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PERILOUS STATE OF THE NAVY

To thoughtful men in the fighting Services, a most disquieting element in the present "atomic" age is the British Government's pre-occupation with the concept of atomic warfare and its consequent neglect of conventional war weapons. It would, of course, be criminally stupid to underestimate the immense strategic value of the weapons since 1945, when two A-bombs on Japan ended the war.

That situation is one which we cannot expect with complacent confidence but at the same time which we must not ignore. It is therefore highly important that the Western Powers, while not relaxing their atomic programmes, should not allow their conventional war machines to fall behind the strength of the potential enemy's.

There is no evidence that Russia is shedding her arms of Communist world domination. As well as her atomic development programme she is spending enormous sums on conventional weapons. She is known to have an army of some 3,000,000 men, an air force of 800,000 men and 20,000 aircraft, many of the most modern types. And since the war she has spent £12,000 million building a powerful navy.

The Royal Navy must form the major part of the Commonwealth's naval strength. The Commonwealth countries, too, will continue to look to the Admiralty to lead them in naval development—of ships, weapons, and tactics. Unfortunately the Royal Navy is dangerously weak and there is no indication of its recovering its strength.

The Navy League believes that this highly risky situation has come about as the result of three main causes. They are, first, the failure of the Admiralty to give any definite lead to the nation on the duties and responsibilities of the Navy, in peace or in a future war; secondly, the absence of any new Navy building programme of major ships since 1945; and, thirdly, the failure of the British Government to give any counter to the general assumption that atomic weapons have wholly displaced conventional weapons.

The state of the Navy should be a matter of grave concern to the British Government and to the Governments of all Commonwealth countries.

OUR NEW NAVY CHIEF

Rear Admiral R. R. Dowling, C.B.E., D.S.O., last month took over the appointment of First Naval Member of the Australian Commonwealth Naval Board and Chief of the Naval Staff, Australia's top Naval appointment.

An article by Rear-Admiral Dowling appears on page 7 of this issue.

Rear-Admiral Dowling, who is a graduate of the Royal Australian Naval College, which he entered in January, 1915, was born at Condong, in the Tweed River district of New South Wales. He has had a most distinguished career in the Royal Australian Navy. His service in World War II was outstanding.

When war broke out he was on exchange duty with the Royal Navy as executive officer of the anti-aircraft cruiser H.M.S. William, which, after service in the North Sea and the Atlantic, was fiercely attacked by German aircraft off the coast of Creta. In the engagement one of her sides was split open from water-line to keel. Notwithstanding this she
limped back to Alexandria. Many times afterwards she was in action off the North African coast and sank in less than half an hour. All except 66 of her ship's company of about 700 were saved.

Rear-Admiral Dowling was in the water for an hour and a half before he was rescued.

Later in the war Captain Dowling, as he then was, commanded the cruiser H.M.A.S. Hobart in the South-west Pacific and assisted in the bombardments of Tarakan, Wewak, Labuan and Balikapan.

Fifteen months after Crete she was torpedoed at night in another part of the Mediterranean and in attacks on the Lingayen Gulf—Anita. He was awarded the D.S.O. for his services on those occasions.

He was the first captain of the Australian aircraft carrier Sydney, which he brought to Australia from England in the early part of 1949.

Apart from his fighting record, he has won a high reputation as an administrator. Among the important administrative appointments that he has held has been that of Second Naval Member of the Naval Board.

He became Flag Officer Commanding the Australian Fleet in December, 1953, and held that post until he succeeded to his present appointment.

The Royal Australian Navy

By Rear-Admiral R. R. Dowling, C.B.E., D.S.O.

Rear-Admiral R. R. Dowling on February 22 became First Naval Member and Chief of the Naval Staff, succeeding Vice-Admiral Sir John Collins. Before that he was the Flag Officer Commanding the Australian Fleet.

In a sense those who go down to the sea in ships live a life apart from the rest of the communities, and for each other they have a real affinity and brotherhood. This fact has been shown again and again, even by seamen whose countries were at war with each other. We know the sea in all its moods—in calm waters and peacefulness, a warming sun by day and star-spangled sky by night, in rain and fog and bitter cold, in times of storm when gale force winds lash up mountainous seas that threaten our very lives.

In many respects the Royal Australian Navy is very closely associated with the Royal Navy, and we want it that way. We can, and do, work closely together in peace and war. Our country's resources are not yet sufficiently developed to design and develop new ships, new weapons, equipment and techniques, thus we have always learned, and for a long time to come will continue to lean, on the Mother Country for such material things. Nevertheless, having acquired the "know how," Australian shipyards, munition factories, and industries can build the ships and almost all that goes with them. The Naval ships that have been built in Australia are second to none.

Perhaps even more important is the non-material side. We have adopted the traditions of the Royal Navy as our own, and in two world wars we have added to and enriched those traditions in no small way. The losses sustained in men and ships during World War II were indeed heavy, but through many vicissitudes against our enemies, and through the long years of patrol that called for almost inhuman endurance, the great spirit of the Navy did not flag. I say this with knowledge and pride—and with confidence that tradition played an enormous part in such an achievement.

THE QUEEN'S REGULATIONS AND ADMIRALTY INSTRUCTIONS are still used as a major guide for the government of our Australian Navy and we still use (with any necessary modifications) the Naval Discipline Act in use in the Royal Navy. This Act contains, inter alia, the 46 Articles of War.

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THE NAY.
Expression of faith

The very first paragraph of the preamble to the Naval Discipline Act refers to "the Navy, wherein, under the good providence of God, the wealth, safety, and strength of the Kingdom chiefly depend." I firmly hope that that expression of faith will never be expunged from the book. It was, and is, the faith of an island people, such as we Australians are.

Another fact of great interest is that the first Article of War instructs "all officers in command of Her Majesty's ships to cause the public worship of Almighty God to be solemnly, orderly, and reverently performed in their respective ships."

I am confident that many people do not realise what a great part the Navy has played in the early development of our country. Captain (later Admiral) Arthur Phillip in 1738, Captain William Dampier in 1734, and Captain James Cook in 1770, were many other Naval men who played their part in our early development.

The development of modern weapons, techniques, and ships is increasing the Navy's ability to discharge its historic role.

The whole world is aware of Russia's vast naval building programme, including many powerful gun cruisers and a great fleet of submarines, a large proportion of which are ocean-going with an enormous radius of action. That knowledge brings us deep concern, yet it is our task to continue the work of efficiency with what we have and can achieve. If global war should come, when Heaven forfend, we all recognise the necessity for our country, in the Royal Australian Naval Force, and its allies, to retain control of the sea.

The Merchant Navy

The Merchant Navy, for which I hold a high regard, can rely on the Navy to escort it in the performance of its vital tasks, if war should come. This calls for a new class of submarine vessels and escort carriers in the open seas. Shore-based aircraft have greatly increased in numbers and in war the Navy will be proud to share again with the Royal Australian Air Force the duty of providing a protective shield for merchant shipping. Recent training exercises have clearly shown the grand spirit of co-operation that exists between the two Services. It will stay that way.

We often carry out exercises with the Australian Army, training so that we are able to support the soldier on the field by means of aircraft and guns.

The Japanese sea invasion of Australia was checked at the Battle of the Coral Sea—a battle fought almost entirely on both sides by carrier-based aircraft. The war in the Pacific against Japan could hardly have been won without American sea supremacy, which in turn was largely brought about by aircraft from carriers. I personally believe that the soldier, whether either in the offensive or defensive role is as firm an airfield.

When, just recently, I listened to the National Service trainees and I, I cannot check the advance of atheistic Communism with guns alone.

The sea is not always friendly, and we are constantly faced with the threat of the modern submarine. In these days we must be prepared to meet and destroy an enemy on the sea, under the sea, and over the sea.

The essential task of the Navy is unchanged. It has the duty of securing and holding Australia's sea communications and assisting in the world-wide support of the British Commonwealth's trade interests.

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The Navy}

March, 1955.

N.S.W. FLOODS: Navy helicopters played an impressive part in rescue work during last month's disastrous floods in N.S.W. This picture shows P.C. Lomas trying to restore communications broken by floods from the Hunter River.
Navy Helicopters' Great Job In Tragic N.S.W. Floods

Last month the nation watched with awe and pity while furious floodwaters devastated towns and communities in New South Wales. Police, civilians and volunteers, and members of the fighting services performed heroic rescue and relief work in this tragic period. This is the story of the Navy's part of that great effort.

O N Thursday afternoon—February 24—as the rumbling muddy torrent spilled over the Hunter's banks, the Navy received its first call for help. The call was for helicopters.

Within half an hour of that call a Navy helicopter, piloted by Lieut.-Cdr. Gordon McPhee, took off from the Naval Air Station at Nowra and was making for the Air Force Station at Williamtown—in the flood area.

Although warned by air traffic control at Mascot that flying conditions were very bad—and deteriorating—McPhee decided, in view of the seriousness of the flood situation, to try to get through.

The flight, of about 180 miles, was very trying. The wind, fortunately a following one, was rising to gale force. On arriving at Williamtown, McPhee found that visibility was almost zero, and he was forced to use ground control approach to land.

It is believed this is the first occasion in Australia that a helicopter has used this method of landing.

At first light on Friday the helicopter was again airborne on reconnaissance and rescue duties. Near the Singleton railway station the pilot rescued two men who were clinging to a telephone pole. Then he flew to rescue a man who was being washed down the flood-stream. But the man disappeared beneath the swirling water before the helicopter could reach him.

McPhee then flew to the West Maitland signal box in which a group of men were marooned. The box collapsed just as he reached it.

Two men grabbed a wire suspended from the helicopter and were hauled clear of the water, but the proximity of high tension wires made manoeuvring the helicopter extremely difficult. The men could only stand on a piano coat and a pair of trousers, the third and fourth, however, were fully dressed and even had suit cases. Looking back it seems rather humorous, for one man put on the harness, picked up his suitcase and signified that he was quite ready to go, thank you."

Grandmothers, babies

The biggest rescue carried out by this helicopter was of fifteen people who were sheltering in the grandstand of the Dubbo racecourse. With the water only about a foot deep, the pilot brought the "chopper" to within a few feet of the ground and the people, who ranged from grandmothers to a three-weeks-old baby, were lifted straight into the cabin.

Perilous positions

Perhaps the most dangerous rescue Farquharson attempted was when he had to go down between a tree and a water line to rescue a family with five children, all under five. The father was winched up and after discussing his position with him, it was decided not to attempt to take the family out in the "chopper" but to back a rubber dinghy in which they could row to safety.

This was done and the family rowed to the nearest dry land. The helicopter hovering over them until the voyage was completed. The lady in the helicopter blades was dented by a branch of a tree during this operation.

During the four days that the helicopter was in Dubbo area it rescued 36 people and carried out many other flights with medical supplies, post office technicians and local relief officials.

A third helicopter, which was employed on reconnaissance at the Naval Air Station, Nowra, was ready for flying by Saturday morning, February 26, the maintenance men having worked continuously from Thursday night to achieve this.

The pilot for this aircraft, Lieut.-J. Ferguson, was flown ashore from H.M.A.S. Sydney late on Friday. He went by air from Melbourne to Nowra and then immediately by car to Nowra. He flew the helicopter to Williamtown and during Saturday rescued seven people.

Late on Friday, the Minister for the Navy, Mr. J. Francis, directed, in view of the serious nature of the floods, that the two helicopters carried in H.M.A.S. Sydney be flown to the area as soon as possible.

The Sydney, which was en route to Fremantle from Melbourne, returned to the vicinity of Maitland and was forced to put down at Morpeth for the night. The farmer and his wife made them very welcome. Their daughter, a very influential woman who was organising relief flood relief, was not so happy, however, for the farmer proceeded to tell him, in very strong language, just how the flood must and should be controlled.

Another helicopter picked up a family of ten stranded at Aberglassy. The aircraft landed in the garden and lifted them three at a time to a safe point. The children enjoyed the trip and so did their parents until mother discovered on leaving the helicopter that she had been sitting on her best hat.

The smartest rescue was effected by a helicopter on the Saturday when a report was received that two boys were adrift in a boat in the Stockton area. Taking off at 6.15 P.M. the helicopter returned to base at 6.15 P.M. having located the boys and directed a police boat to them.

On Monday the work went on, horses being taken off from farms on reconnaissance and dropping food and medical supplies. One helicopter was directed to take divers to rescue a seriously ill woman from the Morpeth area, but no one knew where she lived. The pilot solved the difficulty by dropping in on farmhouses en route until he found out.
By Saturday, the position had eased sufficiently to enable the withdrawal of two helicopters to the Naval Air Station at Nowra. The two in the Narribri area had continued to fly, and it was arranged that they would also fly to the Walgett area to stand by in case the floods broke into that town.

Although the flood position eased considerably in the next week, two Naval helicopters and the R.A.A.F. helicopter were left in the Walgett area and carried out medical and food supplies.

In the first four days, the five Naval helicopters flew in all three areas. In the first four days they rescued 70 people, of which 36 were in the Dubbo area, 18 in the Narribri area, and 16 in the Maitland area.

Stores carried included medical supplies, yeast, food, milk, blankets, and radio equipment—a total weight of approximately 8000 lbs.

Among the passengers carried on relief missions were doctors, nurses, and families.

Four Firefly aircraft constantly supported the helicopter and also carried stores and were engaged in medical supply missions.

Naval trucks which were in Newcastle for the “Meet the Navy” Exhibition also contributed to the rescue work. One petrol and water and three-ton trucks were used daily during the first week in transporting stores and Army personnel into the Maitland and Newcastle areas.

Amongst other Naval stores supplied to the distressed areas were 8000 lbs of blankets, 1800 lbs of food, 2000 lbs of medical supplies, 1000 lbs of yeast, and 5000 lbs of roofing materials.

In addition to the supplies for the distressed areas, an East Australian Area Naval Flood Relief Fund has been opened. Donations to this fund have reached £1,500 by March 10, 1955.

**Steam catapult installed**

The first operational installation of the new steam catapults was being produced and developed for the Admiralty by Messrs. Brown Brothers & Co. Ltd., of Edinburgh, to launch the last large aircraft of the future from aircraft carriers, in connection with the Royal Navy's commissioning and equipping base at Hythe, near Southampton.

**Minesweeper for the French Navy**

H.M.S. Frentenham, the first of a group of 15 minesweepers to be completed in British yards under the U.S. Offshore Procurement programme, was officially transferred to the French Government at a ceremony at H.M.S. Disimple, in the Royal Navy's commissioning and equipping base at Hythe, near Southampton, in December.

**Navy's interest in fibre-glass**

The Admiralty is continuing experiments with fibre-glass boats. For some time a 20 ft. motor dory has been undergoing sea trials. A more complicated boat—a 25 ft. motor boat—was completed recently and arrangements have been made to test the boat in a sea-going ship.

The technique of construction and the basic materials are in the early stages of development.

**R.N. base suggested in Australia**

A former Parliamentary Secretary to the Admiralty, Mr. J. P. L. Thomas, said in a recent broadcast speech, that a new R.N. base would start to come into service soon.

**James Callaghan, M.P.**

James Callaghan, M.P., has suggested that part of Britain's Reserve Fleet should be stationed in Australia, Canada, and New Zealand.

**Mr. Callaghan said that Britain's reserve ships were scattered in crowded harbours and anchorages around Britain, where they might be exposed to the full force of a hydrogen bomb.**

Major bases could be set up in Australia, Canada, and New Zealand, he said, supported by the immigration of skilled British fitters and tradesmen to maintain the heavy aircraft carriers and other major ships there.

**The establishment of reserves in other parts of the Commonwealth would be an alternative to extending island territories,** he said elsewhere in Britain, he added.

**Navy plane to carry atom bomb**

The First Lord of the Admiralty, Mr. J. P. L. Thomas, said in London last month that a new jet aircraft which the Navy is developing should be able to carry an atom bomb if required.

**The aircraft—tentatively called N113—is to be a twin-jet, swept-wing carrier fighter.**

The First Lord said it would have exceptional performance. It would have a "phenomenal" range of 1500 miles, and would be equipped with aerial guided missiles for air combat.

**No more 13-year-olds for R.A.N. College**

The Australian Minister for Defence, Sir Philip McBride, has
announced that the Royal Australian Naval College will no longer take 13-year-old boys for training as officers.

The next cadet intake will be of boys 13 to 16. The College also will take boys up to 19 who have passed the matriculation examination.

Applications for the next 13-16-year-old entry will probably close on July 15 and for the matriculation entry probably in October, the Minister added.

**Navy exhibition tours country centres**

A Royal Australian Navy travelling exhibition has been touring N.S.W. country centres since late January. It will return to Sydney in May and will probably visit the country areas of Victoria later this year.

The purpose of the exhibition is to simulate interest in the Navy. Its March itinerary includes Glen Innes, March 3-5; Cessnock, March 11-12; Wauchope, March 17-18, Tamworth, March 22-24.

Forty officers and ratings are attached to the exhibition, which is being carried in four three-ton lorries attached to the exhibition, which is being carried in four three-ton lorries. It will return to Sydney in May and will probably visit the country areas of Victoria later this year.

* **Arawa's** last voyage

The 15,000 ton Shaw Savill liner Arawa leaves from Fremantle this month on the final stage of her last voyage to London, where she will be withdrawn from service.

Built at Wm. Beardmore's Shipyard on the Clyde in 1922 for the first Commonwealth Government Line of Steamers as the Empire Bay, she was named after the country between Australia and England.

In 1928 the Commonwealth Line fleet was acquired by the White Star Line. The Empire Bay continued in the passenger service to the United Kingdom until taken over in 1936 by the Shaw Savill Line, renamed Avea and placed in the tourist class passenger service between New Zealand, Australia and England.

Avea spent large sums on her conversion from a third class to a tourist class ship. The number of passenger berths was reduced from 524 to 274. In addition to passengers, the Avea carried refrigerated meat, butter, cheese, eggs, fruits, vegetables and other perishable foodstuffs, as well as wool and general cargo from New Zealand and Australia to the United Kingdom.

At the outbreak of World War II, Arawa was one of the first ships to be commissioned as an armed merchant cruiser, being requisitioned in New Zealand on August 24, 1939. Officers, equipment and supplies were taken from a temporary R.N.R. commission and the ship was sent up the China Station to maintain a patrol for submarine detection.

After six months Arawa was sent to England and was then employed principally on the China-Freetown convoys until the armed merchant cruisers were paid off in July, 1941.

Like most of her consorts on cruiser work, the ship was then converted into a transport. She was fitted to carry 1600 troops for whom the accommodation of her original design made her particularly suitable.

Under Captain T. V. Roberts, R.A.N., Arawa started her service a few years after the last war—Arawa sailed as a transport in January, 1941. She engaged in transport to Durban in connection with the Middle East campaign, later to North Africa, and finally carried American troops to the Western Front.

The Arawa is the third vessel of that name owned by Shaw Savill Line. The first, built in 1884, was a small screw steamer of 5306 tons, 14 knots, which made new speed records in the England-N.Z. trade not beaten for years. This vessel was sold in 1900. In 1915 when owned by an Italian company she was torpedoed by a submarine. The second Arawa was also a small screw steamer of 9172 tons (133 knots) built in 1906 for the frozen meat trade with accommodation for 220 passengers. In 1916 she was sold to Germany.

The third Arawa is now ending her service with Shaw Savill's. She is due to leave Fremantle on March 18 and to reach Southampton on April 22.

**Helicopter's important role in Antisub. Defence**

*By "Icarus"*

News that eight Bell HSL-1 anti-submarine helicopters are to be shipped to the United Kingdom as part of the aid supplied under the Mutual Defence Assistance Programme, is again both the increasingly important part that helicopters are scheduled to play in anti-submarine defence, and the deplorable lack of a suitable British type for this exciting role.

Recent deck and landing trials of the Bristol Type 173 Mk. 1 on board H.M.S. Eagle, release of some details of Sikorsk's new XHSS-1, and formation of the Fleet Air Arm's first helicopter anti-submarine squadron No. 845, equipped with the Sikorsky HOS-5 — all point to an increasingly urgent desire to use to the full the unique capabilities of rotary-wing aircraft in combating the submarine menace.

In any future war, there can be no doubt that this menace will be a very considerable one, since Russia is known to possess a large and modern fleet of submarines, and to have taken advantage of a great deal of German knowledge in undersea warfare.

Great strides have been made in this field since 1945, and these have demanded urgent development of suitable counter-measures. One of there is to employ helicopters to detect submarines by means of a "dipping asdic," and there is little doubt that soon armed helicopters will be used to destroy submarines.

For use in an anti-submarine role, the helicopter possesses unique advantages, chief of which is its ability to fly very slowly and to hover. It is now firmly established that high speed is a disadvantage for an anti-submarine aircraft, being a far less desirable quality than long range and large load-carrying capacity.

In its present stage of development, the helicopter has limited range and carrying capacity, but this is to some extent offset by its slow-flying characteristics, which enable it to hover over a submarine and pin-point its position by radar probably with greater accuracy than a fixed-wing aircraft could do. Also, an explosive charge to destroy a submarine can be delivered from a helicopter far more quickly than from a fixed-wing aircraft, which would have to waste valuable time reaching a target. The helicopter has limited use in this respect.

However, few helicopters in production today could carry both the means of detection and destruction which a fixed-wing aircraft such as a Fairey Gannet or Douglas Skyraider can, and it seems probable that in the immediate future rotary-wing aircraft will be used primarily for detection, working in conjunction with fixed-wing aircraft, while the helicopter will be employed in other roles.

In this connection it is interesting to note that on Sikorsky's new HOS-5 is under the Mutual Defence Assistance Programme underlines once again both the increasingly important part that helicopters are scheduled to play in anti-submarine defence, and the deplorable lack of a suitable British type for this exciting role.
Last month the greatest floods in New South Wales history brought death and ruin to towns and communities. The Navy provided helicopters to assist in the massive rescue and relief job which the floods made possible (see story, page 10).

These pictures give some idea of the magnitude of the disaster.

(4) The crew of a surfboat about to land after a rescue patrol. In the background is an Army "duck" about to reach East Maitland with food supplies.

(2) A motor-cycle buried deep in the mud at Maitland. In the background, a wrecked house.

(1) Wrecked houses and flood debris on the Long Bridge, Maitland, left by the Hunter River.
Portraits of admirals and great captains there are in plenty, of course: and we are without doubt extremely fortunate in the hundred and one lower deck seamen who witnessed the mutiny. This seems an extraordinary step in those days) who protested.

Gostlin, infuriated, smashed the mirror landing sight has been a notable British invention and has been adopted by the U.S. Navy. The idea is simply that instead of watching the "batman" the pilot now keeps his eye on a bob of light. As long as the light is lined up with other lights either side of it he knows that his aircraft is on the correct approach path for landing on the deck. All the trials so far have been completely successful.

The Gannet appears to be an excellent aircraft. With the increasing importance of anti-submarine work there has to be a new type of carrier that can meet the requirements. The replacement of piston aircraft with jets has continued satisfactorily.

THE FLEET AIR ARM

By "L'Aiglon"—In London

NINETEEN forty-four was an auspicious year for the Fleet Air Arm, a year of some achievement and considerable promise, an encouraging boost for the Cinderella of aviation.

The Supermarine 325, fully swept-wing day interceptors, powered by twin Avons, has at last flown and proved itself to be in the top flight of contemporary jet aircraft.

It is to be hoped that some genuine priority will be given to its production. This is not merely vague plea; it comes from the realization of a hard fact. Unless the Fleet Air Arm has a powerful high performance interceptor there will be no means of coping with the latest threats to the inner bomber unloading an atomic bomb on a convoy from 60,000 feet.

The Gannet appears to be a fine all-weather fighter within its subsonic limitations.
The Royal Navy, for so long conversed expenstions of the helicopter, have not been slow in perceiving the possibilities for rotary wing aircraft in the anti-submarine role. Trials have already been carried out with the Bristol 173, a twin-rotor helicopter, which it is thought, "would be large enough to carry a lethal weapon." Naturally enough the Americans are advancing fast along this particular line of development.

Airborne Early Warning assumes more and more importance as the need for intercepting bombers as far away as possible from the Fleet increases. Nothing new has been announced recently but it is interesting to see that Skua's are to be flown four days in all operational carriers as the invaluable watchdogs during Fleet exercises. The U.S. Navy now have four-engined Constellations adapted for radar picket work.

The strike role of the Fleet Air Arm still seems rather enigmatic. 813 Squadron continue to fly their Wyverns on N.A.T.O. exercises and yet remain firmly shore-based. Fewer alone knows whether anytime has yet designed a new torpedo for dropping from high-speed aircraft. The Wyvern may well be an excellent aircraft but it seems to be to rather oddly limited in use for the Navy when it neither carries in a carrier nor is torpedoed.

It is particularly gratifying to have a carrier with the proud name of Ark Royal back in the Navy; it is only regrettable that whereas she will have the new steam catapult she will not have a fully angled deck.

Recruitment of aircrew still presents a problem but, although full plans have been worked out, it looks as though numbers are being kept up if not actually increased. The chief point of it all is definitely that the prospects of a career in the service can be regarded to a young man. Short service engagements are basically a stop-gap treatment. It has been a welcome sign this year to see an increase in the number of promotions from Lieutenant-Commander to Commander in the Air Branch — and also in comparatively young age of many of them.

This is undoubtedly a critical time for the Fleet Air Arm. It has at last been equipped with some reasonable anti-submarine aircraft (admittedly at a time when the R.A.F. are getting swept-wing aircraft and the U.S. Navy have them for some time). The question now is whether the powers-that-be intend to press on with successors to the Whirlwinds and the Sea Venom or whether they are merely giving the Navy a few optimistic glimpses of the Supermarines and the D.H.10 to keep them quiet. In any case, five years' time would see one else in the world, including no doubt the Swiss Navy, are rocketing themselves through space at fabulous Mach numbers with the Fleet Air Arm still being flown by Hawker and Venoms and will have the "latest" naval aircraft still be doing its utmost to present an annual appearance at Farnborough?

The First Sea Lord said recently in a Message to the Navy: "Carrier borne aircraft remain the main striking power of the Fleet far from being outmoded, the full importance of the aircraft carrier has yet to make itself felt." Surely the myopic politicians have not already forgotten the disastrous price this country paid at sea in the last war because the Fleet Air Arm were flying obsolete aircraft. Would it not be more economical to spend several million pounds on naval aircraft development now than be paying cost of a merchant fleet declined in the event of a future war.

From the London 'Naval Press' Two cruisers visit Australia

The Canadian cruiser Ontario and the New Zealand cruiser Black Prince visited Australia last month. Both took part in exercises with the Australian Fleet.

Britain shipbuilders

Shipbuilding yards achieved a post-war record in the 12 months ended September 1954, bringing the total for that country in the January-November period to £15,681,898. In second place is Liberia which took £13,789,222 worth of ships.

Total of vessels completed in U.K. shipyards during the year was 228, aggregating 1,373,136 tons.

More passengers by air than sea

More passengers crossed the world's oceans by air than by sea in 1954. Announcing this in Montreal, the International Air Transport Association points out that this is the first time that this has happened.

Traffic was worth nearly 2000 million dollars (£714,300,000 sterling) to the 71 members of I.A.T.A.

British shipyards

"challenged"

British shipbuilding yards achieved a post-war record in the 12 months ended September 1954, says Mr. J. W. Elliott, president of the Shipbuilding Conference, the need still remains to turn out ships "more quickly and more cheaply."

He points out that by September shipyards achieved for the first time in any two months a rate of merchant shipbuilding exceeding 1,500,000 tons, but Britain's claim to be the world's shipbuilder was subject to "continuous challenge."

All-time high in U.K. exports

U.K. exports have reached an all-time high record. In the first three-quarters of 1954, the volume was eight per cent. higher than in the corresponding period of 1953.

World trading conditions were even more competitive last year than in 1953. British exporters have maintained the share of total world exports of manufactured goods at slightly above one-fifth of the total.

British shipbuilders

"challenged"

British shipbuilding yards achieved a post-war record in the 12 months ended September 1954, bringing the total for that country in the January-November period to £15,681,898. In second place is Liberia which took £13,789,222 worth of ships.
its equipment was sent to East Africa, Norway, Sweden, and Holland. Other deals about to be concluded have been to France, Italy, and Germany: while a New York firm has undertaken the sole manufacturing agency for the U.S.A.

**“New era in ship propulsion”**

What is described as a new era in ship propulsion has been announced in Britain. The 12,000-ton oil tanker Arun is to have her conventional engines removed and replaced with a 3500 h.p. gas turbine engine. The engine has been developed by the Shell marine research and development department.

At the same time the problem of direct transmission and the design of a form of direct gearing coupled to a fixed propeller is being tackled by the company's engineers. Mr. J. W. Platt, chairman of Shell tankers, the operators of the Arun, described his company's plans in this field when he spoke at the launching of a new tanker in the Chatham area recently. He stated that there seemed little chance of refloating her. The ship struck uncharted rocks north east of Port Blair, the report stated.

**HEAVY DEMAND FOR SWORDS**

Orders for swords from many parts of the world, are keeping the firm so busy that there is now a slight delay in delivery. The London firm (Wilkinson Sword Company Ltd.) was founded in 1772 by Henry Wilkinson when he set up a forge in Grey's Inn Road and opened a shop on Ludgate Hill. Since then the tradition of swordmaking has been carried on through the centuries with very few alterations. Swords are still made almost entirely by hand and most of the most highly skilled craftsmen are required to do so.

One of the curious and little known phenomena in the sword making is the part that fish skin plays in their manufacture. The skin of shark and sunfish is used to bind the grip. Most of the swords made by Wilkins for officers are inscribed with battle honours of a regiment or some other individual decoration. Royal Air Force swords have ivory grips. Probably the most famous sword ever made by the firm was the Stirling Sword, which Sir Winston Churchill presented to Marshal Stalin at Tehran.

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**THE NAVY**

**ARK ROYAL—THE NAVY’S NEWEST CARRIER**

By Lieutenant-Commander Nowell Hall

A ship destined to make naval history was commissioned by the Royal Navy on Tuesday, February 22. She is the mighty “Ark Royal,” an aircraft carrier with a standard displacement of 36,800 tons and a full load reported to be 46,000 tons.

When her front line aircraft are embarked she will carry altogether about 2000 officers and men. It is a huge complement for one ship. This is the peace-time figure, however; in wartime the total would be larger.

Although the Ark Royal and her sister ship, the Eagle, are easily the biggest carriers ever built for the Royal Navy, it is not the sheer size of the vessel that is particularly noteworthy. She is, in fact, the most up-to-date carrier afloat, foreboding the shape and equipment of fleet “capital ships” in the foreseeable future, despite the present period of scientific development.

Laid down over 11 years ago, her completion was delayed so that the very latest ideas could be incorporated in her design. Consequently, the Ark Royal will be the first carrier in commission to have all the important post-war developments for this type of warship.

For instance, she will be the first in any of the world’s active fleets to have three outstanding British post-war inventions. To describe them as “outstanding” does not give a true idea of their importance in naval tactical planning, but for carriers they will certainly profoundly affect the pattern of war at sea. These three innovations will be adopted for use in carriers of the United States Navy—the huge carriers America is now building are to use them—and by the navies of the Commonwealth. Undoubtedly the latest carriers of all the major N.A.T.O. maritime powers will have them in due course.

Among the Ark Royal’s new features are:

- Two steam catapults. Powered by steam from the ship’s engines, the pressure available being limited only by other operational requirements, in certain conditions, by the full capacity of the boilers, these catapults are so powerful that they can put the airframe into the air, the heaviest naval jet and turbo-prop aircraft likely to be in service for a long time. Unless a new and revolutionary form of flight is applied to naval aircraft, this may be the only form of flight known off—it may be that the steam catapult will be required as long as the carrier herself has a place in modern fleets.

The Ark Royal has been modified to incorporate the invention. Work was begun on this costly warship long before the necessity was visualized for carriers to use aircraft of super sonic speed. The steam catapult can launch aircraft even when the ship is stationary, and sometimes when she is steaming downwind. No longer will it be necessary for a carrier to leave the fleet or for the whole or part of the fleet to change courses to enable the ship to steam into the wind to operate her aircraft. Hitherto the movements of the fleet in good flying weather have depended largely on those of the carriers.

- The angled deck. Appropriately, this idea, involving a rearrangement of the flight deck layout, was partly that of Captain D. R. F. Campbell, D.S.C., R.N., the Ark Royal’s commanding officer.

The carrier has a modified angled deck of 5 degrees, instead of the full 8 degrees. The principle is simple: by approaching astern at 8 degrees to starboard of the ship, a forward runway is created, instead of from dead astern as formerly, the pilot of the aircraft about to land finds his task enormously simplified.

Previously he ran the risk of overshooting the arrester wires and barrier and crashing into other aircraft in the forward deck park, perhaps causing serious damage, injury or even loss of life. Now, with his view unobstructed, he can if necessary fly straight off the port side of the carrier to make another attempt, thus obviating the deck park having to be cleared for it to take off again—if, indeed, it can do so.

Apart from much reducing risks of accident, the angled deck arrangement makes possible a great increase in operational flying efficiency. Whereas the Eagle, which has yet acquired the angled deck (although she is in dockyard hands in process of doing so) has 14 arrester wires, the Ark Royal needs only six.

- The “mirror sight.” This enables high-speed aircraft to land with greater ease, it speeds up operations, and is therefore com-
WHEN the war ended, efforts were made in all European countries to gather and publish the last messages of those who fell in the struggle against the invader, in order that they might be kept as a kind of monument to the martyrs of freedom. Now, a European anthology of such messages has been compiled by two young Italians, Pietro Malvezzi and Giovanni Firelli.

Sobriety and intelligently edited, with notes that give the history of the occupation in each of the Nazi-dominated countries, the book has already been a great success in Italy, where the first editions were quickly sold out under the title of "Lettre de Conscience." It is a monument, the great German novelist writes, "might well have had as a motto the words written by a young French worker a few hours before his execution in February, 1944: 'I hope that my comrades and myself will not be forgotten, for what we did is memorable.'"

The most striking thing about these letters from men who were condemned to death—Belgians and Bulgarians, Austrians and Greeks, Frenchmen and Danes—is the serenity with which the writers met their fate and, in the great majority of cases, their calm assurance that their sacrifices would help pave the way for a better future. It is interesting to note that this notion of redemption by death is found as frequently among nonbelievers—Communists, for example—as among the most fervent Christians, though, of course, without the same spiritual content. These men died with a common conviction that they believed in heaven or not.

The reader is also struck by the extreme simplicity of expression. Bombastic phrases and patriotic tirades are rare. At most, one might point out that the last letters of men from southern Europe (Italians and Greeks) are sometimes a little more high-sounding than the rest, that those of Norwegians and Danes are animated by concern about the fate of survivors (their families and friends), and that those of the Slavs are often marked by a somewhat mystical feeling in the final victory of justice.

The letters might also be differentiated according to social class and according to the motives that inspired their authors' action—nationalism, anti-totalitarianism, a concern for working-class solidarity, or intellectual revolt.

Richard Altenhoff, a Belgian engineer, was 28 years old when he was sentenced to death as one of the organizers of the Belgian sabotage group and was sentenced to death by a German military court. "I had thought," he wrote to his mother on the eve of his execution, "that the approach of death would be something terrible, something frightening. Experience shows me that this isn't so. I am quite serene. The only thing that hangs over me is the thought of your grief. Mother, hundreds of thousands of soldiers have died in this war. I am one of them... I don't at all regret what I've done. The only thing I regret is that I was caught."

Christian Ulfrik Hansen, a Dane, had been a theological student. He entered the underground and organized a system for receiving and distributing arms parachuted by the Allies. After he had been sentenced to death, he wrote from his cell a letter to his parents, "We shall die with a smile on our lips, for we are dying for the finest of ideals. At this moment I feel that I have lived a complete life."

Nothing is known about the activity in the Resistance of Julian Ducos, a wine grower. All we know is that he was shot by the Germans on February 19, 1944. "They're coming to take me," he wrote to his parents. "At dawn, we'll no longer be in this world, I think that our sacrifice will not have been in vain, for when victory finally comes, we'll give France the right to be proud of, the victory of freedom."

Continued on page 29.

ARK ROYAL

Continued from page 23.

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Distinguished Sailor ends his Navy Career

VICE-ADMIRAL Sir John Collins, who in February relinquished his appointments as First Naval Member and Chief of the Naval Staff, retires from the R.A.N. on March 15, after completing leave.

Sir John was the first graduate of the R.A.N. College to command the Australia Fleet. He was also the first to become First Naval Staff— the highest appointment in the United States and Commonwealth to Sir John its “high appreciation

Committee and the Chiefs of Staff. Philip McBride, last month said that as a member of the Defence Committee and the Chiefs of Staff, the experience and advice had been of great value to the Government.

He had made a significant contribution to the development of Naval co-operation with the United States and Commonwealth countries in the Pacific.

Sir John commanded HMAS Sydney, which was engaged in many battles, including the sinking of the Italian cruiser Bartolomeo Colleoni. For that he was made Commander of the Order of the Bath.

He later commanded HMAS Shropshire. He was Commodore Commanding the British Naval Forces in the Java campaign. The Netherlands Government made him a Knight Commander of the Order of Orange-Nassau.

In June, 1944, Sir John became Commodore Commanding the Australian Squadron as part of the United States Fleet. He was wounded in the Leyte Gulf operations in the Philippines in October, 1944, when his flagship, HMAS Australia, was struck by Japanese suicide planes.

After that action he was awarded the United States Legion of Merit. He received the K.B.E. in the 1951 New Year’s Honours List.

Duke's Sailing Master

Lieutenant-Commander Graham Hartmann, R.N., is to succeed Lieutenant-Commander (E) R. L. Hewitt, R.N., as sailing master of H.H.R. the Duke of Edinburgh’s yacht Bluebottle.

Born in June, 1924, Lieutenant-Commander Hartmann joined the Royal Navy as a Dartmouth cadet in 1938 and saw service at sea in a number of H.M. ships during the latter part of World War II.

In 1949 he specialised as a communications officer, and in August, 1950, he was appointed to the Serious Business of the Signal School on the Instructional Staff.

Returning to the United Kingdom in 1952 he went to the Royal Naval Signals College, H.M.S. Mercury, and in December of that year was promoted Lieutenant-Commander. After a period in H.M.S. Vanguard he returned to the Signal School on the Instructional Staff.

Lieutenant-Commander Hartmann has for a long time been a keen yachtsman, owned a boat of his own, and is a member of the Royal Yachting Association. With other officers he sailed in Mercury’s Windfall yacht, the New Maid, when she won the Monarch on two occasions. His yacht is a record holder of races for all the Pacific Oceans from December, 1940, to February, 1942.

Lieutenant-Commander Mann, a bachelor, lives at Boldre, Lymington, Hants.

Cdr. (E) Berry-Smith

Acting Commander (E) Phillip Berry-Smith, whose promotion from the ranks of the Royal Australian Navy was announced on December 31 last, entered the R.A.N. College in 1933 and was awarded his colours for rowing.

He became a midshipman (E) in January, 1939, sub-lieutenant (E) in December, 1940, and lieutenant (E) in November, 1942.

His first ship was H.M.A.S. Canberra, which he joined towards the end of January, 1939. In the latter part of the year he proceeded to the United Kingdom to undergo his engineering course at Keyham, which he completed in December, 1942.

He was then appointed to H.M.S. Cumberland, in which he served until May, 1943, when he joined H.M.S. Swiftsure.

He served in this ship till the end of August, 1945, being appointed to H.M.A.S. Nizam on the outbreak of war.

Lieutenant-commander in November, 1950.

Commander Gladstone

Commander Geoffrey V. Gladstone, D.S.C. and bar, whose promotion to his present rank was announced on December 31 last, entered the Royal Australian Naval College in 1935.

He was made cadet-captain and gained his colours in cricket. He joined the midshipmen on January 1, 1939, sub-lieutenant in 1940, and lieutenant in 1942.

His first ship was H.M.A.S. Canberra, in January, 1939. He joined H.M.S. Sueve in June of that year and served in her in the Atlantic and Indian Oceans until September, 1940, when he completed his courses. These were completed by the end of the year and he was then appointed to H.M.A.S. Australia, serving in the Pacific Oceans from December, 1940, to February, 1942.

In May, 1942, he was appointed to H.M.S. Victory for the quick-march, which enabled the midshipman to commission, and again served in the Atlantic and Indian Oceans. While serving in her he was awarded the D.S.C. in connection with the attack upon the Japanese Naval Base at Sa Pav."
I died serving an ideal.”

“Dear General,” wrote Major Arne Laudal of the Norwegian army to his commander-in-chief, a few minutes before being shot by the Germans. “The condemnation to death is going to be carried out. It is not, of course, death on the field of honor, but it is enough for me. The period I have just lived through in the underground (Laudal had been in charge of a military resistance sector in southern Norway) has been the richest of my life…”

Willem Robert Donuma, a municipal employee in Amsterdam, wrote to his parents: “We (there were 12 of them) shall be shot at 2 p.m. I can say proudly that we all received this terrible news calmly and without fear… In a few more hours it will all be over. Over! I don’t know, but I shall know. I shall know at least whether there is a better life after death is over. Isn’t it true that my life has been a good one? I can say that at the age of 24 I have done something to help make this world a better place…”

At the liberation of Warsaw, many letters of men who had been condemned to death were found in the clandestine archives of the ghetto. The following was written by a painter who was killed in a gas chamber at Treblinka concentration camp: “I am absolutely calm. I am condemned to death. I have to die, but I’ve done all that had to be done. I’ve left behind what remains of my works. Farewell. . . . Don’t let such a catastrophe ever occur again!”

It is this last phrase that resounds throughout the entire anthology.

—from “World Veteran.”

**REVIEWS**

**V.2,” by Major-General Walter Dornberger: Hurst & Blackett (London).**

In an era when guided weapons have asserted their right to a major role in both offensive and defensive operations, a book by a man closely connected with their development as Major-General Dornberger is bound to arouse interest.

Dornberger, a technical officer from the start, went into rocketry straight from school when, in 1930, he was appointed to the Ballistic Council of the Army Weapons Department on completion of his technical studies.

At that stage high-powered rockets were the foible of a few individual enthusiasts. For two years the Army Weapons Department, which had recently taken over the responsibility for rocketry, supported many of these men with small grants.

The man, who knows vaguely that the Chinese used rockets some hundreds of years ago to set fire to enemy strong-points, is apt to think of the V.2, as a product of the second world war, a hastily developed alternative to the failure of the German V.1 project. As far as the German high command was concerned, it was. But there is no doubt that in the mind of Dornberger and many of his associates there was already maturing a clear picture of a powerful weapon that would play a major part in revolutionising the schemes of German imperialism. In 1932 the Army Weapons Department, having failed to interest industry in setting up its own development at Kempten, a clearing in the Bavarian woods near Munich, which was subsequently transferred to Peenemünde.

Dornberger was put in charge and told to pick a team. Among his earliest collaborators was the young von Braun, later to become technical director of the V.2 project and, after the war, to take on the same task for the Americans.

“It was not easy,” Dornberger writes, “to get my young collaborators away from their space dreams and make them settle down quietly to hard research and development work.”

In March, 1943, one year after the first successful launching of a V.2 rocket, the Peenemünde group were still trying to obtain first priority for the project.

Then came a fateful message from Army Headquarters. “The Fuhrer has dreamed a dream that no A.4 (the earlier name for V.2) will ever reach England.” They were back where they started.

Hitler later apologised for that decision, but by then it was too late. The British and American armies were steadily denying to the Germans every new launching area.

The German V.2 project was great in conception and the work done by Dornberger’s organisation has formed the basis of all modern high power missile development. His own association with it is unique in that he came in at the start and was in charge throughout.

From this point of view alone, his memoirs are of great interest. The light they cast on the political picture, the intrigues and jealousies of the time, add much to their interest.

Dornberger’s own style is like that of the most readable. It is a pity that his chronology is so completely mixed up. It makes difficult to select the stories of the day, and so the success of events—G.P.T. from the London Navy.”

—Raiders from the Sea,” by Rear-Admiral Lepotier; William Kimber (London).

The stories of the famous combined operations, Vaagso, Bruns- val, St. Nazaire and Dieppe, have now been told often. They do not rate in the telling. Rear-Admiral Lepotier’s book, Raiders from the Sea, views them from a new angle, that of a Frenchman whose country was the objective of the operation.站立, important of these expeditions and whose civilian compatriots were spectators of them, deeply involved emotionally but militarily unimportant.

French civilians suffered loss of life and the torture of hope followed by disappointment in the course of these operations, which were mainly experiments for the great “Operation Overlord,” the invasion of Normandy.

It is interesting that Rear-Admiral Lepotier endorses so definitely their necessity and their ultimate justification by “Over- lord’s” success.

—from the London “Naval”
CRUMP GETS THE BIRD

BY J. H. ADAMS

This is the third of the Captain George Manley series of short stories, published by courtesy of the Sydney "Sun."

If you've never met Customs Inspector Augustus Crump, you've missed the greatest character who ever stalked the Sydney waterfront (said Captain George Manley).

Tubby, but active, Crump with his bowler hat jammed on his head, woke his long inquisitive nose into every overseas ship that entered the port.

The Camberwell was berthed at Circular Quay discharging her inward cargo when I paid one of my visits to me. Suddenly my cabin doorway was darkened at midday, as I wrote a report at my desk. A bowler thudded on the papers at my left elbow. A voice said:

"I'll have a beer."

I knew Customs Inspector Crump had arrived.

"What do you want, Crump?"

I asked, without looking up.

"Nothing. Routine check, that's all."

"Routine thirst," I replied good humoredly, ringing the bell for my steward. Crump sank into a chair and his needle-point eye gazed on me with a profession of smugglers. He was the terror of the stewards.

While we were drinking, our ship's surgeon, Dr. Ramsay, came in and introduced them. Doc put his medical report for the assistant manager on my desk and joined us.

Crump has a terrific ego—too busy, I suppose, to realize his estimate of himself. He is a fellow of vast and smug proportions.

Dr. Ramsay fixed his address upon me and said no more.

"I cornered Dr. Ramsay before he went ashore. I wanted to know how he had managed to make a darned bird talk after a voyage of surliness."

"I didn't teach him a word. One of the stewards is a pretty fair controllist, and he was walking right behind Crump. I knew the regulation about parrots and arranged in advance for the Maritl's pecuniary loss over Cocky."

"Well, I'll be hanged!"

He grinned at me as I strolled away. I hadn't heard or seen all.

That afternoon I met Dr. Ramsay in the Tinnie. Some have passed, but our memory lives forever, likewise the memory of the ship Sobraon.

"Cocky, or rather the boys who first think of becoming Sea Cadets, must have the same feeling that you had. I showed it to the chief officer of the ship."

There seems to be some misunderstanding as to what the Sobraons were about. Meanwhile the property of the New South Wales Government, and what she was under the name Timgira.

Her official status was the
Continued from page 10.

HELICOPTERS’ IMPORTANT ROLE
IN ANTI-SUBMARINE DEFENCE.

Department, under the Minister of Public Instruction, and was in no way connected with the Prison Department as some have supposed. The boys who were sent on to her were those who, by the loss of their parents, or by neglect had become a charge on the State.

As the Royal Australian Navy training ship, the Tingira meant to the lower deck ratings what the Royal Australian Naval College means to the ranks, and a boy, to become a charge on the State.

Nautical School Ship Sobrae, no way connected with the Prison as part of the Public Instruction “Nautical School Ship Sobrae,” continued on page 10.

The boys who were sent on to her had to be able to produce the highest testimonials as to his character, thus ensuring that the men of the Australian Navy are of the best type.

A Sydney paper, many years ago, discussing “the Bluejacket in the making,” and what Australia had to do in manning a proposed navy, said: “The main spring is the man behind the gun, and as the gun and the ship become more and more subtle and complex, so must the man become of higher mental calibre and capable of fine

and more subtle and complex, so the man behind the gun. and as

CRUMP GETS THE BIRD.

Continued from page 10.

A pause.

“Mustn’t defraud the revenue. I’ll pop along to the Customs House and pay the duty to Crump.”

I passed the Customs House on my way back to the Camberwell, two hours later.

Out in the square Crump stood like a statue, his bowler held ceremoniously in the crook of his right arm. Dr. Ramsay was taking his photograph. The shutter clicked. Crump un-shipped a stiff smile.

They linked arms, deep in conversation as they marched through the welcoming door of the nearest hostelry.

"Nautical School Ship Sobrae," as part of the Public Instruction Department, under the Minister of Public Instruction, and was in no way connected with the Prison Department as some have supposed. The boys who were sent on to her were those who, by the loss of their parents, or by neglect had become a charge on the State.

As the Royal Australian Navy training ship, the Tingira meant to the lower deck ratings what the Royal Australian Naval College means to the ranks, and a boy, to get on her, had to be able to produce the highest testimonials as to his character, thus ensuring that the men of the Australian Navy are of the best type.

A Sydney paper, many years ago, discussing “the Bluejacket in the making,” and what Australia had to do in manning a proposed navy, said: “The main spring is the man behind the gun, and as the gun and the ship become more and more subtle and complex, so must the man become of higher mental calibre and capable of fine accomplishment.” It was to give Australian boys that mental calibre that the old Tingira was specially fitted up.

In the Bell HSL-1, these limitations have been avoided to a greater extent than in almost any other helicopter. Unofficially it is stated to carry search radar, “dunking” sonobuoys and over 4000 lb. of anti-submarine weapons, so that even the small number ordered for Fleet Air Arm use will, when “worked up” into a squadron, be a formidable addition to our anti-submarine defences.

Another great advantage of the Bell HSL-1 is its high degree of inherent stability which, in combination with an automatic pilot developed by Bell, makes it fully capable of all-weather operation. Such types as the Bell HSL-1 and Sikorsky HSS-1 will supersede the Sikorsky HO4S which, it is generally agreed in the U.S. Navy, is too small for anti-submarine roles although it is an excellent and widely used type. Its lack of the range and load-carrying capacity needed for real effectiveness.

In passing, the deplorable lack of British helicopters in squadron service which are comparable with the Bell HSL-1 must not go unnoted. Our only design in this category, the Bristol Type 173, is not yet in production, although it is to be developed for anti-submarine duties, and an order for about 100 of these versions has been placed.

However, it seems that fairly extensive modifications will be necessary for this role, and it is easy to see how three or four years before squadrons of this type are available. Given the prospect of firm orders, there is no reason why British designers could not have provided by now an anti-submarine helicopter comparable with the Bell HSL-1 and Sikorsky HSS-1. As regards helicopters, must Britain always act as the poor relation and rely on the U.S.A to supply her wants?

"Keep steering. When in doubt, take the bold course——"  the craven heart never got anywhere.”

—Admiral Sir John Collins.
Sycamores are in quantity production for the British Services, and are already in operation with the Royal Air Force, the Army, the Royal Australian Air Force, the Royal Australian Navy, the Belgian Air Force and British European Airways.