When I became a member of the Naval Board in 1962 and in my work as an administrative appointments I realised increasingly the amount of support and advice which was available within the League. As CNS in 1963 I took steps to increase substantially communication between the two agencies. In 1969 I was formally designated to the RAN and also to the League. It might be asked in what manner did these benefits occur. From a service aspect we were of course familiar with policy, financial, personnel, technical, administrative and on and on, and also the desirability of having good public relations. Nevertheless, there were two difficulties — one, that at times information might have been thought of by our government as secret, secondly, that by the nature of our work we did not have the opportunity to obtain a public reaction to the various and widespread naval activities where the League, by diversity of members, their experience, knowledge and contacts could help the Navy in its tasks.

From the League's point of view, better communication would enable members, who were obviously interested in naval and maritime matters, to have much better appreciation of the Navy's aims, their implementation and associated problems.

Naturally, if there is a common understanding and rapport between the two agencies and playing an equal role, then the results must lead towards a better maritime defence for Australia and a wider general knowledge concerning this defence.

The League has been comprehensively stated in the April-June 1987 issue of The Navy. I believe it to be realist and well worth studying. The League should never hesitate to further its policy. For instance, in 1982 the League forcefully entered the aircraft carrier discussion. The RAN no longer has a carrier but that statement does not mean that the League's voices were wrong. The essence of the example of this is that the League had a policy on this matter, it had opinions to express and it did proclaim those views.

I would not wish to omit mentioning the League's close involvement with the Naval Reserve Cadets youth training movement founded by the League many years ago. The League's work in this area has been of great benefit to the Navy and to the community generally.

On the other hand, the League has been closely involved with the Navy, the RAN and the Defence establishment. For example, at times our view might have been limited to an extent by our membership. However, the nature of our work did not preclude the opportunity to obtain a public reaction to the various and widespread naval activities where the League, by diversity of members, their experience, knowledge and contacts could help the Navy in its tasks.

The perspective has been brief but I hope I have been able to make a point regarding the value of the Navy League and their continuing importance in relevant matters affecting the well-being of Australia.

Sir Victor Smith

THE NAVY LEAGUE OF AUSTRALIA

THE ANNOUNCEMENT — MAY, 1987

SWEDISH SUBMARINES

Announcing this, the Minister for Defence, Mr Kim Beazley, said all nine submarines will be built in Australia by the Australian Submarine Corporation and assembled at Port Adelaide at a total project cost of $8 billion. Mr Beazley added:

The Australian Submarine Corporation includes the Swedish Shipyard Kockums, CBI Australia Ltd and Werners International and the Australian Industry Development Corporation.

In addition to the cost of constructing the submarines and combat systems, the project price includes costs such as design and construction of facilities to hold them in Australia to increase defence capability and internationally Australian Industry Involvement.

In the case of the new submarines there is a world-wide policy to convert to the unique and demanding requirements of Royal Australian Navy submarines. Mr Beazley added

The selection of ASC and Kockums is more advanced than any other rival. There is strong competition at all stages of the Project Definition Studies and during the evaluation of the formal offers Kockums and Rockwell have formed Australian companies for this project. A large number of Australian and Australian firms have been closely involved with the overseas contractors in the preliminary studies and many others throughout the world have already been preidentified as potential major or minor sub-contractors and equipment suppliers.

The submarines have unique capabilities and play a crucial role in Australia's defence self reliance. The new submarines will have greater speed and be more difficult to detect than the Oberon Class. They will have a modern hydrodynamically efficient bow, shapely hull and incorporate the host of modern technology in submarine design and construction.

The成功的 contender, the Swedish Kockums Type 471 submarine

OFFICE:

12 PAMMENT STREET
NORTH FREMANTLE
WESTERN AUSTRALIA, 6159

Cables: SEASTORES, Perth
Telex: AA94541
Telephone: (09) 335 8812

Western Australian Corporation construction facility to be located at Port Adelaide.
THE TYPE 471 SUBMARINE

The new submarine to be built by Kockums is the Type 471 submarine, and its combat system has been designed to achieve high levels of performance and efficiency. The Type 471 submarine is a new generation of submarines that incorporate the latest technology and systems. It is a multi-mission submarine that can be used for a variety of tasks, including anti-ship, anti-submarine, and anti-surface warfare.

THE TYPE 471 SUBMARINE

The hull is made of a new Swedish-developed micro alloy steel. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence. The two forward control planes are mounted on a base and are used for navigational purposes. The fin (more widely known as the conning tower) is situated slightly forward of the amidships. It contains search and attack periscopes and 'masts' - or crucifix, which help to reduce noise by creating less turbulence.
THE DEFENCE WHITE PAPER
A LAYMAN'S VIEW
by GEOFFREY EVANS

THE ASSESSMENT

OTI the Review and the White Paper together represent an assessment of Australia's current situation and proposes a solution for developing an appropriate defence structure. Although the Paper is clearly based on the Review, it is not strictly a continuation of that document. This is because the Review was a product of the period immediately following the dismissal of Mr Beazley's Government, whereas the White Paper was produced by the Dibb Government. The key event which led to the publication of the White Paper was the formal declaration of government policy in 1986. As such, it represents a clear indication of the direction in which the Government intends to take Australia's defence capability.

THE DEFENCE FORCE DEVELOPMENT

The White Paper indicates that the core force concept will be retained but no longer considered as a 'recessions base'. The present determiners of the defence force are the F111 aircraft and submarines, both capable of long range as well as other roles. The F111s have been ordered but not yet delivered, and the submarines remain to be completed. The White Paper also stresses the importance of PNG and Indonesia as key neighbours and suggests that Australia will need to develop close relations with these countries. It indicates that Australia will continue to maintain a substantial defence force but that the emphasis will be on supporting the national security and economic interests of Australia.

DEFINITION

The Defence White Paper is a comprehensive document that outlines the current and future defence needs of Australia. It is an essential resource for anyone interested in understanding the strategic direction of Australia's defence policy. The White Paper is divided into several sections, each covering a specific area of interest. The sections include the defence white paper, the defence force development, and the defence planning. The White Paper is written in a clear and concise manner, making it easy to read and understand. It is a valuable resource for anyone interested in understanding the defence policy of Australia.

THE CAPABILITY

The Capability section of the White Paper discusses the current and future capabilities of the Australian Defence Force. It outlines the number of troops, aircraft, and other assets that are available to the Australian Defence Force. This section is important for anyone interested in understanding the current state of the Australian Defence Force.

THE TRACK RECORD

The Track Record section of the White Paper provides a brief history of the Australian Defence Force. It outlines the key events in the development of the Australian Defence Force, including the establishment of the Defence Department and the transition to a professional force. This section is important for anyone interested in understanding the history of the Australian Defence Force.

THE QUALITY

The Quality section of the White Paper discusses the quality of the Australian Defence Force. It outlines the steps that are being taken to improve the quality of the Australian Defence Force, including the introduction of new training methods and the improvement of equipment. This section is important for anyone interested in understanding the future of the Australian Defence Force.

SUPPORT FOR AUSTRALIA'S DEFENCE

Support for Australia's defence is vital to ensure that the country remains secure. The White Paper outlines the various sources of support that are available to the Australian Defence Force. This includes support from the government, international partners, and private sector organisations. This section is important for anyone interested in understanding the various sources of support that are available to the Australian Defence Force.

DEADLINE

The deadline for the October-December issue of The Navy is SEPTEMBER 1, 1987.
The Pacific Patrol Boat, for Papua New Guinea, has officially been handed over to the nation's Minister for Defence, Mr. Stephen Tago, at a ceremony in Western Australia on Saturday, May 16.

The vessel is the first of 12 long-range patrol boats being provided to Pacific Island countries under Australia's Defence Co-operation Programme. Under the project, Papua New Guinea and Fiji are scheduled to receive four boats each, Vanuatu, Western Samoa, the Solomon Islands, and the Cook Islands receiving one boat each. Representatives from the Pacific Island countries participating in the project were present at the ceremony.

The project, which includes vessels and associated spares support, training and advisory assistance, is the largest defence co-operation project ever undertaken by Australia.

The Papua New Guinea national flag is unfurled for the first time aboard the patrol boat.

The characteristics of the boats were developed in close consultation with regional countries. Ten companies tendered for the construction of the boats, offering a total of 13 designs. After rigorous evaluation by two independent evaluation boards, the design offered by ASI, known as the ASI 315, was selected as best meeting the characteristics required by participating countries.

Construction of the ASI-315 patrol boat.

Officer training is being conducted at the Australian Maritime College in Launceston, Tasmania. HMAS CREWSEL, HMAS WATERTIDE and HMAS CEREBRUS are the three boats, and all are stationed at the Rockingham TAFE College near Fremantle, Western Australia.

Australia will also help maintain and support the boats throughout their service, and regional maintenance support facilities will be established.

The characteristics of the boats were developed in close consultation with regional countries. Ten companies tendered for the construction of the boats, offering a total of 13 designs. After rigorous evaluation by two independent evaluation boards, the design offered by ASI was selected as best meeting the characteristics required by participating countries.

Construction of the ASI-315 patrol boat.

Each boat is fitted out for operating in a remote and harsh environment with emphasis on self-sufficiency and range.

The patrol boats are being used by theASC to maintain and support the boats throughout their service, and all maintenance support facilities will be established.

The characteristics of the boats were developed in close consultation with regional countries. Ten companies tendered for the construction of the boats, offering a total of 13 designs. After rigorous evaluation by two independent evaluation boards, the design offered by ASI was selected as best meeting the characteristics required by participating countries.

Construction of the ASI-315 patrol boat.

Each boat is fitted out for operating in a remote and harsh environment with emphasis on self-sufficiency and range.
When the original HMAS WHYALLA was launched at the Whyalla Shipyard in 1941, the proud shipbuilders of the day would have found it inconceivable that 46 years later the ship would be "alive" and about to take on a new, life-time role. 

And it could have been just as inconceivable to have suggested that the final resting place for the concrete HMAS WHYALLA would be two timer inland but in Whyalla, the inevitable has happened. The first HMAS WHYALLA, later to become the Rip when decommissioned and now known simply as The Whyalla, has been removed from the water and the same slipway, now closed, that gave birth to her. The concrete would be transported through the BHP steelworks and across the road to be laid down on foundations adjacent to the city's northern highway, entrance.

According to the original plan, a $1m to $1.5m complex which will include the restored ship, an extensive maritime museum and a new tourist information centre, will be the focal point of a $3m to $4m complex which will include the restored ship, an extensive maritime museum and a new tourist information centre. The Whyalla Maritime Tourist Complex will be a memorial to the city's shipbuilding past and the men who served on the ship. It will also create the biggest single tourism boost for the city ever experienced. Plans are still being developed for the complex and it is expected the new tourist centre will open later this year.

Meanwhile back to Saturday February 14. the day that The Whyalla was due to start its journey from the harbour back up the slipway from which it slid on May 21, 1941. Several hundred unloaders were ready, television crews from Adelaide had flown in, and the many official photographer were in place. Plans by WA contractor Dawson Offshore were to have the ship on its new foundations within two to three weeks. However, as the old saying goes "the best laid plans go astray". The subsequent battle pitted by Dawson's against its becoming known as the "Reluctant Lady" resulted in five days instead of five weeks to get the ship up its ramp, on to its trailer, over the side and into the water.

By mid March the ship had been brought to the top of the slipway and waiting for high tide. The ship would then be raised over the trailer. Shifting onto the trailers, the hulking mass was slow to move. The big hurdles were over. The Brambles Manford crew returned with the transport equipment and from then it was smooth sailing. With high tides, the ship had been secured to the trailers, shunted along the 2km route and settled on its permanent foundations.

The move was complete. The various contractors and local firms involved in the project had worked their hearts out to bring the project to a successful end. The original plan to settle the ship within two to three weeks was ahead.

But the problems weren't over. Damage had been sustained to the crane and cradle at the slipway end of the slipway. Working at night because of the need for high tides and crane power confusion, the ship was moved over the side of the wharf and placed under the hull, up on a specially laid back to a position where the bow was above the low water mark.

The ship awaits for high tide off the end of the slipway for the first stage of movement on to land. Little did anyone realise the frustrations which were ahead.
The Defence White Paper has defined Australia's region in a way which limits the countries which have, or shortly will have, the military, naval and air ability to threaten Australia.

The White Paper limits arbitrarily the distance from Australia for neighbouring powers to be considered regional powers.

This distance varies according to direction.

As a result, the White Paper excludes significant consideration of two powers which have the ability to conduct major naval operations not only in our region, and on our ocean trade routes, but also in extensive areas of our coastal waters.

These two powers are India and China.

India's maritime strength, once basically described as a China Sea - Yellow Sea Navy, has been growing in blue water strength.

Ships and submarines built recently, with further units building and ords now placed, demonstrate incontrovertibly that India is substantially increasing both the size and quality of her blue water fleet.

Specific developments include:

- A new building programme for gas turbine powered destroyers (DDG), equipped at least in part with European weapons and sensors.
- Extensive modernisation of existing frigate designs to allow the full operation of modern helicopters.
- Acquisition of modern western naval helicopters.
- The development in China of new generations of surface to surface guided weapons, surface to air missiles, and to surface missiles. This is a major change - no longer will the Chinese Navy be dependent on derivatives of Russian made weapons of thirty years ago.
- The construction of new ocean going replenishment ships, submarine depot ships and amphibious warfare units.
- The first units of China's new classes of nuclear armed submarine nuclear powered ballistic missile submarines (SSBN) and nuclear powered attack submarines (SSN) are now at sea and there are indications that a large class of SSNs is planned.
- The development of China's new generation of advanced air-to-air missiles, which, initially at least, will have no anti-submarine warfare capability.
- The modernisation of the later units of the existing Romeo class submarines.
- The new more capable amphibious warfare ships will enhance China's amphibious strength, the well publicised strategic purpose of which is the neutralisation and or recovery of Taiwan.

These two powers are India and China.

New classes of SSBNs and SSNs are now underway. China has embarked on a new building programme for the RAN of light patrol frigates.

The size of China's new attack transports (SSNs) is planned to be at least seven years before the Chinese Navy has sufficient surface forces, of the necessary capability, to conduct protected operations, opposed by fast class submarines, and aircraft and surface forces down to the Indonesian Archipelago.

Chinese SSNs have the ability to pass through the Indonesian Archipelago and conduct torpedoes, guided missile or minelaying operations in the South Pacific. China's new attack transports are more likely to conduct protected operations against Taiwan - perhaps the disputed Paracel Islands and other islands in the South China Sea where China has territorial claims.

However, it does seem anomalous to say the very least to exclude from the White Paper a power (China) which currently has a good deal of some regional interest and which, initially at least, will have no anti-submarine warfare capability. This becomes even more ironic at a time when Navy's specialised anti-submarine warfare stores are planned to be withdrawn from service.

This conventional submarine force is already very strong indeed — at least 100 boats is massive by regional standards. However, even the newest Russian submarine force is a bare skeleton — they are noisy underwater and lack modern sensors and homing weapons (fighter torpedoes or guided missiles). It is for these reasons that China has undertaken the Romeo modernisation programme. It is noteworthy that even obsolete submarines can lay mines with a reasonable degree of safety.

The Defence White Paper that excludes China from our region, recommends the construction for the RAN of light patrol frigates which, initially at least, will have no anti-submarine warfare capability. This comes at a time when Navy's specialised anti-submarine warfare stores are being withdrawn from service.

There is no more to say that the other powers considered in the White Paper - Indonesia, Malaysia, the Philippines and others - will attack Australian interests.

However, it does seem anomalous to say the very least to exclude from the White Paper a power (China) which currently has a good deal of some regional interest and which, initially at least, will have no anti-submarine warfare capability. This becomes even more ironic at a time when Navy's specialised anti-submarine warfare stores are planned to be withdrawn from service.
I and operational support to the strategic major operational elements, including surface Northern Fleet, Pacific Ocean Fleet, Baltic Fleet commands provide administrative, logistical, and exercise developmental operations. Including the work of more than 10 staff departments.

The Soviet Navy comprises four major fleets: Northern Fleet, Pacific Ocean Fleet, Baltic Fleet, and Black Sea Fleet. Fleet headquarters are located in Severonorsk for the Northern Fleet, Vladivostok for the Pacific Ocean Fleet, Kaliningrad for the Baltic Fleet, and Sevastopol for the Black Sea Fleet. In peacetime, the fleet commanders report directly to the chief of the Main Navy Staff and exercise operational control over all general-purpose forces and units within their fleet areas.

Under each fleet commander are several major operational elements, including surface and submarine forces, nuclear power commands, naval aviation, and naval infantry. While the fleet commands provide administrative, logistical, and operational support to the strategic submarine force, operational control of Soviet submarines is at the national level.

The Soviet Navy is headed by a commander-in-chief (CINC) who is also a deputy minister of defense. He acts as the equivalent of both the US secretary of the Navy and the Chief of Naval Operations and is the chief advisor on naval issues to the minister of defense. Fleet Admiral Sergei Chernavin has commanded the navy since 1985 and is assisted by several deputies who supervise the day-to-day operations of the fleet, including the work of more than 10 staff departments.

The Soviet Navy will probably serve as a propulsion testbed. The MIKE SSN, at almost 6,400 metric tons, has already been in service for several years, and its technologies are likely to be incorporated into designs as soon as practical. This emphasis has been greatly underscored by Soviet philosophy, which is to retrofit innovations into older designs, thus extending the service life and tactical utility of the submarine force. In some cases, the ballistic missile tubes were removed from a YANKEE SSBN in a process that converted the unit to an attack submarine. This YANKEE SSN has probably been re-equipped with updated fire control and some systems.

In conjunction with other programmes to produce specialised nuclear-powered submarines for research and development, weapons system evaluation, and fleet command and control, the Soviet Union maintains a diesel-powered submarine programme with the production of the KILO Class attack submarine. The second nuclear-powered attack submarine launched in 1983 was the SIERRA. At 7,600 metric tons, the SIERRA is about 20% larger than the VICTOR III, which was introduced only 4 years earlier. In this era of rapidly developing technologies, the SIERRA represents a clear demonstration of the high priority that submarine development programmes receive in the Soviet Union. Technological advances are incorporated into designs as soon as practical, and while SIERRA differs little in hull form from the VICTOR III, it is believed to have a larger pressure hull and improved capabilities.

A third submarine development of 1983 typified another aspect of Soviet philosophy, which is to retrofit innovations into older designs, thus extending the service life and tactical utility of the submarine force. In one case, the ballistic missile tubes were removed from a YANKEE SSBN in a process that converted the unit to an attack submarine. The YANKEE SSN has probably been re-equipped with updated fire control and some systems.

In conjunction with other programmes to produce specialised nuclear-powered submarines for research and development, weapons system evaluation, and fleet command and control, the Soviet Union maintains a diesel-powered submarine programme with the production of the KILO Class attack submarine. The second nuclear-powered attack submarine launched in 1983 was the SIERRA. At 7,600 metric tons, the SIERRA is about 20% larger than the VICTOR III, which was introduced only 4 years earlier. In this era of rapidly developing technologies, the SIERRA represents a clear demonstration of the high priority that submarine development programmes receive in the Soviet Union. Technological advances are incorporated into designs as soon as practical, and while SIERRA differs little in hull form from the VICTOR III, it is believed to have a larger pressure hull and improved capabilities.

A third submarine development of 1983 typified another aspect of Soviet philosophy, which is to retrofit innovations into older designs, thus extending the service life and tactical utility of the submarine force. In one case, the ballistic missile tubes were removed from a YANKEE SSBN in a process that converted the unit to an armament capable of firing a wide range of submarine-launched weapons, including the SS-N-15 nuclear depth bomb and the SS-N-25 ASW conventional and nuclear missiles.

The second nuclear-powered attack submarine launched in 1983 was the SIERRA. At 7,600 metric tons, the SIERRA is about 20% larger than the VICTOR III, which was introduced only 4 years earlier. In this era of rapidly developing technologies, the SIERRA represents a clear demonstration of the high priority that submarine development programmes receive in the Soviet Union. Technological advances are incorporated into designs as soon as practical, and while SIERRA differs little in hull form from the VICTOR III, it is believed to have a larger pressure hull and improved capabilities.

A third submarine development of 1983 typified another aspect of Soviet philosophy, which is to retrofit innovations into older designs, thus extending the service life and tactical utility of the submarine force. In one case, the ballistic missile tubes were removed from a YANKEE SSBN in a process that converted the unit to an attack submarine. The YANKEE SSN has probably been re-equipped with updated fire control and some systems.

In conjunction with other programmes to produce specialised nuclear-powered submarines for research and development, weapons system evaluation, and fleet command and control, the Soviet Union maintains a diesel-powered submarine programme with the production of the KILO Class attack submarine. The SIERRA is about 20% larger than the VICTOR III, which was introduced only 4 years earlier. In this era of rapidly developing technologies, the SIERRA represents a clear demonstration of the high priority that submarine development programmes receive in the Soviet Union. Technological advances are incorporated into designs as soon as practical, and while SIERRA differs little in hull form from the VICTOR III, it is believed to have a larger pressure hull and improved capabilities.

A third submarine development of 1983 typified another aspect of Soviet philosophy, which is to retrofit innovations into older designs, thus extending the service life and tactical utility of the submarine force. In one case, the ballistic missile tubes were removed from a YANKEE SSBN in a process that converted the unit to an attack submarine. The YANKEE SSN has probably been re-equipped with updated fire control and some systems.

In conjunction with other programmes to produce specialised nuclear-powered submarines for research and development, weapons system evaluation, and fleet command and control, the Soviet Union maintains a diesel-powered submarine programme with the production of the KILO Class attack submarine. The SIERRA is about 20% larger than the VICTOR III, which was introduced only 4 years earlier. In this era of rapidly developing technologies, the SIERRA represents a clear demonstration of the high priority that submarine development programmes receive in the Soviet Union. Technological advances are incorporated into designs as soon as practical, and while SIERRA differs little in hull form from the VICTOR III, it is believed to have a larger pressure hull and improved capabilities.

A third submarine development of 1983 typified another aspect of Soviet philosophy, which is to retrofit innovations into older designs, thus extending the service life and tactical utility of the submarine force. In one case, the ballistic missile tubes were removed from a YANKEE SSBN in a process that converted the unit to an attack submarine. The YANKEE SSN has probably been re-equipped with updated fire control and some systems.
helicopter
missiles
130mm twin barrell dual purpose
SLAVA - entered the inventory. The SLAVA
turbine powered guided missile cruisers — the
surface warship - the KIROV guided missile
and evaluation programme under way at Saki
future earners, the Soviets have an active test
approximately 300 metres overall in length and
is expected to displace about 65.000 metric
launched in December 1985 at Nikolayev in the
is expected to displace about 65.000 metric
Tupolev-designed variable-geometry wing
bombers, weapon systems and tactics
Since the mid 1950s, when the force
most of the national air forces in the world
remain primarily a land-based force Numbering
in every Ship of the Royal Navy, Royal Aust Navy
and 21 other Navies
Become A Blood Donor Today

The KIROV, with a displacement of about
28.000 tons, is the largest warship with the
exception of aircraft carriers, built by any nation
since World War II. Its propulsion system is a battery of 20
500-kilometer SSN-19 antiship
cruise missile launchers, complemented by
launchers for the SS-N-14 anti-submarine
missile in the first ship of the class only. Three
HELMIE HORSEMEOKA cruisers are under
exclusively air defence, including the long-range
elements and, on the second and subsequent unit
provisions for 129 SS-N-16 anti-ship
Medium-calibre gun mounts, a number of
Gatling-type guns for point defence, torpedoes,
and ASW rockets complete the KIROV's
modern armament. In 1984 Prince, the second
unit of the KIROV Class, became operational. A third
KIROV Class ship is now taking shape a second
construction yard.

Other new construction programmes show
similar developments and modernisation
multi-dimensional aspect of modern naval
warfare. All new destroyers and large surface
fighting ships feature equipment with surface-to-
missiles and sensors and weapons for
antisubmarine warfare, in addition to those
domestic, specialist vessels. The eighth SOVREMENNYY DDG, for example, is
estimated to carry 40 SS-N-17 short-range
to air-to-air and ground
shipboard applications, a new ASW helicopter,
the HELIX, became operational in 1980. Now
widely deployed in the Soviet fleet, the HELIX
has significantly greater range, speed, and payload than in SHORNEVOK predecessor.
SNA aircraft are also employed for vital
and ASW missions, was introduced in
1974 and is currently deployed in the Black
Sea fleet, and Pacific Ocean Fleets. The
SNAFIRE can carry anti-submarine, bombs,
utlises an important and growing mission for
ASW and an important future major
submarine reconnaissance mission. Fitted with
the FENCER F-variant, the SNAFIRE
became operational in 1984. An important
fighter-bomber, the FENCER variant enhances
the reconnaissance capability, and likely
submarines. The FENCER F-variant is an important
aircraft launched from these bases provide the Soviets not only
Western sea lines of communication.

In support of the development of aircraft
for future carriers, the Soviets have an active test
and evaluation programme under way at Saki.

The ALEXANDER BRYXIN, lead unit of a new class of strategic ballistic missile
submarines, is preparing to join the Soviet fleet. The survivability and sustainability of the
Soviet SBN/SILM force will be further enhanced with missile-launched operations in protected
waters. Such operations demonstrate a growing Soviet capability to engage in protracted
nuclear war.

A thorough review of the Soviet naval
aircraft development will be increasing.
Soviet Naval Aviation (SNA) will
remain primarily a land-based force. Numbering
over 3,000 aircraft, SNA alone is larger than
most of the national air forces in the world
today. Since the mid 1950s, when the force
first equipped with missile-carrying jet
bombers, weapon systems and tactics
associated with the SNA's anti-submarine strike
mission have been progressively upgraded. The
Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

NAVAL AVIATION

ALTHOUGH the emphasis on sea-based
aircraft development will be increasing.
Soviet Naval Aviation (SNA) will
remain primarily a land-based force. Numbering
over 3,000 aircraft, SNA alone is larger than
most of the national air forces in the world
today. Since the mid 1950s, when the force
first equipped with missile-carrying jet
bombers, weapon systems and tactics
associated with the SNA's anti-submarine strike
mission have been progressively upgraded. The
Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.

The Tu-142M - designed variable-geometry wing
in Improving their peacetime distant-area power
projection capabilities to become more
influential in the Third World. To achieve this
goal, they seek enhanced capability to protect
and assist ground forces operating ashore, as
well as to provide air protection for naval
forces. Thus, the aircraft on the new carrier are
expected to have both air-to-air and ground
support mission capabilities. Sustained combat
operations in Third World areas, however,
would require underway replenishment ship
support of a kind the Soviets currently lack.
"THE COST OF SEAPower"

By PHILIP PGH.

Published by Conway Maritime Press.

Reviewed by John Mortimer.

This book fills an important gap, in existing literature, for those wishing to understand the complex considerations which determine whether we do or should undertake defence decision making process.

Unlike so much of the existing commentary which focuses on their considerations on the major naval powers, the NATO and Warsaw Pact alliances, Philip PGH's work has a more general application.

The analysis covers the relationship between defence expenditure and national wealth, the process of comparing costs from different nations and areas, how budgets are developed, the underlying causes of cost escalation, radical innovation and its application in lesser naval powers, the trade-off between numbers and capability, the problem of long term effectiveness and how to account for the cost of new developments, and concludes with a discussion on escaping from the apparent trap of escalating warfare.

Philip PGH's writing style flows easily and he has some memorable quotes which will bring numerous chuckles to what one might normally expect to be a somewhat dry subject. As presented it is anything but dry and is well balanced in its discussion. PGH's style is characterised by some classical simple but effective statements. For example his use of radical innovation is titled "I cannot wish than changes the rules", and is followed by such subheads as "Oppose the Admirals" and "It seemed different at the time."

Highly recommended reading, particularly for those interested in the formulation of defence policy beyond technical naval and strategic issues.

"USN - NAVAL OPERATIONS IN THE '80s"

By MICHAEL SKINNER.

Published by Arms and Armour Press.

Reviewed by SHIELD.

The ships of the United States of America are undoubtedly the largest and, arguably, the most technically advanced of their kind in the non-communist world.

Since the NATO nations would suffer major economic damage without their merchant fleets, and in view of the growing mutual recognition that the potential for collateral damage makes a land-based nuclear exchange even less of a viable option than before, and the inevitable use of a nuclear war of attrition on the oceans becomes more realistically possible. Additionally, sea-water is known to be a far more efficient medium for transferring the destructive power of nuclear weapons. Each of the above reasons lends majorly to this book of this title, the functioning of the Coast Guard, the Marine Amphibious Forces, the US NAVY, to the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cruisers, the submarine, the nuclear-powered American cru...
27 navies sail the seven seas with Signaal.

The familiar Signaal dome on warships is a symbol of ultimate weapon control. Signaal, a leader in radar and control systems for military and civil applications around the world, is a member of the Philips international group of companies.

Suppliers to 27 navies including the Royal Australian Navy and others in the Pacific region, Signaal maintains an industrial presence in Australia at the Defence Electronics Facility at Philips' Moorebank plant in N.S.W.

Signaal and Philips are ideally placed to service Australia's future defence needs with systems meeting the most stringent operational requirements and in-country facilities providing Australian Industry Involvement and on-going support in line with government policy.

PHILIPS COMMUNICATION SYSTEMS

SIGNAAL

2 Greenhill Ave
Moorebank, NSW 2170
Phone: (02) 600 5467

The acquisition programme for the new tanker, for the Royal New Zealand Navy is progressing well.

The tanker, HMNZS ENDEAVOUR, is being built by Hyundai Heavy Industries in Ulsan, Korea.

A team of naval technical officers from New Zealand have just returned from the ship builders and report that the first steel for the hull was cut on February 4. This will form part of the framework in the engine-room section of the ship.

The tanker is being built in sections under cover. The first completed major section will be moved to the building dock in the Special and Naval Ship Division of the yard in early April.

All major structural design work has been completed, as has the design and drawings of the complex fuel pipe and cargo handling systems which will be installed in the ship.

The major items of machinery and special equipment have been selected and ordered from suppliers around the world and the ship's engineers, Le Cid Mike (Owen), are now in Korea standing by the build.

The New Zealand Navy is using the British firm of Business, Coftert and Partners as technical consultants for the design and construction of the ship.

Being built to strict Lloyd's tanker standards, the ship will be launched by flooding the building dock in August and will be completed by December.

HMNZS ENDEAVOUR will carry out builders' trials before sailing for New Zealand in 1988.

The tanker will be 156 metres long, displacing 12,300 tonnes and has a speed of 14 knots. It will carry 7,500 tonnes of diesel fuel and 620 tonnes of aviation fuel. British designed rigs will be fitted to enable frigates and other vessels to be refuelled by the tanker while underway.

Construction of the vessel will cost about $47 million. Equipment and installation and other costs will bring the total cost of the project to a maximum of $277 million. It may be less.

Construction of the vessel will be financed under the Defence Department's Medium Term Investment Facility, which is designed to meet the capital needs of the navy and other defence organisations.

HMNZS ENDEAVOUR will carry out builders' trials before sailing for New Zealand in 1988. The tanker, one of the largest in the world, will be used to replenish warships at sea, and will be capable of operating in all areas of the world.

The tanker will be 156 metres long, displacing 12,300 tonnes and has a speed of 14 knots. It will carry 7,500 tonnes of diesel fuel and 620 tonnes of aviation fuel. British designed rigs will be fitted to enable frigates and other vessels to be refuelled by the tanker while underway.

The tanker will be built to strict Lloyd's tanker standards, the ship will be launched by flooding the building dock in August and will be completed by December. HMNZS ENDEAVOUR will carry out builders' trials before sailing for New Zealand in 1988.
The RNZN Tanker will carry the range and quantity of Long Voyage stores as prescribed by RDZ and necessary to assure the replenishment at sea capability of the ship and taking into account the following:

1. There will be a maintenance plan to maintain the ship's class rating standards based on a five year cycle (prepared by the Marine Classification Society).

2. The ship will be docked twice within the five year cycle (subject to a satisfactory rating standards based on a five year cycle prepared by the Marine Classification Society).

3. Ships equipment will be maintained until spares support from RNZN stocks manufacturers stocks is no longer economically available and when the equipment will be replaced as needed.

5. The RNZN Tanker will generally conform to a merchant service maintenance cycle modified as necessary to reflect the replenishment at sea capability of the ship and taking into account the following:

6. There will be a maintenance plan to maintain the ship's class rating standards based on a five year cycle (prepared by the Marine Classification Society).

7. Spares lists will be limited to identification of items held in the ship's stocks.

8. The ship will be docked twice within the five year cycle (subject to a satisfactory rating standards based on a five year cycle prepared by the Marine Classification Society).

9. Ships equipment will be maintained until spares support from RNZN stocks manufacturers stocks is no longer economically available and when the equipment will be replaced as needed.

10. Many years experience in this area ensures that Ballarat Naval Cadets of many years ago and in particular the march of that Unit from Ballarat to Melbourne in 1908 to meet and greet the American Great White Fleet. You may even consider republishing it.

With best wishes,

Yours sincerely,

BRUCE TURBERE
Institute Librarian
(Lieut. NRC — Staff Officer — Administration, Victorian Division)
Nearly 80 years ago the young Naval Cadets became local heroes when they marched to Melbourne to provide a reception committee for the visiting American Fleet.

The March, described by Mrs. Kelly, as a unique protest march, captured the imagination of the people of Melbourne, who lined the streets to watch the cadets march.

The cadets were founded by Lieutenant John Henry (Harry) Adeney, a remarkable man whose letters have been preserved in the archives of the Ballarat Naval Cadets. Adeney held a passionate belief that Australia and the RAN was not yet formed. Lieut Adeney now being lovingly restored by Mrs Margaret Maher, vicarage at Rowton Mount Rowan, a home to many artists and writers at sea.

There are personal letters from people such as Prime Minister Alfred Deakin and MacRobertson of chocolate fame.

Some of the material is being displayed upstairs at the Ballarat Library. A secret address has been written on the wall. Some of the material is being displayed upstairs at the Ballarat Library for Heritage Week, with a replica of the original letters used by the cadets in exercises.

When he formed the cadets, Lieut Adeney left the sea to marry his wife, Margaret, and become a master mariner in the British Navy. He was a great man of many interests, including the signatures of the original cadets, an illuminated address and his father's diaries and letters written at sea.

Local boys of '08 made good

In 1908 the event occurred which was to make them the darlings of Victoria. Lieut Adeney had been lobbying unsuccessfully for transport to enable the cadets to welcome the American Fleet, but the official reception committee would not authorise rail passes.

When Prime Tommy Bent finally suggested that if they wanted to come, they could walk, Adeney took up the challenge.

On August 25, 1908, with bands playing, about 60 boys set off to march to Melbourne, over 150 km, and were met at the station by a band and marched to the Town Hall. The Lord Mayor, Sir Henry Wood, received them and they were taken, probably in the necessity of the City Baths.

There are a report in 1904 referred to a concert at Her Majesty's Theatre. It was a free train ride provided back to Ballarat via Geelong, for those that worry about sustainability, there's minimal sweating or condensation.

Challengers for their boom covers.

Acrydux - Chosen by the America's Cup

Acrydux - high performance acrylic for sail bags - even mast and boom covers.

For more information on Acrydux and its many marine applications contact Bradmill Australia.
THE NEEDS OF TOMORROW’S DEFENCE SYSTEMS ARE BEING MET TODAY BY ICL

ICL PROVIDES:
• Project and sub-contract management for OPCON, NATO’s North Atlantic Maritime Surveillance System
• Project definition studies for NATO and UK MoD
• Vital signal systems for the Royal Navy
• Management Information Systems for the Australian Defence Forces
• Sophisticated communication networks

ICL

ICL Australia Pty Limited

214 NORTHBOURNE AVENUE
BRADDOCK, ACT 2601

Phone: (062) 48 7944
The Navy League of Australia

APPLICATION FOR MEMBERSHIP

HISTORICAL

The Navy League of Australia had its origin in the Navy League formed in Britain towards the end of the 19th century and described in some dictionaries as "A body formed in 1895 with the object of arousing interest in the British Navy".

From this simple beginning a world-wide organisation of independent, national Navy Leagues has emerged which over the years has influenced public thinking on naval matters and created in tens of thousands of youngsters an interest in the sea and ships.

The members of the Navy League of Australia are proud to belong to this great family and cordially invite you to join them in what they believe to be an important national task.
MEMBERSHIP
Any person with an interest in maritime affairs, or who wishes to acquire an interest in, or knowledge of, maritime affairs and who wishes to support the objectives of the League is invited to join.

OBJECTIVES
The principal objectives of The Navy League of Australia are:

- To keep before the Australian people the fact that we are a maritime nation and that a strong Navy and a sound maritime industry are indispensable elements of our national well-being and vital to the freedom of Australia.
- To promote, sponsor and encourage the interest of Australian youth in the sea and sea services, and support practical sea training measures.
- To cooperate with other Navy Leagues and sponsor the exchange of cadets for training purposes.

ACTIVITIES
The Navy League of Australia works towards its objectives in a number of ways:

- By including in its membership leading representatives of the many elements which form the maritime community.
- Through soundly based contributions by members to journals and newspapers, and other media comment.
- By supporting the Naval Reserve Cadets, and assisting in the provision of training facilities.
- By encouraging and supporting visits by recognised world figures such as former United States Chiefs of Naval Operations and Britain's First Sea Lords.
- By publishing "The Navy", a quarterly journal reporting on local and overseas maritime happenings, past, present and projected.
- By maintaining contact with serving naval personnel through activities arranged during visits to Australian ports of ships of the Royal Australian and Allied Navies.
- By organising symposia, ships' visits and various other functions of maritime interest throughout the year.

Member participation is encouraged in all these activities.

JOINING THE LEAGUE
To become a Member of The Navy League, simply complete the Application Form below, and post it, together with your first annual subscription of twelve dollars (which includes the 4 quarterly editions of "The Navy").

The form should be sent to the Hon Secretary of the Division of the Navy League in the State or Territory in which you reside. The addresses of which are as follows:

VICTORIAN DIVISION: C/o 9 Culliton Road, Camberwell, Vic, 3124
QUEENSLAND DIVISION: C/o 42 Gilgandra Street, Indooroopilly, Qld, 4068.
AUSTRALIAN CAPITAL TERRITORY DIVISION: C/o 45 Skinner Street, Cook, ACT, 2614.
SOUTH AUSTRALIAN DIVISION: GPO Box 1529, Adelaide, SA, 5001.
TASMANIAN DIVISION: C/o 43 Amy Road, Launceston, Tas, 7250.
WEST AUSTRALIAN DIVISION: C/o 23 Lawlor Road, Attadale, WA, 6156.
NORTHERN TERRITORY DIVISION: GPO Box 2612, Darwin, NT, 5794.

THE NAVY LEAGUE OF AUSTRALIA
Application for Membership

To The Hon. Secretary
The Navy League of Australia
Division

Sir or Madam.

I wish to join the Navy League of Australia, the objectives of which I support, and I enclose a remittance for $12.00 being my first annual subscription.

Name: ________________________________
(Mr) ________________________________
(Mrs) ________________________________
(Ms) ________________________________
(Rank) ________________________________

Address: ________________________________
Street ________________________________
Suburb ________________________________
State ________________________________
Postcode ________________________________

Signature ________________________________
Date ________________________________
JOIN THE
NAVAL RESERVE CADETS

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

The Naval Reserve Cadets provide for the spiritual, social and educational welfare of boys and girls and help to develop in them character, a sense of patriotism, self-reliance, citizenship and discipline.

Uniforms are supplied free of charge.

Cadets are required to produce a certificate from their doctor to confirm they are capable of carrying out the normal duties and activities of the Cadet Corps. If injured while on duty, Cadets are considered for payment of compensation.

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

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

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

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

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

NEW SOUTH WALES: Staff Office Cadets, HMAS Watson, Watsons Bay, NSW, 2030.

QUEENSLAND: Staff Office Cadets, HMAS Moreton, Box 1416T, GPO, Brisbane, 4001.

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

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

VICTORIA: Staff Office Cadets, HMAS Lonsdale, Rouse Street, Port Melbourne, Vic. 3207.

TASMANIA: Staff Office Cadets, HMAS Huon, Hobart, Tas, 7000.

AUSTRALIAN CAPITAL TERRITORY: Commanding Officer, TS Canberra, PO Box E52, Queen Victoria Terrace, Canberra, ACT, 2600.

“THE NAVY”

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

The Hon. Secretary, NSW Division
NAVY LEAGUE of AUSTRALIA
GPO Box 1719, SYDNEY, NSW, 2001
Garden Island Dockyard

GARDEN ISLAND DOCKYARD OFFERS A STRONG CONCENTRATION OF NAVAL ENGINEERING SKILLS AND CAPABILITIES TO SUPPORT THE RAN NEW CONSTRUCTION SUBMARINE AND SURFACE COMBATANT SHIP PROJECTS

GID's expertise and capabilities reflect many years of in-depth maintenance and design experience related to modern warships, combat data, weapons and communications systems.

The facilities and expertise at Garden Island Dockyard are available to support Australian Manufacturing Industries and contractors who will be engaged in the demanding task of building and maintaining the New Construction Warships in Australia.

COMMERCIAL PROJECTS AND MARKETING BRANCH
H.M.A Naval Dockyard,
Sydney, NSW 2000
Telephone: (02) 359 2246
Telex: AA74849
Fax: (02) 359 3287
If even one ship was lost...

Four years ago in an address to a United Services Institute seminar, BHP's General Manager Transport (Mr. J. Prescott) stated:

"Loss of even one of my company's 140,000 duty bulk carriers would severely restrict steel production in Australia."

Given the fact that Australia's steelmaking capacity is dependent almost entirely on the sea transport of raw materials from sources mainly in the west and north-west of the country, to the steelworks on the eastern seaboard, one might think the safety of the Australian shipping industry in both peacetime and in a defence emergency would receive close and continuing public scrutiny. Regrettably it has not.

Steelmaking of course is not the only industry wholly dependent on sea transport, the bulk of crude oil and petroleum products is moved around Australia in ships and, in some cases of very heavy traffic, alone could cause Australia to grind to a halt quite quickly. Many would be surprised to know that nearly two-thirds of all essential cargoes are moved by sea.

About 99% of our exports and imports depend upon sea transport. Not surprisingly, Australia is not self-sufficient in raw materials vital to the country's activities. Major deficiencies include crude oil suitable for refining into lubricants, phosphate rock for conversion to fertiliser, essential to our primary producers, and materials vital to the metal industry.

Australia's merchant fleet - ships locally owned and paying the national flag - is quite small. Hence Mr. Prescott's reference to the serious consequences that would follow the loss of a single ship. Most of the coastal fleet is locally owned but only a fraction of our important overseas trade - less than 5% - is carried on Australian flag ships. Just what overseas controlled shipping would be available for Australian trade in the event of a major war - not necessarily one directly involving Australia - is largely a matter of guesswork but it can be said with certainty that the resources of the owning or controlling country would come first.

What more can you ask for than a colour fast 100% dope-dyed acrylic fabric that is highly protective from that hot Australian sun, its non-fade properties make it ideal for outdoor furniture, and sun awnings, window drapes, pool covers, cabanas, tents, marquees, hoist covers, wind breaks, and caravan annexes.

With an eye on the needs of the outdoor enthusiast, Boaties or anyone who requires a sturdy protection from weather, Bradmill has developed the brilliant Acrydux. It is a fabric that has been thoroughly tested to above Australian approved standards for water-repellency, shrinkage, long term weight-to-strength ratio, and most importantly UV light fastness. This makes Acrydux unmatched for reliability.

What more can you ask for than a colour fast 100% dope-dyed acrylic fabric that is highly protective from that hot Australian sun, its non-fade properties make it ideal for outdoor furniture, and sun awnings, window drapes, pool covers, cabanas, tents, marquees, hoist covers, wind breaks, and caravan annexes.

We ask, where else but at Bradmill would you find such protection?

For more information on Acrydux and its many marine applications contact Bradmill Australia.

ACRYDUX

LAND OR SEA, IT'S GOT YOU COVERED

THE NAVY LEAGUE OF AUSTRALIA

FEDERAL COUNCIL

Patron: His Excellency, The Governor General

President: Mr. T. B. Anderson, 52-53, Wellington, Q. 4000

Vice-President: E. R. J. McKinnon, 45 George St, Sydney, N.S.W.

Secretary: Mr. A. J. Robertson, 9 E. 1/4, Campbelltown, N.S.W.

Treasurer: Mr. P. R. Torrens, 9 E. 1/4, Campbelltown, N.S.W.

NORTH VICENZALE DIVISION

Patron: His Excellency, The Governor of Victoria

President: Mr. M. J. Shaw, 3/15, E. 1/4, Windsor, Vic.

Secretary: Mr. D. C. O'Gorman, 9 E. 1/4, Campbelltown, N.S.W.

Treasurer: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

QUEENSfAND DIVISION

Patron: His Excellency, The Governor of Queensland

President: Mr. A. H. Robertson, C.M.G., R.N., 42 Gaffney St, Brisbane.

Secretary: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

Treasurer: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

AUSTRALIAN CAPITAL TERRITORY DIVISION

Patron: His Excellency, The Governor of Australia Capital Territory

President: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

Secretary: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

Treasurer: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

SOUTH AUSTRALIA DIVISION

Patron: His Excellency, The Governor, South Australia

President: Mr. W. J. Smith, 9 E. 1/4, Campbelltown, N.S.W.

Secretary: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

Treasurer: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

TASMANIA DIVISION

Patron: His Excellency, The Governor of Tasmania

President: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

Secretary: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

Treasurer: Mr. J. D. Smith, 9 E. 1/4, Campbelltown, N.S.W.

THIRLMEAR RAILWAY MUSEUM

(5km South of Picton)

Steam Trains 1st and 3rd Sunday each month, March to October. Also long weekends Monday-Sunday. Steam-hauled trains from Sydney 1st Sunday each month. In February.

BOOKINGS ESSENTIAL

Weekdays: (046) 81 8001 - Weekends: 870 1273

THIRLMEAR RAILWAY MUSEUM

(5km South of Picton)

JOURNEY INTO THE PAST

Steam Trains 1st and 3rd Sunday each month, March to October.

Thirlmear Railway Museum

10 am-5 pm except Christmas Day and Good Friday. Large numbers of exhibits under cover. Picnic and barbecue areas. WEEKENDS BY APPOINTMENT

To: Telephone:

THE NAVY LEAGUE OF AUSTRALIA

October-December, 1987

Page Three
HMS WARRIOR (1860) was built for the Royal Navy, by contract, by Thames Iron Works & Shipbuilding Co on the left bank of Bow Creek on the River Thames.

She was jointly designed by the Admiralty and John Scott Russell (an outside expert). Her engines were designed and built by John Penn & Son of Greenwich. She was laid down on May 25, 1859, launched on December 29, 1860, and placed in Victoria Dock to be fitted out. On August 8, 1861, she was moved into deeper water at Greenhithe to complete fitting out. On September 19, 1861, she sailed from Greenhithe to Portsmouth and for the following nine months she was subjected to a number of trials. Finally, in June, 1862, she was ready for active service and joined the Channel Squadron.

She is also Britain’s last surviving battleship having outridden her successors as a result of being used as Vernon III — part of the Vernon Torpedo Training Establishment (1904) — and in 1929 (re-named Hulk C77 in 1942) she became an oil fuel pontoon off Milford Haven where she remained under regular maintenance until 1979 when she was handed over to the Trust for preservation.

Her length is 420’ overall (380’ between perpendiculars), beam 58’4”, mean draught 26’, displacement 9210 tons. Her hull is wrought iron plates of 1/2”, her armour is wrought iron armour plates 4/4” thick tongued and grooved together. This armour extends to cover the central 213’ of the ship’s sides and had a vertical height of 22’, about 16’ above the waterline and 6’ below. At each end the armour is carried across the width of the ship so forming an armoured ‘box’ or citadel. Between the hull and armour plate there is 18” of teak laid crossply and the athwartships armour which closes the ends of the citadel is of wrought iron 4” thick with a teak backing 12” thick. Forward and aft of the citadel the ship is unarmoured and consists only of the iron hull. It having been calculated that, even if these ‘soft ends’ were riddled with shot, the armoured part together with the extensive system of watertight compartments would provide ample buoyancy to keep her safely afloat.

HMS WARRIOR (1860) total armament was originally 40 guns — two 110pdr breech loader rifled and four 40pdr MLR on the upper deck plus twenty-six 68pdr muzzle loader small-bore and eight 110pdr BLR on the main (or gun) deck, most of which were within the citadel. During her 1864-67 refit the ship was re-armed with eight 7” muzzle loader rifled and four 20pdr BLR guns on the upper deck, and on the main deck twenty 7” MLR and four 8” MLR all within the citadel, making a total of 36 guns.

HMS WARRIOR (1860) was able to proceed under either sail or steam or both. Her best recorded speeds were — steam only, 14.3 knots; sail only, 13.0 knots; steam and sail, 17.5 knots. These speeds made her the fastest ship in the world when completed. She is square rigged on three masts and with all sails set she spread 5’4” acres of canvas.

She had a set condensing single expansion steam engine with two cylinders acting on a single crankshaft — bore of cylinders 11/4”, stroke of piston 48”, nominal horsepower 1250, indicated horsepower (full power at 54 rpm) 5500.

She had 10 rectangular multi firetube wrought iron boilers, 4 in the forward and 6 in the after boiler rooms. Boiler pressure on official trials was 229 per square inch. Coal capacity was about 800 tons, fuel consumption at full power was about 11 tons per hour. Her propeller could be disconnected from its shaft and hoisted above the water so as not to impede the ship when she was under sail alone or so that repairs could be carried out. Steering was manual by quadruple steering wheels. There were two capstans, one forward and one aft, both manually worked with up to 90 men on the capstan bars. She carried a crew of over 700 men which included about 50 officers of all ranks and about 125 Royal Marines.

Top left: Under restoration.

Top right: 68-pounder gun, main deck.

At right HMS WARRIOR, 1873.

Below: WARRIOR leaves Hartlepool for Portsmouth to take her place with HMS VICTORY and MARY ROSE. With her is HMS ARROW.
Annual General Meeting
1987

NOTICE is hereby given that the ANNUAL GENERAL MEETING OF THE NAVY LEAGUE OF AUSTRALIA will be held at the Melbourne College of Advanced Education, 757 Swanston Street, Carlton, Victoria, 3053, on Friday, 13th November, 1987, at 8.00 pm.

BUSINESS

To confirm the Minutes of the Annual General Meeting held in October-December, 1987.

To receive the report of the Federal Council, and to consider matters raised thereon.

To receive the financial statements for the year ended 30th June, 1987.

To elect office bearers for 1987/88 as follows:

(a) Federal President
(b) Federal Vice-President (3)
(c) Auditor

Nominations for these positions are to be lodged with the Hon Secretary prior to the meeting.

To receive the report of the Federal Council.

To receive the financial statements for the year ended 30th June, 1987.

To deal with any matter notified in writing to the Hon Secretary by 30th October, 1987.

To consider the 1987-88 Programme.

To receive the report of the Federal Treasurer, and to receive any account of the financial position of the Navy League.

Nominations for these positions are to be lodged with the Hon Secretary prior to the meeting.

To receive the report of the Federal Treasurer.

To receive the financial statements for the year ended 30th June, 1987.

To deal with any matter notified in writing to the Hon Secretary by 30th October, 1987.

To receive the report of the Federal Treasurer.

Preliminary Notice

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The Seminar will be held in Sydney on Tuesday, 20th October, 1987.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

The New South Wales and Victorian Divisions wish to give preliminary notice that they have arranged to hold a Seminar on the foregoing important and challenging topic.

Do We Need Australian Flag Shipping?
GREAT public awareness of the need for a credible national defence capability, as well as the necessity of alliances and the mutual support of our friends, is also evident. At the time of writing, the contents of the proposed White Paper on Defence have not been promoted. However, the changes in national attitudes noted above are expected to be reflected.

For many years, Arctic surveillance has been regularly conducted, first by the Argus and more recently by CP-140 Aurora aircraft, and over our waters in the Atlantic and the Pacific by Aurora, Tracker and Sea King aircraft. During the past year Maritime Air Group aircraft flew 7272 hours in direct support of Department of Fisheries and Oceans surveillance and protection objectives on both coasts. In addition, approximately 3000 hours of fisheries surveillance was performed as secondary tasking during normal operational patrols.

The Tracker aircraft continue to be effective and provide the major portion of sovereignty patrols from Summerside, P.E.I. This task also includes pollution control as well as fisheries patrol. The fact that they are out there and highly visible is believed to be a large factor contributing to improved and credible fishery control in recent years.

Another major MCM contribution is, of course, the 35 Sea King helicopters which form the ASW helicopter detachments in our destroyers. They, and the Bear Trap helicopter landing system, continue to provide an operational capability, even in high seas states, that is the envy of many other navies.


del de Sa Majeste CHAMPLAIN was commissioned in Quebec, PQ where Canada has generated a credible and recognized competence of Reserve force expansion currently being discussed. A major contribution to the task of surveillance in areas of both national and Allied concern.

The Maritime Command operates the rescue Coordination Centre on both coasts, and with the support of both military and civil resources has provided high quality service to the nation. In 1986, there was a total of 5400 incidents ranging from medical evacuations for critically ill babies, to pollution control, and fisheries patrol the fact that they are out there and highly visible is believed to be a large factor contributing to improved and credible fishery control in recent years.

On August 15, 1986, a new Naval Reserve Division, Navire Canada, was commissioned in Quebec, PQ. This is the first of three new Naval Reserve units being established in conjunction with the charter of Rights and Freedoms. Progress must take into account the need for undersea operations as well as undersea operations. These welcome additions to Naval Reserve strength will also serve to increase the awareness of maritime affairs and the Canadian Navy in the region.

On the west coast, Marpac ships and MAG aircraft participated in various major exercises. These included a MAREGAN, ASWOPS 86 and the bi-annual USN RIMPAC exercises. In return for the Royal Australian Navy's visits to Canada for the 75th anniversary celebrations of our navy in 1985, HMC Ships QUAPPELLE, YURON, and SASKATCHEWAN visited Australia for the 75th anniversary celebration of the Royal Australian Navy. While conducting senior officer training for officer cadets from the Naval Officers Training Centre, Esquimalt, the ships represented Canada in Hawaii, American Samoa, Fiji and New Zealand.

We continued to meet our commitment of an operational destroyer to the NATO Standing Naval Force Atlantic (STANAVFORLANT) with HMC Ships OTTAWA, ALGONQUIN, and SAGUENAY PROTEC. The last two were used for support of HURON and the remaining two will be operated from PRINCE DEW, where the aviation support facilities have been upgraded. The commotion of these actions will enable a more effective maritime posture in the increasingly important North Pacific area. GATINEAU will provide a ship-borne module to the surveillance capability on the East coast.

On the West coast, ships and MAG aircraft participated in several major exercises. These included a MAREGAN, ASWOPS 86 and the bi-annual USN RIMPAC exercises. In return for the Royal Australian Navy's visits to Canada for the 75th anniversary celebrations of our navy in 1985, HMC Ships OTTAWA, ALGONQUIN, and SAGUENAY PROTEC. The last two were used for support of HURON and the remaining two will be operated from PRINCE DEW, where the aviation support facilities have been upgraded. The commotion of these actions will enable a more effective maritime posture in the increasingly important North Pacific area. GATINEAU will provide a ship-borne module to the surveillance capability on the East coast.
THE GALLOPING GREEN GHOSTS

by ROSS GILLET

INTRODUCTION

The Australian Navy's two LSTs of the Galloping Green class were transferred to the Royal Australian Navy in 1961 to operate as part of the World War Two fleet. The Landing Ship Medium (LSM) purchased in the United States, were two different models, the LST-33 and the LST-34. The LST-33 was a large ship with a displacement of 3,300 tons, while the LST-34 was a smaller ship with a displacement of 1,300 tons. The two ships were used in various operations, including the Vietnam War and the Korean War.

OPERATIONALLY

To accomplish their mission, the LSMs were called upon to beach themselves when no proper facilities were available. This process was accomplished in three steps:

1. The LSM would approach the landing point at maximum revolutions and speed.
2. The ramp would be lowered via a cable into the shallow waters to allow unloading to commence.
3. The mission accomplished, the LSM would then return to the beach, using the ramp to land the vehicles.

The ship was commanded and navigated from the conning tower, which housed the bridge, chartroom, and wheelhouse. The tank deck, which was separated from the main deck by a bulkhead, was used for storage of fuel and ammunition. The LSMs were equipped with a diesel engine, which powered the ship's main propulsion system.

Specifications

- **Dimensions**: Length = 230 ft (70 m), Beam = 42 ft (13 m), Draft = 9 ft (2.7 m)
- **Displacement**: 620 tons (full load)
- **Loading Capacity**: 5 medium tanks, 50 half-tracks, 20 12.7 mm guns
- **Speed**: 10 knots (18.5 km/h)
- **Range**: 2,000 miles (3,200 km)
- **Armament**: 2 12.7 mm machine guns, 1 40mm Bofors gun, 1 20mm gun, 4 50-calibre machine guns
- **Fuel**: Diesel fuel, 30,000 gallons
- **Endurance**: 18 days, 4,500 miles
- **Navigation**: Gyro compass, Radar, Echo Sounding Machine

THE NAVY

October-December, 1987

Page Ten

THE NAVY

October-December, 1987

Page Eleven
became quite eventful when the LSM lost her stern anchor at sea after heavy mining equipment to King Island in the Bass Strait. CHAUVEL was low to escort her sister to Sydney, and if necessary take the HARRY CHAUVEL to a helicopter landing pad (helipad) aft of base ship from HMAS GASCOYNE for central coast survey operations to Townsville and return. For the first half of 1962 she assumed the duties of the former tender. In November, inspections were carried out by the United States Navy. A further inspection by an Australian Army personnel deemed that repairs were necessary. On November 16, 1962, HARRY CHAUVEL was directed to return to Sydney and underwent the necessary work between November 22 and December 6.

In 1969 it was decided to transfer the ship from service in 1970 after 108.337 miles.

**DISPOSAL**

During the early 70s three of the Australian Army's group were sold at a cost exceeding $30,000 each, while the fourth, VERNON STURDEE, was sold for $12,555 in June 1970. The latter remained in Sydney Harbour backwaters, initially, at Balh Head, before moving to Blackwater Bay, where it remained, disfigured and decayed until 1978. It was then moved to Broadwater on the Richmond River, New South Wales, where it underwent conversion to a Pacific Island supply ship re-named JACK SPRY. In its post-decommissioned status, it was used as a base for the Royal Australian Navy's Adventure Group. In November 1978, the vessel was sold to a private company and converted into a civilian supply vessel. The ship was eventually scrapped in 1980. The remaining two ships were converted to civilian uses, with the third, VERNON STURDEE, undergoing extensive modifications to accommodate a civilian crew and her engines overhauled. The fourth, HARRY CHAUVEL, was remodelled to suit a civilian crew and her engines overhauled. The ship was then transferred to Singapore for service in the Singapore Navy. The ship was finally decommissioned in 1981.
Naval Spectacular for Nation's Birthday

The Royal Australian Navy's "birthday present" for our Bicentennial next year will involve the biggest concentration of warships this country has ever seen.

The planning for this massive occasion by ships from all over the world follows the striking success of last year's 75th Anniversary celebrations by the RAN.

But whereas the Anniversary Assembly and Review by the Duke of Edinburgh in Sydney, Harbour last October featured 15 visiting ships, next year's spectacular should see twice that number on the waters of Port Jackson.

Together with Australian units, there will be close to 50 ships taking part.

And, as with the 1986 event, it will show off some of the most majestic vessels afloat.

The first purpose built 15 tonne GVM truck

New load regulations open up new profit opportunities for those who are prepared.

And here are the first in Australia to help you capitalise with the all new FVR purpose built from the ground up to give you an extra tonne capacity.

With its 15 tonne FVR, you get a 15 tonne GVM truck that's built to take a 12.5 tonne payload. Equipped with a 4.3 litre engine and a 10.5 tonne rear axle, it has an extra margin of capability well above what's required to carry the extra tonne.

This will climax a week of Bicentennial events staged by the RAN on behalf of the Australian Government for the nation.

Even then, the curtain will not be rang down — ships will be open to the public the next day, Sunday October 22, and these will include an Aircraft Carrier at Circular Quay.

Other events involving the RAN include the opening of Darling Harbour and the arrival of the Tall Ships in mid-January, followed by the handover ceremony for the Inirupcular YOUNG ENDEAVOUR, Britain's gift to Australia.

There is also to be a Fleet entry by RAN ships to Sydney Harbour January 22, and the Navy will be part of the massive birthday celebrations January 26 — including the arrival of the First Fleet Re-enactment vessels.

The RAN is also participating in many other Bicentennial highlights — details of which will be advertised as 1988 draws closer.

Blue Mountain Laundry

Contrators to the Department of Defence

For Laundry and Dry Cleaning

PO BOX 22

KATOOMBA, NSW 2780

Telephone: (047) 82 1704

October-December, 1987

THE NAVY

October-December, 1987

THE NAVY
The Canberra International Hotel...

The Canberra International Hotel...

The有效的 range of the ship's artillery was 70 cable lengths, and the cruiser carried two optical 3 metre long-range finders, one fore and one aft. Searchlights were provided for special platforms on the forecastle and the main part. They were also used in signalling. With the personal assistance of Alexander Popov, the famous Russian scientist and inventor of the wireless, a radio station was installed on the ship, one of the first in the Russian Navy. The AURORA also boasted an electrically-driven steering engine, which was among the first in the world. The cruiser was equipped with some torpedo nets suspended on special outriggers. The three main motor steam engines, with an aggregate capacity of 11,610 horsepower, were manufactured at the French-Russian Engineering Plant in St Petersburg. They were powered by 24 water-tube Behbe-Dejganski boilers. The cruiser had three 3-bladed propellers with a diameter of 6.5 metres, that gave a speed of 12 knots. At a displacement of 6750 tons, the AURORA had a crew of 580.

In June 1903, the AURORA was commissioned and sent to reinforce the Russian fleet in the Pacific. The news of the war with Japan spread to the whole of the world. On April 25, 1904, the Russian warships sighted the

in the spring of 1966 the famous ship marked its 86th birthday.

The word "cruiser" denotes the most numerous class of warships that were first introduced in the 1860s. These first warships had a big operational range, they could be used by landing parties and participated in sea battles as part of naval squadrons. These ships differed in displacement, number and calibre of their guns, and sailing equipment. Built at the turn of the century, the AURORA was one of the best warships in the class of armoured-deck cruisers and, as such, is an example of a science and engineering reflecting the state of the art in shipbuilding at that time. In construction began on May 23, 1897 at the New Admiraal shipyards in Petersburg. A silver plate with the name of its builder, engineer N. Tolstokoniev, was fixed below the waterline. At the ceremony of launching took place the new cruiser of the first class at the St Petersburg Admiraal shipyards.

In June 1903, the AURORA was commissioned and sent to reinforce the Russian fleet in the Pacific. The news of the war with Japan spread to the whole of the world. On April 25, 1904, the Russian warships sighted the battle-ready Japanese fleet in the Straits of Korea off the Island of Tsushima. The Russian sailors fought with fortitude against heavy odds and the AURORA sustained appreciable damage. It took a whole year to put her back in fighting trim. Then there were numerous voyages of the ship used for naval training and patrol duty on the approaches to the Gulf of Finland. Then the AURORA went for repairs to the shipyard in Leningrad and remained there during the bourgeois democratic revolution that took place in February 1917. Close association with the shipyard workers heightened the revolutionary awareness of the crew and helped them to form a correct idea of the revolutionary developments. The sailors took control of the cruiser into their own hands. Acting in keeping with Order Number One of the Petrograd Soviet of Workers' and Soldiers' Deputies, the crew of the AURORA elected their own ship committee, the first committee of revolutionary sailors in the Baltic Fleet and set up in April of that year a Bolshevik party cell, numbering 42 members.
across the Neva. The Military Revolutionary Committee sent a letter to the AURORA to employ all available means and restore normal traffic across the Nikolaevsky Bridge. But the ship's commander refused to comply with that order. His place on the bridge was taken by a sailor, A. Belyshev, the revolutionary commissar on board the cruiser. He ordered the sounding of the channel and cast the anchor from the ship's bow. At half past three the AURORA cast anchor by the Nikolaevsky Bridge. A landing party was sent which took control of the bridge and helped to restore normal traffic. In the morning the ship's radio station sent out a letter from Lenin addressed to the citizens of Russia. By signal from the Petrogradskaya Fortress which came later that evening, the gun crew under the command of N. K. B. Gorkunov fired a blank shot from a 6-inch gun as a sign of the Winter Palace. This was the signal for the naval assault on the palace by a combined force of revolutionary sailors, Red Guards militia of factory workers, and soldiers. Among the crew members of the AURORA were the conquerors of the great Civil War: the crew of the cruiser. The AURORA fought and shared the hardships with the victorious working class of Russia. From the AURORA, Lenin sought to establish the new life on the battlefront and worked hard to weaken the enemy's naval forces.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

The leader of the German working class Ernst Thaelmann insisted that the AURORA crew and during a visit to the ship where he was impressed by its size. The cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.

In 1924, the AURORA took part in the first national Technical Forum in Leningrad. All in all, the cruiser paid a total of 8 visits to various countries, including Sweden and Germany. This diplomatic trip strengthened the international scene and was of great importance for the young Soviet government.
The Royal Australian Navy — A Pictorial Review

By JOHN MORTIMER

The 75th Anniversary year of the Royal Australian Navy was indeed spectacular, but up until now it has been a great pity to have had no permanent reminder of the 12 months, a period from January to December, 1986, when the RAN was seen at its best and proudest.

Fortunately, for those who participated and those who were unable, a new hard cover book has just been released describing and illustrating the numerous events of the year. Titled "The Royal Australian Navy — A Pictorial Review," the publication features over 200 photographs, including 80 in full colour. From the outset, the book is highlighted by the superb photography: the dust jacket featuring the Fremantle class patrol boat HMAS WHYALLA practically leaping out of the water; and last hut not least, the Daring class destroyer HMAS VAMPIRE, shown at the close of her career before paying off.

Paper quality is 128 gsm glossy with the pages measuring 35 x 25 cm. The book covers most of the ships and establishments as well as the major naval events of the year, including:

- Australia Day weekend celebrations
- Fleet Visit to Hobart
- National Naval Memorial Unveiling
- Fleet Visit to Victoria
- Ceremonial presentation of Colours
- The Great Parade Boat Race
- Navy Week Northern Territory
- Fleet Visit to Western Australia
- Navy Week Queensland
- Fleet Visit to Sydney 29th September
- USS MISSOURI Firepower Demonstration
- Naval Review
- Nowra Air Display
- Navy Week South Australia

An interesting aspect of the book is its successful depiction of naval life in the RAN during 1986, featuring a cross section of personnel, events, ships, aircraft and naval establishments, plus the Naval Reserves and Naval Association. Some 13,000 words are included, both as narrative and captions. The former includes a brief description of the RAN's activities and achievements during the year. It also details the composition and structure of the RAN, including administrative and support infrastructure, the fleet, establishments and manpower.

The majority of photographs were taken by Navy's professional photographers and the author. The book will be available for purchase in late October, 1987, through the Navy's canteen organisation or direct from the author, John Mortimer, at 50 Harbison Crescent, Wannalia, ACT 2903. Priced at $19.95 plus packing and postage (if applicable), the book is the definitive 'line book' of the anniversary year.

I strongly recommend "The Royal Australian Navy — A Pictorial Review" to all League members. A small investment for a lifetime of memories.
NEW KIWI NAVAL PROGRAMMES

THE NEW ZEALAND Prime Minister, Rt Hon David Lange, announced in late July, plans for the expansion and modernisation of New Zealand's navy.

The announcement confirmed that the Government planned to go ahead with the acquisition of a multi-purpose logistics support ship, to be built between 1963 and 1971. The two current fleet support ships, based on the New Zealand's navy, are expected to reach the end of their economic life early in the 1990s. HMNZS CANTERBURY and WELLINGTON are expected to remain in service until the turn of the century.

Plan for phasing out the frigates were announced in the 1987 Defence White Paper. The report pointed out that New Zealand had a similar requirement and noted the advantages of having a common design. On March 6, Hon Kim Beazley and Hon Frank O'Flynn signed an agreement covering New Zealand participation in the New Surface Combatant (NSC) project established by the Australian Government in 1986. The plan for the construction or conversion of a ship to the New Zealand baseline comprises a list of recommended features which will be used for costing purposes and will provide the basis for design development. However, actual decisions on the capabilities to be installed will not be taken until the New Zealand baseline characteristics, which follow the Australian format, have been agreed upon. The memorandum of understanding between New Zealand and Australia for the joint NSC was set out in the request for proposals.

Specifications

The Australian technical requirements for the NSC were set out in the request for proposals sent to potential contractors in December 1986. The main features were summarised in a list of 'baseline characteristics' set out within the document.

The New Zealand baseline characteristics, which follow the Australian format, have recently been agreed upon. The New Zealand baseline characteristics are largely determined by the range and endurance requirements and by the need for a ship to be capable of operating in more intense military environments but at lower cost. The hull characteristics for the NSC are determined by the New Zealand baseline characteristics.

The New Zealand baseline characteristics include:

- a speed of 24 knots (the required speed for the New Zealand navy);
- endurance of at least 30 days;
- the ability to operate, hangar and maintain a medium helicopter;
- the ability of a medium helicopter to land on the ship;
- the ability to provide airpower for a medium helicopter.

The New Zealand baseline characteristics call for the construction of eight ships in Australia at a total cost of £255 million. The new designs are considerably lower. Whereas the lifetime costs of the new designs are considerably lower, the maintenance costs will also be reduced.

Effectiveness

In situations requiring continuous surveillance or patrol in a particular area, the number of ships available is critical. In formulating the New Zealand requirements for the NSC, there has been a deliberate decision to go for a basic rather than advanced specification in the interests of ensuring that the required number of ships can be purchased from the available funds. In the Pacific range, endurance and tanker requirements are the key factors in determining a ship's potential effectiveness. The New Zealand baseline characteristics for the NSC are largely determined by the range and endurance requirements and by the need for a ship to be capable of operating in more intense military environments.

The new ships will mean a great improvement in the navy's capability for sustained operations, particularly in the more distant parts of the region. This is important in a variety of situations, ranging from resource protection tasks to submarine surveillance.

LOGISTIC SUPPORT SHIP

The Government has directed the Ministry of Defence to go ahead with the design work for a logistic support ship. The design studies are expected to be followed by the setting of contracts for the construction or conversion of a ship for the Royal New Zealand Navy.

The decision was anticipated in the 1987 Defence White Paper released in February. The acquisition of a support ship is an important element in the strategy indicated by the defence review, which emphasises New Zealand's role in the South Pacific and stresses the importance of having the ability to deploy our forces throughout the region. The defence review was discussed with Pacific governments prior to the release of the white paper.

Requirement

The requirement for a multi-purpose ship to provide logistic support to New Zealand forces has been recognised by successive governments over a period of more than a decade. The goal is to establish a ship capable of the following:

- first, providing transport for military personnel and their equipment and stores to the scene of operations, and if necessary, putting them ashore;
- second, providing support to relief operations following natural disasters in New Zealand or elsewhere in the region.

The latter requirement can be met by a ship equipped for the first role. It is essential that the military requirement that sets the design.

New Zealand's four Leander class frigates were built between 1963 and 1971. The two older sister ships, HMNZS WAIKATO and SOUTHLAND, will reach the end of their economic life early in the 1990s. HMNZS CANTERBURY and WELLINGTON are expected to remain in service until the turn of the century.

The memorandum of understanding between New Zealand and Australia for the joint NSC was set out in the request for proposals.

Specifications

The Australian technical requirements for the NSC were set out in the request for proposals sent to potential contractors in December 1986. The main features were summarised in a list of 'baseline characteristics' set out within the document.

The New Zealand baseline characteristics, which follow the Australian format, have recently been agreed upon. The New Zealand baseline characteristics are largely determined by the range and endurance requirements and by the need for a ship to be capable of operating in more intense military environments but at lower cost. The hull characteristics for the NSC are determined by the New Zealand baseline characteristics.

The New Zealand baseline characteristics include:

- a speed of 24 knots (the required speed for the New Zealand navy);
- endurance of at least 30 days;
- the ability to operate, hangar and maintain a medium helicopter;
- the ability of a medium helicopter to land on the ship;
- the ability to provide airpower for a medium helicopter.

The New Zealand baseline characteristics call for the construction of eight ships in Australia at a total cost of £255 million. The new designs are considerably lower. Whereas the lifetime costs of the new designs are considerably lower, the maintenance costs will also be reduced.

Effectiveness

In situations requiring continuous surveillance or patrol in a particular area, the number of ships available is critical. In formulating the New Zealand requirements for the NSC, there has been a deliberate decision to go for a basic rather than advanced specification in the interests of ensuring that the required number of ships can be purchased from the available funds. In the Pacific range, endurance and tanker requirements are the key factors in determining a ship's potential effectiveness. The New Zealand baseline characteristics for the NSC are largely determined by the range and endurance requirements and by the need for a ship to be capable of operating in more intense military environments.

The new ships will mean a great improvement in the navy's capability for sustained operations, particularly in the more distant parts of the region. This is important in a variety of situations, ranging from resource protection tasks to submarine surveillance.
The decision to acquire a ship for these purposes recognises the fact that deployment by air is not always possible due to weather or other factors. It also recognises the limitations of transport by road and rail. In many cases, the size and weight of equipment would preclude air transport. In some areas, rail transport is not an option due to the nature of the terrain. In other areas, the availability of rail services is problematical. In New Zealand's situation, this means that military operations without naval logistic support are in many cases not sustainable.

**Operational Concept**

The Government has endorsed a concept of operations for the logistic support ship which draws on the requirement outlined above. Key points listed in the operational concept are:

- The ship will be required to operate through the area extending from the equator to the Antarctic.
- The requirement is for land-based stores and personnel at any location in the region. To achieve this requirement the ship is to be capable of:
  - Embarking and operating two medium size helicopters;
  - Carrying and operating landing craft;
  - Loading and off-loading vehicles onto a jetty using an over-side ramp or by helicopter and landing craft;
- The ship will not require a beach landing capability. The coastline typical of that in the region limits the value of such a capability.
- The features listed above will nevertheless allow the ship to be provided with ship-to-shore transfer in most situations.

**Capacity**

- Gunning is required for operations that have been set as:
  - Deploying a small number of personnel up to one infantry company with support elements (130 personnel altogether) with their stores and equipment and supporting them for periods of up to a month;
  - Carrying the heavy equipment, vehicles and logistic support (including 130 personnel) for a larger size unit (including an Antarctic station) constituting a logistic support ship to operate continuously. This requirement is one of the key factors in choosing the ship. For planning purposes a helicopter the size of the Blackhawk type now replacing the Torpaxos in US and Australia is presumed to be available.

**Armament**

Light armament which could include a close-in weapon system will be fitted for self-defence and provost will be made for the list of available additional self-defence if necessary.

**Missions**

- Facilities for camp and handling personnel are required.
- The requirement is to land vehicles, stores and personnel at remote locations where they exist cannot be guaranteed and in some circumstances, in others the situation this means that military operations cannot be conducted without naval logistic support.

**Replenishment at Sea**

The ship is to be equipped to receive or supply fuel or stores while under way. This is important in situations where extended operations at long range are required.

**Command and Control**

- Effective command for communication is essential. This is important given the possible scale of the ship in an emergency involving the coordination of a number of ships, helicopter, air and ground forces, and coordinating the sea communications.

**Accommodation**

- Accommodation is to be provided for 250 personnel and in which the ship's complement would account for 60. Embarked staff (air, naval and headquarters) and associated facilities are to be provided by the company group started up to 150.

**Other Facilities**

- The ship will not require a beach landing capability. The coastline typical of that in the region limits the value of such a capability.
- The features listed above will nevertheless allow the ship to be provided with ship-to-shore transfer in most situations.

**Ship Characteristics**

The logistic support ship is expected to be based on a merchant ship design. Whether an existing hull is selected for this purpose or whether a new ship is built, the modified design will be decided according to the relative economics of the different options. Basic acquisition and running costs are set in any event, expected to be low.

**Required ship characteristics include**

- **Speed** — a continuous speed of not less than 15 knots fully loaded;
- **Range** — a range sufficient to allow a round trip of 8000 nautical miles at a passage speed of 15 knots.
- **Endurance** — endurance of at least 40 days with an embarked force.
- **A ship that meets these and the other detailed requirements is expected to have a length of about 440 meters and draft not exceeding 8.6 meters.**

**Stability, fire fighting and damage control requirements have been written into the ship's characteristics.**

**Helicopters**

For planning purposes a helicopter the size of the Blackhawk type now replacing the Torpaxos in US and Australia is presumed to be available. In other circumstances, helicopters will be the only means available in some circumstances, in others the situation this means that military operations cannot be conducted without naval logistic support.
27 navies sail the seven seas with Signaal.

The familiar Signaal dome on warships is a symbol of ultimate weapon control. Signaal, a leader in radar and control systems for military and civil applications around the world, is a member of the Philips international group of companies.

Suppliers to 27 navies including the Royal Australian Navy and others in the Pacific region, Signaal maintains an industrial presence in Australia at the Defence Electronics Facility at Philips Moorebank plant in N.S.W.

Signaal and Philips are ideally placed to service Australia's future defence needs with systems meeting the most stringent operational requirements and in-country facilities providing Australian Industry Involvement and on-going support in line with government policy.

PHILIPS COMMUNICATION SYSTEMS

©SIGNAAL

2 Greenhill Ave
Moorebank, NSW 2170
Phone: (02) 600 5467
PLEASE NOTE

THIS MATERIAL WAS FILMED AT A REDUCTION RATIO OF 23.5x

SOME PAGES MAY CONTAIN POOR PRINT, TIGHT BINDING, FLAWS AND OTHER DEFECTS WHICH APPEAR ON THE FILM