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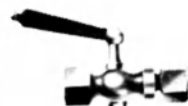
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THE NAVY

Vol. 23

FEBRUARY, 1960

No 1

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Plus news items from all Compass Points

FRONT COVER

Some of the 1,400 people who attended a barbecue at H.M.A.S. "WATSON", Watson's Bay, on 8th February. The barbecue raised more than £1,200 for the fund to build the chapel, and was organised by the International Fellowship of Yachting Rotarians.

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SEA RESCUE IDEA FOR MOON ROCKET

NEW YORK—Two astrophysical engineers have disclosed plans for a "space life-boat" in which future travelers to the moon, could escape if their main rockets were disabled.

Their idea is basically the same as that used in the rescue

of passengers from stricken ocean liners.

The engineers are Mr. Robert Haviland and Mr. Harold Bloom, both of the General Electric Company's Missile and Space Vehicle Department.

One of the devices which they have designed is essentially a small rocket which would be equipped to shelter three men in space for one week.



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Tasks for Naval Airships

They Went Up in Defence Planning After
Successfully Protecting Convoys During First World War

RECENT delivery of the latest giant airship to the United States Navy at Lakehurst, New Jersey, recalls some of the early experiments with naval airships for the British forces during World War I.

One of the earliest models in 1914 had a bright coloured yellow envelope made up of cotton, with a gold-beater skin lining. The length was 110 feet and the diameter 26 feet, reports The Lord Ventry, discussing the construction in "The Navy" journal in London.

The car rigging was attached to the envelope by a long rigging band on each side of the envelope under the centre line. Each main car suspension was bridled at its upper end.

The envelope and the 70 lb. stabilising and control planes were made at the Royal Aircraft Factory, now the Royal Aircraft Establishment.

Between the car and envelope there was a longish bamboo, and the car struts were attached to this bamboo keel, which was there to help to distribute the weight of the car over as much of the envelope as possible so that the envelope which contained 39,000 cu. ft. of hydrogen gas, would not be distorted.

The pilot sat in the bow seat and steered with a wheel. A second wheel was mounted fore and aft, to work the elevating or trimming planes as they were then termed.

There was also a third wheel, so the pilot needed really more than one pair of hands.

This third wheel was mounted behind the steering wheel and was used to swivel the propellers, of which there were two, both being four-bladed.

These were driven by a 35 h.p. air-cooled Anzani engine which was mounted in a frame above the car.

The one virtue of this little ship was her wonderful controllability — she used to fly over a large chalk pit at Odham, descend directly into this pit with the help of about half a dozen sailors and moor out there for days on end. She used also to take off from this same pit, rising out of it vertically even when heavier than air.

She was a school and experimental airship; and, as valve springs were constantly breaking, free balloon landings were fairly frequent. This made her even more useful from a training point of view.

This, then, was the first naval non-rigid airship ever to be built.

The British Navy was the first to use non-rigid airships. Their main task was to hunt for mines and submarines, for in 1915 it was recognised that their powers of hovering, and flying for long hours, gave airships advantages for this type of work.

Before November, 1918, brought the war to an end, numbers of Submarine Scout Ships had been constructed and every single convoy they had escorted had arrived in port without losing a vessel.

The airships, which alone of aircraft were able to keep

station with the convoy, had proved to be 100 per cent. efficient as goalkeepers! Not one convoy had been attacked when under airship escort, and no airship had been attacked when with convoy.

As a result of the fine work done by the British Naval Airships, the French and Italians also organised Naval Airship Services, and again there was no loss when an airship was with a convoy.

In 1917 the U.S. Navy began experimenting on similar lines, and their first pilots were taught partly in Britain and in France. They, too, found that the presence of an airship prevented a U-boat from operating, and again no ships were lost to mine or submarines when airships were about. The Naval Non-rigid Airship was one of the successes of the First World War, and the first tiny airship at Farnborough was the ancestor of a splendid race of aircraft!

During the First World War the 200 British Naval Airships flew 88,707.48 hours, covering about two and a quarter million miles. Only two of these airships were lost through enemy action, though they must have escorted several thousands of sea-going craft without losing a single one of them.

By 1941, aircraft engines were far more dependable, and so the 175-odd airships used by the U.S. Navy were airborne for no less than 550,000 hours, and they must have

Tasks for Naval Airships

flown something like 22 million miles at least.

In any case, they made 85,900 operational sorties and escorted 89,000 surface craft, again without loss. Only one of the airships was destroyed by the enemy, and at that time she was on her own and would almost certainly have bagged the U-boat if her bombs had not stuck!

So successful were these latter-day Naval Airships that ever since 1945 the U.S. Navy have maintained a sizeable Airship Service, and to-day certain squadrons are employed daily on anti-submarine patrols.

On June 19, 1959, the newest, and also the largest, non-rigid airship so far constructed was delivered in the course of a flight lasting 74 hours to the U.S. Naval Airship Station at Lakehurst, N.J. The new vessel, of the ZPG-3W class, has a volume of 1,516,300 cu. ft., and is 403.4 ft. in length, 85.11 ft. in diameter, 116.52 ft. in height, with a static lift of 82,990 lb., a dynamic lift of more than 10,000 lb., and carrying a crew of 21.

Powered by a pair of Wright

19-cylinder engines, developing 1,525 h.p. each, she has a cruising speed of anything from 30 to 60 knots, as against the modest 22 knots of our little No. 2. She can climb at over 2,000 feet per minute.

Inside the envelope there is a 40 ft. long radar revolving antenna, which is far larger than anything that aeroplanes can carry.

The endurance of such a ship is really limited by that of the crew. This can be changed in modern airships without having to land, and refuelling and re-ballasting is also perfectly possible. So the range, too, of the new vessels, even at high cruising speed, is greater than any other Naval Airships so far commissioned.

A ship of the 950,000 cu. ft. ZPG-2 class has remained airborne for over 10 days, making a double crossing of the Atlantic carrying full crew and operational gear. This gives some idea of the endurance and range of the modern Naval Airship, which can be now compared with that of the smaller scouting warships.

The operational task of the new ship is to act as an early warning vessel against impending air attack. Four ships of

this new class are being built for the U.S. Navy as Early Warning Aircraft — they will almost certainly be followed by improved models.

Due to the mooring mast, the ships can be moored out in almost all weathers, and they are towed in and out of their 1,000 ft. long docks by tractors while still on the mast.

The modern envelopes have lives of up to five years and are made of Dacron and Neoprene, though later fabrics are now being developed with even better gas-holding qualities and strength for weight.

The ears of these new ships, which are two-decked, are slung from catenary curtains inside and outside the envelope and all the cables are now faired in, so eliminating drag.

Perhaps some future far-seeing Minister for Defence will realise that the airship has proved itself to be the most successful of all aircraft so far as anti-mine and submarine operations are concerned. This being so, airships should be developed with this end in view.

CARRIER LAUNCHES GIANT BALLOON

THE U.S. Navy on January 25 launched the largest balloon ever sent aloft from a ship. More than 200 feet tall and with an inflated diameter of 173 feet, the balloon rose grandly from the carrier "Valley Forge."

The carrier released a sheer, thin-skinned plastic bag buoyant with more than 2,500 lb. of helium.

The balloon, inflated to two million cubic feet, stood silently, smoothly, straight upward into placid blue sky over the Atlantic Ocean, 2000 miles east of Puerto Rico.

The launching was a test run for the sending aloft to 22 miles of two balloons five times as big — 10 million cubic footers.

JAPANESE VIEW ON JOINT COLLEGE PLAN

THE Japanese Defence Agency is planning to set up a Joint Staff College in Tokyo in September, 1960. The college will conduct courses for graduates of the respective Defence Agency Staff Colleges and other officers possessing similar educational backgrounds. Future leaders of the Self Defence Forces will be selected from its graduates.

A Japanese newspaper has commented "the study of Joint Operations by the officers of Field Grade at the same college will serve to keep the three branches of the Armed Forces in unity and prevent the nation from repeating the tragedy of suffering a disastrous defeat, due to the antagonism between ground and sea forces as in the Pacific War."

In the field of Antarctic exploration, the 2,736 g.r.t. Antarctic observation ship "Soya Maru" left Tokyo on October 31 for her fourth trip to the Antarctic. On board was an expedition intended to relieve the expedition at Showa Base on Ongul Island, off the Prince Olaf Coast of Queen Maud Land.

"Soya Maru" is an ice-breaker and is equipped with a large helicopter landing deck, aft. She has a complement of 94 and is commanded by Captain Akita, former "chief navigator" on two previous expeditions. Two Sikorsky S-58 and two Bell G-2 helicopters are carried to transport men, supplies and equipment from the ship to the base should the latter be inaccessible due to ice as in past years.

Interesting glimpse of Vim, the American yacht brought to Australia to train a crew for the America Cup race.



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COMMANDO CARRIER READY NEXT YEAR

LONDON.— Although the icy grip of the cold war seems to have slackened, H.M.S. "Bulwark" will come into service early next year equipped as a Commando carrier, ready to play her part, if necessary, in any "incidents" which may occur in distant parts of the world.

The conversion of the "Bulwark" is the result of defence policy adopted by the late Government, which foresaw the need for a ship equipped to carry a "fire brigade" force to trouble spots and to be able to land and re-embark it speedily.

The first "fire brigade" force will be 42 Commando, Royal Marines, now ready and trained for this task, a modern role for which the Royal Marines' long experience of amphibious warfare ideally fits them.

To adapt the Corps for its new responsibility some re-organization has been necessary and when 42 Commando goes afloat 41 Commando, which was formed in 1942 and took part in many World War II operations in Sicily, Italy, Normandy, Holland and West Germany, will be reformed.

The original Commando was disbanded in 1946 but it was revived in 1950 as 41 (Independent) Commando for service in Korea, where it carried out a number of successful amphibious raids and tied down large Communist forces in coastal areas.

The new 41 Commando will be commanded by Lieutenant-Colonel J. T. O. Waters, R.M. It has been formed by reducing the number of Royal Marines serving in other units and will not entail an increase in the total manpower of the Royal Marine Forces.

As the "Bulwark" sets out on her new career there will

be a switch of major carriers in the active fleet.

H.M.S. "Ark Royal," which has been in dockyard hands for about 18 months, is about to emerge from Devonport and H.M.S. "Eagle" is about to prepare for a modernization programme.

The work completed in the "Ark Royal" has included a thorough overhaul and the dismantling of her side lift. When she rejoins the fleet she will embark the first Sea Vixen squadron to go afloat, a squadron which commissioned at Yeovilton in July last. It will be a notable addition to the Navy's air strength.

The "Eagle's" modernization will enable her to operate more advanced types of aircraft than she does at present and her return to the fleet in due course may be expected to mark another advance in sea/air power.

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SEA CADETS DISCUSS KNOTTY POINTS WITH LORD MAYOR



SEA CADETS were given a civic reception in Sydney before their departure for New Zealand on January 15 to attend a camp. Here Sea Cadet Bob Arndt, 16, of Darwin, is teaching the Lord Mayor, Ald. H. Jensen, some of the art of tying knots. Onlookers are (from left) Edward Coleman, 16, of Bendigo; Gerald Loughton, 16, of Tasmania; and Richard Zoeller, 17, of Brisbane. —S.M. Herald photo.

February, 1960

Wardroom of H.M.A.S. "Cerberus"

Silver plate tells eloquent story. Family possessions of H.M.A.S. "Cerberus"

HELD for safe keeping behind a locked grille in a recess in the Wardroom of H.M.A.S. "Cerberus" is the beginning of a collection of silver plate whose history already tells a story of the growth of the Royal Australian Navy. Lacking the centuries behind the Royal Navy and their

opportunities to acquire attractive silver, it becomes obvious that the inscriptions on our tankards and cups are studied that we are in debt to the Royal Navy for their assistance and support given from the day the first Australian Squadron sailed through the Sydney Heads in 1913.

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It was in fact in 1859 that the Australian Station was established as a separate command and our ties began then when Captain Loring, R.N., of H.M.S. "Iris" was ordered to assume command of the Station with the rank of Commodore. The collection is no doubt modest, but an excellent foundation for the future, for even to-day when members of the first class through the Royal Australian College and Tingira boys are still serving, it is obvious that history in this instance is very close to us.

It is premature then to sigh over past glories and ships until we examine the silver more closely and read that our heritage at least reaches into the era of the previous century.

The earliest part of the collection is a silver tray and coffee set inscribed Victorian Rifle Association, Skirmishing Trophy. This was first won by the Naval brigade in 1884 and finally was won outright by the Permanent Naval Force in 1891.

A silver cup donated by Sir W. J. Clarke (Bart.) for the Great Gun Competition between the Permanent Naval force and the Naval Brigade was also won outright by the Naval Force in 1889.

The Colony of Victoria was proud of its Navy and the Naval Brigade who were ready to defend her against invasion. The Naval Brigade had been hampered in setting up its own traditions by being confined entirely to harbour defence.

In 1900 opportunity came with the Boxer Rebellion when two hundred members sailed to China under Captain Tickell, R.N., Commandant of the Victorian Naval Forces, to prove their worth at skirmishing.

(Continued on page 19)

DISASTER THAT SHOCKED WORLD

Noted Captain-Author Who Participated in Rescue of "Titanic"
Passengers Analyses Factors Which Led to Poignant Ocean Tragedy

THE tragic sinking of the "Titanic" in 1912 is analysed by Sir James Bisset in his recently published book, "Tramps and Ladies," which is being sought in Australian bookshops now by readers interested in classic stories of ships and ocean dramas.

As an observer at the rescue of hundreds from the ill-fated "Titanic," Sir James was able to note details which give fresh interest to a story which has gripped the imagination of the public for nearly half a century.

He points out that the "Titanic" was one of the new White Star mammoths built with single hulls of riveted steel plates.

The watertight bulkheads were not carried completely up to the deckheads, which meant that a leak too big for the pumps to handle could cause water to overflow above the watertight area from one compartment to another.

"The publicity that these big ships were unsinkable was tragic optimism," remarks Sir James.

When the "Titanic" left Southampton on April 10, en route for New York, she had aboard 1,316 passengers and 891 crew — a total of 2,207. She was certified by the Board of Trade to carry 2,650 passengers and 897 crew — a total of 3,547.

Sir James was then a young officer on the "Carpathia," which left New York for the Mediterranean at about the time the "Titanic" left Queenstown for New York.

Of the "Carpathia's" accommodation for 2,100, about two-thirds was empty — a fortunate event it proved when the rescue of "Titanic" passengers had to be undertaken.

Sir James points out that the pressure of circumstances required the "Titanic's" Captain Smith to maintain a high speed. He had as a passenger the managing director of the Line, Bruce Ismay, who, according to testimony, urged the Captain to maintain maximum speed, "and dictated to him the expected time of arrival in New York."

Several ships reported an ice-field in what appeared to be the path of the "Titanic," but there was no sign of the giant ship slackening speed.

One ship regarded the ice danger so seriously that at night it shut off its engines rather than push through the surrounding ice.

The "Titanic" struck an iceberg only ten miles from where this other vessel, the "Californian," lay at a standstill, and fifty miles from where the "Carpathia" was passing.

The "Californian's" wireless was shut down, hence this vessel took no early part in the subsequent rescue operations.

The "Carpathia's" wireless operator happened to pick up his headphones shortly after midnight and began to send a good morning message when the "Titanic's" operator curtly broke in with the

distress signal: CQD CQD SOS SOS CQD SOS, followed by brief details of striking the iceberg and the "Titanic's" position.

This was the first time in history that the internationally agreed SOS signal of distress was sent out from a liner at sea.

Sir James Bisset's description of the subsequent events vividly brings the drama back to life.

Sir James suggests that "the fact that the 'Titanic' had struck a berg in calm weather on a clear night meant one of three things — insufficient lookout; responses too slow from her bridge; or that the big vessel at her full speed had not quickly enough answered her helm to avoid a collision."

He adds that the disaster was due to a combination of exceptional circumstances. Calm conditions prevented the building-up of a surf around the berg by which it could have been sighted more easily.

The "Carpathia" arrived at the scene at 4 a.m., only to find that the "Titanic" had sunk completely at 2.20 a.m., less than three hours after striking the iceberg, taking 1,500 people down with her.

As daylight dawned the sad task began of collecting the lifeboats with their survivors.

In the next four hours the "Carpathia" picked up 703 survivors.

Speaking of his turn of duty on the bridge, Sir James remarks: "It was of no importance that I had gone without sleep all night, and



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DISASTER OF "TITANIC"

(Continued from page 9)

that I had already been on duty for twelve hours; for, like all the other officers and members of the crew, I was keyed up to the tenseness of action in which fatigue is unnoticed."

When the "Californian" pulled over to the scene at about 8 a.m., it was still unaware of the disaster, but then took part in the subsequent search for survivors and bodies.

Speaking of the unfortunate turning off of the "Californian's" wireless at what proved to be a critical time in the "Titanic's" short life, Sir James said it proved to ship-owners that one wireless operator was not enough to staff a transmitter for 24 hours a day.

Much of the 312-page book is devoted to other experiences in the sea life of Sir James Bisset, a former commodore of the Cunard Line.

As a young man of 21, the young Bisset in 1905 bade farewell to sail and made ready for his first job in steamships.

"Tramps and Ladies" is his second volume of his memoirs.

After going into steamboats, young Bisset served in tramps on hard voyages for two years, with a variety of cargoes.

These included a Jamaican run to cure yellow jack and malaria among the construction workers of the Panama Canal; a shipment of stallions, mares, bulls, cows, pigs and dogs for a millionaire rancher in the Argentine, and cotton from America to Manchester.

In 1907 he joined the Cunard Line as a junior officer.

There are 26 illustrations from photographs, an end-paper map of the Atlantic steamer-routes, and a full colour frontispiece by John Allcott.

His absorbing narrative of the sinking of the "Titanic" was taken from his notes made at the iceberg-strewn scene of the disaster.

Sir James' book covers the era up to the time of liners such as the "Titanic," "Olympic," "Carpathia" and similar vessels.

He promises that a sequel volume, "Commodore's Farewell," will tell of bigger ships, bigger events, and bigger responsibilities that came his way.

He acknowledges a regret that the days of the "little old tramps and fine ladies of the western ocean" cannot be relived — except in memory.

"Tramps and Ladies." By Sir James Bisset, in collaboration with P. R. Stephenson. Published by Angus & Robertson. 27/6.

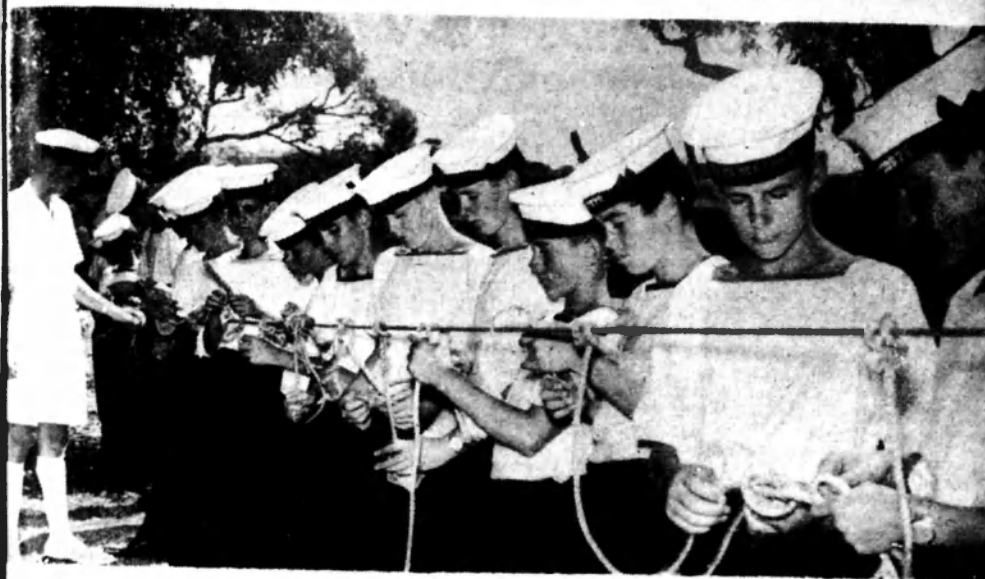
NEW FRIGATE ORDERED FOR INDIAN NAVY

THE second of three Leopard class frigates ordered from the United Kingdom by the Indian Navy was launched recently at Newcastle-on-Tyne. She is I.N.S. Betwa; her sister ships Brahmaputra, the first of the class acquired by India is in commission, and the third ship Beas is still under construction in the United Kingdom.

These ships are of all-welded construction, having a length of 340 feet, a beam of 40 feet, and a standard displacement of 1,900 tons. Betwa is fitted with variable pitch propellers and Admiralty standard range diesel engines.

Her armament consists of two radar-controlled, twin 4.5 inch gun mountings, two 40 mm. Bofors, and anti-submarine mortars.

Primarily designed as a convoy escort, this class of ship is extremely versatile and could be employed effectively in either an A/S or an A/A role.



Sea Cadets at "Penguin" lined up for tuition on knots and splices. They were part of the contingent which visited New Zealand for the Empire Sea Cadet Training Course.

SEA CADETS VISIT NEW ZEALAND

A CONTINGENT of the Australian Sea Cadet Corps was given a Civic Reception in Sydney on January 15 on the eve of their departure for New Zealand to attend an Empire Sea Cadet Training Course.

The course in New Zealand and the functions associated with it has given a great stimulus to the organisation of the Sea Cadets movement in Australia and other Commonwealth countries.

The Australian section was organised with the aid of the Navy League of Australia, which is to be complimented

upon its part in the successful arrangements.

An attractive shield was designed for presentation to the New Zealand body by the Australian contingent.

The contingent consisted of two Sea Cadet Officers and 21 Sea Cadets from all States in Australia, and the Northern Territory.

After a short "shake down" period in H.M.A.S. "Penguin," the contingent sailed for New Zealand in the "Wanganella." After a training and instructional period the members

toured both islands as guests of the New Zealand Navy League until their scheduled return to Australia on March 8.

Prior to their departure for New Zealand, the Sea Cadets were the guests of the Lord Mayor, Ald. H. Jensen, at a function at the Town Hall, Sydney.

The function was attended by Rear-Admiral H. A. Showers (RTD), the President of the Navy League of Australia (N.S.W. Division), and other representatives of the Navy League.

BARBECUE AIDS NAVY CHAPEL

MORE than £1,200 was raised for the H.M.A.S. Watson Chapel Appeal at a barbecue at Watsons Bay, Sydney, on February 7.

The barbecue was organised by the International Fellowship of yachting Rotarians.

More than 1,500 people attended — many by yacht.

Nearly 100 yachts were moored in Watsons Bay and Camp Cove.

Naval cutters ferried the yachtsmen ashore and later maintained a shark-watch while visitors went swimming.

Subscriptions exceeding £13,000 have been received towards the cost of the Chapel — almost half the target amount of £27,000.

Work is scheduled to begin on the building in April.

A Rotary spokesman said the barbecue had been a "tremendous success."

He said: "The weather was perfect and everyone told me they were having a wonderful time."

The American yacht Vim sailed up close under the Watsons Bay headland and back again specially for barbecue visitors.

For many it was their first glimpse of the American yacht, which the proprietors of the "Daily Telegraph" and "Sunday Telegraph" brought to Australia recently.

About 1,200 of the visitors were shown over H.M.A.S. Watson.

H.M.A.S. Watson is one of the Navy's premier establishments. It provides training in navigation and direction finding and in the torpedo and anti-submarine branches.

It accommodates up to 500 officers and men and through it have passed thousands of trainees.

Until now it has lacked an adequate church.

The memorial chapel will be non-deominational and will be open for public worship on selected Sundays.

The architects, Fowell, Mansfield and MacLurean, aided by a site which can have few equals, have designed a simple but striking church.

Rising high on South Head, it will face out to sea. The whole of the eastern (altar) wall will be glassed, so that the congregation will glimpse beyond the altar North Head and the wide Pacific.

As worshippers leave the chapel at the western end they will have an uninterrupted view of the Harbour, with the Bridge in the far distance.

The chapel itself will be in truncated diamond form, and from the centre of the roof will rise a high steeple surmounted by a huge, shining metal cross.

At night the cross, floodlit from its base, will be visible many miles out at sea and from many parts of the Harbour foreshores.

"Although this is primarily a naval memorial chapel, we feel that it will also be an Australian chapel," the Captain of H.M.A.S. Watson, Captain G. C. Oldham, said recently.

"It will commemorate all who gave their lives while serving at sea, providing a link with the whole of Australia."

"The chapel will be the first building seen by visitors as they enter the Harbour."

"At night its large illuminated cross will be a beacon, too, to incoming airliners."

A committee, headed by the Lord Mayor, Alderman H. F. Jensen, and with Rear-

Admiral H. B. Farncomb as general chairman, is conducting an appeal for funds to help build the chapel and furnish it.

Contributions, which are allowable taxation deductions, should be sent to: "Chapel Fund," H.M.A.S. Watson, Watsons Bay, Sydney.

The latest list of subscriptions is:

Previously acknowledged: £9,593/2/9.

Flinder's Naval Depot Ship's Fund, £500.

Ship's company, H.M.A.S. "Melbourne," £153/7/3.

H.M.A.S. Watson (Open Day), £135/10/9.

Mr. Anthony Oxley, £125.

N.S.W. Rugby Union, £71/1/-.

Royal Dutch Mails, M.V. "Oranje," £66.

Officers and ship's company, H.M.A.S. "Tobruk," £60.

Ship's fund, H.M.A.S. "Quickmatch," £50.

Farmer & Co. Ltd., £50.

R.N. officers serving in R.A.N., £50.

Mr. Ashley Bence, £42/15/-.

David Jones Ltd., £40/9/7.

Ship's fund, H.M.A.S. "Swan," £33.

Officers and ship's company, H.M.A.S. "Gascogne," £30.

Wardroom Mess, H.M.A.S. "Albatross," £27/10/-.

Senator W. H. Spooner and The Nestle Co. (Aust.) Ltd., each £26/5/-.

Mr. I. Riley, A. J. Keeling, ship's company H.M.A.S. "Vampire," and Australian Electrical Industries Pty. Ltd., each £25.

Ship's company, H.M.A.S. "Voyager," £21/4/2.

Manly Municipal Council, ship's company H.M.A.S. "Melville," ship's company H.M.A.S. "Quiberon," wardroom mess H.M.A.S. "Melbourne," each £20.

Total, £12,091/18/11.

The Theory of Physical Training as Practised at Flinders Naval Depot

PHYSICAL TRAINING is the training of men (and women) in the art of progressive bodily development through the balanced co-ordination of all muscle groups. When carried out correctly, this will result in overall physical fitness, correctness of carriage and posture and in stimulation of mental reactions.

Physical Training in the Royal Australian Navy is based on the Swedish system. There are other methods which have proved equally effective, but the Swedish system was evolved in a hard school of experience extending over many years and, by virtue of its ordered method of instruction, is best suited to the Service.

A progressive series of twelve sets of Physical Training Exercises, known as Tables, are used at the R.A.N. School of Physical Training F.N.D. These are primarily intended for Recruits and Cadets, but are equally suitable in establishments where ratings are undergoing a set course of instruction.

Sporadic Physical Training is of little value and men under training both ashore and afloat should have at least two one-hourly periods per week.

Combined with Physical Training is Physical Exercise, which is the means of maintaining physical fitness in fully developed bodies.

PHYSICAL TRAINING

Tables for Physical Training are written in terminology to facilitate the instruction of qualifiers. Before a table of Physical Exercises can be arranged, many things have to be considered. All P.T. Tables

should conform to the following general rules:

(i) The lesson must provide adequate exercise for all muscles of the body.

(ii) To avoid fatigue and other bad effects, the different sets of muscles must be brought into play successively.

(iii) There must be a definite order for the exercises.

(iv) There must be a continuous flow of movement.

To achieve the above, a table is separated into the following groups:

(i) **Introductory Exercises:** Are a small table in themselves, the object of which is to fix the attention of the class, to loosen the joints and stimulate circulation.

(ii) **Leg Group:** All exercises performed from the standing position and, in fact, the common act of walking depend on the strength and nervous control of the muscles of the leg and these must be kept in good condition by suitable exercises.

(iii) **Spanning Group:** Chest exercises produce suppleness and resiliency in the rise and fall and prevent cramping and fixation of the chest cage. As the size and capacity of every man's chest varies, these exercises must be done in the performer's own time.

(iv) **Supplementary Group:** The supplementary group directly follows the spanning group in order to relax completely the muscles which have been strongly stretched, and vice versa.

(v) **Heaving Group:** The principal object of this group is to secure a correct carriage and not merely to develop the power of "pulling up."

(vi) **Balance Group:** The muscles used are all those which help to maintain the erect position of the body. The purpose of the exercises is to develop movement with control and easy carriage.

(vii) **Dorsal Group:** These exercises are designed to strengthen the back muscles, thus correcting the dorsal curve.

(viii) **Abdominal Group:** Exercises of the abdominal muscles influence the carriage of the lumbar part of the spine by the pull exercised on the front of the pelvis, counterbalancing any tendency to hollow back.

(ix) **Lateral Group:** Lateral exercises give suppleness to the carriage of the body, ensuring flexibility of the spine and assists to counteract tendencies to curvature of the spine.

(x) **March and Run:** The various types of marching and running are taught with the object of combining control of the limbs deportment of the body in a free and easy movement and power and stamina.

(xi) **Leaping Group:** These develop judgment, quickness of movement, control, timing, courage and ability to turn a quickly formed idea into a rapidly-formed action.

The standard tables used in the R.A.N. Physical Training School vary in strength from 1—12. When producing a table for a new class, the following factors must be taken into consideration:

(i) Age and physical ability of the class.

(ii) The amount of previous training, if any.

PHYSICAL TRAINING
(Continued from page 13)
(iii) The number of men in the class.

(iv) Apparatus available.
(v) Time available for the lesson.

Each exercise is divided into two parts, the starting position and the movement to be carried out. The latter is given in the order (i) The part of the body to be moved, (ii) The direction in which the movement is to be made, and (iii) The

kind of movement to be made, e.g., 1—Arm, 2—Upward, 3—Stretch.

The terminology or names of exercises must not be confused with the words of command. The former are employed as an aid to the instructor in the study of gymnastics to indicate the exact nature of the exercises. The latter are simply directions to the class for the actual performance of the exercise.

A word of command consists

of three parts: 1—Caution, 2—Pause, 3—Executive Word.

The formation of a class for the performance of a table or set of exercises differs considerably with the type of school in vogue. The modern trend of Physical Educationists is to get away from any formed up state and, it would appear, to discourage any form of drill movement or class discipline.

The "Team and Spot" system employed in Naval Physical Training has produced excellent results over many years; it has the advantages of inculcating team spirit and discipline, yet is sufficiently far removed from any form of regimentation to allow the exercises to be enjoyed and appreciated. Other factors in physical training will be the subject of a further article in "The Navy."

BOYS CHOSEN FOR ENTRY TO NAVAL COLLEGE

CANBERRA.—Four boys from New South Wales and four from other States have been chosen to join the Royal Australian Naval College at Jervis Bay as cadet-midshipmen under the Matriculation entry.

The names of 30 boys who will join the college under the normal entry were also announced recently.

HOST TO 185 RATINGS

BP Oil Co. was host to 185 naval ratings from units of the Royal Navy's Far Eastern Fleet visiting Brisbane during December for Queensland's centenary celebrations.

Five coaches were chartered to take the sailors to the 1959 Gold Coast Surf Carnival at Palm Beach where a record crowd saw the Maroochy Shire Surf Life Saving Club win the surfboat "BP Endeavour."

Fighting Fit — and Fit to Fight

AS someone with a sense for words once said, "physical training is the art of progressive bodily development through the balanced co-ordination of all muscle groups."

In this is included the vocal chords used by some leather-lunged character with a sabrina-like silhouette, whose varied repertoire includes such gems as, "On the hands down . . . one . . . two . . . AS YOU WERE." Like it or not we've had to take it, and who will say that he is not the better for it.

Physical training in the R.A.N. sets out to turn the immature youngster into an alert, healthy individual, capable of carrying out his duties in a seaman-like manner.

The system used is of Swedish origin, for the Swedes pioneered the science of bodily development long before they produced the world's heavyweight boxing champion. There could even be some connection between the two; a sort of cause and effect as it were, for Swedish thought turned naturally towards indoor exercise suitable to a country where a hard winter limits activity outside.

No doubt they knew that the Greeks had a name for it, for Homer it was who once remarked that the greatest of all blessings was a sound mind in a manly body. As the P.T. instructor says of such a one—"he's fighting fit and fit to fight."

Although physical training in one form or another figures prominently in a sailor's daily round, most personnel get their first taste of it on joining H.M.A.S. "Cerberus."

As recruits they find that there is a school of Physical Training at the Flinders Naval Depot, staffed by instructors who are good advertisements for the methods taught.

Here they work to a syllabus primarily intended for the new entry, but equally suitable for use in any establishment where ratings are undergoing a set course of instruction.

At F.N.D., physical training is based on a series of twelve sets of exercises, known as Tables, all of which conform to a number of general rules. For instance, it is held that every lesson must provide adequate exercise for every muscle of the body, and that, while fatigue and other ill effects must be avoided, different sets of muscles are to be brought into play successively.

Not Monotonous

In order to promote interest, physical exercises are not allowed to become monotonous, but progress logically from one stage to another with a continuous flow of movement.

Such principals are merely common sense, for R.A.N. instructors know as well as anyone that a bored class is a bad class, and so if a formalised set of rules begin with simple exercises to loosen joints and stimulate blood circulation, they soon move in to a more elaborate series of exercises built around things like leaping, spanning, marching, balancing; all of which call for varying degrees of mental and muscular control.

There is nothing hit or miss about it. Physical training as practised in the R.A.N. varies

the exertion demanded of a class. At the beginning, naval instructors take into consideration the age and physical ability of the ratings in their charge; the number of men and what previous training they may have had.

At the other end of the scale is the trained man taking part in the kind of physical display put on for the benefit of the general public. The applause that greets each turn or set piece is an acknowledgment of the months of practice that has gone before.

The sight of a body somersaulting over the high horse or diving through a blazing hoop is neat and finished and always popular, but both the naval gymnast and his instructor know that the secret of it all is the confidence and determination that comes with constant practice.

Stripped to its essence, the bodily functions of marching, running and leaping are the normal movements of the hunting male. They go back into the mists of time, and any novelty there may now be is simply due to the sedentary habits of the present day. What is usual in a small boy is largely lost in adult years. But not in the R.A.N. where the sound of "left . . . right . . . left . . . AND KEEP THOSE ARMS SWINGING" is too common to cause much notice.

The sight of a squad pelting a heavy medicine ball at each other, coming in from a cross-country run or trying to clock Olympic figures over hurdles, is tied in closely to gymnasium work on the parallel or horizontal bars, the window ladders,

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But you cannot be too particular in insisting on a smart, alert, cheerful appearance, and on the prompt and willing accordance of all honours and salutes.

Keep up your own energy and that of your men, and maintain the offensive spirit most carefully. To do this, don't overlook the fact that one of your chief duties is to be always thinking. You have got the brains; don't forget to use them.

That is what you are an officer for... 'You must always be thinking'. How can you make the trench (or your position wherever it is) more secure, or more comfortable for the men? Or how can you attack the enemy? Or inflict some blow or loss on him? As soon as the thought has entered your head, put it into execution; issue the necessary orders, and see them energetically carried out. Thus you will keep up the spirit of Energy and of the Offensive which are of such immense importance... All energy is born of thought; therefore remember that to think is one of your great duties.

SHARE DEAL BETWEEN P. & O. AND ORIENT

DIRECTORS of the Peninsular and Oriental Steam Navigation Co. and the Orient Steam Navigation Co. Ltd. have agreed on terms for P. & O. to acquire all Orient ordinary capital not already held.

P. & O. will offer £13 of deferred stock for every 10 £1 Orient shares.

The companies' respective financial advisers, Lazard Bros. and Co. Ltd. and Robert Benson Lonsdale and Co. Ltd. recommend this share exchange basis as "fair and reasonable".

Orient shareholders are to retain an dividend paid for 1958-59.

Electric Welding

Changed Technique

of Ship Building

The introduction of electric welding has markedly changed the technique of ship construction in United Kingdom yards.

Prefabrication of large sections is now an established practice, and this has resulted in large-scale investment in new cranes and other facilities for handling these large units.

Apart from this major change in general construction methods, there have been important developments in the methods of preparing material as well as in the production of special steels required principally in the building of super-tankers.

In recent years increased use has been made of aluminium alloys for ships' super-structures and equipment.

Outstanding passenger liners completed in United Kingdom yards within the last few years include the following (with tonnage and owners names):

Arcadia, 29,734 gross tons (P. & O.); Olympia, 17,362 (Transatlantic Shipping Corp., Liberia); Orsova, 28,790 (Orient Steam Navigation); Iberia, 29,614 (P. & O.); Southern Cross, 20,204 (Shaw, Savill & Albion); Reina del Mar, 20,225 (Pacific Steam Navigation Co.).

Carinthia, 21,947 (Cunard Steamship Co.); Nevada, 20,527 (British India Steam Navigation Co.); Bergensfjord, 17,000 (Den Norske Amerikalinje); Oxfordshire, 20,586 (Bibby Line); Empress of England, 25,587 (Canadian Pacific Steam Navigation Co.); Sylvania, 21,898 (Cunard Steamship Co.).

INSHORE MINESWEEPERS FOR GHANA NAVY

H.M.S. Ottringham, an Inghesham class inshore minesweeper with a length of 106 feet, a beam of 21 feet, and a displacement of 120 tons, was recently commissioned in the Ghana Navy.

Ottringham and her sister ship, Malham, under the command of R.N. officers, will proceed in company to Takoradi, where they will be officially handed over.

Eight ratings of the Ghana Navy who have completed training in the United Kingdom, will return to Ghana in the ships.

HAS WORLD'S LARGEST OCEANOGRAPHIC FLEET

THE Soviet research ship Zarya (333 g.r.t.) will conduct a magnetic survey in the Indian and Pacific Oceans, which is expected to last for eight months. Part of this will probably be associated with the U.S.S.R.'s participation in the "International Indian Ocean Expeditions," sponsored by the United Nations International Council of Scientific Unions.

A further indication of the scope of the Soviet's efforts in oceanographic research is a Soviet radio report of the commissioning at Nikolayev of the large scientific research ship Voyeykov.

The report stated that the ship has the most modern equipment for conducting meteorological and oceanographic studies. Voyeykov is later reported to have passed through the Bosphorus on September 5 bound for Vladivostok.

The U.S.S.R. has the world's largest oceanographic fleet with at least 30 oceanographic research ships and about 60 hydrographic survey ships.

H.M.A.S. "CERBERUS"

(Continued from page 8)

It is interesting to note here that the training ship of the Naval Brigade was H.M.V.S. "Cerberus", one of the first two ships built for the Victorian Navy, a monitor or turret ship.

About 1922 the training establishment in Victoria was moved from Williamstown to Flinders Naval Depot and given the name H.M.A.S. "Cerberus" carrying on the tradition. The silver from the old Naval Brigade was handed on to the new Wardroom.

This was the beginning of the present silver collection, and although only thirty years have passed since then, a short time in the history of any navy, this has not limited the type and number of presentations.

With Federation in 1901, it was obvious that the State Navies with the division of Permanent Naval Forces and Naval Brigade would disappear, and the emergence of a Royal Australian Navy would soon come. Approval came in 1911 when the designation H.M.A.S. was given.

The Inter Unit Relay Challenge Cup, presented by Reid and Ritchie and first won by Osborne House, brings us to a further historical point of interest in our early years when in 1913, through a delay in the preparation of the site at Jervis Bay, the Royal Australian Naval College opened at Osborne House, Geelong.

In the previous year, the commissioned "Sabroan", one of the old immigrant ships and wool clippers which at one time had held the sailing record for the fastest wool clipper time to Australia, was commissioned as a training ship for boys and given the name H.M.A.S. "Tingira".

These happenings naturally were the occasions for numerous

PREPARING FOR ROYAL SALUTE



Preparing to celebrate the birth of the Queen's third child, Able Seaman Arnold Anderson, of Inala, Brisbane, and Chief Petty Officer John Welch, of Greenwich, checked and polished one of the light guns to fire a Royal Salute of 21 guns on the aircraft carrier H.M.A.S. Melbourne.

trophies to be donated, and although the Royal Australian Naval College retains its own plate at Jervis Bay, the Relay Challenge cup, finally won outright by the Submarine Depot, was eventually presented to the Wardroom at Flinders Naval Depot and provides a

link with those early days.

In 1927 when boys' training was abandoned, two of "Tingira's" cups were re-allocated to the Wardroom, one the Champion Cup. Athletic Sports presented to "Tingira" by her officers in 1914, and a cup pre-

(Continued on page 20)

sented by the committee, for the Royal Visit of their Royal Highnesses, the Duke and Duchess of York in competition with H.M.A.S. "Renown", who brought the Royal Visitors to Australia. These two cups, inscribed with the names of many who have rendered outstanding service, now rest here.

Another cup, the Tug of War Challenge Cup, presented by Baikie and Co., links us with the Submarine Depot. This was first won in 1920 by the Stokers, finally outright by the submariners and re-presented to the Wardroom. This does draw attention to a little known branch of the Royal Australian Navy—the Submarine Service.

This branch has not had a continuous history but on five occasions submarines have been attached to the Fleet. Initially the submarine depot was at Geelong, in Victoria. After the loss of the boats AE1 and AE2 in the first World War, submarines re-appeared on the Australian scene with the "Oxley" and "Otway" from the Royal Navy in 1927, only to vanish again with their return

to England in the 1931's.

To-day the submarines on loan from the Royal Navy, based at Sydney, are continuing the story begun in 1913. With the whole pattern of Naval warfare changed and the introduction of atomic power and missiles, their future is assured, and looks brighter than ever before.

The simple inscriptions on the trophies—"Won by the Submarine Depot and Represented"—pay fitting tribute to the indomitable courage and all-round ability of the men of the submarine.

Throughout its history many officers have added to the Collection of Plate held by the Wardroom. The Rose Bowl presented by Lieutenant Commander A. H. Spurgeon and Lieutenant Commander W. T. A. Moran in 1933 is mentioned, for besides possessing an aesthetic beauty of its own, it shows the transition between the heavily scrolled work of early years and the stark simplicity of the Perth Memorial Cup, which is mentioned later.

This Rose Bowl, also illustrates another feature of the Collections, the personal aspect. Lieutenant Commander A. H. Spurgeon, the son of Commander (S.) (ret.) and Mrs. C. H. Spurgeon, was born at Gosport, in England, and entered the R.A.N.C. in 1914.

He was present at the Firth of Forth at the surrender of the German Fleet at the conclusion of the first World War.

In November, 1939, he was appointed in command of H.M.A.S. "Manoora", and returned to Sydney in 1942 as Staff Officer to the Rear-Admiral Commanding, where he was promoted to Captain in June of that year. He died in Sydney during December, 1942.

Lieutenant Commander W. T. A. Moran was the son of Mr. and Mrs. W. T. Moran, of Kalgoorlie, West Australia, and entered the College in 1917. His first ship was H.M.A.S. "Bris-

bane", an R.A.N. light cruiser which was commissioned in 1916. Lieutenant Commander W. T. A. Moran specialised in Torpedo, doing his long (T) course in 1929, and at the outbreak of war had just been appointed as Commander of the R.A.N.C.

Service in H.M.A.S. "Canberra" was followed by command of H.M.A.S. "Vampire", which was in company with ships "Prince of Wales" and "Repulse" when they were sunk off Malaya in December, 1941.

In January, 1942, he took part in a successful night action against Japanese destroyers off Endau, but was reported missing, believed killed, when his ship was lost in April, 1942, off the Coast of Ceylon. He was twice Mentioned in Despatches.

Preserved for all time in this Rose Bowl is the reoccurring theme of the continuing link with the Royal Navy and the birth of a new tradition in its own right.

This new tradition is typified in the H.M.A.S. "Perth" and Scrap Iron Flotilla Memorial Cup donated in 1948 by Leading Signaller C. A. Wright for Inter Branch Aggregate Trophy. The Mediterranean, the Tobruk Ferry, and the evacuation of Greece are all events close enough for us to be mindful of. The name "Scrap Iron Flotilla" given in contempt but borne with honour.

February, 1942, marked another historic moment when for the first time ships of the Royal Australian Navy came under Command of the United States Navy. After a series of actions which saw the virtual destruction of the A.B.D.A. Naval Force, H.M.A.S. "Perth", Captain H. M. Waller, D.S.O., R.A.N., in Command, was in company with the U.S.S. "Honston" when "Perth" fought her final engagement

(Continued on page 24)

Men, Ships, Landing Equipment in American Navy Changes

40,000 additional personnel needed by 1965 to maintain present strength

IN an attempt to end bottlenecks in the landing of equipment over beaches, tests of a "roll-on, roll-off" vehicle transfer method were conducted in the United States recently.

The principle is that a new type of vehicle discharge lighter is joined stern-to-stern with a vehicle cargo carrier by means of a 30-ton ramp. Vehicles, with their drivers and crews, are driven across the ramp to assigned spaces in the lighter. The lighter then moves to the beach, lowers its front ramp and the vehicles are driven ashore.

The vehicle discharge lighter is specially designed, having twin 1,200 h.p. diesel engines and vertical axis propellers to permit 100 per cent. steering without forward motion. These craft have a range of 4,800 miles fully loaded and as there are no rudders, the ships are controlled entirely by propeller movement.

Forward draught is four feet and an unusual feature of these vessels is a hydraulic ram fitted beneath the bow which can push the lighter off the beach.

Missile Destroyer

U.S.S. Charles F. Adams (D.DG-2), a new Forrest Sherman Class destroyer, designed as a guided missile ship, was launched on September 8. She will be armed with a Terrier Missile.

Charles F. Adams has a new hull design, which has been evolved from the original Forrest Sherman class hull, and

the super-structure is of aluminium. The most recent developments in habitability and air-conditioning are incorporated.

Overall dimensions are: Length 431 feet, beam 47 feet, with a displacement of 3,370 tons.

It is intended that the crew will consist of 24 officers and 330 ratings.

More Manpower

According to the United States "Navy Times", an additional 30,000 to 40,000 naval personnel will be needed by the end of the 1965 financial year if the U.S. Navy is to maintain its present manning level.

It has been estimated that the extra personnel will be needed because of the greater complexity of new ships, such as the Polaris submarines (with their two crews each), the atomic ships now being built, and the new classes of destroyers and escorts coming into service as well as in the extra maintenance necessary on older destroyers.

It has been estimated that, to maintain the machinery, electronics, and hulls of old destroyers at operational efficiency, an additional 10 men are required for each ship.

However, the proposed manning increase will not appreciably alter the percentage of officers, which will change from 11.01 per cent. to 11.2 per cent. in a period of five years.

Last Conventional Sub.

The last diesel-powered submarine to be commissioned in

the United States Navy was launched on September 15. She is U.S.S. Blueback, an Albacore design boat with a length of 219 feet, a beam of 29 feet and a surface displacement of 1,690 tons.

The U.S.A. is now concentrating its new construction entirely on nuclear-powered submarines, 33 of which are either completed or under construction. Two of the Polaris missile firing submarines (SSBN), Patrick Henry and George Washington, have been launched.

U.S.S. Lizardfish (SS373), a war programme submarine of 1,526 tons (2,425 tons submerged), which had been in "mothballs", was taken in hand recently for conversion to a modern, snorkel-equipped, fleet submarine at a cost of £A.12,250,000.

ROCKET MISSILE

A NEW U.S. Navy liquid propellant rocket-powered missile an air-to-surface CORVUS test vehicle, has been successfully flown at the Pacific Missile Range Test Centre, Point Mugu, California.

The CORVUS is an air-to-surface missile to be used by carrier-based aircraft and is designed to attack heavily-defended areas, including surface ships. In its initial air launching at Point Mugu, the CORVUS test vehicle was fired from a Navy A4D Skyhawk jet aircraft.

The new supersonic missile was developed by Temco Aircraft Corp.

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PROMOTION OF NAVY EXECUTIVE ANNOUNCED

CANBERRA.—The Minister for Defence, Mr. A. G. Townley, has announced the promotion of Captain O. H. Becher, Deputy Chief of the Naval Staff, to the rank of Rear-Admiral.

Mr. Townley said Rear-Admiral Becher had held a number of important command and staff appointments, including Deputy Chief of the Naval Staff (1952-1954) and captain of the aircraft carriers H.M.A.S. Vengeance (1954-1955) and H.M.A.S. Melbourne (1957-1958).

He assumed his present appointment, with the acting rank of Rear-Admiral, on January 3, 1959.

NAVAL WEDDING

LIEUT. Christopher Bacon, R.N., and Mrs. Bacon, whose marriage took place at St. Swithun's Church, Pymble, on January 9, left by air on January 20 for Halifax, Nova Scotia, where the bridegroom

will be Staff Officer (Operations), Sixth R.N. Submarine Squadron.

The bride was formerly Miss Deidre Taylor, only daughter of Mr. and Mrs. Alan Taylor, of Pymble; the bridegroom is the only son of Mr. and Mrs. C. J. Bacon, of Tottenham, Middlesex.

FROM ADMIRALTY TO SINGAPORE POST

THE former First Lord of the Admiralty, the Earl of Selkirk, has been appointed as the United Kingdom Commissioner for Singapore in succession to Sir William Goode, who relinquished this post on December 2.

Lord Selkirk, who will have the title of United Kingdom Commissioner for Singapore and South-East Asia, will also assume the functions of the present Commissioner-General for South-East Asia, Sir Robert Scott, and will succeed him as U.K. Council Representative to S.E.A.T.O.

Death of Commander Who Organised Coast Watchers During War

COMMANDER Rupert Basil Michel Long, the man who directed and organised Australia's coast watchers' organisation during World War II, died in Sydney on January 8, at the age of 60.

Commander Long was Director of Naval Intelligence during the war.

The U.S. Navy credited the Australian coast watchers with a vital role in the long-drawn-out battle for Guadalcanal and its key airfield.

Hidden behind the Japanese lines, the coast watchers radioed reports of the movements of enemy aircraft and shipping to the Allies.

Forewarned, the Americans were able to intercept the Japanese planes and ships and inflict crippling losses.

In his book, "The Coast Watchers", Eric Feldt says of Long: "With his civil assistant, Mr. W. H. Brooksbank, he had been mainly instrumental in building up the Naval Intelligence Division, creating an organisation to take the strain of war, generally without funds and without support from the public."

"Long's had been a thankless task, calling for patience and equanimity."

A Navy official said that Commander Long had been responsible for establishing the war-time services of Naval Security and Naval censorship.

Commander Long retired from the Royal Australian Navy in 1945 and entered business.

He is survived by Mrs. Long, a son, Peter Michel, and a daughter, Valerie Michel.

WE STILL NEED SHIPS

By John D. Bates

Chairman of Australian and New Zealand Passenger Conference, in an address to the Australasian Federation of Travel Agents

(Part II)

The first part of this address appeared in the last issue of "The Navy."

I want to make it very clear that these comments are not a criticism of air transport operators I have myself flown well over 200,000 miles in commercial aeroplanes in the past 25 years and I take my hat off to them. But these are the facts of life and they partly explain the difficulty of predicting the long range effects of air transport as a competitor to sea transport.

Most of the world's passenger shipowners have already shown their faith in sea transport in the future. On a rough estimate, at the end of last year they were actually committed to 450,000 gross tons—planned, on order and under construction—to a total value of not less than £140 millions. This you will agree is a pretty fair investment when a ship's life can be set down at no more than 25 years.

British Commonwealth Companies' share in this investment is greater than the rest of the world put together. Their main efforts are concentrated on services other than the North Atlantic, and I should say here that the figures I have given do not include possible replacements for the "Queens" of which tentative reports have already been published.

Passenger shipowners clearly believe that their vehicles will continue to command a profit-

able share of the expanding international travel market. But they are realists and they know this will only be so if their ships are imaginatively designed and built and operated so as to offer special inducements with which aircraft cannot compete.

The race is not always to the swift. Passenger ships can, and do, cater pre-eminently for rest, relaxation and recreation as an antidote to the stresses and strains of the jet age.

By far the largest of Britain's new passenger ships are the two which, by late 1960 or early 1961, will be operating to Australia. They are the "Canberra" and "Oriana," of 45,000 and 40,000 tons, respectively.

To be successful, a passenger ship must have "passenger appeal" or, if you like, "sales appeal", and this cannot be divorced from external appearance.

As you will have seen from artists' impressions which have been published, "Oriana" and "Canberra" epitomise the trends of modern design. In "Canberra" the orthodox smoke stack has vanished, to be replaced by twin funnels set side by side right aft.

"Oriana" is perhaps more traditional at first glance, for her funnel is midships and tapered and is matched by the smaller engine-room vent further aft. The profiles of both ships are clean and uncluttered, with streamlined superstructures. Exterior appear-

ance is, of course, due to functional as well as aesthetic considerations, but passenger appeal, which is, of course, an aesthetic consideration, is a very important factor.

How about speed? Many people have asked me why shipowners should want to achieve a speed of 27 or 28 knots when the machinery required to drive 40,000 tons at that speed is obviously so costly.

The shipowner is not, of course, trying to compete with the jet airliners' 500 or 600 miles an hour, but there are two very good reasons for speed in ships. The first is the obvious one, that faster ships will almost certainly attract more passengers, especially on the short runs.

The second, and chief reason, is that greater speed means higher utilisation and therefore lower operating costs per passenger. It can even cut down the number of vessels required to perform the same service.

Speed quite obviously affects design and the streamlined appearance of "Oriana" and "Canberra" is due in large measure to this factor. A ship steaming at 27 knots against a 25 knot head wind is fighting a full gale.

Passenger decks must be open, because on the Australian run passengers want them that way, but they must be shielded so that wind does not

(Continued on page 24)



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WE STILL NEED SHIPS

(Continued from page 23)

become a nuisance and a hindrance to exercise.

Models of our ships have therefore been subjected to exhaustive tests by which contour lines of wind velocities are recorded electrically and drawn on the deck plan and then wind tunnel tests are made to calculate the best shapes to give the protection needed.

Another problem related to speed and its product — air turbulence — is that of smoke elimination. If engine exhausts are not projected outside that envelope of air which travels with and encircles the ship, they may be trapped in the wind eddies which flow over the superstructure and thereby deposit smuts on passengers and their clothing. To solve this problem, experiments are still proceeding.

The best solution, of course, would be prevention, and marine engineers are striving to discover some means of ensuring complete consumption of waste material so that only clean exhaust gases will be discharged.

Meantime, funnel design, whether in domed, or slanted or louvred styles, or even as Welsh hats, has rendered the smut nuisance negligible, even if the aesthetic appearance is not all that could be desired.

Space is perhaps the key to successful ship design. It dominates the economics of the ship by determining the area and variety of accommodation.

On the Australian run, the emphasis is on wide, open decks, light, cool interior design and decoration, room to live informally, to sun bathe and to swim.

Technical advances in the use of light metal alloys in ship building have contributed

largely to the design of the passenger ships of to-day. In all the post-war ships of the Conference Lines the use of light metal alloys for superstructure has increasingly improved their economics.

In the new ships it will play an even more important part. In "Oriana," for example, it has resulted in an extra deck of passengers to the tune of about 200.

I think the three words — speed, space and stability — with all they infer, are the key words in the future of passenger ships, and space is the dominant factor. More space, better amenities, bigger payload; that seems to be the chain of reasoning.

I believe and I hope you will agree with me that so far from being obsolescent, big passenger liners are about to enter a new and exciting era of competition and that the old truism, travel makes travel, will ensure that there are enough travellers to go round to satisfy both air and sea operators and so to fill the hearts of travel agents with joy.

(To be continued next month.)

TWO OCEAN TUGS FOR KWINANA

THE Brisbane-built "BP Parmelia," the second of two ocean-going tugs for BP's Kwinana Refinery, has completed her sea trials. Initial bunkers and marine lubricants were delivered to the builders, Evans Deakin & Co. Ltd. of Kangaroo Point, a few weeks ago.

The "BP Parmelia" was launched by Mrs. K. J. Morris, wife of the Deputy Premier of Queensland, last October, and will be used at Kwinana, Western Australia.

WARDROOM OF "OERBERUS"

(Continued from page 20)

near the entrance to Sunda Straits on the 1st March, 1942.

In endeavouring to make the passage "Perth" and "Houston" made contact with the enemy's main invasion convoy and a very strong scouting force. The two ships inflicted very heavy losses upon the enemy before the overwhelming odds brought about the inevitable end of this heroic action.

Survivors from the "Perth" suffered further in the Prisoner of War camps before release came at the end of the war. Despite their harrowing experiences there are still survivors from the "Perth" serving in the Navy.

The sheer clean unyielding lines of the Memorial Cup is truly representative of the men it commemorates.

It is perhaps that in the collection of tankards that the personal aspect is more vividly seen. The inscriptions read like the Honour Roll of the R.A.N.C., so perhaps it is fitting that individual donors are not named.

It is certain, however, that the collection of plate will increase in the years to come as the growth of the R.A.N. continues and the service sets up new traditions and adds more honour to her names.

As the Wardroom of F.N.D. is the Premier Mess in the R.A.N., it is not surprising that the history of the plate in its possession is not of the Wardroom alone, but of the R.A.N. as well.

The pieces built up over the years, not with the acquisitive urge of a collector but given with a spirit of pride in the service, are worthy of the ships and men of the Royal Australian Navy for which Flinders Naval Depot has honour of being the Training Establishment.

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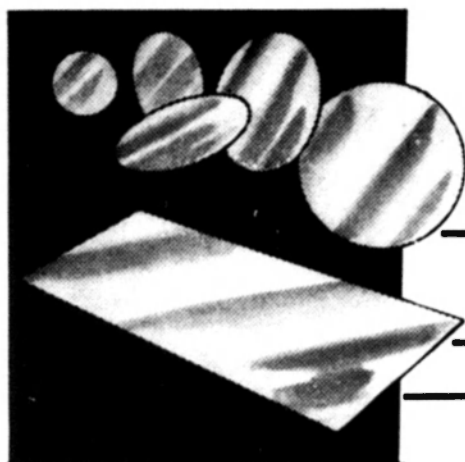
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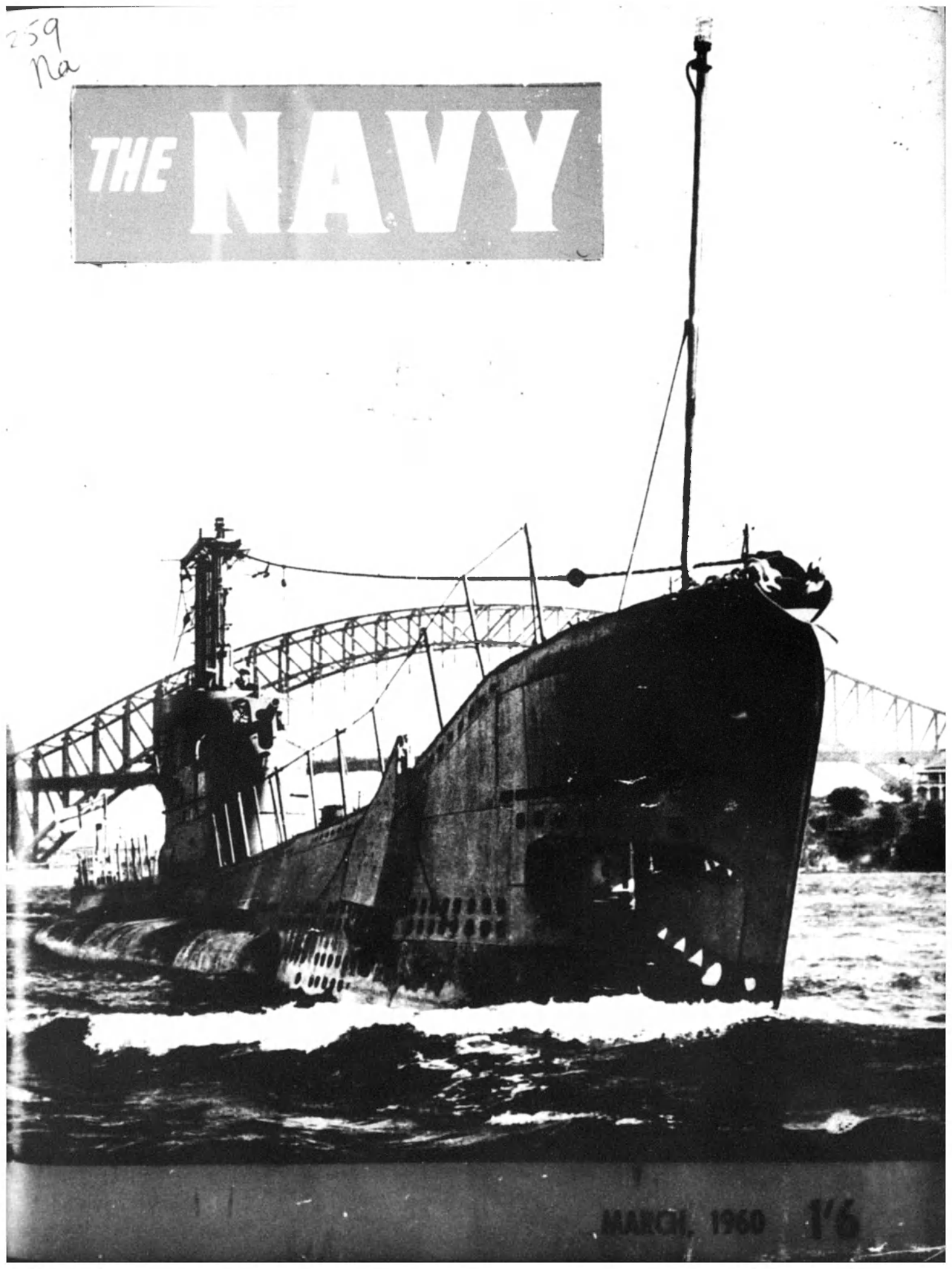
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THE NAVY 4 MAY 1960 SYDNEY

Vol. 23

MARCH, 1960

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MANY GIFTS FOR NAVY CHAPEL

CHURCHES and cathedrals from many countries have given a stone from their buildings for the altar of the H.M.A.S. Watson War Memorial Chapel in Sydney.

The stones are practical gifts to the chapel appeal for £27,000, which was opened by the Lord Mayor, Alderman H. F. Jensen, in May last year.

Gifts so far total more than £15,000.

Work will begin in April on the new harbourside chapel.

H.M.A.S. Watson, the Navy's training station at South Head, accommodates up to 500 officers and men.

Until now it has lacked an adequate church.

The chapel will be non-denominational, and will be open for public worship on selected Sundays.

A Navy spokesman said the three collecting centres—Sydney, London and Washington—were "in danger of being engulfed with gift stones."

The stones would be incorporated in the chapel altar, linking it with Christian shrines throughout the world, he said.

The spokesman said stones had been received from churches and cathedrals in Canterbury (England), Glasgow, Liverpool, Norwich, Winchester, Calcutta, Hong Kong, Singapore, Zanzibar, Cape Town, North Ireland, Jerusalem, and all parts of Australia, Canada and the United States.

Contributions, which are allowable taxation deductions, should be sent to "Chapel Fund," H. M. A. S. Watson, Watson's Bay, Sydney.

FIRST SEA LORD VISITS AUSTRALIA

CANBERRA. — A visit to Australia by the First Sea Lord, Admiral Sir Charles Lambie, was announced by the United Kingdom High Commissioner's Office.

Sir Charles, who is 59, succeeded Earl Mountbatten as First Sea Lord in July last year.

The visitors' programme provided for a week in Australia from March 16, then a visit to New Zealand, and return to Australia on March 29 for two days.

His discussions in Australia are expected to influence the future shape of the Australian Navy.

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Navy Mission Reports to Canberra

Admiral Burrell and his Colleagues review Trends in British and American Navies as a Guide for developing Australia's Policy against Submarine Attacks.

THE return last month of the Australian Naval mission from its fact-finding overseas tour has inspired a great deal of public discussion about Australia's future Navy policies.

These discussions were given a fillip by newspaper stories concerning the visit of the Soviet leader, Mr. Khrushchev, to Indonesia, and its implications for Australia, and news of Russian plans to develop its Antarctic bases and set up new ones.

The Naval mission was headed by Vice-Admiral H. M. Burrell, Chief of Naval Staff and First Naval Member. He was accompanied by Rear-Admiral K. Urquhart, officer-in-charge of R.A.N. engineering and ship construction, and Captain D. Wells.

After the mission's five-week fact-finding tour of the United Kingdom and the United States, Admiral Burrell said he now was in a position to advise the Federal Government on the shape of the Navy in years to come.

He said the purpose of his tour had been:

● To investigate the possibilities of building the latest conventional-type submarines in Australia:

● To find out if the latest guided weapons could be adapted for firing from Australian Daring Class and Battle Class destroyers.

He pointed out that to keep pace with modern weapons of the conventional-type costs more than most people realise.

A full report will be made by the mission to the Minister for the Navy, Senator Gorton.

Admiral Burrell said he found great willingness in both the United Kingdom and the United States to assist Australia in solving its problems.

"They are very keen to give us the benefit of their experience, technical detail and knowledge," he said.

"Both countries were extremely interested in Australia's defence contribution in South-east Asia.

"Obviously, decisions made concerning our defence forces affect the defence posture of other forces in the South-east Asian area."

Undersea Hazards

Admiral Burrell added: "I have seen the latest and most powerful nuclear submarines, as well as the latest conventional submarines in both the United Kingdom and the United States.

"I have seen guided missile ships under construction in both countries and inspected a guided missile factory in the United States."

In a subsequent interview in Canberra, Admiral Burrell said there was no one answer to submarine attack.

"Australia is dependent on being able to get her shipping in and out, her defence forces overseas and supplying them while they are there," he said.

"Take the problem of oil fuel—every ton of it comes by sea.

"The Navy has to deal with attack from under the water, on the surface and from the air.

"The main hazard at this stage is the undersea one. Anti-submarine warfare presents a great challenge."

A few days after the Mission's return, a newspaper report from Canberra indicated that the urgency of an Australian anti-submarine force is believed to be the feature of a report Naval chiefs are preparing for Federal Cabinet.

"It is believed the Government will be urged to establish a fleet of conventional submarines as the core of an anti-submarine force", the Sydney "Sun" reported.

It added that the Naval mission was "expected to emphasise the need to face the possible threat of an all-out attack by enemy atomic submarines armed with long-range nuclear missiles".

Within three weeks of the mission's return, anti-submarine exercises will be held in the Tasman Sea.

This is said to be the first indication of future large-scale exercises, using new equipment and techniques, to bring the R.A.N. up to date in under-sea warfare.

The tone of public discussions, as reflected through newspapers and other sources, shows the concern felt about Russia's growing under-sea strength.

An American Naval expert recently estimated that the Russian submarine fleet numbered 400, "ready to attack". More than 100 of them were said to be in the Western Pacific.

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TO CO-ORDINATE SERVICE DESIGN

CANBERRA. — A Defence Design Policy Committee has been established in the Department of Defence to co-ordinate the design activities of the Australian Armed Services, the Minister for Defence, Mr. A. G. Townley, has announced.

The Director-General of Inspection Services, Mr. J. P. Buckley, has been appointed chairman of the committee.

Mr. Buckley had considerable experience on design activities during World War II and recently completed an investigation of the design services in the Australian Armed Forces.

The new committee would apply the most modern design techniques and ensure that there was no overlapping between the services, Mr. Townley said.

It would also take advantage of the design capacity in Australian industry.

The committee included senior officers engaged on design activities in the three armed services and in the Department of Supply, he said.

The Government's policy was to ensure maximum co-ordination between the defence group.

R.A.N. VESSELS

CANBERRA. — The R.A.N. anti-submarine frigate Quickmatch left Singapore on March 1 to return to Sydney.

The Quickmatch, with the Daring class destroyer Vendetta, has served in the British Commonwealth Strategic Reserve in the Far East since last December.

She was scheduled to return by way of Darwin and Cairns, arriving in Sydney on March 17.

The Minister for the Navy, Senator J. G. Gorton, said that the Vendetta would remain in the Far East until June 29.



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THE NAVY

Planning the Navy of the 60's

Bold Criticism of British Government designed to build up Fleets East and West of Suez

LONDON. — The Navy League has opened the new decade with a long overdue campaign to draw public attention to the pitiful state of the Royal Navy, and to demand immediate measures to reverse the current trend of never-ceasing reductions in our naval strength, reports an article in "The Navy," London.

At a Press Conference in London on January 18, spokesmen of the League delivered their policy before a large and diverse audience of naval and defence correspondents. In a wide-ranging discussion, the Navy League was pressed to state what it considered to be the minimum number of ships of each type which the Navy should maintain in operation to meet its world-wide commitments.

The article added that in the second half of the twentieth century the problem is one of far greater complexity than it was in the first half. A simple slogan, such as: "We want eight, and we won't wait," no longer adequately describes our needs.

Maritime warfare is now conducted in three dimensions, over, on, and under the sea, with the last of these dimensions rapidly gaining in importance. The need is no longer for a bigger line of battleships than our potential enemy; we need balanced maritime forces, capable of fighting in all three dimensions, and of dealing effectively with the most likely situations to arise.

This question of balanced forces can best be illustrated

by taking the case of the much-heralded Commando carrier, H.M.S. "Bulwark," which was recently commissioned at Portsmouth for the first time in her new role.

By herself this ship is vulnerable to any form of air, surface, or submarine attack. She carries no fighters for self-defence, has no guns capable of taking on anything larger than a minesweeper, and is wide open to submarine attack unless escorted.

She is therefore useless except as the lynchpin around which a task force is built. She must be screened against submarines by A/S frigates, she must be provided with a measure of air defence by guided weapon destroyers, and these escorts must be capable of dealing with surface attacks by similar types of ships.

Ability to Operate

When operating in remote areas (and what concept of mobility will the Commando carrier provide unless she can operate in these areas?) at least one replenishment ship must attend the task force, not only to refuel the carrier and her escorts but also to provide fuel for the helicopters, whose job is certainly not completed after one flight ashore with the first wave of Commandos.

Against what scale of attack and from what types of weapon should this force be capable of defending itself? A glance at "Jane's Fighting Ships" reveals, for example, that Egypt now possesses two destroyers and nine submarines, in addition to fighter

aircraft. To defend the Commando carrier against a threat of this nature requires a minimum of four A/S frigates and two guided weapon destroyers, and even this scale of defence would still leave her wide open to any but the smallest scale of air attack.

Indeed, we may question her ability to operate in an area where air attacks on any scale are possible without a second aircraft carrier to provide the necessary air defence of long-range interception and combat air patrols, as well as air cover for the Commando landing.

The Commando carrier cannot therefore carry out her role in safety unless she is accompanied by adequate defending forces. In remote areas we suggest that a force of four A/S frigates and two guided weapon destroyers would protect her and her attendant tanker. Where any weight of air attack can be expected she will be dangerously vulnerable without the assistance of a second aircraft carrier to provide long-range warning, and fighter cover as well as A/S air patrols, which will certainly be needed.

If these two carriers are operating together, the requirement for A/S defence is immediately increased to at least eight A/S frigates.

The Navy of the 1960s must be built round the operation of task forces such as these in the areas where they are most likely to be required and at a degree of readiness which will enable them to go into action within a matter of hours if possible.

(Continued on page 6)

March, 1960

How different the history of the Suez crisis might have been if a naval force such as this, with adequate build-up facilities behind it, had been at sea in the eastern Mediterranean on 26th July, 1956, when Nasser first announced the nationalization of the Suez Canal!

The commissioning of H.M.S. "Bulwark" marks an important step forward in the building-up of our naval forces to meet the needs of the new decade, but whether she will be provided with the defences we have described is, to say the least of it, somewhat doubtful.

Meanwhile, a second Commando carrier must be converted and commissioned as quickly as possible, and it

is to be hoped that this will be announced in the forthcoming Navy Estimates.

The first of the guided weapon destroyers have only just been laid down and it will be two years before even one is commissioned. To bridge this gap in the air defence of the Commando carrier task force we can only resort to our existing cruisers, at least one of which should form part of the force until the guided weapon ships are available.

Finally, three operational aircraft carriers is totally insufficient to meet our commitments both east and west of Suez. Even if it is agreed that the Commando carrier can, on occasions, operate without the support of a second aircraft carrier, there will always be times when this support will be required and

it must, therefore, be continuously available in the right place at the right time.

Further, providing round-the-clock air operations, such as continuous fighter cover and A/S patrols, requires not one but two aircraft carriers, and thus we see how totally inadequate the Government's plans have become. Beside the Commando carriers at least four other aircraft carriers must be maintained in operation and a fifth must be refitting or undergoing modernization. Even this number would only deal satisfactorily with our commitments in the Mediterranean and east of Suez, and takes no account of any participation by this country in the N.A.T.O. Atlantic Strike Fleet or of the need for the protection of our trade in the Atlantic.

FRANK CRITICISM CLEARS THE AIR

British Policies, Backbone of Commonwealth Defence, Highlighted in Navy League

LONDON.— Britain's naval policies are very much in the firing line these days, as public controversies rage about the standard of carriers, the need to build up submarine forces and other aspects of Admiralty activities.

At the Annual General Meeting of the Navy League in London recently, Lord Winster, P.C., K.C.M.G., complained that "we have to admit with great regret that the Navy has fallen upon somewhat evil days."

As an example, he said that the First Lord of the Admiralty was an office that no longer carried the weight that it once did.

"The First Lord no longer has a seat in the Cabinet, and it is a post which now seems to be considered as suitable for a junior Minister who has not yet made any great reputation for himself," said Lord Winster.

Other points made by Lord Winster were:

Under the present system we have seen the Navy reduced, or about to be reduced, to three carriers and three cruisers with insufficient small ships to cover the oceans of the world.

One thing that at once strikes me about that very small number of carriers and cruisers is that no allowance is made for break-downs or other mishaps to the ships. For instance, east of Suez there is one carrier; what happens about air cover if she has a breakdown or has to have a long refit? Because a ship is "new" it does not follow that she is "modern." And that is

a distinction which is not always borne in mind but which should be borne in mind. In my opinion a "modern" ship should make us think in terms of nuclear propulsion and of missile armament.

And we have not got ships of this description yet and there is no immediate sign of their joining the Fleet.

The point I think is borne out by the fact that for some time now in the press it has been announced that we have got a "new" cruiser with two more to come. I have even seen her described as a push-button cruiser. But what comes out when you push the button? Six-inch projectiles which admittedly come out very fast indeed, but are only six-inch projectiles. But these three are coming along at a time when America is taking the guns out of her carriers, replacing them by missiles and giving up the manufacture of large ammunition.

Possible Danger

That, I think, illustrates the difference between what I call "new" and "modern." Similarly, our nuclear submarine "Dreadnought," which we are building with American assistance, will carry torpedoes and not missiles.

Russia may already have missile-carrying submarines, although I believe they are not nuclear-powered.

The public, in their simple manner, are apt to ascribe anything amiss with the Navy to the Board of Admiralty, and in particular to the First Lord and First Sea Lord. It may not be a bad thing, but

it is not entirely fair, although I have noticed that responsibility is gladly accepted when things are going well, but it is tempting to shuffle it off on to somebody else's shoulders when things are going badly.

If you examine our system of government you will find that it is designed with great care to avoid the fixing of responsibility upon any Minister. The First Sea Lord will say that he told the First Lord of what was wanted. The First Lord will say that he was not responsible because he told the Minister of Defence and the Minister of Defence told the Cabinet and the doctrine of collective responsibility prevents any one member of the Cabinet being blamed and if you attribute blame to the Prime Minister, being the head of the Cabinet, he will disclaim responsibility because he was placed in office by the will of the people and acts in their name. Civil servants are never responsible for anything.

Have we, indeed, been brought into possible danger at sea? It may be difficult to fit the existing Navy into the general strategical plan, but I think the answer must be yes, the situation is dangerous.

The prime duty which the country lays upon the Navy is the maintenance of our sea communications and the protection of our Merchant Navy. Let us freeze on tight to this.

Russia has assimilated the fact that Hitler might have won the war had he built up and attacked us with overwhelming submarine forces.

(Continued on page 8)

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Consider that Hitler started the second world war with only 80 submarines and the damage that he was able to do. Where should we have been if he had started with 500?

The times are dangerous, crisis succeeds crisis, the pitcher goes on being taken to the well. If a crisis ends in war our Merchant Navy would for the third time in this century find that the Royal Navy was unable to afford it adequate protection.

Last June, Admiral of the Fleet, Lord Cunningham, said we ended the last war with 880 escort vessels (we began with around 100). He called attention to the 500 or more present Russian submarines, and said: "The forces to meet this very real menace are quite inadequate, unacceptable risks are being run."

Admiral of the Fleet Lord Chatfield supported Lord Cunningham. Lord Cork and Orrery has also gone on record as having said that: "We have a small naval force which would be quite unable to protect our shipping if war were to come." But it is upon an adequate protected naval fleet guarding our communications at sea that our livelihood depends in war and, in fact, the issue of victory or defeat may rest upon this as it very nearly did in 1917 when we were then within an ace of defeat by Germany.

Can we rely on the N.A.T.O. and Commonwealth navies to supply us with the 880 escort ships that Lord Cunningham has said are necessary for the protection of our Merchant Navy? Reference to "Janes Fighting Ships" will show you that we certainly fall very far short of this 880.

I beg the press to help us in this matter. Many of us are powerless to arouse public

opinion without their help. Yet what more important task could the press perform than to bring to the notice of the general public the weakness and the danger that we are running at sea at the present moment!

I must remind you that America has already launched a nuclear-powered, 14,000-ton cruiser, the "Long Beach." She will carry Talos and Terrier missiles. The conversion of the entire United States Navy to nuclear power is well under way.

The carrier-borne aircraft of the American 6th Fleet have a second air-to-air guided missile which homes on the target with a speed of 1,500 m.p.h. She is building big nuclear submarines to fire Polaris missiles from the surface or submerged. The "George Washington," an atomic-powered submarine capable of firing Polaris, was launched last June.

Britain built the first ship to cross the Atlantic by steam: today the American "Savannah" will probably be the first surface ship to cross under nuclear power.

These are things we must bear in mind, and we must make efforts to catch up with America. At any rate, if we cannot do it in numbers we can do it by building a Navy which is a forerunner of the times to come.

OPPOSITE PAGE:

Joint directors of the Australian Anti-Submarine School, Nowra, Commander M. L. Moloney (left) and Wing Commander P. J. McMahon, confer over a map in Sydney in preparation for the recruit convoy exercise in the Tasman Sea. Six ships, 50 aircraft, and two submarines with more than 5,000 men of the R.A.N., Royal Navy, Royal New Zealand Navy and Air Force, and the R.A.A.F. took part.

—"Sydney Morning Herald" photo.

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STRONG DRIVE FOR YOUNG RECRUITS

THE R.A.N. Junior Recruit Training Scheme is being strongly featured in current advertisements in Australian newspapers, as part of the programme to attract young men into the service.

The theme is designed on the line that "for boys leaving school the Navy has the answer on Opportunity."

The advertisements point out that the Junior Recruit Training Scheme provides a wonderful opportunity for the boy leaving school, because it furthers his education and gives him special training.

"The Junior Recruit can look forward to a life of travel, comradeship and excitement in the ships of the Royal Australian Navy," adds the copy.

Other advantages stressed are healthy life, with free accommodation, food, clothing,

medical and dental treatment, and sporting facilities . . . and home leave on full pay.

Youths of over 15½ and under 16½ on the 1st of July or 1st January (days of entry to the Training Establishment) are invited to seek information at Recruiting Information Centres.

MARINE ELECTRONICS

LONDON.—The Ninth National Electrical Engineers' Exhibition (Earls Court, 5th-9th April, 1960) will be opened by the President of the Board of Trade, the Rt. Hon Reginald Maudling, M.P., at noon on 5th April.

Part of the "Marine Electronics" feature will be devoted to electrical and electronic equipment from Britain's renowned aircraft carriers, H.M.S. Victorious and H.M.S. Hermes. Visitors will see much equipment never previously exhibited, including control, navigational and communications devices.

Also featured will be equipment as used in the s.s. Canberra, the largest liner built in British shipyards since the war. This 45,000-ton ship, entirely powered by A.C. current, will be launched around the time of the exhibition and will incorporate many new types of specially designed marine electrical equipment. Exhibits will include the latest navigational aids and radar, and radio communications equipment.

SALE OF SHIPS' BELLS

LONDON.—Nearly 400 ships' bells were recently listed for sale by the Admiralty. An Admiralty Fleet Order giving details of the bells, ranging from a four-and-a-quarter-inch bell from "Roval Prince" to H.M.S. "Peregrine's" 19-inch bell weighing 150 lb., invites offers to purchase.

The Director of Stores, Admiralty, S.W.I., takes into consideration any special claims for ownership or attachment when allocating the bells.

P. & O. TO SPEND £47m. ON SHIPS

CONTINUING growth of nationalism in shipping is a long-term problem of considerable gravity for British shipping, directors of P. & O. Steam Navigation group state in presenting the annual accounts for the year ended September last.

The group has capital commitments totalling almost £47 million for ships.

Of this total, £36 million is to complete ships under construction: £9 million is for new tonnage ordered but not yet laid down; and £1.8 million for air conditioning of ships.

The accounts disclose a group net profit of £2,943,482 sterling after £1,696,064 taxation — the poorest result since group accounts were first issued in 1948.

It compares with £6.6 million for the 1958 year, and a high of £10.4 million in 1957.

Earning rate on shareholders' funds was 1.8 per cent., against 4.1 per cent. the year before.

Dividend as previously announced is a steady 11 per cent., taking around £2 million.

Directors expect to pay 11 per cent. again this year provided there are no "unforeseen circumstances."

Group fleet at September 30 last totalled 361 ships costing £236 million, and with an average age of 12½ years.

Last year 13 new dry cargo ships were added, but the average age of the fleet overall remained substantially unaltered.

Directors say that protection of shipping, like tariff protection of any other trade, leads to just the same increases in costs to the consumer.

Full-scale protection of shipping would result in a one-way full, one-way empty voyage for all ships, which would double costs.

Directors say the problem is world-wide, is created by governments, and is soluble only by them.

It is the gravest problem facing the shipping industries of Britain, Norway and other countries, the size of whose fleets depends on being allowed to compete on their merits for the world's cargo, they add.

The report also shows that there are 26,106 shareholders in the company.

Individuals hold 63 per cent. of the total capital, with insurance companies and investment trusts each holding almost 10 per cent.

ROYAL NAVY FRIGATE ON GOODWILL VISIT

THE 1,800-ton anti-aircraft frigate H.M.S. "St. Brides Bay" reached Sydney on February 15.

The frigate is manned by 13 officers and 177 men under the command of Commander R. Kettle.

Average age of the crew is 23.

The "St. Brides Bay," built in 1945, has been based at Singapore. It is armed with four four-inch guns, six Bofors, and anti-submarine weapons.

The present complement has been away from England for 13 months.

The men will return in July when the ship is recommissioned.

Since leaving Singapore last December on a goodwill tour, the ship has visited Fremantle, Adelaide, Auckland, Wellington, Hobart, and Sydney.

It sailed for Singapore, by way of Cairns, on February 19.

Commander Kettle, a New Zealander, has spent most of his service in the Fleet Air Arm.

He took command of the "St. Brides Bay" in January, last year.

LONG-DISTANCE RACES WILL TEST YACHTSMEN

LONDON.—Three British yachts are expected to take part in this year's American ocean-racing classic, the 635-mile race from Newport, Rhode Island to Bermuda.

They are "Belmore", belonging to the Royal Naval Sailing Association; "Drumbeat", owned by Mr. M. Aitken; and "Danegeld", belonging to Mr. R. T. Lowein.

Other long-distance races this year are the 750-mile North Sea race from Oslo to Ostend; a transatlantic race from Bermuda to Lisbon; a race from Cowes to Lisbon; a 600-mile race from La Rochelle to Lisbon; a Spanish race of 480 miles; a race from Algeria to Cannes; and from Cannes to Naples.

All these races will be sailed between July and September, and will help to bring yachts and sailing ships from all over the world to the Olympic Regatta being held in Naples at the end of August.

ELECTRONICS SPEED UP NAVY SURVEYS

LONDON.—Electronic equipment capable of measuring long distances quickly with a high degree of accuracy, is now being successfully used by naval surveyors engaged in producing charts sold throughout the world, and used by every maritime nation.

The Royal Navy was among the first to realise the applications in marine surveying of Tellurometer sets, using the transit time of radio microwaves to determine the distance between two points — developed by the Council of Scientific and Industrial Research in South Africa.

Royal Navy hydrographic vessels are already gaining valuable experience of their use in their specialised work.

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CAPTAIN OLDHAM'S PROMOTION

CANBERRA.—Captain G. C. Oldham has been appointed Flag Officer-in-Charge of the Royal Australian Navy's East Australian area from June 20 next.

Captain Oldham, who will be promoted to Acting Rear-Admiral, is at present commanding officer of H.M.A.S. Watson, the navigation direction and torpedo-anti-submarine school at South Head, Sydney.

He will succeed Rear-Admiral D. H. Harries, who will retire on June 27 after 43 years' service.

Captain Oldham entered the R.A.N. College in 1920 and during the pre-war years qualified as an observer in the Fleet Air Arm.

He had a distinguished record in World War II, and was mentioned in dispatches for bravery while serving on the cruiser Australia in the Battle of the Coral Sea.

While serving in the cruiser Shropshire, Captain Oldham was awarded the D.S.C. during operations in Leyte Gulf, and was mentioned in dispatches a

second time during the Lingayen Gulf naval action.

After the war he served as joint secretary of the Chiefs-of-Staff Committee, and commanded the destroyer Warrawunga from 1946-48.

R.A.N.'s ROLE WITH ALLIED NAVY

THE Navy was examining its shore establishments to see if savings could be made to give a "better cutting edge" to its fighting fleet, the Minister for the Navy, Senator J. G. Gorton, said on February 28 in a TV interview with George Baker in Sydney.

Closure of shore depots did not mean that the Navy was contracting, but that it was shifting its emphasis to sea fighting, he said.

Senator Gorton said that the role of the Royal Australian Navy was to act as a component of an Allied navy.

The R.A.N. was looking for new ships and men and the means of getting them.

It had sent the Chief of the Australian Naval Staff, Vice-Admiral H. M. Burrell, abroad to examine the latest types of vessels and arms.

Senator Gorton said that the aircraft-carrier Melbourne was going out of commission in three and a half years' time not because it would no longer be useful, but because at the end of that period it would need replacing.

Australia could not afford the outlay of £40 million to replace it.

It was felt that the money could be better spent on other types of vessels.

U.S. FLEET COMMANDER TO VISIT AUSTRALIA

THE Commander-in-Chief of the U.S. Pacific Fleet, Admiral H. G. Hopwood, will arrive in Sydney on May 2 to take part in the 18th anniversary celebrations of the Battle of the Coral Sea.

Admiral Hopwood will visit Newcastle, Brisbane, Canberra, Melbourne, Adelaide and Perth, and will return to Sydney on May 18 before leaving Australia.

He and Mrs. Hopwood will be guests of the Commonwealth Government and the Australian-American Association during their visit.

LIGHTS AND WHISTLES

MELBOURNE.—The Australasian Steamship Owners' Federation has ordered 2,600 sets of lights and whistles for lifejackets for the 45 coastal ships.

The deputy chairman of the federation, Mr. R. A. Coutts, said the standard kapok-filled lifejacket carried on Australian coastal ships would now have lights and whistles, which new Navigation Department life-saving appliance regulations specified.

The lights, red and waterproof, would clip on the front of the lifejackets, he said.

They were powered by small batteries which became activated by immersion in sea water, and would shine for at least eight hours.

NAVY LEAGUE STRIKES OUT

London Body's forthright declaration for more ships to protect far-flung Commonwealth

This statement, which was handed out at the Press Conference held in London by the Navy League on Monday, January 18, is an interesting example of the influence which the League can exert on public opinion as well as at the Admiralty and in Whitehall. Australians interested in Navy affairs may feel that the forthright declaration in London could have a parallel here.

The Panel, who answered questions from representatives of the Press, were as follows:—Admiral Sir Ralph Edwards, K.C.B., C.B.E. (Chairman of the Navy League).

Vice-Admiral Sir Peter Cazalet, K.B.E., C.B., D.S.O., D.S.C. Rear-Admiral J. H. F. Crombie, C.B., D.S.O.

Vice-Admiral Sir Edward Evans-Lombe, K.C.B. Commodore the Earl Howe, P.C., C.B.E., V.R.D., R.N.V.R.

Admiral Sir Geoffrey Layton, G.B.E., K.C.B., K.C.M.G., D.S.O.

Admiral the Hon. Sir Guy Russell, G.B.E., K.C.B., D.S.O., and H. T. Bishop, Esq., O.B.E., General Secretary of the Navy League.

The statement was set out under these headings:—

Preface.

1. The Navy League is concerned about the present state of our Naval Defence, and has considerable evidence that anxiety is widely felt throughout the country.

2. Although the League has refrained from active public campaigning for the last few months for obvious reasons, we feel that it is now imperative that our views should be publicly expressed. It is with the adequacy of the Royal Navy to fulfil its tasks in peace and war that

this statement is mainly concerned.

2. Public Anxiety.

The main causes for anxiety are:—

- (a) The continuing reductions of the active fleet.
- (b) The absence of any announcement of building programmes to follow those already in progress, all of which were initiated years ago.
- (c) The slow progress in comparison with other nations in the development of nuclear propulsion for submarines and surface vessels, both naval and commercial.

4. The Tasks of the Royal Navy.

The tasks of the Royal Navy may be summarised briefly as follows:—

- (a) The peace-time duties of safeguarding our Merchant Navy and Commonwealth and Empire interests in every ocean of the world and, where necessary, supporting law and order.
- (b) The cold war task of co-operating with the naval forces of our allies in N.A.T.O., C.E.N.T.O., and S.E.A.T.O. in deterring Communist pressure and of acting immediately to meet any threat or minor outbreak of fighting in order to rapidly restore peace.

- (c) If a major war should come, to play a full part with the naval forces of our allies in meeting the Communist threat at sea and, in particular, in keeping open the ocean supply lines on which the survival of Western Europe and, indeed, the whole of the free world would depend.

5. The Strength of the Fleet.

By the end of the five-year defence plan initiated in 1957 the main strength of the active fleet will consist of:—

- 3 aircraft carriers
- 1 Commando ship
- 3 cruisers
- 70 (approx.) destroyers and frigates
- 30 (approx.) submarines

Man-power will be run down to 98,000 officers and men (88,000 effectives) of which 37,000 will be afloat and 61,000 ashore.

In addition to the above a number of ships will be kept in reserve available to provide reliefs for those requiring refits or repairs due to accidental damage.

6. Is this Fleet Strong Enough?

In view of the many tasks outlined in paragraph 4, can we afford to allow our Fleet to run down to so low a strength? The Navy League contends that we cannot and, in taking this view, is supported by a great body of responsible and authoritative naval opinion, allied as well as British. Not only British but allied naval resources are inadequate for the tasks laid upon them.

To illustrate the inadequacy of the Royal Navy at its prospective strength we would instance the following points:—

- (a) There is no ocean in the world in which Great Britain has not her own and her Commonwealth and Empire responsibilities. These areas are too vast to be adequately covered by the fleet envisaged, more especially as certain forces are specifically allocated to N.A.T.O.

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- (b) There is ample proof that trade follows the flag. The fleet at its present size is quite unable to represent Great Britain adequately on foreign stations.

To take examples:—

To cover the whole vast area east of Suez there will shortly be only—

- 1 aircraft carrier
- 1 Commando vessel
- 1 cruiser and escort vessels
- and submarines necessary to support such a force.

Indeed our weakness in this ocean is so apparent that a body of organised American opinion has advocated the creation of a U.S.A. Task Force to police what is, in fact, an area of predominantly British interest.

The South Atlantic Station has only 2 frigates based on the Cape to cover the whole of this vast area

We have only 1 frigate on the West Indies Station. More ships on foreign stations would mean more trade.

- (c) The Government has admitted that the frequent requests by British diplomats overseas for visits of H.M. Ships cannot now be fully met. This fact obviously results in prejudice to our interests and trade and adds to the risk of incidents occurring which might never arise or might more speedily be dealt with if a ship or ships of the Royal Navy were on the spot or immediately available.

- (d) The continuing loss of secure bases overseas, notably east of Suez, emphasises the necessity of increasing our mobile naval forces in such areas, and these should be supported by fast supply and repair ships in order that there may be always available task forces independent of shore support for long periods.

7. The Threat of Major War.

The threats might easily arise out of a limited war fought with conventional weapons or of war arising from some Communist miscalculation which might bring into use the Soviet submarine fleet of 500 vessels for blackmail or aggression at sea. On the assumption that the West would not be prepared to initiate the use of nuclear weapons and so commit suicide, the number of anti-submarine vessels and aircraft to meet these threats is dangerously low. Great Britain has the most to fear in such an event, owing to the short time we could hold out if our sea-borne supplies were cut off. If the enemy should force dispersion on the allied navies by attacks on the North American seaboard the approaches to this country and to Western Europe would be very weakly defended indeed.

It has already been openly stated by recent British and American Naval Commanders-in-Chief, Eastern Atlantic, based on their experience in N.A.T.O. exercises, that the naval and air forces under their command are insufficient to discharge the duties expected of them.

8. Nuclear Propulsion.

Britain is well behind America and Russia in the changeover to nuclear propulsion for ships. The United States already has ten nuclear submarines at sea and a further twenty-three under construction, and a nuclear-powered surface ship which will be ready this year. Soviet Russia has a nuclear-powered icebreaker and is believed to have nuclear submarines under construction, while Western Germany expects to have a nuclear unit fitted in a tanker for experimental purposes within the next two years. Britain so far has only the nuclear submarine *Dreadnought* under construction.

As regards a nuclear-powered surface ship, Britain is mainly

concerned with the search for an economic unit, but it is clearly a matter of urgency for this great maritime nation to get a nuclear-propelled ship to sea and not fall behind in a development which will have vast commercial advantages.

9. What Should be Done?

The Navy League feels it should make these suggestions:

(a) Operational Fleet.

Every effort should be made to keep additional ships operational at sea.

We believe that this island nation should have more ships available to meet the various commitments which are inevitable in a Commonwealth spread all over the world.

(b) Man power.

Stop the "run-down" in man-power and increase the allowed ceiling of 98,000 (88,000 effectives) to a number sufficient to enable more ships to be at sea.

(c) Building Programme.

Institute a planned building programme over the next few years of such classes of ships as the Board of Admiralty deem essential to our defence requirements. There is also one more particular type of vessel which, it seems to us, will become more important, due to our increasing lack of bases, and that is the "amphibious" ship. Ought we not to build a force of such vessels?

(d) Nuclear-Propulsion.

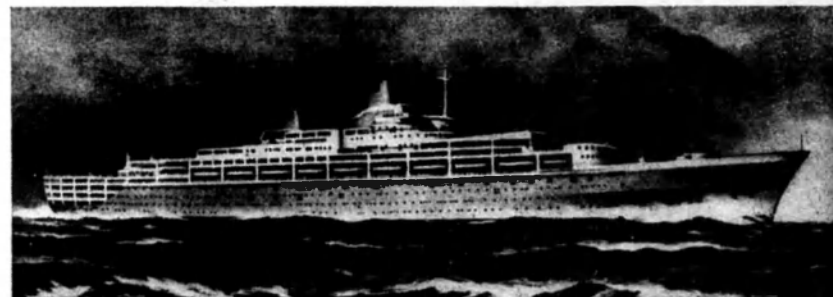
The highest possible priority to be given to the building of ships driven by nuclear power.

10. The Cost.

The Navy League recognises that the Admiralty are doing everything possible with the resources allowed them to keep the maximum number of ships and men at sea. At present the ships

(Continued on page 16)

Getting the "Oriana" Ready



An artist's impression of the Orient Line's sleek new 40,000-ton passenger liner "Oriana", which will cut one week off the London-Sydney run.

THE inside of Orient Line's giant new 40,000-ton "Oriana", whose graceful hull was launched by Princess Alexandra last November, is now receiving expert attention from a team of interior architects and decorators: a team, because in this age of specialisation one man can no longer be at the same time naval architect and interior architect, decorative contractor and shipbuilder.

Each must now contribute to each other's knowledge, experience and craft.

The air-conditioned ship, which the team will decorate and furnish, is the biggest and fastest liner to be launched in Britain since the "Queen Elizabeth" was completed almost twenty years ago. Her pre-fabricated super-structure is the largest all-welded aluminium super-structure ever built into any ship.

She is expected to be completed in September and to make her maiden voyage to Australia in December.

In a large liner like "Oriana", few of the public rooms are, in fact, much affected by sheer or camber, but in the Observation Room on the Stadium Deck, in the

First Class children's room on the deck below, and again in the Tourist stern gallery bar, the curves of the ship fore and aft will be expressed and appreciated in the rooms.

The aim is that "Oriana" shall continue the reputation that Orient Line ships have held for some quarter of a century for being modern and contemporary in the best sense.



Captain Clifford Edgecombe, R.D., R.N.R., who has been appointed to command the Oriana.

Many different kinds of materials will be used—many woods varying from rich rosewood to simple elm, plastic sheet, both plain and decorated, plastic leather-cloth, metal, new kinds of acoustic ceilings and, of course, coloured painted surfaces—all used in such a way that they will not date.

Articular attention is being given to the design of the lighting in "Oriana". The design of a room and the choice of colours so that it is right by day as well as by night, by daylight as well as by electric light, is of great importance.

Most of the lighting in the ship is fluorescent. Variety will be obtained by an interplay of indirect and semi-indirect lighting, wall fittings and ceiling fittings, curtain lighting and a modest number of tungsten fittings.

An interesting statistical note is that 5,000 lighting fittings will be fitted in the public rooms and entrances and 10,000 lighting fittings in cabin accommodation.

In "Oriana" the 1,496 Tourist and the 630 First Class passengers will have a big choice of lounges in which to

(Continued on page 19)

NAVY MEN OBSERVE ARMY ARTILLERY

VISITING Army officers from 10 countries were among a group of 350 officers, cadets and representatives from the R.A.A.F. and R.A.N. who watched an artillery demonstration at Greenhills, Sydney, recently.

Countries represented were the United Kingdom, the United States, Canada, New Zealand, India, Pakistan, Malaya, Ceylon, Thailand and the Philippines.

Other visitors came from the Army Staff College at Queenscliff in Victoria, the Royal Military College at Duntroon and the Officer Cadet School at Portsea, Victoria.

The demonstration was by the First Field Regiment, Royal Army Artillery.

It included displays of radar tracking mortars, the firing of different types of field weapons and a gun crew working under a Clegg protective umbrella during a simulated atomic bomb explosion.

DUTCH SHIP'S VISIT

THE Royal Netherlands Navy frigate, Kortenaer, arrived at Garden Island on February 28 for a three days' goodwill visit.

It was open for public inspection between specified hours.

The Kortenaer was formerly the British destroyer Scorpion.

MISSILES FOR SERVICE IN MALAYA

CANBERRA. — The first delivery of Sidewinder air-to-air guided missiles had now arrived at the Butterworth R.A.A.F. station in Malaya, the Minister for Air, Mr. F. M. Osborne, said recently.

The Sidewinders had been flown from the United States by two R.A.A.F. Hercules transports.

Mr. Osborne said a team of fitters was now at Butterworth carrying out modifications to the Sabres of No. 78 Fighter Wing to allow them to carry the missiles, one under each wing.

The Sabre would be readily adaptable to carry the Sidewinder after the modifications and would be the first Australian-built aircraft to carry the air-to-air missile.

NAVY LEAGUE POLICY

(Continued from page 14)

men at sea. At present the ships exist for a larger fleet but an increase in the permitted manpower would be needed to get them to sea. The extra men could be got if the Navy vote were increased.

More money will also be needed if a continuous replacement programme is to be maintained and progress with nuclear propulsion accelerated. The Navy League believes that the Government and Country should accept this extra cost.

At no time in our history has it been more important for

Britain to be strong at sea.

New Ideas for Today's Fighting Ships

New technical improvements and equipment introduced by the British Navy have been far-reaching in their effect, says Commander A. O. Watson, R.N., discussing "The Modern Navy," in "The Wonder Book of Ships and the Sea." This digest is printed with acknowledgments to the publishers, Ward Lock & Co., and "Sea Cadet", London.



IN a local war with "conventional" (non-nuclear) weapons, the most likely method would be to use our latest ships organised into large task forces or smaller task groups. Any form of battle fleet is out of date. A modern task group offers a high degree of mutual protection and this is its strength.

The fighting centre of a task group is its aircraft carrier which is supported by a number of destroyers and frigates for anti-aircraft and anti-submarine duties. The aircraft from the carrier provide an attacking force, a protective anti-aircraft patrol and anti-submarine searchers for the whole group. In return, the smaller ships provide a protective screen around the aircraft carrier.

Modern warships have to be equipped for any kind of war — nuclear or conventional, local or global. To limit the effects of nuclear weapons on ships and men, protective methods are constantly being worked out.

The superstructures of new ships are enclosed and all men are under cover. A periscope is used by the Captain to see what is happening about his ship, as in a submarine.

Engine-rooms, where powerful ventilation is needed, can be controlled from elsewhere. To keep down the contamination from radio-active "fall-out", seawater sprays wet all exposed external surfaces.

This either washes away any radio-active deposits or dimin-

ishes the effect of radiation if the ship has to pass through a heavily contaminated area. Men are given protective clothes and taught how to avoid injury from glare, heat, blast and radiation.

To remain at sea for long patrols, a ship must carry large quantities of provisions and stores, but even so, her bases must be destroyed. In this case she must be able to obtain more ammunition and fuel by sea — and this is where the Fleet Train of supply ships comes in. Fresh aircraft and men to replace casualties can often be flown in and so can mails, but this must be done by stages from an advanced base or hide-out.

In all problems of logistics, as these matters of supply are called, the three Services work together — and they all have their own needs, too. Not only here, but in almost every form of welfare to-day, the Navy, the Army and the Air Force collaborate closely, and so each has to learn more about the ideas and methods — and even the language — of the others.

Whatever means is chosen for driving a warship along, it must derive its thrust from a screw propeller. Jet propulsion in water, for instance, is not possible. To turn one or several propeller shafts the Navy has used the steam turbine for 50 years and more, and it has reached a very high degree of economy and reliability. Boiler pressures have risen to 600 or 700 lb. per sq. in. One of the methods by which this has been

achieved has been to raise furnace temperatures by mixing oil fuel with pre-heated air by forced draught.

Recently in some frigates heavy-oil diesel engines have been introduced. Diesel engines of lighted weight can be built nowadays to give a net saving in weight over steam. The power is transmitted through hydraulic couplings, with oil-operated gear-boxes for reduction and reversing. These have been developed from long experience with warships' dynamo engines and merchant-ship and submarine propulsion.

Gas turbines can be used at sea. In 1954 a gunboat of 205 tons was fitted with two high-compression Rolls-Royce gas turbines of 5,400 h.p. driving variable and reversible pitch propellers.

The power units weighed only half as much as the lightest steam machinery of the same power, and took up only three-quarters of the space. Since then many fast patrol boats have been built, driven by gas turbines, and larger and more efficient installations are on the way.

Frigates and fast escort vessels are to be provided with a completely new type of propulsion. This is to have steam turbines and gas turbines geared to the same shaft. The gas turbines will be most valuable for bursts of high speed. The system will save weight and space, and ships can get under weigh at a few minutes' notice.

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NEW IDEAS FOR FIGHTING SHIPS

The most startling innovations in this branch of engineering concern the submarine. These are in the realm of H.T.P. (high test peroxide of hydrogen) and, of course, nuclear propulsion. Both allow a true submarine to be built, that is, one which need not come up for air or even use a "snort" tube to provide fresh air. Also they enable the submarine to move at 25 knots or more when submerged—speeds undreamt of by means of battery-driven electric motors, even for short bursts.

With the success of the nuclear marine reactor it has been seen that this form of power has several great advantages over conventional forms of propulsion. It can be applied not only to submarines, but to all kinds of vessels and enables them to cruise for very long periods without re-fuelling. It is admirably suited for submarine propulsion for with it they can remain submerged and travel at high speeds for long periods, and nuclear submarines can dive to depths before impossible.

A domain in which the Navy has more rapidly advanced is

electronics. Here radar springs to mind first, but there are also television and computers coming into use more widely every year.

Radar has come to be indispensable in gunnery; in navigation it is a most valuable ally. It is also needed in giving early warning of hostile aircraft or missiles and in searching for ships. Like optical rays, or light waves, it can "see" only in straight lines and its range is limited in searching by the horizon.

It can pick up a submarine's "snort" tube above the surface, but not its hull under water. If a radar scanner mounted on a ship's mast was 75 feet from the surface of the sea it would have a horizon of about 10 miles radius.

In clear weather during daylight hours it is necessary to enlarge this area many times to allow a ship to search a large area of sea in a day. This is done by mounting a radar scanner in an aircraft, for at 30,000 feet the horizon is about 200 miles away—or twenty times as far as from our mast.

This method can also be used when a carrier might not wish

to transmit, even on radar, so as to keep her position secret. Radar can be used in reverse by a submarine trimmed low in the water, to warn her of an enemy hunter.

Electronic computers are being provided in our larger destroyers to help with submarine detection. The Asdic set picks up an echo of a submarine; it passes the details to a computer which "digests" them almost instantaneously and passes on automatically by electric circuit whatever settings are necessary to the mortar weapon. At the crucial moment the depth bombs are fired. An Asdic set, however, also helps the submarine to fire a torpedo "blind" at its quarry; this especially applies when a homing torpedo is dispatched.

It is not only for entertainment that television is used at sea. In a large aircraft carrier it can be used by the Captain or Commander (Air) for briefing the crews of the aircraft, who may be seated in three different rooms at the same time.

Television is valuable when the main engines have to be remotely controlled from another compartment in case of contaminated air coming in after an atomic attack.

430,000 MILES ON SERVICE

LONDON — H.M.S. "Cosack," while on 15 years' service on the Far East Station, has steamed 430,000 miles (equivalent to 20 times round the world), has played an active part in the Korean War, carried out anti-piracy patrols in the China Sea, helped a number of merchant ships in distress and travelled to such diverse places as Japan, New Zealand, the Persian Gulf, and Christmas Island.

She has also taken part in many exercises with ships of the Far East Fleet and Commonwealth and U.S. Navies.

WORLD'S FASTEST NAVAL VESSEL

"THE world's fastest naval vessel" is the arresting headline on a current advertisement appearing in Australian newspapers on behalf of the well-known Lucas equipment.

It is cleverly illustrated with a dramatic drawing of an ultra-modern patrol boat leaping through the water, and the accompanying text explains that it is the Vosper Patrol Boat. Its top speed is secret, but naval experts estimate it will knife through the water at speeds in excess of 50 knots.

"This makes it the fastest naval vessel afloat, as well as one of the finest examples of modern marine engineering," the Lucas message says, adding that Lucas developed and supplied the fuel system which ensures burning of fuel with maximum efficiency.

Lucas also supplied the starting equipment for the Bristol Siddeley Proteus engines in the craft.

MORE MONEY FOR BRITISH NAVY

LONDON.— The Admiralty has estimated total expenditure on the Royal Navy in the financial year beginning on April 1 at £456,746,000.

This is £21,339,000 more than last year's estimate.

The Admiralty expects one aircraft carrier, two submarines, and three frigates to be completed before March 31.

Two cruisers, five submarines, and eight frigates already launched will not be completed until after March.

The Admiralty plans to spend about £103 million (£12 million more than this year) on nuclear submarines, new ships, new aircraft and their equipment.

It said that good progress had been made with "Dreadnought," the Royal Navy's first nuclear submarine, powered by American motors, to be launched later this year.

Four guided-missile destroyers would have been laid down by the end of March and the first of them would be launched about the middle of this year.

TV COULD HINDER NAVY IN NEW ZEALAND

WELLINGTON, N.Z. — The Navy could be denuded of its electronics technicians because of the demands of television, the Minister of Broadcasting, Mr. Boord, told a public meeting in Auckland.

He said that the demand for qualified technicians would result in the commercial television stations, when established, taking over all qualified men in the armed forces and also from the post office and broadcasting.

"H.M.N.Z.S. Royalist would be immobilised in Auckland if private enterprise took over television in New Zealand," he said. "The Government could not allow this to happen."

GETTING THE "ORIANA" READY

(Continued from page 15)

sit; of bars at which to drink; of open decks, games areas and pools for exercise and lazing, and their children will have large playrooms, separated for quiet and noisy games.

On one deck (B) the Tourist passengers will have a continuous length of 250 ft. of public rooms, incorporating two large bars and a lavish dance room (called the Assembly Room), the stern gallery bar at the aft end having windows around 133 ft. of the ships stern.

Similarly, on the Verandah Deck, a suite of four First Class public rooms, including a ball-

room, extends for over 300 ft. of the ship's length. On other decks are other lounges, bars, etc., for both classes. The library in each class is part of a large lounge, separated by screens and by the book-shelf fittings, but designed with an easy flow between the two areas. There is also a galleried cinema available to both classes.

restaurants are large, comfortable and well equipped with waiters' service points. There will be places in which it will be equally pleasant to eat breakfast, as lunch or dinner, and equally as agreeable at the end of a long voyage as at the beginning.

First Class passengers will also have, on the port side of A deck, a "Silver Grill" as an alternative restaurant, where they can sit in intimate surroundings, elegantly furnished and including a small cocktail lounge.

The wide variety of First Class cabin accommodation on the "Oriana" ranges from the luxurious "special suite" with its own sitting-room, and the "special staterooms" with their own verandahs, to the usual single- and two-berth rooms.

The cabins are ingeniously arranged around "court yards", having large windows through which passengers will have glimpses of the sea from smaller windows in their own cabins. In short, almost every room will be one with a view!

All First Class cabins will have private toilet and either bath or shower facilities. Alleyway bulkheads will be lined with soft plastics and particular attention has been paid to the reduction of the transmission of noise to the cabin interiors.

Tourist Class passengers are to be accommodated entirely in two- and four-berth cabins. Some of these will have private shower and toilet facilities.

beer in handy cans

FOSTER'S LAGER
VICTORIA BITTER



ARE LARGE OR MEDIUM CARRIERS THE ANSWER?

Demand for Heavy Strike Aircraft likely to recede in next Decade as New Policies develop

LONDON.—The replacement of old carriers with new types, fortified with new armour and facilities, has been a subject much in the minds of Royal Navy executives lately.

Some of the pros and cons of to-day's Navy policies on this question were highlighted recently by Rear Admiral B. B. Schofield, in "The Navy" journal in London.

He pointed out that in war the carrier will be called upon to:

(a) Provide strike forces for use against shore targets and ships, and in support of ground operations.

(b) Provide protection for the fleet against air attack.

(c) Assist in anti-submarine operations.

In peace, she can make a valuable contribution to any police action required, particularly in the specialised form being developed and known as the Commando carrier.

She has also shown herself entirely suitable for carrying out the Royal Navy's traditional tasks of showing the flag, carrying out rescue and salvage work, and for the transport of troops and stores in an emergency. It is, however, her wartime functions which decide her design.

The main factor determining the size of a carrier is the type of aircraft which she will be required to operate. These can be classed under three headings, strike, fighter, and anti-submarine.

It is essential that the first two should have a performance at least equal to that of any enemy aircraft likely to be encountered whilst operating and in the case of strike aircraft they must have sufficient endurance to enable the carrier to operate at such a distance from the shore as will make it difficult for the enemy to locate her. Fighter aircraft must also have sufficient endurance to avoid the necessity for too frequent reliefs. The carrier's role in anti-submarine warfare may possibly diminish as conventional submarines are superseded by nuclear-powered ones and helicopters take the place of A/S aircraft, but shipping will still require protection against air attack and it will be of the greatest importance to shoot down enemy reconnaissance aircraft operating with enemy submarines.

Design Factors

By employing low flying tactics such aircraft may not present suitable targets for guided missiles, and manned fighters will still be required to destroy them.

Higher aircraft performance is generally the result of more powerful engines and these will of necessity be heavier and consume more fuel, resulting in a larger aircraft.

How much higher we can go in this climb into the supersonic age is a matter for conjecture, but it does not appear that the end is yet in sight.

There are other factors which influence the design of carrier-

borne aircraft and, therefore, that of the carrier herself. These are the aircraft's landing speed, which dictates the kind of arrestor gear, to be fitted, and the length of pull-out required to bring the aircraft to rest without damage; the space taken up by the aircraft when folded, which affects the size of the lifts and the number which can be stowed in the hangars; the throw of the catapult required to launch the aircraft, which governs its length and the space required to operate it.

The weight of the aircraft must be considered in relation to the strength of the flight deck and the power required to operate the lifts. Armoured flight decks not only provide a certain amount of protection against bomb damage, but stand up better to the impact of landing on, but the extra top-weight has an effect on stability.

Comparing dimensions of the carriers in service or under construction in the British, United States and French navies, Admiral Schofield says it will be noted that the larger flight deck area of the "Forrestal" class compared with that of the "Ark Royal" is obtained mainly by an increased width.

This not only gives more space for parking aircraft forward of the angled deck, but also provides much more room in the hangars below. The "Clemenceau" will have a flight deck of almost the same area as the "Ark Royal" with

a displacement only half that of the latter ship.

This has been obtained by increasing the overhang, the hull proper in the "Clemenceau" being 16 ft. less in the beam and the draught 12 ft. less. The French ship, as a result, has smaller hangars and can accommodate fewer aircraft.

In order to effect a true comparison of the number of aircraft carried by the different classes of ship, account must be taken of their type. The U.S. Skywarrior heavy attack bomber, for instance, takes up the space of three aircraft such as the British Scimitar. That explains why the "Forrestal" class normally carry no more aircraft than the "Ark Royal".

Since the design of a new carrier must allow for possible changes in types and performance of aircraft during her construction and life, it is necessary to consider briefly what these are likely to be.

The experts forecast a slow but steady increase in landing speeds up to about 135 knots, which is probably the maximum that the existing arrestor gear can contain. By the time that this stage is reached it seems probable that the need for manned strike aircraft to attack shore targets will have disappeared, their place having been taken by the inter-continental ballistic missile and the submarine launched intermediate range ballistic missile. The need for manned fighter aircraft to deal with the low flying "snooper" and to break up enemy bomber formations before they reach the fleet missile zone will, however, persist. It also seems likely that we shall still require manned strike aircraft with which to attack the enemy's surface ships, pending the production of a satisfactory ship-to-surface missile or air-to-surface rocket-type torpedo, both of which are in process of development.

The Royal Navy's next strike aircraft, the Blackburn N.A.39, is an example of the manner in which improved performance can be obtained for a comparatively small increase in weight.

The high cost of building carriers such as those of the "Forrestal" class has been the subject of much comment, but the fact is sometimes overlooked that between the upper and lower tonnage brackets within which these types of ships are being built, the figure of £500 per ton is fairly constant.

That is to say that making due allowance for the difference in the standard of living, the cost of building three "Hermes" is about the same as that of one "Forrestal". The question is, therefore, which is the most desirable from an operational point of view.

Group Operation

The objection to very large carriers is firstly the obvious one of too many eggs in one basket, the small number of ports in which such ships can dock or be berthed, their poor manoeuvrability, and their inability to transit the Suez and Panama canals. Against those disadvantages must be set the ability to operate larger and heavier aircraft, to carry more of the smaller types, to carry more aviation fuel, and to present a more stable flying platform in a seaway.

We have seen that the demand for heavy strike aircraft is likely to recede during the next decade, but this recession will not directly affect the Royal Navy as the Admiralty's policy since the end of the war has not included the development of either the ships or the aircraft capable of attacking shore targets, lying within the air defence zone of a major power, although it does envisage support for ground forces.

A factor sometimes overlooked in considering the size

of carriers is the proven desirability for carriers to operate, whenever possible, in groups of two or more, since if the deck of a single carrier is put out of action, and one bomb hit is sufficient, the force may be deprived of fighter protection at a time when it most requires it.

On this score two smaller carriers are better than one large one, but obviously the cost of operating and maintaining one large ship is less than that of two, half her size.

We see, therefore, that there are a number of conflicting considerations to be resolved in order to reach a correct decision on the size of carrier which ought to be built to replace the light fleet carriers now with the fleet.

It appears to the writer that we need ships of about 30,000 tons so that they can do what they have to do. But what is important is a return to the homogeneity which stems from class as opposed to single ship construction.

With the addition of the "Hermes" the fleet will contain four different types of carrier, yet the function of all is the same, if we exclude the Commando carrier.

From the point of view of building costs and maintenance, and particularly spare parts, it is far more economical to build a number of ships of the same class. The progressive reduction in the cost of the six "Forrestal" class carriers is a case in point. The fifth ship of the class is estimated to cost nearly £20,000,000 less than the first. It is also worth noting that the average time taken for the construction of these ships is only three years and two months and even those being fitted with a guided-missile armament in lieu of guns will be completed within four years.

PURSUIT OF HAPPINESS MANUAL CAUSES STIR

NEW YORK — A manual for persons conducting officers' clubs has recently aroused criticism in the United States because it stepped into realms not generally looked for in Service guides.

The manual told how to keep records for slot machines, stage a "bunny hug" dance, and mix martinis and other cocktails.

It suggested that if getting dates for bachelor officers was a problem, "call the nurses or the women's colleges."

Seven different recipes for martinis were given.

The manual was issued for Air Force personnel, but other services are debating the pros and cons of its style in relation to their own efforts in promoting officers' clubs.

The manual gave seven recipes for martinis, offered hints on special ways to in-

terest personnel to accept food (not fried chicken, but Southern pan fried chicken, browned to perfection, etc.); and the selection of bartenders (a breed almost apart).

"Good eating certificates" with lollipops were suggested as gifts for officers' children to encourage them to eat all their food.

A Democratic member of the House of Representatives in Washington revealed the existence of the manual in a letter urging the House Armed Services Committee to investigate all military training books.

JAPANESE SUBMARINE SALVAGED

THE Royal Navy was asked recently to assist in salvaging a Japanese submarine which was sunk 17 years ago in Singapore Harbour.

Salvage work on the submarine, believed to contain a cargo of valuable German

machine tools, was started earlier in the year by a private company.

When the submarine was finally brought to the surface, six live torpedoes were discovered still in their tubes after the nose of the vessel had broken off during an attempt to lift it.

The Fleet Bomb & Mine Disposal Team, led by Lieutenant P. Messervy, R.N., and the Naval Boom Defence vessel "Barfoam" were called upon to dispose of the torpedoes.

Adverse conditions of strong tides, rough weather and nil visibility were experienced and it was not until about six weeks after the torpedoes had been discovered that the team managed to cut them free from the bow and tow them underwater to an ammunition dump.

The gallant and dangerous task undertaken by the Royal Navy received a great deal of recognition and praise from the local Press.

MORE 'COPTERS FOR AUSTRALIA

Of the 22 helicopters in Australia today, fourteen are civilian 'copters for charter work, six belong to the R.A.N., two to the R.A.A.F.

The Army has none.

The Operations Manager of Copter Air Transport, Captain M. Hern, said recently that some of the S-58 Sikorsky helicopters being bought by his company for the Central Coast run may be amphibious.

"It would mean they could come down at Grafton or on any of the Northern Rivers," he said.

Captain Hern said his company also probably would provide helicopter "race day specials" to take punters direct to outlying racecourses such as Hawkesbury.

Copter Air Transport, a new airline registered in Sydney with a nominal capital of £1,000,000, is buying a £250,000 S-61 Sikorsky helicopter and three smaller £120,000 S-58 16-passenger helicopters for these services.

Ansett-A.N.A. also will enter the N.S.W. helicopter passenger field this year with Sikorskys on a seven-minute run from Sydney-city to Mascot Airport.

Captain Max Hillyman, head of Ansett-A.N.A. Helicopter Division, predicts a fantastic future for the helicopter in Australia.

He said Australia offered a greater future than America for helicopters.

By November this year business executives will be flying by giant helicopter from the heart of Sydney to the centre of Newcastle — in 28 minutes!

The single fare will be £8/10/-, or only slightly more.

The helicopter, an American Sikorsky S-61, will carry 27 passengers.

It will have more than six times the passenger-carrying capacity of any helicopter now in Australia.

FRIGATE VISITS N.Z.

A ROYAL NAVY frigate which has spent more than 10 years in the Far East, H.M.S. "St. Brides Bay," recently arrived in Auckland on a brief visit to New Zealand.

She arrived in Auckland in mid-January and took Sea Cadets for five days' training in the Hauraki Gulf.

She later visited Wellington before returning to the Far East via Australia.

"St. Brides Bay" was built at the end of the Second World War and displaces 2,420 tons. She arrived on the Far East Station in 1949 and has remained there ever since, successive ship's companies being

brought out and taken home by air. She last visited New Zealand in 1957.

'BRASSEY'S ANNUAL'

THE publication of "Brassey's Annual" has been delayed by the printers' dispute in London recently, but fortunately it is in time for the Defence White Paper and the Estimates for the Fighting Services.

Contributors to this latest edition deal with every aspect of the Armed Forces — education, health, welfare, training, tactics, strategy and weapons. In all, it consists of 34 articles on a wide variety of subjects, including a number, written mainly by air experts, on defence policy and the defence of the deterrent.

The editor, Rear-Admiral H. G. Thursfield, in his preface, provides the foundation for these articles on the deterrent. He says it is still a matter for speculation whether the deterrent will really deter.

JOIN THE



NAVY LEAGUE

The object of the Navy League in Australia, like its older counterpart, the Navy League in Britain, is to insist by all means at its disposal upon the vital importance of Sea Power to the British Commonwealth of Nations. The League sponsors the Australian Sea Cadet Corps by giving technical

sea training to and instilling naval training in boys who intend to serve in Naval or Merchant services and also to those sea-minded boys who do not intend to follow a sea career, but who, given this knowledge, will form a valuable Reserve for the Naval Service.

The League consists of Fellows (Annual or Life) and Associates.

All British subjects who signify approval to the objects of the League are eligible.

MAY WE ASK YOU TO JOIN and swell our members so that the Navy League in Australia may be widely known and exercise an important influence in the life of the Australian Nation?

For particulars, contact The Secretary, 83 Pitt Street, Sydney, N.S.W.
or The Secretary, Room 8, 8th Floor, 528 Collins Street, Melbourne, C.I., Victoria

or one of the Hon. Secretaries at:
● Box 376E, G.P.O., Brisbane, Queensland
● 726 Sandy Bay Rd., Lower Sandy Bay, Hobart
● P.O. Box 90, Darwin, N.T.

● 30 Pirie Street, Adelaide, S.A.
● 62 Blencowe St., West Leederville, W.A.
● 60 Limestone Ave., Ainslie, Canberra, A.C.T.

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MORE VESSELS FOR ROYAL NAVY

LONDON — British Admiralty plans to spend £456,746,000 on the Royal Navy this year has focused

interest on activities affecting a number of vessels which have recently been in the news.

H.M.S. "Falmouth," a new anti-submarine frigate, has been launched recently at the

Wallsend-on-Tyne shipyard of Swan, Hunter and Wigham Richardson Ltd.

Frigates of this class are all named after seaside towns and the six now in service are H.M. Ships "Whitby," "Torquay," "Scarborough," "Tenby," "Eastbourne" and "Blackpool." Six others have been launched. H.M. Ships "Yarmouth," "Rhyl," "Plymouth," "Brighton," "Londonderry" and "Rothesay" and six more have been laid down.

H.M. Submarine "Sealion" has also been launched; she is the eighth of the "Porpoise" class.

The ceremony was carried out by Lady Dalton, the wife of the Chief Naval Engineer Officer.

H.M.S. "Laymoor," a boom defence vessel, has been accepted for service by the Royal Navy recently. She is the first and the "name" ship of her class.

H.M.S. "Jaguar" is the fourth of the "Leopard" class to have been accepted. She is an anti-aircraft frigate and can be used as a small type of destroyer in offensive operations.

H.M.S. "Albion" is one of two aircraft carriers to be re-commissioned during the past few months. She was re-commissioned in December following a refit and is now in the Mediterranean.

H.M.S. "Ark Royal" is the second aircraft carrier to be re-commissioned lately, and an unusual tea-party was part of the ceremony.

Nearly 20 cakes were baked for the occasion and the largest was decorated with the ship's crest and battle honours. Six others bore the crests of her Scimitar, Skyraider, Sea Vixen and Whirlwind (helicopter) Squadrons. The other cakes were decorated with one letter each to spell out H.M.S. "Ark Royal."

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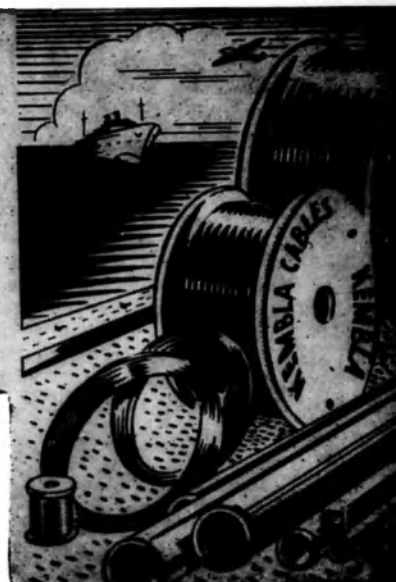
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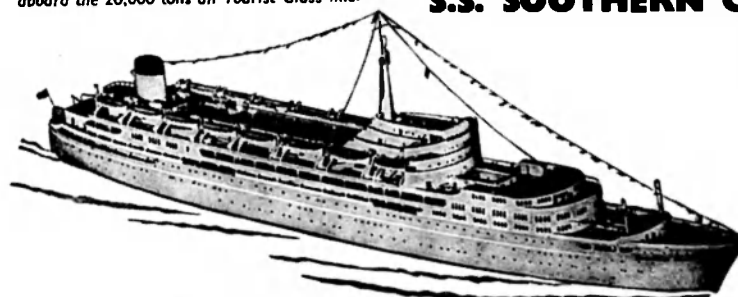
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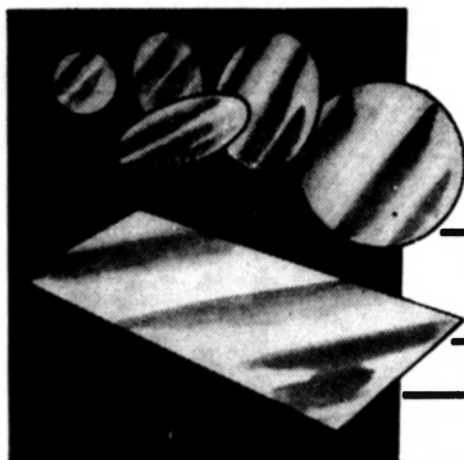
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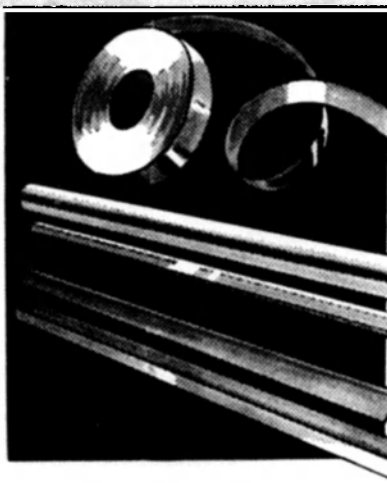


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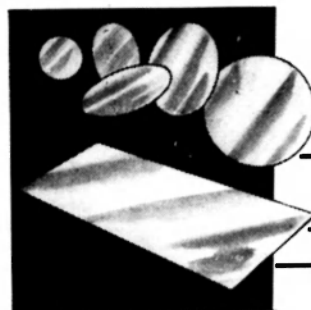
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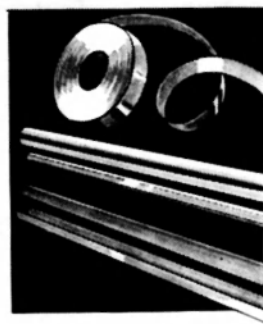


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ADMIRAL HERBERT C. HOPWOOD

Commander in Chief, U.S. Pacific Fleet



Admiral Herbert C. Hopwood, Commander in Chief of the U.S. Pacific Fleet, whose headquarters are located at Pearl Harbour, Hawaii, today commands the largest and most powerful naval force in the world.

He took command in February, 1958, and has 425 ships and over a quarter of a million officers and men under his command. They are stationed from the Americas to the Indian Ocean, and from the Arctic to the South Pole.

A native of Shamokin, Pennsylvania, Admiral Hopwood was born in 1898. At the age of 17 he entered the United States Naval Academy in June, 1916. Three years later he was graduated with a degree of Bachelor of Science, and commissioned an Ensign. While attending the Academy he also saw service in World War I as a midshipman aboard the battleships New Jersey and Oklahoma.

Between 1944 and 1945, Admiral Hopwood (then Captain) commanded the cruiser Cleveland, and during this time had the honour of serving with several Australian naval officers. Among these was Sir Roy Russell Dowling, now Chairman Chiefs of Staff Committee and SEATO Military Advisor who commanded H.M.A.S. Hobart. The current Chief of the Naval Staff of Australia, Vice-Admiral Henry M. Durrell, has been closely associated with Admiral Hopwood and the Pacific Fleet for some years.

While commanding U.S.S. Cleveland, Admiral Hopwood participated in the recapture of the Marianas, the capture of the Pacific Islands of Peleliu, Anguar, and Ngesebus, and the recapture of Corregidor, Mariveles, Manila, and the central and southern Philippines.

He also participated in the actions off Brunei, where Australian troops were landed, and off Tarakan and Balikpapan, in Borneo. For his actions in these campaigns he was awarded a second Legion of Merit.

He returned to Washington in 1945 to serve as Assistant Chief of Naval Personnel, and was promoted to the rank of Rear-Admiral the same year.

Between 1946 and 1952 he was Director of Budget and Reports, and Deputy Comptroller of the Navy Department. He was given command of Cruiser Division Three in March, 1952, during the Korean War, and four months

later was named Commander, Cruiser-Destroyer Force Pacific Fleet.

After a tour of duty as Chief of Staff of the U.S. Pacific Fleet with headquarters at Hawaii, he was assigned to command the Navy's First Fleet, which operates off the West Coast of the United States. At this time he was also promoted to the rank of Vice-Admiral, dating from August 1st, 1955.

His last assignment, before taking command of the U.S. Pacific Fleet, was in Washington, D.C., where he served as Deputy Chief of Naval Operations (Logistics).



WORLD'S LATEST SUBMARINE VISITS AUSTRALIA

U.S.S. HALIBUT, the latest nuclear submarine, arrived in Sydney on the 1st May for a five-day visit.

Halibut, built by the Mare Island Naval Shipyard, is the first vessel in the United States to carry the combination of nuclear-power and air-breathing guided missile launching capacity in one hull.

The Sargo and Swordfish both carry, and can launch, missiles, but Halibut is the only atomic vessel capable of launching the Regulus I. Missile.

The Halibut was commissioned on 4th January, this

year, less than a year after launching, and has been working up in the San Francisco and Pearl Harbour areas since then.

She is 350 feet in length and displaces 4,900 tons with her main deck relatively higher above the water line than conventional submarines to provide a dry "flight deck" when launching missiles at sea.

Despite her size, she has an excellent submerged speed and endurance from a propulsion plant that is the same as that in U.S.S. Sargo, a pressurised water reactor plant.

She is commanded by Lt.-Cdr. Walter Dedrick, U.S.N.

The name U.S.S. Canberra is unique in United States naval history. It has been an inflexible rule that all U.S. cruisers carry the name of an American State capital. Canberra is the only departure from this custom. Her name is a compliment to the R.A.N. for their close co-operation and gallant efforts with the U.S. Pacific Fleet during World War II and, in particular, a tribute to H.M.A.S. Canberra, lost while operating with U.S. units off Savo Island in August, 1942.

Canberra is equipped with radar-guided Terrier missiles in two twin-mounts. These sleek ship-air missiles can be launched in pairs every 30 seconds at a speed of 1,500 miles per hour at ranges up to 10 miles. With the missile launchers mounted aft, Canberra carries conventional armament forward.

THE NAVY



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BATTLE OF THE CORAL SEA

The Battle of the Coral Sea was the first major engagement in naval history in which the issue was decided without surface ships having exchanged a shot. It was purely an air action, with each opponent seeking to gain the upper hand by depriving the other of naval air support. At the end of April, 1942, the Japanese tide of conquest seemed likely to engulf the whole of Melanesia, and constituted a grave threat to Australia itself. Rabaul, Salamaua and Lae were in Japanese hands, and it was obvious that preparations were being made for a landing at Port Moresby. The occupation of Port Moresby would have afforded the enemy a strategically located advance base from which to make a determined assault on Northern Australia.

The battle was made up of a series of actions which took place between May 4 and 8. Anticipating a possible Japanese thrust towards Port Moresby and Australia, two Carrier Task Forces and a Cruiser Striking Force were concentrated in the Coral Sea—New Hebrides area. On May 4 the two Carrier Task Forces were to combine under Rear-Admiral F. J. Fletcher, U.S.N., and were to be joined by the Anzac Squadron, which was commanded by Rear-Admiral J. G. Crace, C.B., at a pre-arranged rendezvous.

At 1900 on May 3, Admiral Fletcher received intelligence reports that the Japanese were landing from transports at Tulgai Harbour, in the Solomons. At this time only Task Force 17 (which consisted of the carrier Yorktown, the heavy cruisers, Astoria, Chester and Portland, and the destroyers, Hammann, Anderson,

Perkins, Walke, Morriss and Sims) was ready for action; Admiral Fletcher decided to proceed towards Tulgai with this group. The Fleet oiler, Neosho, escorted by the destroyer, Russell, was detached to inform the other Task Forces that a new rendezvous would be made at daylight on May 5.

By 0700 on May 4, Task Force 17 had reached a point about 100 miles south-west of Guadalcanal Island. Planes from U.S.S. Yorktown carried out attacks on enemy shipping in Tulgai and nearby Gavutu Harbours, throughout the day. Tulgai losses were 1 destroyer, 4-5 landing craft sunk, 1 mine-layer, 1 destroyer damaged. On the whole, results were disappointing owing to lack of important targets. Three planes failed to return to Yorktown, and a considerable amount of ammunition, which included 22 torpedoes and 76 1,000 lb. bombs, was expended. In addition to the ships sunk, the destroyer, Yuzuki, and the mine-layer, Okinoshima, were damaged, while several enemy aircraft were shot down.

The Tulgai operation ceased at 1700 on May 4, and Task Force 17 proceeded to join the other Allied units. This rendezvous was made at latitude 15° S, longitude 160° E, and all units were combined as Task Force Fox, under the command of Admiral Fletcher. During May 5 and 6, ships commenced refuelling from the Fleet tanker, Neosho, but refuelling was broken off on the 6th when the Admiral received further intelligence of the direction of the Japanese advance. The whole force was re-organised into the following groups:

Attack Group:

Rear-Admiral Kinkaid, U.S.N.
U.S.S. Minneapolis
U.S.S. New Orleans
Rear-Admiral Smith, U.S.N.
U.S.S. Astoria
U.S.S. Chester
U.S.S. Portland
Captain Early, U.S.N.
U.S.S. Phelps
U.S.S. Dewey
U.S.S. Farragut
U.S.S. Aylwin
U.S.S. Monaghan

Support Group:

Rear-Admiral J. G. Crace, C.B.
H.M.A.S. Australia
U.S.S. Chicago
H.M.A.S. Hohart
U.S.S. Perkins
U.S.S. Walke.

Air Group:

Rear-Admiral Fitch, U.S.N.
U.S.S. Yorktown
U.S.S. Lexington
U.S.S. Morriss
U.S.S. Anderson
U.S.S. Hammann
U.S.S. Russell

On May 5, intelligence reports had begun to come in, reporting large enemy naval forces in the New Guinea-New Britain-Solomons area. Practically every type of ship was reported, including three aircraft carriers, but the enemy units were scattered, and there seemed to be no common direction of movement. By the afternoon of May 6, however, the situation had cleared, and it was apparent that the advance would be made on Port Moresby through Jomard Passage in the Louisiade Archipelago. It was estimated that this advance would begin on May 7 or 8. Admiral Fletcher, therefore, proceeded with his Task Force in a north-westerly direction so as to be in a position to strike the enemy at

BATTLE OF CORAL SEA—(Continued)

dawn on May 7. The oiler, Neosho, escorted by U.S.S. Sims, was detached to the south. Both these ships were sunk by enemy bombs on May 7. At 0600 on May 7, the Support Group was detached with orders to proceed ahead and attack enemy transports and light cruisers which were reported to be heading for Port Moresby through Jomard Passage.

As Task Force Fox (with destroyer Farragut added to the group) moved northward on the morning of May 7, scout planes were sent out to locate the enemy forces. At 0845 one of the scouts reported two enemy carriers and four heavy cruisers near Misima Island, and preparations were made to launch attack groups from Lexington and Yorktown. From examination of Japanese naval records, it has subsequently been ascertained that this group consisted of the Carrier, Shoho, a cruiser escort, and portion of the Port Moresby landing force. At the same time as the attack on Shoho, a group of Japanese aircraft from the carriers, Zuikaku and Shokaku, which were as yet unlocated by the Allied forces, attacked and sank the U.S.S.'s Neosho and Sims. The support Group, however, was not located.

Meanwhile, a combined attack group, consisting of 92 planes, was launched from the U.S.S. Carriers at 1100. They sighted the enemy north of Misima Island, and attacked with bombs and torpedoes at 1130. The Japanese force was seen to include one carrier, four heavy cruisers and a light cruiser. The Carrier was selected as target and heavily attacked. This was the Shoho, which was hit by thirteen bombs and seven torpedoes.

She sank fifteen minutes after the first hit had been registered. Several Japanese fighters were shot down during the attack, which was carried out with the loss of three Allied aircraft. The rest of our aircraft had returned to their carriers and landed about 1345.

Admiral Fletcher decided not to send out another attack group until more had been learned of the two other enemy carriers, Shokaku and Zuikaku, which were believed to be operating nearby.

It is now known that Rear-Admiral Hara in Zuikaku was also endeavouring to locate the Allied forces, with a similar lack of success. During the afternoon of May 7, there were several clashes between Allied and Japanese carrier-based aircraft, but neither opponent's planes were able to locate the other's surface forces. On several occasions as darkness was falling, groups of Japanese planes made as if to land on the Allied carriers, evidently mistaking them for their own ships. (This caused consider-

able confusion for a time, and much speculation as to the outcome had they been allowed to land.)

Task Force Fox continued to the south-westward during the night of May 7, and at 0800 the next day was at latitude 14° 25' S, longitude 154° 31' E, on course 125° true. Air patrols had been sent out by the carriers at daybreak, and at 0820 contacted an enemy formation of two carriers, four heavy cruisers and several destroyers about 170 miles to the north-east, proceeding south at high speed. At 0822 a radio interception indicated that the Allied Task Force had been sighted almost simultaneously by the Japanese. The Battle of the Coral Sea had now reached its most crucial stage.

Admiral Fletcher now handed over tactical command of the Task Force to Admiral Fitch, commander of the Air Group. The Attack Groups began taking off about 0900, all scouts and bombers being arm-

beer in handy cans

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BATTLE OF CORAL SEA—(Continued)

ed with 1,000-pound bombs. The enemy surface forces were sighted at 1032 and consisted of two carriers, six to eight miles apart, escorted by one very large cruiser, three heavy cruisers and four destroyers. When sighted, one carrier, Zuikaku, headed for a heavy rain squall, while the other, Shokaku, turned into the wind and began launching planes. Allied planes began a fierce attack on Shokaku, which suffered severe damage as a result of six direct hits with bombs and torpedoes. Another group of Allied planes located and dive-bombed Zuikaku, the second Japanese carrier, but without inflicting any severe damage. During these attacks, many dogfights took place with enemy fighters, a considerable number of which were shot down.

The carriers Lexington and Yorktown, having launched their attack groups, prepared to resist the expected Japanese air onslaught. Speed was increased to 30 knots towards the south-east, and at 1112 a force of enemy torpedo planes began the attack. It was estimated that this force consisted of 30 torpedo planes, 26 dive-bombers, and 12 fighters. The two Allied carriers were the chief targets, and at 1120 Lexington was hit by a torpedo forward of the port forward gun gallery. One minute later she received another torpedo hit opposite the bridge. About the same time a 1,000-pound bomb hit put three guns out of action, and several more bombs caused widespread damage and fires. The ship was listing about 6° to port, and both flight-deck elevators were

jammed in the up position, but she was still steaming 25 knots. At 1240, damage control was able to report that three of the fires were out, the other was under control, and that the list had been corrected. Lexington's returning planes were still able to land on her flight deck, and it seemed that she had survived the attack successfully.

At the same time, Yorktown was also undergoing heavy bombing and torpedo attacks. She was near-missed almost a dozen times, but received only one direct hit. This was a bomb which penetrated the flight deck and two lower decks, finally exploding three feet above the fourth deck, killing 37 men and injuring many others. Structural damage was not great, however, and the ship's speed did not drop below 24 knots.

(Continued on page 23)



H.M.A.S.
"HOBART"
WHEN
COMMISSIONED
IN 1936

CORAL SEA VETERAN TO BE SOLD

H.M.A.S. Hobart is to be stripped and sold.

In making the announcement, the Minister for the Navy, Senator J. G. Gorton, said that the move was part of the Navy policy to streamline the Service.

Hobart was commissioned in January, 1936, and served as a Royal Navy Cruiser until September, 1938, when she transferred to the Royal Australian Navy.

During World War II, she saw service in the Mediterranean Sea, and the Pacific and Indian Oceans.

She was torpedoed in July, 1943, near the Solomon Islands, and was towed back to Sydney, where a new stern was built on at Cockatoo Island Dockyard.



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Flag Officer Commanding H.M. Australian Fleet, Rear-Admiral W. H. Harrington, and Flag Officer Second in Command Far East Station, Rear-Admiral V. C. Begg, with aborigines from Bathurst Island after the natives had held a corroboree.

ADDITIONAL SUBMARINES IN THE FAR EAST

A new Submarine Squadron is now being formed for service in the Far East. It is the 10th Submarine Squadron, and its first Commanding Officer is Commander A. J. Royall, D.S.C., R.N., who has taken over his new duties at Singapore.

This new Squadron will provide the Far East Fleet with a submarine arm, which has long

seemed desirable. It will also provide much-needed assistance to Commonwealth Navies in anti-submarine training. India, Pakistan and Ceylon will all benefit.

The training the Royal Australian and Royal New Zealand Navies have been doing with the 4th Submarine Squadron will continue. There is to be no change in the duties

which the 6th Squadron carries out from Halifax in conjunction with the Royal Canadian Navy.

The first boats of the new Squadron will be the *Tactician*, which has been refitting at Singapore, and the *Ambush* from the United Kingdom. Other submarines will join this year.

THE NUCLEAR-POWERED ICEBREAKER "LENIN"

Nearest Approach to Economic nuclear ship for some years

The world's first nuclear-powered surface ship, the Russian icebreaker, *Lenin*, which seems likely to be the nearest approach to an economic nuclear-powered ship for at least five years, is now ready for service in the Arctic.

A vessel of 16,000 tons displacement, she is 440 ft. long, has a 90-ft. beam, and a draught of 30 ft. She can develop 44,000 shaft horse power, which is 50 per cent. more than that of the most powerful icebreaker previously built. Her full speed is 18 knots, and she will be able to maintain a speed of two knots when breaking through ice seven feet thick. It is also claimed that she would be capable of breaking her way through to the North Pole.

She is powered by three nuclear reactors. Pressurised water will be used both as a moderator and heat transfer agent in two circuits. This has made effective shielding possible without excessive weight of shielding material. Only two of the reactors will normally be used at once. The third will be kept in reserve in case of a breakdown, or for when some extra power may be needed.

Although costing a great deal more than a non-nuclear ship, she may well become a valuable economic asset. When she is operating across the top of Northern Siberia, between Murmansk in the west and Vladivostok in the east, she is expected to keep this route open for shipping for an extra four weeks a year. This will

allow traffic to be increased by 50 per cent. As she is able to operate at full power continuously for a year without refuelling, she will be able to do work which has hitherto had to be done by three or more icebreakers.

Power and Machinery.

Her three nuclear reactors, fuelled with natural uranium oxide enriched with five per cent. uranium-235, heat water to a temperature of 300 degrees Centigrade under a pressure of 100 atmospheres. Each has a capacity of 90,000 kw., and supplies hot water to generate steam in its own two independent steam generators.

These generators drive four steam turbines which in turn drive eight electrical generators. Current from the generators drives three electric motors developing 44,000 horse power on a central main shaft and port and starboard shafts. Half the power is transmitted to the central propeller, and the other half is shared by the port and starboard propellers.

This system is arranged so that any unit in one stage can serve any unit in the next, so that no breakdown will have a serious effect on the ship's working capacity.

This reactor power plant weighs 1,054 tons and is sited amidships.

Safety Precautions.

To protect the crew from radioactivity, and as a safeguard against collision, the reactors are surrounded by steel and concrete shielding weighing 1,963 tons. It is claimed

that the crew will be exposed to no more radioactivity than is obtained from the luminous dial of a watch. A radioactivity alarm system shows green lights to indicate the absence of radiation.

Radioactive waste will be stored in special tanks, and it will not be dumped into the sea.

The *Lenin* will have a crew of about 100, many of whom have served in other icebreakers like Captain Pavel Pomomarev, who is in command. There will be accommodation for carrying about 40 passengers between various northern ports. Nuclear scientists will also use her as a floating laboratory. Accommodation includes a lounge, club, cinema, library and music room. The crew are berthed in one and two-berth rooms equipped with hot and cold water.

Her keel was laid at the Admiralty shipyard, Leningrad, in 1956, and she was launched in December, 1957. She is all welded.

Equipment includes radar, echo sounders, and two helicopters, which have a hangar and landing strip on deck.

The *Lenin's* bow has been designed to increase effective pressure on the ice by 15 per cent. above that of other icebreakers. This made necessary the development of a special high-grade steel which has to combine good welding properties, a very high impact strength, and resistance to cracking at low temperatures.

Like other icebreakers, *Lenin* will plough through ice like a snow plough, but when it becomes too thick, her undercut bow will cause her to ride up on the ice and crush it with her weight. If her great weight should prove insufficient, powerful pumps can pump water into bow tanks at the rate of 4,000 tons an hour.

A SAILOR AND HIS PARROT



A sailor from H.M.S. Belfast with the parrot which he bought when the ship visited Hobart.

THE NAVY

HIGHEST EVER— Royal Canadian Navy

The seagoing strength of the R.C.N. reached a peacetime high in 1959.

In mid-December, the R.C.N. had 62 warships in commission. These included the aircraft carrier Bonaventure, seven "St. Laurent" and seven "Restigouche" class destroyer escorts, 11 older destroyer escorts, 18 frigates, ten minesweepers, two mobile repair ships and six smaller craft.

There were also Royal Navy submarines on loan to the R.C.N. and based at Halifax for anti-submarine purposes.

Five new anti-submarine destroyer escorts, H.M.C. Ships Gatineau, Kootenay, Terra Nova, Columbia and Chaudiere, joined the fleet during the year.

Returning to service in 1959, but in new roles, were the former maintenance vessels, Cape Scott and Cape Breton. They were converted into repair ships and stationed on the east and west coasts respectively. Also commissioned during the year were three modernised anti-submarine frigates—the Cap de la Madeleine, Victoriaville and Ingh Arran.

On 1st December, the personnel strength of the R.C.N. totalled 19,933, consisting of 2,581 officers, 17,187 men and 165 Wrens. In addition, there were 413 officer cadets and 252 technical apprentices under training.

Serving at sea were 9,831 officers and men, 49 per cent. of the R.C.N. total. This was probably the highest proportion ever to be serving at sea, in war or in peace, and one of the highest sea/shore ratios in any navy.

Backing up the regular force were 3,550 officers, cadets, men and women of the R.C.N. (Reserve), attached to the 21 naval divisions that serve as training establishments for the naval reserve in cities across Canada.

REPEAT "RESTIGOUCHE" CLASS DESTROYER ESCORTS

Construction was begun, in 1959, of two of six repeat "Restigouche" class destroyer escorts on order for the R.C.N. Work was begun on the first of the class in 1958; the other three are scheduled to start this year.

The sailor and his ship

Though at times we curse and vilify them, deep down we cherish the ships in which we serve.

An eighteenth century writer, Sir David William Banc, summed up the sailor's feelings in words that exactly express our sentiments to-day.

"We sailors are jealous of our vessels,

Abuse us if you will, but have a care

For what you may say of our ships.

We alone are entitled to call them bitches.

Wet-tailed brutes, stubborn craft,

But we will stand for no such liberties from the beach."

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April-May, 1960

H.M.S. "HERMES" — A Triumph of Ingenuity

By "PELORUS"

LONDON.—The qualities of graciousness and speed and that of being a helper and protector of travellers are associated with the god Hermes, who presided over the Games with Apollo. They may also be linked with the ships which have borne the name in the Royal Navy, 10 in all, though none as impressive as the latest, the aircraft carrier which came into service shortly before Christmas.

For the Fleet Air Arm, in particular, the name has special significance for the eighth Hermes, a six-inch protected cruiser, of 5,600 tons, built at the end of the last century, experienced some of the birth pangs of naval aviation as depot ship of the Naval Wing of the Royal Flying Corps in 1913. Then the ninth, the 10,850 tons ship completed in 1923, was the first vessel to be designed by the Admiralty as an aircraft carrier, all earlier ships of the type having formerly served in other capacities.

The exploits of the ninth Hermes are well within living memory. Although already an old ship, she began the Second World War with a flourish of competence, but she was no match for the fierce naval air battles ahead and was sunk by a force of 50 Japanese dive bombers some 70 miles from Trincomalee in April, 1942, with the grievous loss of 19 officers and 268 men.

The honourable association with the name disappeared, and was to remain in oblivion for 17 years. Its revival now under the White Ensign will continue a long line of service.

The new ship impressively increases the Navy's carrier strength. It also represents a notable technical achievement, for although she is much smaller than the Ark Royal and the Eagle she is at present technically superior to them. "She shares with the Victorious the distinction of having the finest operational equipment of any aircraft carrier in any Navy," says the Admiralty.

With a standard displacement of about 22,500 tons compared with Ark Royal's 43,000 tons, the new ship began her life as one of the "Centaur" class of light fleet carriers. It was soon realised, however, that the speed with which equipment for carriers was being developed would make it necessary for her to be completed as a ship in her own right. What has gone into her hull since she was launched by Lady Churchill one stormy day in February, 1953, is thus very different from that fitted into the Centaur and her sister ships Bulwark and Albion.

She is the product of the engineering skill and workmanship of the people of Barrow-in-Furness, where Messrs. Vickers Armstrongs have built several famous carriers, including the illustrious and indomitable which played an important part in World War II. The same skill and affection was lavished on the Hermes as she grew into part of the dockside landscape of Barrow as on her famous forebears.

She is a splendid tribute to her builders and also to those who designed her. She has been fitted with the latest

equipment which scientific ingenuity can devise: steam catapults to launch heavy aircraft at speeds exceeding 120 knots, the mirror landing sight to aid returning airmen, 3D radar to give a complete picture of aerial activity over a wide area, a 63 degrees angled deck—the biggest angle that can be given to a ship of her size.

She has also been designed to make it possible for her to operate within an area contaminated by a nuclear explosion. There is a part of the ship known as "the citadel" in which the whole ship's company can isolate themselves from the effects of fall out. There is, too, a system for the remote control of her engines and an automatic feed system for the boilers. Much of her equipment is controlled by a fantastic array of electronic "brains."

Later this year she will receive her aircraft. In the strike/fighter roles there will be Supermarine Seimitars equipped to carry both nuclear and conventional weapons. For day and night fighter duties there will be the de Havilland Sea Vixen and to provide distant warning for the defence of the Fleet, the ship and her fighters will be assisted by action information obtained by Fairy Gannet airborne early warning aircraft. To range in search of submarines, to locate them with dipping asdic and strike them with modern weapons, there will be Westland Whirlwind helicopters.

(Continued on page 29)



Midshipman Jim Dowling (left), of Bellevue Hill, and John Hornsby, of Avalon, with a 35-inch stuffed crocodile from Port Moresby. They returned to Sydney in the frigate H.M.A.S. Swan after a three months' cruise. Swan visited Melbourne, Glasgow, Auckland, Suva, Luganville, Samarai, Port Moresby and Townsville.

SWAN RETURNS

H.M.A.S. Swan returned to Garden Island on April 13, after a three months' cruise to New Zealand and the Pacific Islands.

On board Swan were 27 Cadet Midshipmen from Australia and New Zealand who graduated from the R.A.N. College, Jervis Bay, on December 11, 1959. Their cruise in Swan is the second phase of a three part training scheme, which begins at Jervis Bay, thence moves to Swan and culminates with 18 months at the Royal Naval College, Dartmouth.

H.M.A.S. PERTH

Recently reports have been published that Japanese salvage experts claim to have located H.M.A.S. Perth among other ships sunk in the Java Sea area.

In the House of Representatives, in reply to a question, the Attorney-General, Sir Garfield Barwick, stated that the Government was making enquiries to find out whether Perth actually was among the sunken ships which the Japanese plan to raise for scrap.

The Japanese and Indonesian Governments reported to be negotiating on the salvaging of between 200 and 300 ships which were sunk in the area during World War II.

Sir Garfield Barwick added that the Government believed that all Australians would wish "H.M.A.S. Perth and her gallant crew to remain undisturbed."

Sir Garfield said: "Our inquiries are not yet complete, but our information so far lends no support whatever to the claim that Perth was included in the transaction."

(Perth, a light cruiser, was sunk at the northern entrance of Sunda Strait in the early hours of March 1, 1942. Of her complement of 684 officers and men, 23 officers and 330 ratings were killed in action. The remainder spent 3½ years as prisoners in Japanese hands, 105 dying during this period.)

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First Sea Lord at Nowra



At Left: The First Sea Lord, Admiral Sir Charles Lambe, G.C.B., C.V.O., inspecting the guard at H.M.A.S. Albatross during his visit recently. Admiral Lambe visited most departments at Nowra, inspected Divisions and later flew by helicopter from Albatross to the R.A.N. College, at Jervis Bay. Rain marred the start of the visit, necessitating Divisions in the hangar.

—Courtesy Daily Telegraph.

NAVAL CONFERENCE



Above: The Australian Commonwealth Naval Board in conference in Canberra with the visiting First Sea Lord. Left to Right: Rear-Admiral K. McK. Urquhart, A.D.C. (Third Naval Member); Rear-Admiral A. N. R. McNicoll, C.B.E., G.M. (Second Naval Member); Admiral Sir Charles Lambe, G.C.B., C.V.O. (First Sea Lord); Senator the Honourable J. G. Gorton (Minister of State for the Navy); Vice-Admiral H. M. Burrell, C.B.E., C.B. (First Naval Member); Mr. T. J. Hawkins, C.B.E., B.A., LL.B. (Secretary, Department of the Navy); Commodore P. Perry, O.B.E. (Fourth Naval Member).

BRITISH VISITORS



At Right: The British High Commissioner, Sir William Oliver, and Lady Oliver with Rear-Admiral C. Begg (left) and Captain J. V. Wilkinson. The Sterling silver bell being admired was presented to H.M.S. Belfast by the citizens of the city of Belfast.

—By courtesy of S.M. Herald.

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THE NAVY

STING IN THE TAIL

Essential Support for Modern Fleet

The Admiralty is often criticised on the score of its "administrative tail." A finger is levelled at the reduced size of the present-day fleet compared with the veritable Amada of the First World War, and complaints made of the large and inexplicable increase in the existing number of Admiralty civilians. Such comparisons are nothing but misleading and completely overlook the changing pattern of defence.

To take one aspect only, that of scientific effort. It is a commonplace that we live in a scientific age, but how many think of what this means in terms of a modern navy! The Admiralty has always been, not only a service department, but its own Department of Supply; this implies responsibility for its own Research and Development. During the First World War we witnessed the dawn of scientific warfare, a fact recognised by the Admiralty when they set up a Board of Invention and Research, whose duty it was to mobilise scientists and inventors in aid of the war at sea. This body, presided over by Lord Fisher, was empowered to call on the services of some of the most eminent scientists of the day as consultants, but in terms of Admiralty personnel it was little more than a handful of scientists and engineers; nevertheless, it paved the way for the Royal Naval Scientific Service of the future. Many useful contributions were made, particularly in the

underwater warfare field, nor were they unresponsive to unusual lines of thought; they even examined the possibility of training sea-lions to chase enemy submarines and tested a theory that seagulls could be made to flock round their periscopes.

If the scientists' contribution to the First World War was useful, to the Second it was essential. This was the period of radar, of the Asdic, of the magnetic mine and the radio controlled bomb.

The increasing emphasis on scientific effort is shown by the fact that in 1921 the staff of the Scientific Research and Experiment Department in the Admiralty stood at 39, whilst thirty years later the number of scientific staff had grown to over 1,250. The present figure is well over 2,000 for scientific, experimental and ancillary grades. If all staff at research establishments were included, the figure would, of course, be far higher. This reflects the increasing complexity of a navy dealing with problems of nuclear propulsion, electronic data handling systems for air defence, radar warning, advanced asdic equipment, guided weapons and the like.

Nor is the Scientific Service alone in this process of technical expansion. The fields of Naval Ordnance, Naval Air Stores, Electrical Engineering and so on, have inevitably shared in this growth.

No apologies are needed for

such a deployment of manpower when it is realised that behind one man on board ship, who has to operate the latest device, is necessarily ranged a "backroom" effort of considerable size.

Those who criticise the present trend should reflect on the probable "backroom" support needed to fire even one successful moon rocket.

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April-May, 1960

SEA CADETS RECRUIT TRAINING COURSE

By D. J. MORT

The first Sea Cadet Recruit Training Course was held in the R.A.N. Air Station, H.M.A.S. Albatross during the week-end, 4th to 6th March, 1960. Two Officers, three Petty Officer Instructors, two Cadet Petty Officers, and one Leading Cadet, with fifty-five Cadets, attended the course. A set instructional routine for recruits was set out on the lines of the New Entry Training as laid down in the Sea Cadet Training Manual and A.S.C.C. Instructions.

At 1715, cadets from the Sydney area reported to the Officer in charge of the Course at Central Station, and at 1745 entrained for Bomaderry. On arrival at Bomaderry, R.A.N. buses met the cadets. One bus was driven by an ex-Sea Cadet from T.S. Sydney.

On arrival at the air station, Leading Seaman Burns took over as Liaison Leading Seaman and accompanied the cadets to the Huts. Leading Seaman Burns was a tower of strength during the course.

The recruits were accommodated in two huts, with a Petty Officer cadet attached to each hut. On completion of drawing bedding and mess utensils, the recruits turned in, and it was "lights out." Rounds was carried out by the Sea Cadet Officers—the "recruits" first day was over.

Saturday, 5th March. — At 0600 the recruits were "called," and the first training day began. Guided by the P.O. Instructors and cadet P.O.s, the recruits commenced learning the "routine" chores — making beds, sweeping out the huts, etc.

The syllabus of training was mapped out and condensed from the New Entry Training Syllabus as follows:

Subject "A." — Ranks, Badges, Marks of Respect. The necessity for having Rank and Higher Rates, Salutes—when, where, and how given. Necessity for Regulations. Ensigns—when and where worn.

Subject "B."—Squad Drill. Fifteen-minute lecture on "Why we drill," then correct Standing and Walking. Demonstrations of—Falling in, in Single Rank; two ranks; three ranks; two ranks and forming three; Dressing by the Right or Left; Right and Left Dress. Practice Falling in and Falling out. Position of Standing at Ease, Attention; Turning Right and Left. Turning about; Dismissing.

Subject "C."—Nautical and Naval Terms. S.C.T.M. Subject 5. Corps and Ship knowledge. (Reference B.R. 827).

Subjects "A," "B" and "C" were fully outlined in the Officer in Charge of Recruit Training Course's Standing Orders. Recruits were divided into Watches and Classes.

P.M. First Day—Subject A2—Corps and Ship Knowledge; A.S.C.C. Regulations; Senior Officers' Standing Orders (extracts only). When not at Salute.

Dog Watches.—Recreational training—Swimming.

Sunday, 5th March, second training day. Recruits were introduced to Sunday "Divisions," the Duty Lieutenant-Commander inspected the Divisions and expressed satisfaction with their appearance. The result of the first day's Squad Drill was evident in the drill of the cadets at divisions; their dress was neat and tidy.

After divisions came Church.

On completion of Church the Official Air Station Photographer took a group photo of the Sea Cadet personnel and Leading Seaman Burns. The cadets were then permitted to go swimming until dinner.

P.M., Second Day.—A brief resume of all subjects. During the Squad Drill period, the Petty Officer Instructors and Cadet Petty Officers were given a lecture by S.C. Lieutenant-Commander Mort, Officer-in-Charge of Recruit Training Course, touching on Instructional Technique, Taking Charge and Power of Command. This lecture bore out the necessity for a Higher Rates course.

The Recruits went to tea at 1600, during which time bedding and mess utensils were returned, the huts cleaned out, and the cadets embussed for Bomaderry.

The instruction given: behaviour of cadets, and the general overall value of such courses was very satisfactory, which proved that all Sea Cadet recruits should undergo such a course during the first three months of their service.

The success of not only this course, but all training in H.M.A. Ships and Establishments is largely due to the co-operation of the personnel of the Ships and Establishments concerned, but this co-operation depends also on the Sea Cadets personnel embarked. Such co-operation is best exercised by a thorough knowledge by all concerned of the Instructions issued for Sea Cadet personnel embarking in H.M.A. Ships and Establishments for Training week-ends or continuous training, particularly in regard to "Routine," "Marks of Respect," and general behaviour.



Sea Scouts at Snapper Island, Neil Crispin (cap), of Balmain, and George Huntington, of Lidcombe, watch Steve Anderson, of Balmain, clear the main halyard
—S.M.H. Photo.



Shipmates Honor U.S.S.

The Captain of U.S.S. Canberra (Captain W. H. Baumberger) now has twin pictures of H.M.A.S. Canberra hanging in his cabin.

Twelve survivors of the Australian ship recently presented the pictures to him.

H.M.A.S. Canberra, former flagship of the Australian Fleet, was sunk in battle with the Japanese in 1942.

The 12 old shipmates later toured U.S.S. Canberra.

None of them is now in the Navy.

Their leader, Commander O. F. McMahon (retired) made the presentation.

He told Captain Baumberger: "We are tied by a certain bond of affinity.

"We are presenting the pictures as a token of our appreciation for all the U.S. Navy has done for Australia."

One picture shows H.M.A.S. Canberra berthed and unscathed.

The second shows belching smoke as it slid to the bottom.

Commander McMahon said the dying ship was photographed from an American destroyer which picked up survivors.

Captain Baumberger said: "We feel somewhat humble before you people who lost your ship and shipmates."

The Captain of U.S.S. Canberra (Capt. W. H. Baumberger), left, with Commander O. F. McMahon, a survivor of H.M.A.S. Canberra, after presentations on board the American missile-cruiser.

GIANT NAVY BALLOON DESTROYED IN ACCIDENT

NEW YORK.—The largest gas-filled balloon in the world was destroyed recently, when a gust of wind drove it against a hangar as it was being towed to its mooring at South Weymouth, Massachusetts. None of the crew was aboard.

The balloon bumped into a

sharp steel hangar door and quickly collapsed.

The Navy said it was a total loss, but radar and electronic equipment in its gondola was not damaged.

The giant balloon—as high as a 10-storey building and 403 feet long—was bought recently by the U.S. Navy for 12 million dollars (£5,357,000).

BATTLE OF CORAL SEA—(Continued from page 8)

Since both Yorktown and Lexington had been damaged, and a large number of their aircraft lost or rendered unserviceable, Admiral Fletcher decided to abandon the idea of another air strike. A surface attack was considered unwise, since the extent of damage suffered by the enemy carriers was not known. It was, therefore, decided to retire in a southward direction and reorganise the Allied resources.

As Task Force Fox proceeded southward, at 1247, there was a tremendous explosion in Lexington. It was later concluded that this was caused by the ignition of large leakages of aviation fuel from damaged pipelines. Fires broke out and further explosions occurred, and at 1456 Lexington signalled for help. Fires were spreading, which soon got out of control, so that Admiral Fitch at 1707 gave the order to abandon ship, and Admiral Kinkaid in Minneapolis was directed to take charge of rescue operations. The destroyers, Morriss, Anderson, Hammann and Dewey picked up the carrier's personnel and transferred them to Yorktown and Minneapolis. More than 92 per cent. of Lexington's complement were rescued in this way. At 1952 U.S.S. Phelps sank Lexington by torpedo fire.

After being detached from Task Force Fox, the support force, under Admiral Crace, proceeded to Jomard Passage at 25 knots. The support force consisted of the heavy cruisers H.M.A.S. Australia (Flag) and U.S.S. Chicago, the light cruiser H.M.A.S. Hobart, and the U.S. destroyers, Perkins, Farragut and Walke. At about 0840 on May 7, three enemy planes were detected shadowing the group. These planes

remained beyond gun range and made no attempt to attack. No other aircraft were sighted until 1427, when 10 or 12 planes approached the ships from astern. Several ships opened fire on these planes, but no hits were made, and the planes passed out of sight.

At 1505, between 10 and 14 torpedo bombers, with a fighter escort, made a determined attack on the cruiser force. It has since been ascertained that these planes were based at Rabaul, and were part of the 25th Air Flotilla. Many torpedoes were dropped on the Allied ships, but no hits were registered. After dropping torpedoes, the planes strafed ships in the path of their retirement, but losses amounted to only two dead and seven wounded. Ten of the enemy torpedo planes were shot down during the attack, which lasted only ten minutes. Very soon after this attack, the cruisers came under a high level bombing attack, during which Australia was straddled by a salvo of bombs. No hits were made, and no damage was suffered. Shortly after this attack three planes dropped a salvo of bombs, which narrowly missed U.S.S. Perkins. It was subsequently established that these planes were actually three U.S. Flying Fortresses, which obviously had aimed to hit Australia 1,200 yards away.

The Support Group continued on its course towards Jomard Passage, but did not encounter the enemy forces which it had been detached to engage. The sinking of the carrier, Shoho, had resulted in the retirement of the Japanese Invasion Force.

Thus ended the Battle of the Coral Sea. The consequences of the engagement may be summed up as follows: As a result

of the loss of Shoho, damage to Shokaku and the heavy loss of pilots and aircraft from both their land-based and their carrier air groups, the Japanese support force was greatly reduced. For this reason the invasion force retired, and the date of the projected occupation of Port Moresby was postponed until July. In June, however, the disastrous losses in carrier strength suffered by the Japanese at Midway brought about the final abandonment of the plan to invade Port Moresby by sea. With the turning back of the Port Moresby occupation force at the battle of the Coral Sea, the Japanese southward expansion by sea was stopped, and a base saved to the Allies which was destined to be the principal stepping stone in the Allied advance through New Guinea.

CORAL SEA BATTLE LOSSES.

ALLIED.

Sunk:

Lexington (C.V.)
Neosho (Oiler)
Sims (D.D.)

Damaged:

Yorktown (C.V.)

JAPANESE.

Sunk:

Shoho (C.V.L.)
Kikuzuki (D.D.)
Landing Barges (4)

Damaged:

Shokaku (C.V.)
Okinoshima (Minelayer)
Yuzuki (D.D.)

Aircraft:

Allied 66, Japanese 80.

Personnel:

Allied 543, Japanese 900 approximately).



Commander Leonard Forsythe poses proudly with a piece of the good ship Sydney's armament. The cannon, ex-Royal Navy, is a 1773 model.

—Courtesy Daily Telegraph.

Len Forsythe has been the proud commander of the good ship Sydney on Snapper Island, Iron Cove, for 30-odd years. He says the time is approaching for his towing ashore.

As Len would tell you, there's nothing like age to make you feel old.

But before he goes ashore he's making things ship-shape for Sydney's next skipper.

Len founded the Sydney Voluntary Sea Training Establishment on Snapper Island "to remedy the evil effects of street-lodging by boys."

Since then more than 3,000

Commander, Snapper Island

Sea Cadets have trained there, learning seamanship and acquiring a love for the sea and its traditions.

Hearing that the Old Man may be about to become a land-lubber, I journeyed out to Snapper Island recently. And got the surprise of my life.

Len's spick and span command, a memorial to the gallant H.M.A.S. Sydney, which sank the German raider Emden in World War I's first big sea battle, is decked out like the Real McCoy.

It's built from bits and pieces of the original Sydney — the wheel, the quarter-deck, compass, signalling devices, pennants and so on. And Sydney's shells line the "gangway."

The place breathes the very life of a ship, and the swish of water lapping at the island shore makes it feel astir.

As I went forward to the quarter-deck I stepped on Sydney's tread plate.

"You should have saluted there — everyone must salute

when they move over the tread plate," the Commander rebuked me.

Len's "ship" has a sick bay with a hospital aroma, cabins where the Sea Cadets learn chart and compass work, sleeping quarters for about 70, a gymnasium — the lot. Everything to make a boy really get the feel of being aboard ship. And 22 bunks.

Len produced old records of V.I.P. visitors to the depot — the late Prime Minister Joe Lyons (three weeks before his death in 1938), Admiral Keyes, and former Governor-General Lord Gowrie.

And he showed me a document recording his swearing-in as a Scoutmaster by Mr. Robert Clyde Packer, one-time Chief Scoutmaster of New South Wales and then Editor of the "Sunday Times".

By this time Len had full steam up. He described how the Cadets reclaimed Snapper Island after he leased it from the Federal Government, and built the depot bit by bit.

H.M.S. BULWARK THE COMMANDO CARRIER

H.M.S. Bulwark, the first British commando carrier, commissioned on January 19th at Portsmouth under the command of Captain R. D. Franks, D.S.O., O.B.E., D.S.C., R.N. After trials and work-up at home and in the Mediterranean in the spring, the ship is expected to sail for Singapore to be based there ready for operations anywhere "East of Suez."

The unit to be embarked at Devonport before the ship leaves the country is 42 Commando, Royal Marines, at present training at Bickleigh. Devon, commanded by Lieutenant-Colonel R. D. Crombie, Royal Marines. This unit has previously served in the Far East as part of 3rd Commando Brigade in Hong Kong and Malaya. The Commando itself consists of about 600 officers and men, and is equipped with the latest weapons. In order that it can maintain military efficiency and fitness, the Commando will be based ashore at Singapore, embarking in the carrier for exercises and operations.

The ship is capable of embarking an additional Commando or army unit of equivalent size for short periods and of landing them ashore for operations.

The primary role of the ship is likely to be in the cold war, extinguishing the "brush fire"

before it can spread. In this role she may well operate alone. In limited wars of all kinds H.M.S. Bulwark will provide a highly mobile amphibious force, probably to be used in conjunction with other forces, including those of our allies as a striking force to secure a beach and the immediate hinterland in order that the main force can land.

The present Bulwark, the sixth ship to bear the name, was the third of the Centaur class to be completed. She was built by Harland and Wolff, Limited, at Belfast, and commissioned in 1954. After her work-up, she took over the duties of Trials and Training carrier from H.M.S. Illustrious. During her last commission, she played a remarkable part in the successful salvage of the two tankers, Melika and Fernand Gilabert, which were abandoned after coming into collision and catching fire in the Gulf of Oman.

Basically the ship has not been changed during her recent refit, although the fixed wing capability, the arrester wires and catapults have been removed. Various changes and modifications have been made to make the ship suitable as an all-helicopter troop carrier, with 16 Westland Whirlwind aircraft, which will be replaced at a later date by the Wessex. Four Landing Craft (Assault) are to be carried at

built-in gantries. Accommodation for a Royal Marine Commando has been provided at the same standard as the rest of the ship's company. Extensive offices, storerooms and workshops are also provided on board, and motor transport will be stowed on the after end of the flight deck. The ship retains her guns, her radar and radio equipment, and is capable of directing fighter aircraft. Last, but not least, the ship has been fitted with the most comprehensive air conditioning system in the Navy, which will greatly improve habitability in tropical climates. It is of a new kind, similar to that fitted in Kuwait hospital, and covers nearly all living and working spaces.

No. 848 Naval Air Squadron will provide the helicopter complement of the ship. Commanded by Lieutenant-Commander B. M. Tobey, Royal Navy, the Squadron is at present training at Worthy Down, near Winchester. The Squadron's personnel consists of about 180 officers and men. 848 Squadron was formed originally as an Avenger torpedo bomber squadron and operated in the Pacific campaign during World War II. It was reformed in 1953 as a helicopter squadron, and for four years took part in anti-terrorist operations in Malaya.



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CALTEX PRODUCTS ALWAYS ON HAND

P. & O. LINER CANBERRA

LONDON.—One of the most modern television and radio circuits devised has been installed in the new P. and O. liner Canberra, launched recently by Dame Pattie Menzies in Belfast.

The sound broadcasting system was designed and supplied by Tannoy Marine Ltd. More than 1,000 cabins, accommodating first and tourist class passengers, officers and crew are provided with the means of receiving either of two broadcasting programmes — radio and pre-recorded news or programmes emanating from the public rooms.

All the verandah suites and de luxe cabins will have a tele-

vision set installed. The programmes will be transmitted from within the ship on a closed-circuit system.

They will, of course, be filmed, but many of the most popular features at present seen on the British national network will be screened so that television fans will be assured of seeing at least some of their favourite programmes.

Television facilities will also be available in some of the public rooms, in the crew recreation rooms, and the hospitals.

The system will be adaptable so that it will be possible to receive broadcasts from Brit-

ain, the Continent, Australia, America and Japan; in fact, from any local stations at ports along the route.

The television system has been designed, and is being engineered, for the Canberra by Marconi's Wireless Telegraph Company.

Still pictures and captions can also be shown, and extempore captions and announcements can be made up on caption boards and inserted in the programme.

Simple live studio sequences, interviews and outside shots can be arranged by employing cameras as a remote unit outside the control room.

CHAPEL APPEAL

The Fund, having now reached £18,000, it is hoped the target of £27,000 will be reached in the next few months.

The foundation stone has been laid and work is well advanced on the foundations, but it is hoped that contributions to the Chapel Appeal Fund, H.M.A.S. Watson, will continue to flow so that all finance needed will be available before completion.

Visiting British and American naval men, who visited Watson, were loud in their praise of the Chapel.

The following letter has been received from Admiral Sir Charles E. Lambe, G.C.B., C.V.O.:
First Sea Lord,
Admiralty, London, S.W.L.,
5th April, 1960.

Dear Captain Oldham,

Captain Troup has shown me your letter about the Memorial Chapel at H.M.A.S. Watson and I am writing to say what a wonderful idea I think this is. I have passed on the contents of your letter to the Chaplain of the Fleet and I hope he may be able to help in some way. Meanwhile, I enclose a small personal cheque as an indication of my support for this splendid and imaginative project.

Yours sincerely,
Charles E. Lambe.



Rear-Admiral H. E. Farncomb receiving, from Mr. L. D. Keating, a cheque for the Chapel Appeal Fund.

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COMMISSIONING OF I.N.S. TRISHUL

The Anti-submarine Frigate, I.N.S. Trishul, commissioned for service with the Indian Navy on Wednesday, January 13th, 1960, at Belfast.

I.N.S. Trishul was launched and named on June 18th, 1958, at the shipyard of Messrs. Harland & Wolff Limited, Belfast, by Mrs. Azim Husain, wife of Mr. Azim Husain, Deputy High Commissioner for India in the United Kingdom.

I.N.S. Trishul will be the first Frigate of her type to be acquired by the Indian Navy. Trishul, in addition to specialised modern anti-submarine equipment, will have a main armament of one twin 4.5" gun mounting and two additional guns.

After commissioning, the ship will carry out extensive trials, and after a period of workup in United Kingdom waters, will join the Indian Fleet.

Trishul is commanded by Captain V. A. Kamath, Indian Navy, and has a complement of 12 officers and 216 sailors.

BIG INCOME FROM CHARTS AND BOOKS

LONDON. — During 1958, 1,292,572 charts were produced by the Hydrographic Department at a net value of £359,506, and books of a net value of £82,897 sold.

More than two million charts were printed, and 1,094,950 corrections made to existing charts by hand.

ADMIRAL SPEAKS

Admiral Hopwood, Commander-in-Chief of the U.S. Pacific Fleet, arrived at Mascot accompanied by his wife, to be official guest of the Federal Government and the Australian-American Association for the Coral Sea Week celebrations.

He spoke of the partnership of the United States and Australia in the Pacific and stressed that it must remain active and prepared to ensure peace and freedom in the Pacific.

Admiral Hopwood expressed the opinion that wars would never be won and lost unless. Nuclear submarines would not replace aircraft carriers and other surface war vessels, but would supplement them.

HERMES—(Continued)

With her aircraft embarked, the Hermes will have prodigious defensive and striking power. And her reach will be high as well as wide. She has a liquid oxygen plant—the first to be installed in any British warship—to cater for high altitude flyers. For close range defence she has 10 40 mm. guns in twin mountings, all radar-controlled.

The Hermes is a formidable fighting platform yet there has been a happy marriage between warlike function and the welfare of those who man her. She is probably the best floating "home" the Navy has offered to a ship's company. Though living accommodation can never be as ample in a warship as one would wish, the hand of domestic genius is to be found in the arrangement and equipment of her messes.

The living accommodation, which is said to account for a tenth of the cost of the ship, is brilliantly lit, colourfully decorated and suitably furnished. Space is saved in daytime by tip-up bunks, labour is reduced by easy-clean flooring, domestic chores are minimised by up-to-date galley equipment which includes machines to clean potatoes at the rate of 40 lb. a minute! There are numerous bathrooms and show-

ers, a modern laundry and air-conditioning to suit all climates.

For off-duty hours the ship can provide television programmes, ample recreational facilities, and books to suit all tastes in a well-stocked library. In fact, the Hermes has almost everything; her amenities would be the envy of a small town.

The problems of a Commanding Officer are not necessarily eased by aids to material comfort, but Captain David Tibbits, until recently Captain of H.M.S. Dryad, the Navy's School of Navigation, has started to build up the spirit of a good ship with more advantages than any other Commanding Officer afloat.

America's first nuclear-propelled aircraft carrier, the Enterprise, now building, seems likely to cost at least £53,000,000 sterling. The Hermes may cost £20,000,000. But cost is irrelevant if Britain is to continue to have a modern Navy. Parliament must fearlessly face the facts and the taxpayer pay the price.

The lessons of history are plain. In peace we always think we can do without; but we have never yet neglected to give the Navy the ships it needed, without later paying the price in full.

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"In response to your Articles in the newspapers concerning Her Majesty's Ship, "Vanguard," we are prepared to offer a deposit of £5 securing this. Will you please send us by return of post full particulars, concerning her, in tonnage and gun fire."

From a letter received in Admiralty from six young boys.

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The object of the Navy League in Australia, like its older counterpart, the Navy League in Britain, is to insist by all means at its disposal upon the vital importance of Sea Power to the British Commonwealth of Nations. The League sponsors the Australian Sea Cadet Corps by giving technical

sea training to and instilling naval training in boys who intend to serve in Naval or Merchant services and also to those sea-minded boys who do not intend to follow a sea career, but who, given this knowledge, will form a valuable Reserve for the Naval Service.

The League consists of Fellows (Annual or Life) and Associates.

All British subjects who signify approval to the objects of the League are eligible.

MAY WE ASK YOU TO JOIN and swell our members so that the Navy League in Australia may be widely known and exercise an important influence in the life of the Australian Nation?

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Leading Seaman P. L. Warburton, of H.M.A.S. Warrego, demonstrating the Tellurometer, the new instrument used in measuring base lines for surveys.



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"CHANNEL SPLITTING ANTARCTICA"

A channel more than 1,000 miles long and a mile-and-a-half below sea level is splitting the Antarctic Continent, according to four geologists reporting in "Science," the magazine of the American Association for the Advancement of Science.

They have formed the theory that Antarctica was covered originally by two independent ice caps which met and filled the trench.

Another deep channel borders the massive Filchner ice shelf, a permanent block of ice in the Wedell Sea, they say.

However, they regard the big trench as the more important. It extends from the Ross ice shelf to the Bellingshausen Sea.

The scientists say that their measurements indicate that the trench fundamentally divided Antarctica into geological provinces.

One ice cap began to the north in mountains called the Executive Committee Range. A second ice cap started to the south in the Horlie and Sentinel Mountains. Ocean water filled the trench between.

As the ice caps grew toward each other, an ice sheet formed over the trench's waters and finally the water itself thickened into ice, making the cap solid.

The total weight of ice squeezed the bed rock in the trench down about five-eighths of a mile.

The scientists who made the report were Dr. E. C. Thielon, Dr. C. R. Bentley and Dr. N. A. Ostensio, of the Antarctic Research Centre of the University of Wisconsin; and the chief scientist of the U.S. Antarctic research programme, Dr. A. Crary.

April-May, 1960

H.M.A.S. BANKS



H.M.A.S. Banks, recently commissioned, will be used in North Australian waters for fisheries surveillance and hydrographic survey work.

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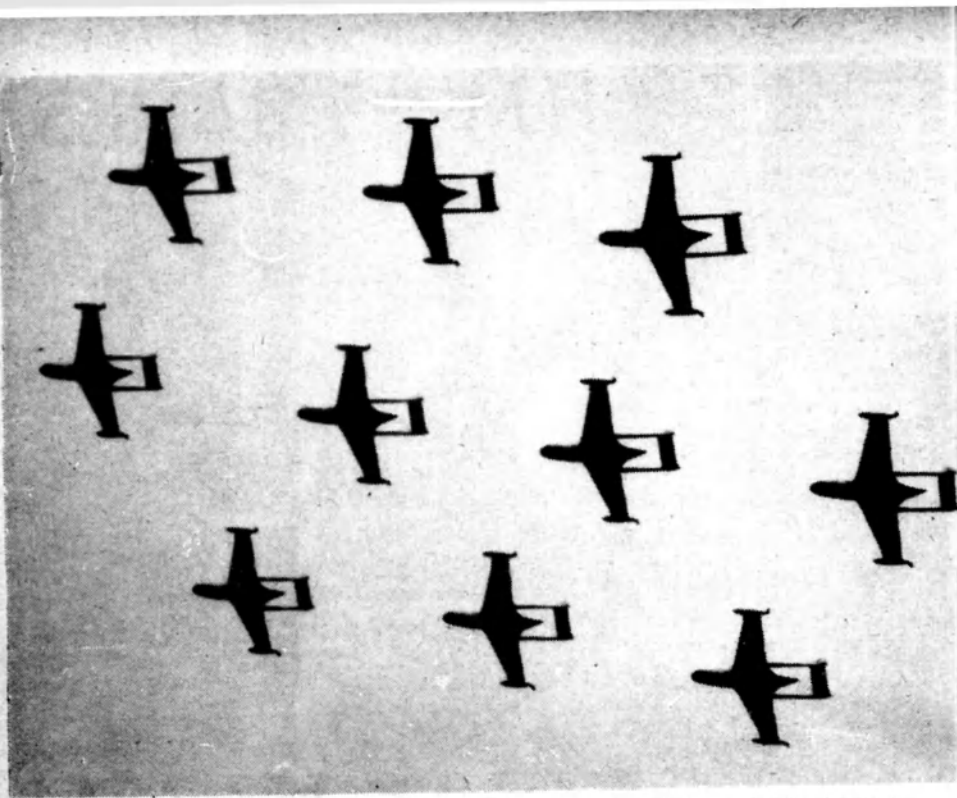
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Venoms Fly Past during Coral Sea Ceremony.

TOBRUK AND ANZAC SAIL ON NORTHERN CRUISE

'Midst the bustle of the arrival of the U.S.N. ships, the two battle-class destroyers Anzac and Tobruk slid quietly out of Sydney Harbour on a Pacific Island cruise on Thursday, April 28.

The cruise, which reads like a holiday paradise tour of the Pacific, will take seven weeks and will include such places as Noumea, Vila, Honiara, Rabaul, Manus, Lae, Port Moresby, Kavieng, Samarai, Cairns and Brisbane.

Tobruk, Cdr. A. W. Savage, R.A.N., and

Anzac, Lt. Cdr. B. D. Gordon, R.A.N., will be carrying out a training role and have embarked many ship's company members straight from recruit school at F.N.D.

Although the cruise looks like a holiday, both ships will be working extremely hard to maintain the rigid schedule set. The men of the two ships will be virtual ambassadors for Australia and are always made very welcome at these outposts that are vital to our country.

April-May, 1960

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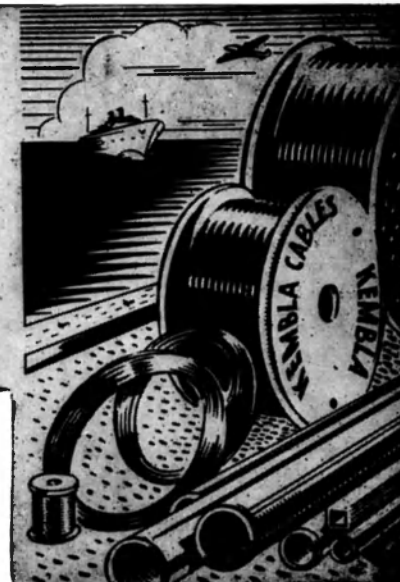
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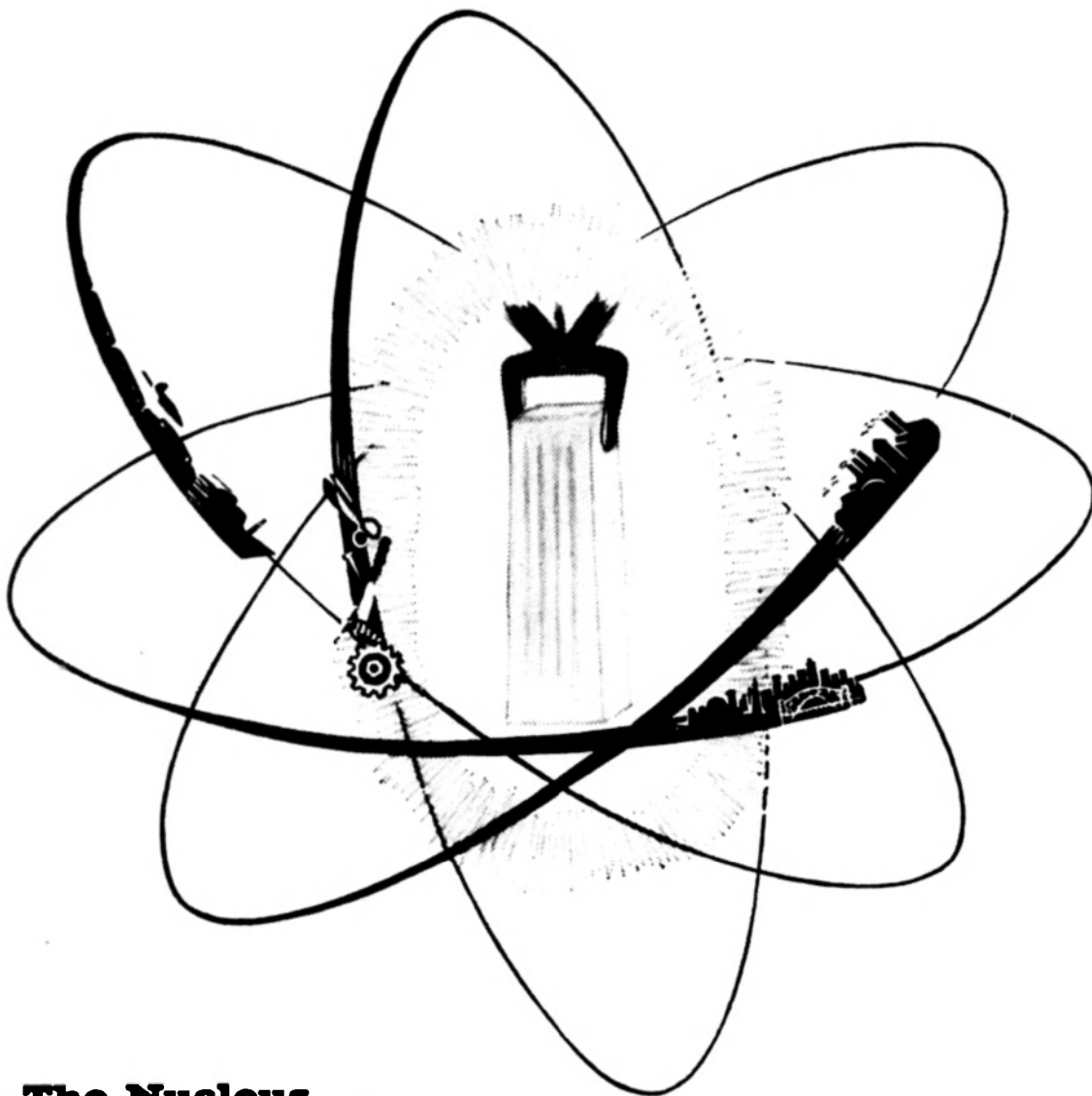
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