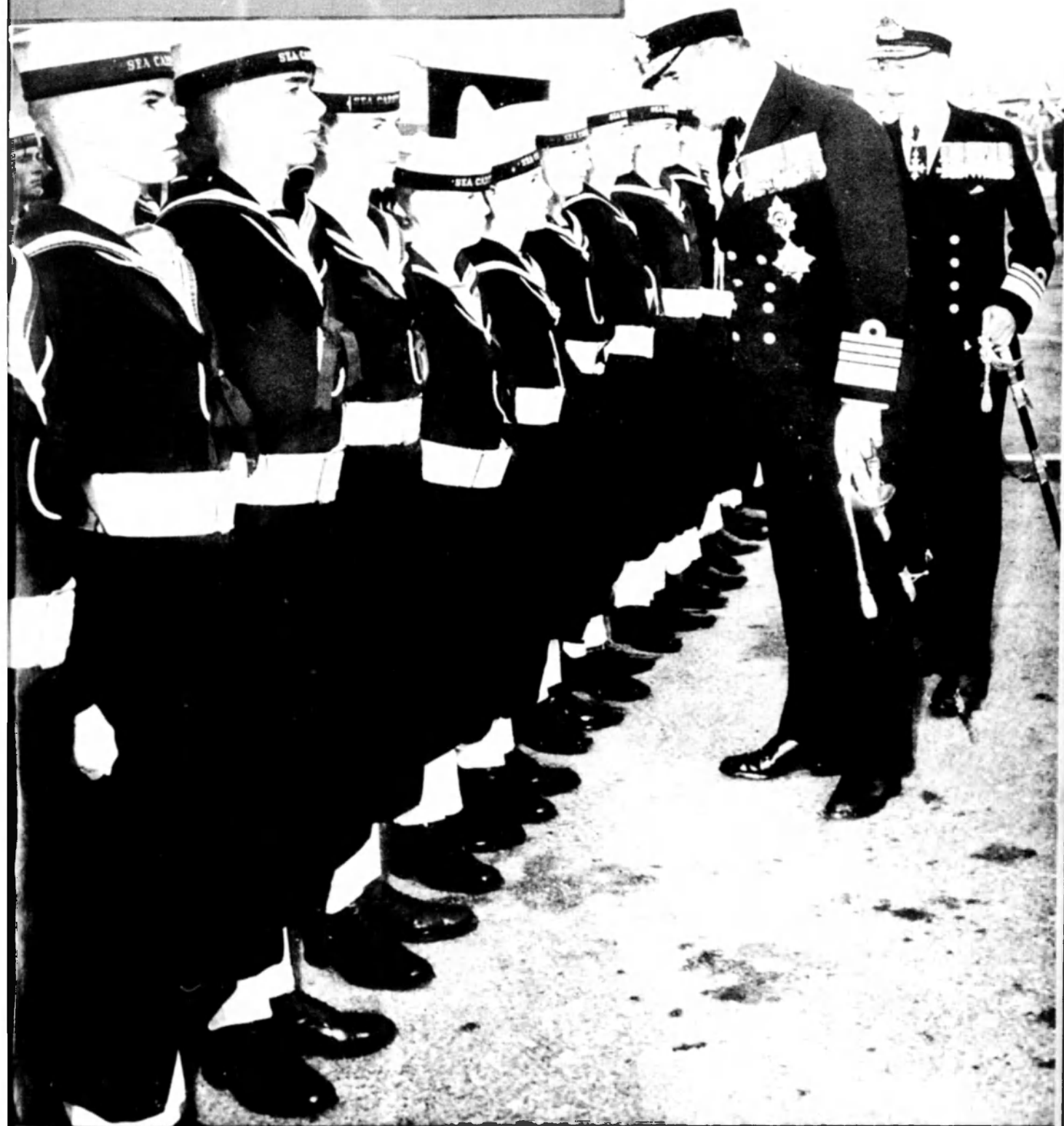
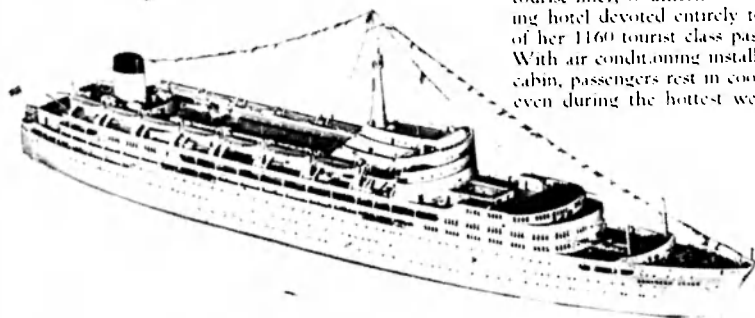


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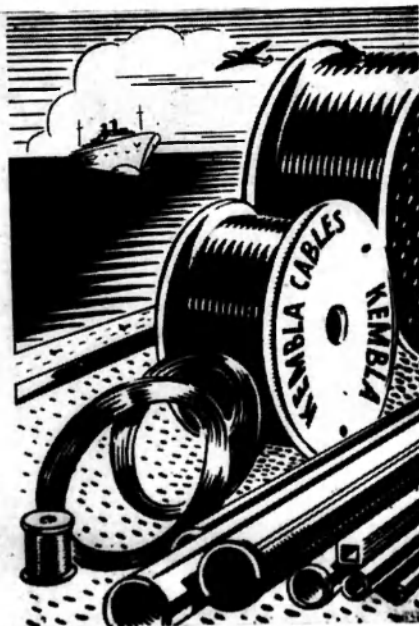
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MAY, 1956.

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COVER: The First Sea Lord, Admiral Earl Mountbatten, inspecting a parade of sea cadets at Essendon, Victoria. Photograph by courtesy of The Sun News Pictorial, Melbourne.

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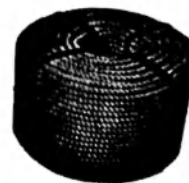
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## OUR FIRST DARING CLASS

The commissioning at Sydney later this year of the Royal Australian Navy's Daring-class ship, *Voyager*, will highlight an important advance in shipbuilding—the development of the technique of welding.

H.M.A.S. *Voyager*, a many-purpose warship larger than the normal destroyer and almost in the light cruiser class, will be Australia's first all-welded ship.

Her completion will serve to draw attention to the interesting history and rapid progress of welding in ship construction.

The greatest progress in the technique of electric welding as applied to shipbuilding has been most evident in the postwar years.

But as far back as World War I, British and American shipbuilders were investigating the possibility of constructing all-welded ships.

In England in 1918 a Kent shipyard received an order to build a number of barges for service between England and France and on the French canals.

The barges were needed urgently, but at the time in England there existed an acute shortage of skilled labour for erecting and riveting.

The shipbuilders decided that as an experiment one of the barges should be electrically welded. So late in 1918 they launched the barge A-C1320—the first sea-going vessel to be all-welded in England.

Meanwhile, in America during World War I, the war-time Emergency Fleet Corporation set up a special committee to consider the construction of welded ships.

After the committee reported favourably, plans were made for a full-scale experimental assembly and, later, authority was given to construct an all-welded ship of 10,000 tons.

Welding, as applied to shipbuilding, received its first major setback in America when these projects, both of which were well under way, were cancelled with the 1918 Armistice.

British and American shipbuilders continued to experiment with all-welded vessels, but up to 1934 the largest all-welded ship was the American 1,235-ton *Poughkeepsie* Socony.

Three years later a British shipyard built the all-welded freighter *Franquelin*, which had a dead weight of 3,050 tons and an overall length of 289 feet.

Then, about the same year, an American company built the 11,650-ton tanker *J. W. Van Dyke*, an all-welded giant of its time. The *Van Dyke* was

a landmark in the history of all-welded shipbuilding.

This was not only because of the size of the ship, but also because it represented the first use on a large scale of automatic welding in shipyard work.

To-day, the change-over from riveted to welded construction involves a complete revision of working methods in shipyard plating departments.

In many shipyards provision has now been made to fully weld decks in pre-fabricated panels of up to approximately 3,150 square feet in area, complete with beams and girders.

This covers the full breadth of the largest ships building, and so with about 20 lifts the complete deck of a large liner may be placed in position.

These lifts, incidentally, require the use of large berth cranes capable of at least a 20-ton lift at a radius of 100 feet or even more.

Another factor that influences the change to welded construction is the rapidly diminishing supply of riveting squads for new building.

This is compelling many ship owners, and shipbuilders, to increase the amount of welding in the hull structures of what they intended to be riveted ships.

At the present rate of decline in the number of riveting squads available for new ship building it will not be long before the all-welded ship is a standard product of all yards.

## THE "JOYITA" INQUIRY

New legislation is likely to strengthen the statutes governing locally-owned shipping in Western Samoa.

This is perhaps the most important result of the Commission of Inquiry into the *Joyita* (reported on page 18). The proposed legislation would give greater control over foreign ships operating in Samoan waters.

The *Joyita* was registered in Honolulu. She disappeared after leaving Apia, Samoa, last October 3 and was discovered a drifting wreck on November 10. None of the 15 passengers and crew aboard her when she left Apia was on the wreck and no trace has been found of any of them since.

After the commission announced its findings on April 13 the New Zealand Minister for Island Territories and External Affairs, Mr. Thomas MacDonald, told the N.Z. House of Representatives that the New Zealand Government would give the Government of Western Samoa all possible assistance to prepare whatever legislation might be found necessary.



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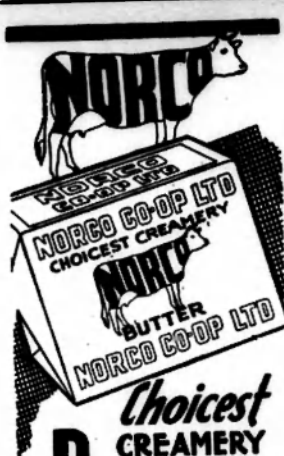
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THE NAVY

# MOUNTBATTEN HAS WARNED US

The First Sea Lord, Admiral Earl Mountbatten, during his recent visit to Australia told a nation-wide radio audience that Russia had the second most powerful navy in the world and the greatest submarine fleet in history. Submarines based on Vladivostok could operate in Australian waters without difficulty, he said. The following is an extract of his talk, given in the ABC Guest of Honour session on April 15.

ALTHOUGH Australia is very big, it still remains an island and as such must still depend upon the Navy.

Although, as a sailor, I speak of the Navy, I wish to make it clear that I mean to include all the forces which retain the command of the seas for us and which include, of course, the Coastal Command of the Royal Air Force in the United Kingdom and the Maritime Squadrons which co-operate with the Navy throughout the British Commonwealth; for war at sea is indivisible whether fought over, on or under the sea.

Carrier-borne aircraft are of course part of our Navies. They have a very vital part to play in the war at sea. The aircraft carrier is virtually a mobile air-field which would certainly escape damage through being out at sea during the period of thermo-nuclear bombing. Thereafter it will provide an air field at whatever place it is wanted, and in the case of Australia that will mean well forward away from the coasts.

The Australian Navy possesses the very latest light fleet carrier in the world, H.M.A.S. Melbourne, who reaches Australia this month. She has the angled deck, the steam catapult and the mirror landing sight and is the last word in carriers.

In the United Kingdom, which is close to the Iron Curtain, we

have laid immense stress on the creation of a medium bomber force capable of delivering strategic weapons which we have begun to make as our contribution to the nuclear deterrent. But none of us could possibly wish to see the disaster of the atomic and hydrogen bombing which would be the main feature of a Third World

great book that "those far distant storm beaten ships upon which the Grand Army never looked stood between it and the conquest of the world."

The fact that it was the Navy which would save the British Isles from starvation through the U-boat war and by its own blockade ultimately bring about the defeat of Germany in World War I was hardly realised outside Naval circles before the war began.

In the Second World War the Germans came even nearer to starving us into submission through their intensive U-boat campaign, and once more the Navies cut them off from all supplies and further made it possible for great armies to invade the Continent for the reconquest of Europe.

It is important that it should be thoroughly understood that the advent of thermo-nuclear weapons has not changed the need for navies of their primary role. Obviously it must affect the design of ships, the composition of fleets, the tactics of naval warfare. But it does not make navies any less important. Indeed, they become even more important.

This conclusion has been drawn by the major powers in the world, including Russia, who has chosen in recent years to accelerate the building of an already very powerful fleet.

Clearly Russia recognises that if war should ever come, massive

### ON OUR COVER

Britain's First Sea Lord, Admiral Earl Mountbatten, at Essendon Airport on April 5 inspected a Sea Cadet guard under the command of Lieutenant J. Grainger, Commanding Officer of T.S. "Melbourne."

Sixty-six cadets selected from five of Victoria's seven units at Geelong, Port Melbourne, Footscray, Bendigo, and Geelong Grammar School comprised the guard. The First Sea Lord spoke to many of the cadets during the inspection.

Following the inspection, Earl Mountbatten was introduced to Commander R. A. Nettlesfold, D.S.C., A.D.C., deputy federal president of the Navy League, and Lieutenant F. G. Evans, R.A.N.V.R., senior officer of the Victorian Sea Cadet Division.

War, and indeed, with so strong a deterrent on both sides, we are all hoping that there will be no more global wars.

The misunderstanding of the fundamental role of the Navy is nothing new. Napoleon never realised, as Mahan has put in his

May, 1964.



land and air forces and the thermo-nuclear bomb are not enough. She knows that she must also be able to dispute command of the seas.

Let me, for a moment, discuss the Navy's role in a limited war, such as Korea was, as well as in global war.

First, if local wars are not dealt with quickly, the danger of a global war is increased. The Navy is the most mobile of all three Services and can most easily operate independently of land bases. It is therefore especially valuable for dealing with local wars and preventing them spreading.

Secondly, it is this mobility that helps to give the Navy its great prestige value in peace, because warships are able to pay regular visits to Commonwealth and foreign ports. When one of Her Majesty's Australian ships visits any ports away from home she brings into that country a cross-section of the Australian way of life. The officers and liberty men seen ashore with their smart and courteous bearing give an excellent impression of Australia to the people of the country being visited. And when they receive visitors on board their ship with typical hospitality, then those visitors are able to see Australian community life at its very best. There is no finer way of making Australia known to the world.

Thirdly, there is the role of the Navy in a global war. There are bound to be wide differences of view about the likely course and duration of a war fought with nuclear weapons. But I suggest that we should be most unwise to assume that in a war, of whatever length, the Navy has not a vital part to play, since any potential enemy would certainly try to starve the United Kingdom into submission and disrupt the British Commonwealth by cutting our

sea communications after the exchange of thermo-nuclear bombs had petered out.

Indeed, for what other main purpose would an enemy build so vast a fleet as has now been created on the other side of the Iron Curtain?

It has been suggested that a few atom bombs on the enemy's submarine bases would put an end to the submarine threat. But since it is not we who will decide when a war is to start, the Power that does so will presumably have the wit to see that its submarines and, indeed, its entire Navy, are at sea first, with adequate sea-going support to keep them there for a very considerable time, and it is with this threat that our striking forces and our anti-submarine forces will have to deal.

During the last war the United Kingdom required about a million tons of seaborne supplies each week to keep it going.

Twenty million tons of freight enters and leaves Australia annually by sea. The equivalent freight moved into and out of Australia annually by air is only 2,000 tons, or one ten-thousandth of that moved by sea; nor could this proportion be greatly increased, as everyone who has tried to work out this problem knows.

So you will see what disastrous effect a successful submarine blockade backed by Naval surface and maritime air action could have on the course of the war after the first week or two unless we were in a position to give adequate protection to our convoys.

Australia could neither help in the overall defence of the British Commonwealth nor indeed look after her own defence sufficiently far forward unless she could send and support forces by sea.

The second most powerful Navy in the world and the greatest submarine fleet in history is possessed

by the Russians and although there is no indication of any desire by them to start a global war, should such a disaster come about through miscalculation, we would certainly be faced with the greatest risk of starvation in Britain and isolation of the British Commonwealth we have ever known. Submarines based at Vladivostok could operate in Australian waters without difficulty.

The British Statement on Defence this year says: "If global war were to break out it would be a struggle for survival of the grimest kind. Its course would be unpredictable after the initial phase."

The terrific strength of the potential enemy navy could bring us to our knees after this initial phase if our navies were not ready to meet this eventuality. So don't underrate the importance of our navies, and please give your Navy your sincere support. You have every reason to be proud of such a fine service. The next time you see an officer or sailor ashore from one of your ships please bear this in mind.

Of course our sailors will need new ships, new weapons and appliances and in fact our new atom age Navy must become streamlined. Already the Admiralty have ordered a squadron of super destroyers to be built with guided missiles, but construction cannot actually start until we have carried out trials with our new Naval guided missiles on board H.M.S. *Girdleness* this year.

During my tour of Australia, quite one of the most interesting visits I paid was to the Woomera Guided Missile Range. I was most impressed by the trials which I saw in progress.

It is clear that nuclear energy may well become, in the future, the main source of propulsion for both naval and merchant ships.

The Admiralty's intention will be to employ nuclear power in the first instance in submarines. For some years scientists and naval officers, serving at the Atomic Energy Research Establishment at Harwell, have been collecting the necessary knowledge of this subject, but it has only recently become possible to start practical work on planning a marine nuclear power plant. But however modern our equipment and ships it is the spirit of the men who man them which still counts. That is why I was so thrilled to find the morale of the Royal Australian Navy so high.

Finally I should like to thank all the Governments and Civic authorities who may have entertained us for their extraordinarily kind and friendly reception to my wife and myself, and indeed all our party. I should like to thank the R.S.S.A.I.L.A. with which I am associated as Grand President of the British Empire Service League, the Overseas League of which I am President, and the Royal Life Saving Society of which I am also President, for their very friendly reception in every city. The Royal Life Saving Society, which has self-governing branches the world over, is doing a particularly fine job in every State of Australia, and I know that our Royal Patron, The Queen, who is herself an award holder, will be really interested to hear an account of its achievements. I should like to congratulate the Navy League on the important part they play out here in helping to keep to the fore the vital need for the Royal Australian Navy.

So thank you all once more, particularly the thousands who were kind enough to turn out and welcome us in the streets of so many cities for your very warm welcome, which we shall never forget. Goodbye, good luck and Advance Australia.

## New Mountain Range Found Under the Sea

The Royal Australian Navy survey ship "Barcoo" returned to Sydney recently after surveying a massive underwater mountain range off the N.S.W. coast.

H.M.A.S. *Barcoo*, under command of Lieutenant-Commander J. H. S. Osborn, R.A.N., spent three months on this job.

In Sydney Lieutenant-Commander Osborn said the *Barcoo* had surveyed an area of about 160,000 square miles, extending eastward to about 300 miles from the N.S.W. coast.

"Very little was known about this area before the survey," he said.

In the northern half of the area there had been a number of random soundings. Most of these were deep but showed a bank about 200 miles east of Newcastle with a depth of 72 fathoms or 400 feet. In the southern half of the area there was no information available beyond the continental shelf.

"The average depth of this part of the Tasman is about 15,000 feet, but we found a series of mountain ranges situated between 200 and 300 miles off the New South Wales coast.

"They rise as much as 10,000 feet from the ocean floor and are fairly steep. They stretch in a north and south direction from the latitude of Lord Howe Island to the latitude of Tasmania.

"We also examined the bank east of Newcastle. If you compare it with a land feature it would be a flat topped mountain rising steeply from a level plain to a height of 15,000 feet.

"We obtained these soundings by measuring the time that a sound impulse takes to travel from the ship, strike the sea bottom and return to the ship.

"This type of survey is made

to obtain knowledge of the topography of the sea bottom. It is important because it sometimes enables a navigator to determine his position by soundings. Also the shape of the sea bottom affects ocean currents, which in turn affect the climate of a continent and fishing off the coast."

H.M.A.S. *Barcoo* returned to Sydney flying the paying-off pennant, for she is to go into reserve. Her place will be taken by H.M.A.S. *Warren*, a much smaller ship, formerly employed on fisheries research work.

Another survey ship, H.M.A.S. *Warrego*, returned to Sydney on March 17 for leave and refit.

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# THE NEW FRIGATES

By Oscar Parkes, A.S.N.A.

Published in the London "Navy"

THE general form of the frigates now under construction may be said to stem from a design submitted by Thornycrofts to the Admiralty in 1938 for a light destroyer in which the outstanding feature was a long forecastle carried aft as far as the stern gun site.

This was opposed to established destroyer practice in which the raised forecastle only extended to the after end of the bridge, making passage beyond this wet and hazardous in heavy weather, although in the fleet minesweepers of the "Shoreham" class and the "Grimaby" type of sloops, the forecastle had been carried to well abaft amidships.

Thornycrofts wanted to incorporate this feature into destroyers, but the Board would have none of it and when, in 1939, contracts were placed for a number of light destroyers to be named after famous hunts, the short forecastle was retained. Dimensions were 280 x 29 x 7½ ft. with a displacement of 1,000 tons, speed to be 27 kts. with 19,000 h.p., and an armament of six 4-in. guns, some light A.A., and a set of 21-in. tubes.

But in the prototype *Atherstone*, stability was found to be insufficient, necessitating the surrender of a pair of guns and the torpedo tubes in the twenty-three vessels of the class. In the next group of thirty-three the hull was "kipped" by 2½ ft. and with a beam of 31½ ft. it was found possible to mount six guns but no tubes. Following them came the twenty-eight "Albrightons" with the same dimensions but mounting four 2-pdr. A.A. in place of

the aftermost 4-in., and two 21-in. tubes.

At the same time, Thornycrofts were allowed to build two vessels to their own design of 1938, the *Brecon* and *Brissenden*, whose dimensions were 206 x 33½ x 9 ft., 1,175 tons, mounting six 4-in., four 2-pdr. A.A., eight 20 m.m. and three 21-in. tubes; the same h.p.s. 19,000 giving an easy 25 knots.

When it was decided to convert the destroyers *Rocket* and *Relentless* into "frigates", experience with the "Brecons" confirmed the advantages of the covered passage fore and aft and they were given an extended forecastle with a minimum of bridgework and substantial pylon masts to carry the heavy radar equipment.

In them we see the first presentation of the shape of ships to come—the smooth shapely hull, low built-in superstructure, few boats, a small glassed-in shelter in place of the former high bridgework, unobtrusive gun positions, and a single low funnel. But now that we know them, the "Rockets" have become quite pleasant looking ships with a considerable air of efficiency and vastly preferable to the "Weapons" and "Darings," so far as appearance goes.

In planning the post-war rearmament programme, initiated in 1950, twenty-seven frigates of four classes were to be built, each intended for a special duty in convoy escort.

As modern equipment for A.A. protection, aircraft direction, and anti-submarine duties could not be contained in a single hull of the size required which is dictated by cost and numbers required, each type is specially fitted and units

will work in conjunction on convoy service.

The outstanding feature of each class is high freeboard forward to ensure good weatherly behaviour, with a full length forecastle, except in the smaller 2nd rate "Utility" class, of which twelve are being built. Named after famous commanding officers of the past, their progress is as follows:

## "BLACKWOOD" CLASS.

			Launched	Completed
HARDY	Yarrow	1953	27/11/53	
KEPPEL	"	1953	21/6/54	
MALCOLM	"	1954	18/10/55	
PELLEW	Swan Hunter	1953	29/9/54	
RUSSELL	"	1953	10/12/54	
DUNDAS	White	1952	25/9/53	
GRAFTON	"	1953	13/9/54	
KEIMOUTH	"	1953	16/11/55	
BLACKWOOD	Thornycrofts	1953	4/10/55	
DUNCAN	"	1953	blde	
MURRAY	Stephen	1953	21/2/55	
FALLISER	"	1953	blde	

Dims.:—300/310 x 33 x 10 ft.  
—1,300/1,700 tons.

Arm.:—3 Mk. 9 Bofors; 2 limbo mortars; 2-twin 21in. tubes

Mach.:—Babcock boilers; geared turbine 15,000 SHP — 22 kts.; single screw.

It will be seen that they have an unusual profile with the high forecastle sweeping down in a curve to the built-in superstructure only as high as the bulwark in the bows and surmounted by a light navigating house and control positions. The two masts are of light lattice work with a very narrow funnel, flanked by ventilating shafts. The guns are sited on each side amidships and right aft, and although seemingly a light armament, they are considered a match for any submarine. A three-barrel mortar is mounted on each side of the after shelter-deck.

Although listed as of 22 knots only, their actual speed will be considerably higher and well in excess of that of hostile submarines. With a view to rapid con-

struction in an emergency — although ships of the current programme show no indication of more than leisurely progress—prefabrication and welding have been largely employed.

Sections of the hull can be welded at different parts of the yard and assembled on the slipway for incorporation into the hull, which should allow for the ship to be launched and the slip cleared with considerable saving of time. Horizontal welding of deck plates and running surfaces can be done by machine; vertical and curved welding has to be done by hand, which needs greater skill, and prefabrication allows for use of the machine.

Six of these first rate anti-submarine frigates are under construction:

## WHITBY" CLASS.

			Launched	Completed
WHITBY	C. Linds	1952	2/7/54	
TENBY	"	1953	4/10/55	
TORQUAY	H. & Wolff	1953	1/7/54	
BLACKPOOL	"	1954	blde	
W. ARBOUGH	V. A. Tyne	1953	4/4/55	
CASTROURNE	"	1954	29/12/55	

Dims.:—360/370 x 41 x 12 ft.  
—2,000/2,800 tons.

Arm.:—2-4.5 in.; 2-40 mm. stags; 12-21 in. torpedo tubes; 2 limbos.

Mach.:—Babcock boilers. 2 sets geared turbines, 30,000 SHP — 30 kts.

To ensure a dry command for the twin 4.5 in. guns forward, a topgallant forecastle provides extra freeboard—a feature not to be found in H.M. ships since the days of masts and yards. Then the addition of an upper forecastle was not uncommon as it meant little more than decking over the high standing bulwark as in the case of the *Defence* and *Resistance*, *Caledonia*, *Prince Consort*, *Hercules*, and others.

Superstructure has been reduced to a minimum and plated in, with only a small chart house and a big



Pilots of 805 R.A.N. Air Squadron studying a chart of the first leg of a recent training flight from Nowra to Hobart and Adelaide, then back to Nowra. They are (left to right): Sub-Lieut. B. W. Smith (of Albury), Lieut. E. I. Webster (Launceston), the Commanding Officer of 805 Squadron, Lieut.-Col. R. E. Bourke (Perth), and Sub-Lieut. A. D. Howells (Perth).

director easily washed-down in place of the substantial pile of bridge-work which might become a dangerous encumbrance after exposure to radiation. Whether or not this meagre provision of shelter deck structure will prove to be adequate will be decided upon after sea trials.

The lattice mast is a big unsightly structure and almost hides the diminutive funnel which might very well be fitted with a cowl to divert furnace products from the extensive radar equipment.

Both the 4.5 in. and 44 mm guns aft are automatic and radar

controlled and the twelve tubes firing anti-submarine torpedoes are carried in eight single and two twin mountings.

The detection, location, and destruction of submarines has now reached a very advanced stage and these ships are to be fitted with specialised equipment of a new type which will make the life of any submarine which comes into their orbit uncomfortably hazardous.

Driven by two sets of geared turbines of "advanced design" their legend speed of 30 kts. is expected to be comfortably exceeded.

## DIVER—WATCH THOSE WHALES!

The Royal Australian Navy at present is very interested in whales. Not in the commercial sense but to help it understand better the physiological problems which confront deep sea divers and frogmen.

THE Navy Minister, Senator Neil O'Sullivan, spoke about this when discussing a recent conference of Naval medical officers in Melbourne.

The conference was on medical aspects of underwater warfare.

The Medical Director-General of the Royal Australian Navy, Surgeon Rear-Admiral L. Lockwood, presided at the conference which was attended by 50 medical officers of the R.A.N., the R.A.N.R., and the R.A.N.V.R.

Members of the Australian Naval Board, the Director-general of Army Medical Services, Major General W. F. Refshauge, the Director-General of Air Force Medical Services, Air Vice-Marshal E. S. Daley, and the Director of Naval Ordnance and Underwater Weapons, Captain W. B. Marks, R.A.N., also attended.

Senator O'Sullivan said that whales harpooned by whaling ships could dive immediately to a depth

of 500 fathoms and at once rise again to the surface. The greatest depth to which a human diver could descend and from which he could ascend immediately was 150 feet.

If he went lower than that and tried to return without a decompression period he would suffer agonising "bends" and might die as a result of deficiencies brought about in his blood.

If a study of the metabolism, heart beats, and general physiology and anatomy of whales could help to modify the limitations imposed on frogmen and divers, and eliminate at least some of the time spent in "staging," the efficiency of methods that could be used in future underwater warfare would be increased appreciably.

At the conference the Assistant Director of Underwater Weapons, Lieutenant-Commander M. S. Batterham, R.A.N.V.R., predicted

that underwater operations by frogmen and other naval divers would play an increasingly important part in future wars.

Lieutenant-Commander Batterham said that the techniques of underwater warfare had been improved considerably since the days when a seaman with an auger was put in a barrel and sent to bore holes in the submerged sides and bottoms of enemy ships or to blow up gunpowder stored in the vessels by pushing fuses through the holes.

In the Second World War, Allied frogmen were employed from shortly before D-day onwards in clearing Continental ports and beaches of enemy obstructions. They were also used in removing "limpets" which had been placed on the sides and bottoms of Allied ships in Gibraltar Harbour by Italians.

The only known underwater fight between frogmen occurred in Gibraltar Harbour. After a fierce struggle, a frogman of the Royal Navy killed an Italian frogman whom he had found attaching a "limpet" to a ship. He was awarded the George Medal for his heroism in accomplishing that feat.

### SEA CADET BALL

A ball for the cadets of T.S. Sirius was held recently at the Coronation Hall, Arncliffe, New South Wales.

The principal aim of the ball was to raise funds for building on the new headquarters site at Cahill Park. But it was also an opportunity for the cadets to mix with the people who support their unit

## STEEL IN SHIPBUILDING

By "Bluenose"

In London

ON a February day in 1856, Mr. Henry Bessemer (as he then was), an engineer who had been investigating methods of improving the quality of metal for gun barrels, read to the meeting of the British Association at Bristol a paper describing an improved process for making steel.

His method was to pour a charge of molten pig-iron into a vessel known as a "converter" and blow hot air through it. This had the effect of removing most of the impurities from the iron, leaving a steel with a carbon content of not more than six parts in 1,000.

Steel was not a new material, but hitherto it had been produced in very small amounts only, and at considerable expense. By the Bessemer process it could be manufactured in large quantities and at much reduced cost.

Unfortunately, however, the process was so quickly completed that it was difficult to control accurately, and the quality of the steel varied considerably. There was also difficulty arising from the presence in the ore of phosphorous and sulphur. These were not eliminated by the Bessemer method and resulted in a brittle steel.

Gradually these difficulties were overcome, partly by the use of special linings in the converter and partly by additions to the original charge of pig-iron. Steel, owing to its much greater tensile strength, and greater ductility, began to be used more widely in shipbuilding than had previously been possible; though it did not yet replace iron and was looked at askance by many shipowners and naval architects.

At the same time its use spread in certain types of ship where lightness of structure and shallow draught were essential. Great care and extensive testing were required in the yards, and with these safeguards these early steelbuilt vessels proved successful.

The next great advance came in 1868 with the introduction of the Siemens open-hearth process. This method of steel making is much slower than that used by Bessemer, taking about eight hours instead of under 30 minutes; but it is possible to control the quality of the finished product much more closely. The mild steels used in shipbuilding are largely produced by the open-hearth method.

In 1877 Lloyd's Register issued revised rules for the construction of ships, making it permissible to reduce the thickness of plate and the weight of the frames when steel was used instead of iron. This worked out in practice to give a ship of the same dimensions a small increase in carrying capacity, very welcome to owners, especially in view of the huge quantities of bunker coal which had to be carried on long voyages.

Sir William White, in the second edition of his *Manual of Naval Architecture*, published in 1881, estimated that a ship designed for trade with Australia via the Cape, and carrying 2,500 tons of bunkers and only 1,200 tons of cargo, could increase her carrying capacity to 1,550 tons by the use of steel in place of iron in her construction.

The advent of cheaper and better steel also affected the building of boilers. Again the advantage of

steel lay in its ability to withstand higher pressures.

Though it is a far cry from the vessels of the 1870's and 1880's to the ships of to-day, steel remains the principal shipbuilding material. Aluminium has made its appearance in yachts and lifeboats and in the superstructure of a certain number of deep-sea vessels, notably the S.S. United States, but it has not yet been adopted widely.

As in the early days of steel, cost is a considerable factor, together with the additional problems which the shipbuilder must face when using the new material.

Steel supplies and steel prices are still vital to the shipbuilding industry, and hence to the shipowner and to the country generally.

On neither count should we feel any complacency. Uncertainty of supplies was one of the great complaints of the earlier post-war years, but it was believed that, with increasing production, this problem had been solved. It has raised its head again in the past few months, partly, no doubt, owing to the interruption of ore supplies during the dock and railway strikes last spring, and partly to the general increase in home requirements for various construction purposes.

The credit squeeze may limit the latter drain. It is greatly to be hoped, however, that the leeway in production from all causes will shortly be made up since a steel shortage would have serious effects on the output of ships.

Steel prices have been rising

Continued, col. 3, page 19

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## A NIGHT OF PERIL

By CAPTAIN HENRY F. WAIGHT, O.B.E., R.N., Retd.—in London.

IT was evening on 19th March, 1943. It had been a strenuous day. At first light a new convoy of sixteen fully loaded ships, carrying the much-needed petrol, ammunition, and other stores for the Eighth Army, entered the twenty-five-mile swept channel, through the minefield, leading to the almost completely blocked harbour of Tripoli.

The convoy had been shadowed by enemy aircraft and submarines all the way from Alexandria. Now as dusk was falling, and the last ship of the convoy had been secured, I, as N.O.I.C., felt a sense of relief which was, I am sure, shared by the Commodore of the convoy and the masters of the ships, thankful to have reached harbour safely with their precious cargoes.

At 5 p.m. the Port Executive met, under the chairmanship of the Naval Officer in Charge. This meeting was attended by all the V.I.P.s, the plans for discharge were discussed, and also the sailing of a convoy of empty ships to Alexandria at first light. The harbour was full to overflowing with shipping.

Not only were there the ships of the new convoy, and the empty ships sailing on the following morning: there were oil fuel tankers and water carriers, alongside of which were destroyers and escort vessels completing with oil and water in preparation for escorting the convoy to Alexandria on the morrow: and the Minesweeping Flotilla was all set to sweep the channel at first light.

In addition, there were patrol craft, landing craft, and gunboats of every description — all the

craft which go to meet the needs of a front-line port. There were over one hundred vessels within the harbour.

The Port Executive Committee ended its meeting about 7 p.m. I accompanied the "Senior Officer Inshore Squadron" back to Navy House, our headquarters.

It was just dark, the visibility almost one thousand yards, with haze and a slight drizzle. Our words on parting were: "Not much likelihood of a raid tonight," an expression, perhaps, of wishful thinking. We had hardly parted company when the ack-ack guns opened fire, and aircraft could be heard passing over the harbour.

Twelve plus Italian bombers had got through to raid the port, without being detected by radar. It was a coincidence that the ack-ack guns' crews had just cleared away their guns for action.

Two fully loaded ships, S.S. *Varvara*, carrying canned petrol, and S.S. *Ocean Voyager*, carrying a composite cargo, including four thousand-pound bombs, had been hit and were enveloped in flames fore and aft, with the flames rising to a great height.

I knew I had no fire fighting equipment to deal with such fires, and immediately concentrated on saving life from the burning ships.

I was driven to the boat jetty in a 15-cwt. truck and immediately sent into the harbour every available boat.

Many men were rescued and landed at the Naval Barracks for treatment. During this time I was afloat superintending the rescue work and seeing that all ships were prepared to deal with the spreading of the fire from these

two ships, where explosions were taking place and red-hot drums of high octane petrol were being shot up to a great height and exploding in the air.

On the way out in my boat to S.S. *Ocean Voyager*, I was hailed from the fore-castle of S.S. *Malayan Prince* and warned to keep clear of a floating mine close to her bow. I had already heard one or two mysterious explosions. I had also passed several objects that appeared to be moving under power and creating a bluff but small bow wave, which very much puzzled me.

Some time had passed since the raid, when I heard an explosion alongside the destroyer H.M.S. *Derwent*, and on closing her found that she had been hit in the engine-room and was in danger of sinking.

Fortunately H.M. Tug *Brigand* was close at hand. She was placed alongside H.M.S. *Derwent*, whose cables were slipped, and *Derwent* was beached to prevent her from sinking. A large number of her crew were landed and quartered in the Royal Naval Barracks. The auxiliary machinery of *Derwent* was kept in action to prevent further flooding.

I had now come to the conclusion that the attacking aircraft had dropped circling torpedoes by parachute, and this theory subsequently proved to be correct.

Circling torpedoes are dropped from aircraft with a parachute attached. On entering the water the parachute becomes disengaged, and the mechanism of the torpedo is started into action. The rudder is fixed to ensure that the torpedo runs in a circle, and its depth is

controlled by a mercury operated valve. If a target was not hit whilst the torpedo was in motion, it eventually floated on the surface and became as dangerous as a floating mine.

In the meantime, the two ships hit continued to blaze fiercely, but, apart from the torpedoing of H.M.S. *Derwent*, no other major disaster occurred and ships of the convoy began to resume discharge operations. My one great worry was the likelihood that the blazing ships might encourage the enemy to make another attack. I decided that nothing more could be done until daylight and that officers and men should rest as much as possible.

Shortly before midnight I went up to the flat roof of Navy House and took a survey of the harbour. The flames from S.S. *Varvara* were now dying down. Even the *Ocean Voyager*, except for an occasional explosion, did not appear to be burning so fiercely.

The remaining ships in harbour were blacked out; and, except for the clanking of the winches in ships working cargo, all seemed peaceful. I had had a gruelling day, and decided to get a little rest. I sat on my camp bed and had removed one heavy boot, when the whole building was rocked by a terrific explosion.

I was thrown to the floor, and the wooden shutters around the windows were burst open. I saw a huge red glare over the men's quarters and at once thought that we had been caught out by another raid and that bombs had been dropped on the Naval Barracks; but within a few minutes the signalman reported that S.S. *Ocean Voyager* had blown up at five past midnight.

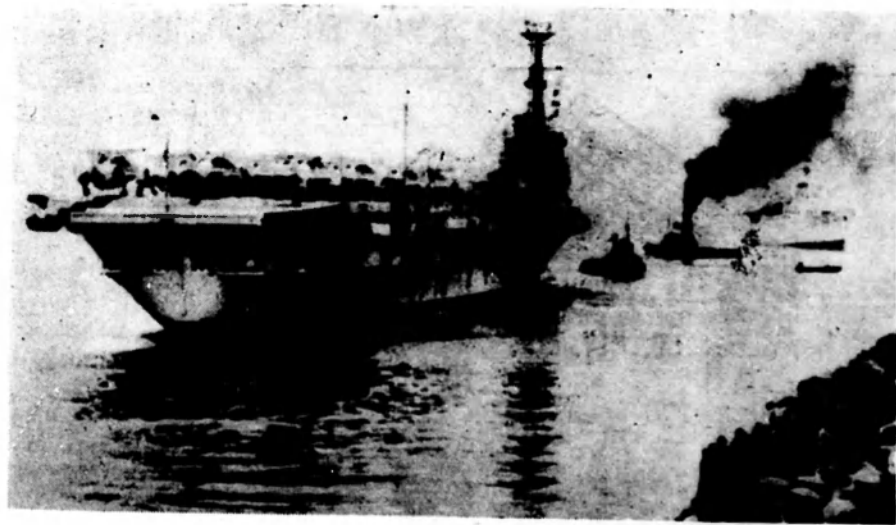
I had by this time replaced my boot and once again went up to the flat roof of Navy House to make a survey. The scene before me was almost indescribable. The force of the explosion had split

S.S. *Varvara* in two. The *Ocean Voyager* had dispersed her petrol drums over a very large area in her vicinity, and these had joined forces with those dispersed by *Varvara*.

The surface of the water in the harbour between the two ships was ablaze with burning petrol reaching four hundred feet in height, and with considerable depth. The wind had freshened and veered, with the result that this wall of fire was slowly sweeping across the harbour from North East to South West and would envelope practically all the ships.

I was confronted with a situation which might prove to be the most critical I would have to handle during the war. Tripoli was the advanced base for the Eighth Army. The entrance was so narrow that only one ship with a pilot on board could pass through safely in daylight.

A blocked channel, with so much at stake, was a risk I had



Drizzling rain greeted Australia's new aircraft-carrier H.M.A.S. "Melbourne" when she arrived in Melbourne on May 2 from England. About 1,000 people watched her berth at Station Pier. ["Daily Telegraph" wirephoto.]

to take. I made a signal to all ships:—"Weigh and proceed out of harbour independently, paying due regard to the safety of your own ships. No pilots available."

The responsibility sat fair and squarely on my shoulders. For hours I watched large and small ships enveloped in the flames, twisting and turning to get clear and leave harbour.

Some of the larger ones did not manage it: some ran aground in their efforts to get clear; but, by spraying the rigging with water from the hoses at high pressure, the flames were kept in hand until they finally drifted clear.

H.M.S. *Derwent*, which had been run aground to save her from sinking, was now in the direct path of this roaring line of flame. She was stuck fast and unable to move, but the Commanding Officer had rigged every possible fire hose, and the fire pump was working to full capacity. As the wall of flame enveloped his ship, every fire nozzle was directed

at the water line. The force of water separated the "jerry cans" as they passed by, and thus the intensity of the fire wall was broken down; and, by the gallant efforts of the Commanding Officer and a very reduced crew, H.M.S. *Derwent* was preserved from destruction and salvaged at a later date.

With the coming of dawn, the fire had burned itself out. To my great relief and admiration, over eighty ships of all sizes had successfully run the gauntlet through the fire, and had safely navigated the perilous and most important narrow channel at the entrance of the harbour.

Had any ship, large or small, made the slightest error in navigation and caused the channel to become blocked, it might have hazarded the success of the attack which General Montgomery had just opened on the Mareth Line, since it would have restricted for an indefinite period the much-needed supplies of petrol and ammunition.

It is doubtful whether the great

danger on that eventful night to the supply line operating through Tripoli was ever fully realised by the "Powers That Be."

The terrible danger was now past: the ships that had run the gauntlet during the night through the blazing wall of fire were now anchored in almost perfect formation. The outward bound convoy of empty ships were assembled and, preceded by the Minesweeping Flotilla, entered the channel bound for Alexandria.

Ships of the new convoy were again brought into the harbour and reberthed. The normal port organisation rapidly got into its stride, and in less than forty-eight hours, through the untiring efforts of all concerned, the average daily rate of discharge had been exceeded.

Nevertheless, two very valuable ships with their precious cargoes had been lost, though the enemy (much to our surprise) did not attempt to follow up this outstanding success immediately.

— From the London "Navy."

### Dutch ship sunk off Rio de Janeiro

A Dutch motor ship which struck a reef off Victoria, north of Rio de Janeiro, sank a few minutes after the rescue of the 14 passengers and crew.

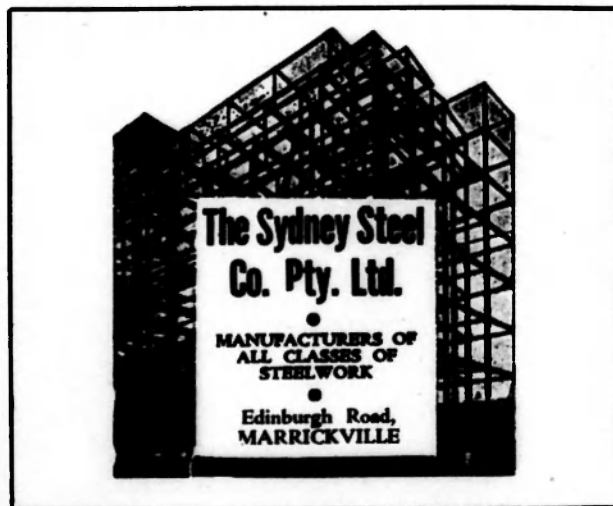
The 6,400-ton ship, *Altair*, was carrying a cargo of cotton and coffee.

### NUCLEAR WEAR

On the page opposite is what Sydney's defenders would wear in a nuclear weapon attack. Wearing the protective clothing are Petty Officer C. Farr (Rockdale) and Shipwright A. Grant (Marrickville). They showed the clothing in a Navy demonstration to Service, harbour and shipping officials.



May, 1956.





MARITIME NEWS OF THE

# WORLD

From our Correspondents in  
LONDON and NEW YORK

By  
AIR MAIL

## Broken pipe caused "Joyita" disaster

The Commission of Inquiry Inquiry into the *Joyita* disaster found last month that the cause was a broken pipe in the cooling system, which caused the vessel to be flooded.

The Commission sat at Apia, Samoa.

The 70-ton *Joyita* with nine passengers and 16 crew disappeared after leaving Apia on October 3 on a voyage to the Tokelau Islands. On November 10 it was found hundreds of miles off its course, waterlogged and drifting, with no one aboard.

The Commission said that examination of the wreck showed no evidence of damage by sudden and violent means, such as ramming by another ship, fire, explosion, or contact with the hull by rock or reef.

There was no evidence, either, of mass murder, organised looting, attack by foreign vessels, water-spout, or violent submarine explosion.

The Commission reported that: Lifesaving equipment on the *Joyita* was inadequate. There were no lifeboats.

The superstructure of the ship was flimsy and this may have contributed to the disaster.

The consensus of expert opinion

was that the port engine was out of commission not long after the ship cleared Apia Harbour.

The *Joyita's* radio transmitter failed.

The Commission was unable to say why the *Joyita* was abandoned. Conditions must have been bad, it said, but the ship was at least afloat and offered some degree of security.

## Faulty lifesaving gear on Italian liner

A lifeboat on the Italian liner *Surriento* had sunk when lowered into the water at Fremantle, Thomas Alan Coles said in Melbourne Police Court on April 19.

Coles is a Commonwealth Investigation Service officer.

He was giving evidence against Captain Angelo Carninich, master of the *Surriento*.

Carninich pleaded guilty to a charge of having failed to keep the *Surriento's* lifesaving apparatus "fit and ready for use at all times."

Mr. Brenton, S.M., fined Carninich the maximum of £100 with £26 5s. costs.

Coles said that a Department of Navigation officer had inspected the *Surriento's* lifesaving gear when the liner reached Fremantle on April 10.

The officer had found very serious defects, Coles added.

He said that to swing out the

lifeboats the *Surriento's* crew would have to remove the guard-rails at the side of the ship.

But the investigating officer found that the rails had seized in their sockets because of rust and old paint, and no boats could be lifted.

Workmen with acetylene torches took 2½ hours to free the rails, he said.

Coles said that a report by a national surveyor said that:

All 26 lifeboats on the *Surriento* had some defect.

Twelve boats needed major repairs.

Nine boats were rotted.

One steel lifeboat was holed.

Twelve sea-anchors were beyond repair.

The report said that the surveyor had condemned 100 of the *Surriento's* lifebuoys because they were faulty.

## Blood transfusion in storm-tossed launch

A doctor saved the life of a 70-year-old woman by giving her a blood transfusion in a storm-tossed launch on Hauraki Gulf last month.

The woman is Mrs. Gladys Faybling, of Waiheke Island.

A varicose ulcer on Mrs. Faybling's leg burst.

A local doctor could only stem

the flow of blood, and advised Auckland police she needed an urgent blood transfusion.

A police launch, with another doctor and the blood plasma, sailed 10 miles through heavy seas to reach Waiheke Island.

The journey back, during which Mrs. Faybling received the transfusion, took three hours.

Her condition was already improving when the launch reached Auckland.

## New ocean-going tug for Sydney

The Sydney Cove, claimed by her owners to be the most modern ocean-going tug afloat, is now being fitted out for her maiden voyage of 13,000 miles to Sydney.

She is the first ocean-going diesel tug Sydney will have.

The Sydney Cove was built on a new system of hull construction. Her engines are 1,500 h.p. and it is claimed she has high towing power and improved free running.

Manned by a crew of 11, the tug will sail via Suez.

## "Fall-out" protection for Japanese ship

The first Japanese ship to be equipped with safeguards against radioactive fall-out sailed for Australia on April 17.

The ship, the 7,470-ton No. 5 *Mantetsu Maru*, carries geiger counters, plastic hatch covers, respirators, and special suits and boots.

The Japan Shipping Company said that the ship would follow a route about 1,000 miles off the designated danger area for the U.S. nuclear experiments due to begin near the Marshall Islands.

In Sydney, the ship would turn over some of its protective equipment to the 8,035-ton *Eisufuku Maru*.

Numerous other Japanese ships

are loading protective equipment.

The 80,000-strong Japan Seamen's Union early this month demanded measures to protect crews from radioactive fall-out.

Radioactive dust fell on the crew of a Japanese fishing vessel after the U.S. hydrogen bomb blast in 1954. One crew member died.

## Lift Suez restrictions, Israel demands

Israel has demanded that Egypt lift all restrictions on Israeli shipping through the Suez Canal.

Israel has made the demand in a message to the United Nations Secretary-General (Mr. Hammarskjöld).

Egypt closed the Suez Canal to Israeli shipping in 1949.

Mr. Hammarskjöld has received a message from the Israeli Foreign Minister (Mr. Sharett) calling the blockade "a hostile act incompatible with the general armistice agreement."

## STEEL IN SHIPBUILDING

Continued from page 13

steadily since the end of the war, and the last increase, six months ago, brought the price of plates to £33/1/6 a ton, compared to £16/19/6 in January, 1946. Steel is one of the major items in the cost of building a ship and this steady rise causes much anxiety. The *Shipping World* estimated recently that the cost of building a 10,000 ton dead-weight motor cargo vessel had gone up some 3 per cent. during the last six months, due almost entirely to the rise in the price of steel.

We have still some advantage on this score over our principal competitors, Germany and Japan; but we could easily lose it. If the present inflationary spiral continues, this country, once a pioneer of cheap steel, may well find herself priced out of world markets for steel products, not least for ships.

— From the London "Navy."

# LOWNDES RUM

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Four of seven sea rescue launches which are being overhauled at the R.A.A.F. marine section at Neutral Bay for service with R.A.A.F. stations around the Australian coast and Manus Isld. The craft carry the latest radio equipment and are capable of fast speeds in open seas.

## H.M.A.S. Melbourne arrives in Australian waters

The Australian aircraft carrier H.M.A.S. Melbourne arrived in Fremantle from the U.K. on April 23. She is due to reach Sydney on May 11.

The main interest shown in the new carrier when she was in Fremantle centred around her equipment for protection against the fall-out from atomic explosions...

The entire interior of the carrier, including the bridge, is capable of being sealed off.

The ship's ventilation system decontaminates the air inside and replaces spent oxygen when the ship is sealed.

Remote control equipment allows engine-room staff to leave their posts for half an hour at a time if irradiated water enters the evaporation and cooling systems.

About 60 aircraft were on the angled flight-deck and in the spacious hangar of the Melbourne when she berthed at North Wharf, Fremantle.

They included the first delta-winged aircraft to reach Australia—an Avro 707 "flying research instrument." The plane will be unloaded in Melbourne.

## Softer life for S. African sailors

The South African Defence Department has announced sweeping changes in living conditions for sailors in South Africa's 15-ship navy.

Improvements envisaged will give ratings near-luxury living.

In future sailors will no longer live in their sea chests. They will be provided with aluminium wardrobes fitted with drawers and having hanging space for three suits.

Hammocks will be abolished and

replaced with beds with reading lights. Wooden mess tables will be replaced with plastic top tables with steel legs to reduce the work of keeping them clean. Half-castes—Cape Coloureds—will be employed ashore and afloat as servants for the sailors.

Ratings will have all their laundry done, except their ironing, which they will have to do themselves.

The South African Navy, however, makes it clear that the cleaning of guns and other warlike material will still be the job of the sailors.

## Navy offer to medical undergrads

Medical undergraduates who have completed their third year at Australian Universities will soon be given the opportunity to join the medical branch of the Royal Australian Navy while they continue their studies.

Those selected will be appointed sub-lieutenants. As well as being paid salaries as officers-under-training they will have their University fees paid by the Navy.

On graduation at the end of their sixth year they will be appointed surgeon-lieutenants for a probationary period of 12 months during which they will be resident doctors at a hospital. On completion of this residency period they will be confirmed in their rank.

## Nuclear-power study for surface ships

The United States Navy has given the Shipbuilding Division of the Bethlehem Steel Company, Massachusetts, a contract to conduct design studies for a nuclear propulsion plant for a surface warship.

The contract does not include design of the nuclear reactor or construction of the ship.

The designs will be for a nuclear propulsion plant suitable for combatant surface types in the 8,000 to 12,000 ton range.

## U.S. Navy's big order or radar planes

The United States Navy has placed an order with the Lockheed Aircraft Corporation for about \$60,000,000 supply of early-warning radar aircraft.

The order is the largest placed by the U.S. Navy for this type of aircraft. Exact quantities were not disclosed.

The U.S. Defence Department, announcing the contract, stated that the aircraft would operate with the Navy's surface radar picket vessels to extend the early-warning radar screen far beyond the country's physical boundaries.

The planes will have great range, and will be able to scan thousands of miles of patrol area.

## New Forrestal Class carrier commissioned

America's new aircraft carrier, Saratoga, was commissioned on April 15 in a traditional Navy ceremony.

The 60,000-ton craft, the biggest and most powerful ever built, is the U.S. Navy's second of the Forrestal Class.

The new vessel, a push-button mammoth of power and split-second efficiency, is slightly longer, swifter and is driven by more powerful engines.

She will carry about 100 planes, and her steam-powered catapults will be able to put four of them in the air every minute.

The new ship, air-conditioned



throughout, and equipped for comfort and striking force, will carry a crew of about 3,500 officers and men.

### German armed forces to have 96,000 men

West Germany will have 8,000 men in her Navy, 12,000 in her Air Force, and 64,000 in her Army by the end of this year.

The West German Defence Minister, Herr Blank, told newsmen this in Bonn last month.

"I can assure you that we will carry out our NATO obligations this year," he said. "We are not a single day behind schedule."

Plans for West German Navy are believed to provide for two fleets—a Baltic Fleet of 14 squadrons and a North Sea Fleet of 7 squadrons.

The Baltic Fleet will comprise two squadrons of destroyers, one squadron of escort vessels of 1,000 tons, one squadron of submarines up to 300 tons, three squadrons of fast patrol vessels, one squadron of ocean-going minesweepers, two squadrons of coastal minesweepers, two squadrons of fast minesweepers, and two squadrons of landing craft.

The North Sea Fleet will be roughly half this size.

Ships for both Fleets are to be built within four years.

### Australia will not sell H.M.A.S. "Hobart"

The Minister for the Navy, Senator Neil O'Sullivan, last month scotched rumors that the Australian cruiser *Hobart* would be sold.

No such proposal had been made, he said.

The *Hobart* underwent a £1,350,000 refit at Newcastle State Dockyard between 1952 and last year.

### Gloucester Cup goes to "Quadrant" again

For the second year in succession the Duke of Gloucester's Cup has been awarded to the Royal Australian Navy's fast anti-submarine frigate *Quadrant*.

The cup is presented annually to the ship in H.M. Australian Fleet which the Flag Officer Commanding considers to have been foremost in general efficiency, cleanliness, seamanship, and technical training during the preceding 12 months.

The Naval Board has congratulated the Captain of the *Quadrant* (Captain V. A. T. Smith, D.S.C., A.D.C., R.A.N.) and officers and men who had served in her in 1955.

Her Captain when she was awarded the cup for 1954 was Captain T. K. Morrison, O.B.E., D.S.C., R.A.N., now Australian Naval Attache in Washington.

### Russian Navy chief reported sacked

British Press reports, quoting "reliable sources," last month said that the commander-in-chief of the Soviet Navy, Admiral of the Fleet Nicola G. Kuznetsov, had been dismissed and replaced by his deputy, Admiral S. G. Gorshkov.

Admiral Kuznetsov, who had a meteoric rise to power, became commander-in-chief of the Soviet Navy at the age of 37.

At the recent Communist Party Congress in Moscow he lost his post on the party's central committee.

He was appointed to the committee at the 19th congress in 1952, a few months before Stalin's death.

Several of his colleagues at the top of the Navy Command have also lost their places as full or candidate members of the Central Committee.

### Compensation paid by Russia to U.S.A.

The U.S. State Department last month announced that Russia had paid £322,000 as half the cost of a U.S. Navy Neptune plane Soviet fighters shot down over the Bering Sea last June.

The incident occurred at a time when State Secretary Dulles and Soviet Foreign Minister Molotov were in San Francisco at a conference of the United Nations.

Mr. Dulles suggested that Russia pay at least half the cost of the Neptune.



**Free Diving**, by Dimitri Rebikoff (translated from the French by Mervyn Savill); published by Sidgwick & Jackson (London).

This is a book which should be read and digested by all who "go down to the sea in SCUBA." SCUBA, in case you don't know, is the American short-title for self contained underwater breathing apparatus, or as it is better known here, the aqualung—the invention which has made free diving possible.

It is now ten years since the aqualung was first manufactured commercially and its enormous popularity has been responsible for a large splash of literature on underwater activity in recent years. But whereas Cousteau, Hass and others have given us some fascinating stories and pictures of their adventures, and while many excellent books on the technique of underwater hunting are available, not until now have the needs of the diver-explorer-photographer been met, with regard to the basic elements essential to safe diving and photographic success.

Free Diving should save lives and many rolls of colour film because of its clear exposition of physical and physiological laws which are immutable, and of the consequences of ignoring them.

In a hair-raising chapter devoted to "accidents" whilst diving, the author analyses their causes and gives preventive measures.

To take just one example, Hope Root, the Miami lawyer, who last year lost his life in an attempt to set a world's record deep dive, is a classic case of tragedy caused through ignorance and over confidence.

Disregarding the lesson of Far-

gues, who died before him, and all the official findings of a century of systematic research, Root virtually suicided. His folly, however heroic, was useless and the quest for "records" should be excluded from deep diving.

To quote Rebikoff: "The physical and moral courage of the underwater explorer cannot be measured in metres or feet. As on the mountains, the underwater explorer must set out in a perfectly disciplined group under the leadership of a responsible person, at the same time religiously respecting the experience of his predecessors and the laws of physics if he wishes to discover the wonders of the sea bottom."

In a chapter "the History of the Free Diving Apparatus," it is surprising to learn that the first aqualung was invented in 1865 by two Frenchmen, Rouquayrol and Denayrouze. However, it was not until the invention of rubber fins by another Frenchman, Commandant de Corlieu, in 1926 and the advent of the high pressure cylinder only made possible through modern industrial methods, that free diving became a practical reality.

The credit for bringing into service together the essential elements, mask, flippers, cylinder, and demand regulator, belongs to Commandant le Prieur, whom the author refers to as the creator of free diving.

It was only a short step to the simplified, more solid, and virtually fool-proof "aqualung," patented and put into commercial production by Captain Cousteau and Emil Gagnan.

The working principles of the

apparatus are explained, and there are interesting chapters of underwater exploration, photography, television, etc. The development of free diving is therefore entirely French, as also is the discovery of the physical laws governing safety, and it therefore seems appropriate that the best literature on the subject should also come from France.

This book is a fitting companion to *The Undersea Adventure*, by Phillip Diolé, which it complements. The former is a brief practical treatise on diving, stressing the principles of safety and efficiency, while the latter stimulates the imagination, and is probably the most "literary" work in this field.

Dimitri Rebikoff is Vice President of the Submarine Institute in Cannes, France, and is one of the world's best known underwater photographers. He is a consulting engineer, and after the war designed the first electronic flashtube in Europe.

He also designed and manufactured the Rebikoff Colorimeter. His famous Torpille, the electronic flash torpedo for underwater work, appeared in 1949. He has since perfected a continuous light movie torpedo, which also provides power for the camera and a propeller, thus making the operator and equipment effortlessly mobile. At Cannes in 1952, his documentary colour film "Coral Palace" won the Scientific Award at the International Film Festival.—B.E.K.

### Okinawa: Victory in the Pacific, a U.S. Marine Corps monograph.

Publication last January of the monograph *Okinawa: Victory in the Pacific*, concludes the United States Marine Corps' series of 15 official monographs describing its part in the war in the Pacific.

The 332-page narrative by Marine Major Charles S. Nichols, Jr., and Henry I. Shaw, Jr., des-



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cribes the activities of Marine units in relation to the over-all joint-service assaults during the 82-day battle for such places as Motobu Peninsula, Dakeshi Ridge, Wana Draw, Sugar Loaf Hill, Ofoku Peninsula and Kenishi Ridge.

The day-to-day account of the action of Marine units of the Third Amphibious Corps and the 2nd Marine Aircraft Wing serves as the basic foreground in the general picture of the combat activities of the combined services and the logistic support problems in this, the last and largest of the amphibious operations in the drive across the Central Pacific. The Japanese story of the battle, gathered from captured records and accounts from enemy survivors has been integrated into the history.

Two years of research were required to complete the monograph. It is liberally illustrated with more than a hundred photographs and 47 maps and charts.—S.C., Washington.

## SCIENTISTS' STUDY BATTLE REACTIONS

A SOLDIER needs more than a cup of tea and a night's sleep after battle to restore him to his normal physical and mental balance, a group of American scientists have discovered.

This fact, well known to fighting men since bow-and-arrow days, has now been confirmed by a group of American scientists on the basis of field tests conducted during and after actions in Korea.

Results of the tests have now been published in the "Scientific American" and indicate that the battle-weary soldier takes days, and not merely hours, to return to his normal self.

The first group examined were 24 infantrymen posted 200 yards from the front line, subject to occasional stray shells and the constant possibility of attack. These men, examined after a tour of duty, showed normal reactions

comparable to those of businessmen after a hard day at the office.

The second group were 24 survivors of a hard-fought action in which 61 per cent. of their company was wiped out. Only five of these men were without superficial wounds.

Examined 12 hours, five days and 22 days after the action, at first they showed emotional fatigue and excessive secretion of the adrenal gland, with severe upset of the sodium and potassium balance, and a lowered white corpuscle count.

Veterans who have been in a stiff action will recognize these symptoms, although perhaps not the scientific names. The doctors have simply proved the thousand-year-old discovery that everyone is scared in battle.

After five days most of the symptoms disappeared, and after 22 the men were quite back to normal. The scientists conclude that it takes an average of six days to recover fully from battle fatigue.

The third group studied was a section of 13 men who had held a position for five days against continual counter-attack and heavy shelling. These men showed a diminished adrenal secretion and it took them 13 days to get back to normal.

The scientists conclude that after the heavy glandular secretion of the opening phase of battle, there follows a "resistance" phase in which secretion is well below normal. In a long passive defence against heavy attack total exhaustion is likely to follow.

(From "The World Veteran.")



## Personalities

### Captain Roe, R.N., is New Fourth Naval Member

THE Minister for Defence, Sir Philip McBride, has announced that Captain A. J. T. Roe, D.S.O., O.B.E., R.N., in command of the Royal Naval Air Station, Eglinton, has been appointed Fourth Naval Member of the Australian Commonwealth Naval Board in the rank of Commander (Second Class). His services have been lent to the Royal Australian Navy by the Admiralty for two years.

Sir Philip McBride added that Captain Roe would succeed Commodore D. McL. Russell, R.N., whose services had also been lent to the R.A.N. by the Admiralty and whose term as Fourth Naval Member would expire in the middle of this year, when he would return to the United Kingdom.

Captain Roe, who is 44, is a qualified Naval Air Observer. Following the outbreak of war he served at sea in various H.M. ships. During 1941-42 he was an Observer's School Instructor at H.M.S. Condon (1943-1944) and as Staff Officer (Air) on the staff of the Rear Admiral, Escort Carriers (1944-45).

He was awarded the D.S.O. in 1942 for bravery and sustained devotion to duty in many air operations from Malta. In 1943 he received the O.B.E., and was mentioned in despatches for distinguished service in connection with operations in North Africa.

Since the war Captain Roe has occupied important command and staff appointments. These include command of H.M.S. Cadiz (1947-1948), Directing Staff R.N. College Greenwich (1949-1950), Staff Officer (Operations) on staff

of Commander-in-Chief (Mediterranean) (1950-1952).

From 1952 until he assumed his present appointment he was Director of Naval Air Warfare, Admiralty.

### R.A.N. Appointments

Five new appointments for captains of the Royal Australian Navy have been announced by the Minister for the Navy, Senator Neil O'Sullivan. They are:

Captain A. W. R. McNicol, C.B.E., G.M., R.A.N., to be Director of Naval Reserves and Senior Officer, Reserve Fleet, from May 14, 1956. Captain McNicol has been in England, where, after having attended the Imperial Defence College, he has been doing the senior officers' technical course.

Captain A. S. Rosenthal, D.S.O. and Bar, O.B.E., R.A.N., formerly Director of Naval Reserves and Senior Officer, Reserve Fleet, to serve in the Department of Defence as Director of Studies, Industrial Mobilisation Course.

Captain R. I. Peek, O.B.E., D.S.O., R.A.N., at present Deputy Chief of Naval Personnel and Director of Personal Services at Navy Office Melbourne, to be captain of the Battle class destroyer *Tobruk*, now serving with the Strategic Reserve in Malayan waters, and Captain (D) 10th Destroyer Squadron from June 15, 1956.

Captain J. H. Dawson, R.A.N., Chief Staff Officer to the Flag Officer-in-Charge, East Australian Area, Sydney, to be Deputy Chief of Naval Personnel and Director of Personal Services at Navy Office from June 4, 1956.

Captain F. N. Cook, D.S.C.,

R.A.N., Captain of the Port, Sydney, to be Naval Officer in Charge North West Australian Area and Recruiting Officer, based on H.M.A.S. Melville, Darwin, from July 30, 1956.

Other appointments announced were:

Commander I. H. S. Cartwright, R.A.N., to be captain of the fast anti-submarine frigate *Quadrant*.

Commander D. C. Wells, R.A.N., to be executive officer at Flinders Naval Depot.

Commander R. J. Robertson, D.S.C., R.A.N., to be captain of the frigate *Swan*, which has been re-fitted as a training ship for cadet-midshipmen.

Commander J. M. Ramsay, D.S.C., R.A.N., to undertake special duty at Navy Office, Melbourne.

Commander A. D. Black, R.A.N., to be Director of Naval Communications at Navy Office.

Commander (S) H. A. Hodgkinson, R.A.N., to be secretary to the Flag Officer Commanding the Australian Fleet.

Commander (S) R. G. Craft, R.A.N., to be secretary to the Second Naval Member.

Commander (S) A. G. McFarlane, R.A.N., to be supply officer of the aircraft carrier *Sydney*.

Acting Commander (S) R. P. Newey, R.A.N., to be secretary to the Flag Officer in Charge, East Australian Area.

### Admiral Sylvester, U.S.N.

Rear Admiral John Sylvester, U.S. Navy, Commander Amphibious Group Four, has been appointed the overall commander of the amphibious task group with a reinforced Marine Battalion embarked which will join the U.S. Sixth Fleet in the Mediterranean.

This task group will be composed of U.S.S. *Tacoma*, U.S.S. *Rockbridge*, U.S.S. *Monrovia*,

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U.S.S. Plymouth Rock, U.S.S. Rankin, and U.S.S. Bassett.

The Marine Corps unit is the 2nd Battalion, 8th Marines, Second Division, commanded by Lieutenant Colonel Randall L. Stallings, U.S. Marine Corps.

Admiral Sylvester last year commanded the task group which successfully accomplished an underwater detonation of an atomic device—the first test of this kind ever completed. This was known as "Operation Wigwam."

### Indonesian Visit

Vice Admiral R. Subijakto, Chief of Staff of the Indonesian Navy, arrived in Britain recently for a short visit to Admiralty and Naval establishments.

Admiral Subijakto, who is 35, is not a stranger to England. He was based at Falmouth during the war when serving with the Royal Netherlands Navy. He visited Britain again in 1949.

As a Sub-Lieutenant Admiral Subijakto served in H.M.N. frigate *Johan Mauritz* and H.M.N. Submarine K.15. He was transferred to the Netherlands at the end of the war, but resigned his commission to join the Republican movement in his own country.

Although the Republican movement had few vessels, Indonesia with over 2,000 islands has a maritime tradition and established a Naval Service with Admiral Subijakto at its head as a Captain. On the transfer of sovereignty to Indonesia, the Dutch transferred ships for the formation of the Indonesian Navy, of which Admiral Subijakto became its first Chief of Naval Staff.



The Flag Officer in Charge East Australian Area, Rear-Admiral H. J. Buchanan, inspects R.A.N. midshipmen in the new training ship H.M.A.S. "Swan" before they left by air to do their course in the United Kingdom.

### GAS TURBINE SHIP DOING TRIALS

The first merchant ship powered by a gas turbine, the 9,000-ton London oil tanker *Auris*, has been operating for thousands of hours in the last six months.

Since her sea trials in November the ship has been under stationary tests at Barry, Glamorgan.

The main object of the tests is to study the effects of all grades of commercial fuels on the turbine.

They will continue for another four months, then an even bigger gas turbine will be fitted.

"The present turbine is proving itself very well and we hope that the bigger engine will have even lower maintenance costs," a spokesman for the owners (the Shell Company) said yesterday.

"This turbine will put Britain in the front of marine engine building."

### For Sea Cadets

## WHY WE CELEBRATE EMPIRE DAY

By John K. Lavett

President, the Sydney Branch of The Royal Society of St. George.

IN JANUARY, 1901, Queen Victoria died, at the age of 81, after a record reign of nearly 64 years.

To commemorate the life and activities of this wonderful monarch, a schoolmistress at Hamilton, Ontario, Canada—Mrs. Clementine Fessenden—decided that on all subsequent anniversaries of Queen Victoria's birthday, May 24, she would give her pupils an address on the benefits derived from the Queen's reign, then declare the rest of the day a holiday. She called the occasion EMPIRE DAY.

The idea rapidly gained popu-

larity throughout the British Empire, until Empire Day became an established National Day in our life.

The idea of Empire has necessarily undergone a marked transformation in recent years. Nowadays, we more commonly refer to our "Empire" as the British Commonwealth of Nations.

As far back as 1926, Lord Balfour—an eminent British statesman—said:

"The self-governing members of the Commonwealth of Nations are autonomous communities within the British Empire, equal in status, in no way subordinate to one an-

other in any aspect of their domestic or external affairs, though united by a common allegiance to the Crown and freely associated as Members of the British Commonwealth of Nations."

Lord Balfour made this reference before the passing of the Statute of Westminster in 1931 (which set the course for the Commonwealth of Nations as we envisage it to-day), but the essential truth of his statement still holds good.

All that which binds people in unity is to be prized, Empire Day or, if you like, British Commonwealth Day, with its annual com-

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 also sponsors the Australian Sea Cadet Corps to interest the right type of lads in the Royal Australian Navy—either to start them upon a career or to provide a healthy pleasurable means of qualifying them to be of service in the Senior Service in the event of emergency.

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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Hon. Secretary: 726 Sandy Bay Rd., Lower Sandy Bay, Hobart.  
Hon. Secretary: 49 Froggatt Street, Turner, Canberra, A.C.T.

memoration has just that quality. The souls of free people have a strong urge to draw together. As the world is fast learning this truth and is seeking the factors on which it can stand in unity, freedom and peace, Empire Day becomes of major importance in the scheme of things.

What can we say as to the future of our Empire—our Commonwealth of Nations? What of our destiny?

Our destiny, under a kind providence, will be just what we will make it. It rests in our hands—your hands. A deep and safe and broad foundation has been laid for a bright future.

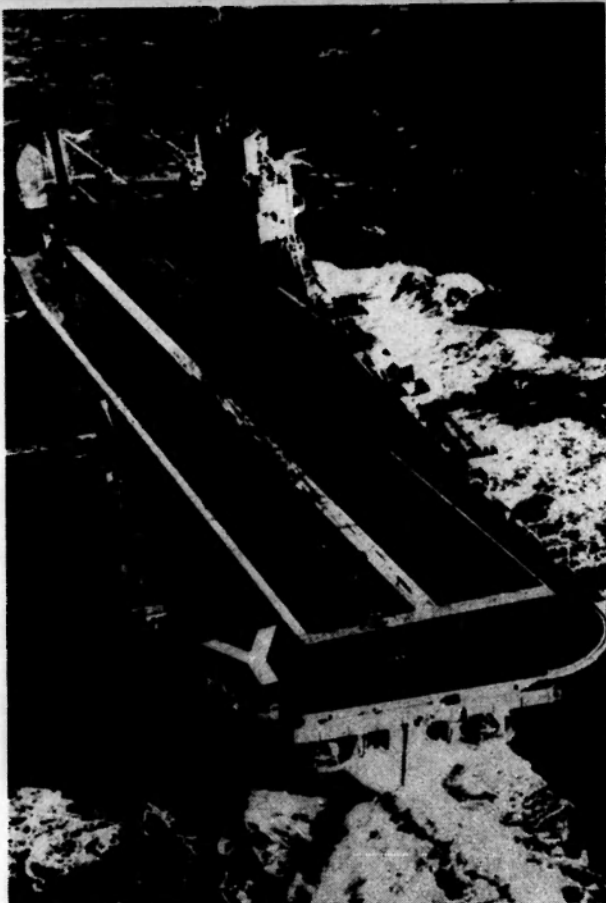
We in Australia are imbued with the healthy and loyal sentiment which has prevailed in Great Britain for centuries. We are attached to her forms of government, we cherish her precedents and traditions. We have passed from youth to manhood. We are now a fully-fledged Nation within the Commonwealth of Nations in which each allied nation is free and equal but united by a common recognition of and allegiance to the Crown.

May 24, to use the popular term, is Empire Day, a day when we may re-dedicate ourselves to the common patriotism required of us. Let no one fear that to cultivate patriotism is to make men illiberal in feeling towards mankind in general. Is any man the worse citizen for being a good son, or brother, or father or husband?

This is a great Empire to which you and I belong. We must never forget our duty to it and to our Creator and our beloved and gracious Queen.

*"Then on! Then on! Where duty leads,*

*Our course be onward still."*



An aerial view of the flight deck of Australia's new carrier, H.M.A.S. "Melbourne," as she steamed along the Australian coast last month. The carrier arrived in Fremantle on April 23.

### OLD CANNON FOUND IN SEA OFF W.A.

Two rusty, barnacle-encrusted cannon have been dragged from a reef at South Cottesloe, about eight miles from Perth, where they had lain for 300 years.

A party of 12 members of the Underwater Explorers' Club, some wearing aqualungs, lifted the heavy cannon from the reef and struggled ashore with them.

The club secretary, Barry Martin, found the cannon about two months ago when exploring the reef, about 150 yards from the shore.

There are three other cannon near where the two were recovered recently.

Another party, helped by the Navy, will try to raise them.

## THE STORY OF THE NAVAL CROWN

By "TAFFRAIL"—In London

THE "Naval Crown", of alternate sterns of old-fashioned ships alternating with square sails, is now incorporated in the badges of all Her Majesty's Ships, as part of the design for use on various naval buildings, and by the Imperial War Graves Commission on naval tombstones.

It also figures in the badges of the Royal Naval Minewatching Service; the Navy League; the Royal Naval Association, a fraternity of ex-members of the Navy, the Royal Marine and the various Naval Reserves; and of yacht clubs with naval affiliations. It is worn on the buttons and cap badges of the "standard," though not obligatory, uniforms established in 1918 for the Merchant Navy, and is displayed in many other ways, usually in red or in gold, such as upon blazers or ties worn by those who belong, or have belonged, to the Royal Navy.

The "Naval or Rostral Crown," the word rostral meaning a column or portico adorned with the sculptured beaks of ancient galleys, has never been official.

Among the ancients, when first introduced, a crown had no regal or royal significance. It started as a simple garland or wreath of leaves and flowers worn round the head by those who had distinguished themselves in the athletic games as a temporary badge of prowess given on the spot.

Laurel, sacred to Apollo, was the symbol of victory among the early Greeks and Romans. There were also myrtle and olive crowns, and the Roman "Corona Obsidionalis," of grass or wild flowers plucked on the spot, given to the general who had won a victory or conquered a city.

The "Corona Civica," of oak leaves and acorns, went to any Roman soldier who had saved the life of a Roman citizen in battle.

Later, among the Romans, some of these emblems came to be fashioned in the more permanent form of gold circlets worn on the head, not unlike the modern coronets worn by peers. The "Corona Triumphalis," of golden laurel leaves, was awarded to a victorious general, and the "Corona Muralis," adorned with turrets, to the first soldier who scaled the walls of a besieged city. The "Corona Navalis or Rostrata," a golden circlet decorated with the prows and sterns of ancient galleys, was given for an important victory at sea. It originated, we may assume, well before the fifth century, and was the precursor of the Naval Crown used to-day.

In 1666 Sir Robert Holmes received a Naval Crown as part of the "honourable augmentation" of arms granted to him by Charles II for his brilliant services against the Dutch, and since then many naval officers of distinction, though by no means all, adopted the same emblem on receiving a grant of arms or an augmentation to those they already bore. The badge, too, formed part of the arms of Greenwich Hospital for Seamen when it was established in 1705.

It was used as an "augmentation" to his coat-of-arms by Lord Howe when he became a peer after the successful relief of Gibraltar in 1782, 12 years before his battle of "The Glorious First of June."

John Jervis, created a baron in 1797, became Earl of St. Vincent for his victory of that name fought on 14th February,

1797. His coat-of-arms was supported on one side by an eagle holding a thunderbolt, and on the other by a winged horse charged with a fleur-de-lis, symbolical of his capture of the French 74-gun ship *Pégase* in April, 1782, for which he had been created a Knight of the Bath, then in only one class. His crest had the upper half of Pegasus, the winged horses, issuing from a Naval Crown.

Nelson's case is more interesting. As a Commodore he was created a K.B. for the battle of Cape St. Vincent, and was granted "armorial ensigns" in October, 1797, his crest being the stern of a Spanish man-of-war bearing the name *San Josef*, the ship he had boarded and captured during the action.

Knights of the Bath were then entitled to "supporters" to the shield or escutcheon bearing their arms, and a month after the original grant he was given on one side a sailor armed with a cutlass and a pair of pistols, his right hand holding a staff with a Commodore's broad pendant, and on the other a lion rampant, guardant, having in its mouth a broken staff with the Spanish flag.

In 1798, after the Battle of the Nile, for which he was created a baron, he was granted various "honourable augmentations" to his armorial bearings. The motto "Palmarum qui meruit ferat" was added, as was a palm branch to the left hand of the sailor and to the right paw of the lion. A French tricolour on a broken staff joined the Spanish flag in the lion's mouth, while to the escutcheon were added two little representations of a disabled ship, a



palm tree, and a ruined fort, symbolic of the battle.

He also received a second crest in addition to that showing the *San Josef*. It was officially described as "On a Naval Crown, Or (i.e., gold) the Chelengk, or Plums of Triumph, presented to him by the Grand Seigneur . . . This was the Chelengk so wantonly stolen from the National Maritime Museum at Greenwich.

Collingwood, Nelson's second-in-command at Trafalgar, already armigerous, was created a baron after the victory and an honourable augmentation made to his escutcheon by the introduction of one of the lions of England, navally crowned, surmounted by the word "Trafalgar." He also received a second crest showing the stern of his flagship, the *Royal Sovereign*.

To come to more modern times, Sir John Fisher had no naval crown as a crest or on his escutcheon when created a baron in 1909; but the latter contained the stern of an old-fashioned ship-of-war and his supporters were two straw-hatted sailors of the period.

The Naval Crown appeared in Lord Jellicoe's armorial bearings in the shape of the crest, which was a demi-wolf azure arising out of the crown. Lord Beatty was content with naval supporters, a sailor and a Royal Marine. Admirals of the Fleet Sir Charles Madden and Sir Reginald Tyrwhitt were both created baronets after the First World War. The first-named had a Naval Crown on his escutcheon, and the second, a sailor as one of his supporters.

More recently still, the late Admiral of the Fleet, Lord Keyes, had as his supporters a sailor and a Royal Marine, the sailor carrying a staff with the St. George's flag, topped with a small Naval Crown. Lord Tovey has as his supporters a sailor and a stoker.

Admiral of the Fleet, Viscount Cunningham of Hyndhope, has two albatrosses as supporters, and his crest is officially described as — "issuant from a Naval Crown a unicorn's head argent, armed, maned and tufted, or, langued gules."

It was in commemoration of its gallant work in the First World War, largely at the personal wish of King George V, that the Merchant Service became known as the Merchant "Navy," and an Order in Council prescribed an official or standard uniform with badges and buttons bearing the Naval Crown. The order has never been enforced, many shipping companies preferring to retain their own uniforms which had been traditional for years.

The design of the Naval Crown has varied from time to time, and at one period showed eight bows or sterns of ancient ships, not the three sterns alternating with the two square sails which is used at present. But the general design is of very ancient origin, and has been used in this country, often as a badge or symbol of naval distinction and honour, for nearly three centuries, and for all we know, a good deal longer.

— From the London "Navy."

#### Norway merchant tonnage up

Norway's merchant fleet has grown to 2,439 ships, totalling 7,549,000 gross tons, official figures show.

More than half the tonnage is tankers.

**Keep a Good  
Lookout  
FOR THE NEXT ISSUE OF  
*The Navy***

## R.N.S.A. SAILING NOTES

**THE** East Australian Area Sailing Association Yacht *Schwalbe* has distinguished herself during the current yacht racing season.

This yacht sails under the R.N.S.A. burgee, with Lieutenant L. Cranch, ex-R.A.N.V.R., at the tiller. She has won the Royal Sydney Yacht Squadron Trophy for the best point score for all yachts in Number 3 Division. She scored 69 points, followed by *Walkabout* (Lieutenant C. M. Wayland, ex-R.A.N.R.), with 67 points, and *Rani* (Mr. H. Quinn), 58 points.

*Schwalbe* is a Windfall class-yacht, the name given to ex-German yachts captured after World War II and given to various R.N.S.A. branches throughout the world.

They Sydney Amateur Sailing Club held invitation races for Naval whalers and dinghies on Saturday, April 14. There was a protest in the whalers' race in that rule 28 (i) of the Yacht Racing Association of N.S.W. was broken. The rule refers to rounding marks properly. As a mark of the course was lifted before the race was completed, the race will be sailed again.

A challenge race for the Braemar Jug was sailed on April 28. Commander R. J. Robertson, D.S.C., R.A.N., Captain of H.M.A.S. *Swan*, retained the trophy.

The Braemar Silver Jug Challenge Trophy was presented to the Australia Branch by Lieutenant-Commander G. Paxton, R.N.V.R., Rear Commodore of the R.N.S.A., as a perpetual challenge trophy. It is contested periodically by 27-foot whalers, coxswains being serving, reserve, or retired officers.



Jeremy Kedge, of Avalon, N.S.W., was one of 35 R.A.N. cadets who passed out as midshipmen on April 23 after a final training cruise on H.M.A.S. *Swan*. The midshipmen flew the following day from Sydney to Britain for 18 months' training at the Royal Naval College, Dartmouth.

## LIFE IN A "GOBBY"

By Colonel J. Macnair Smith, R.M., Retd.

AFTER a year in the Channel Fleet, I found myself, in 1902, appointed to a "gobby," that is one of the port guardships which used to be stationed at various points round the coast of Great Britain and Ireland, for what exact purpose I never discovered.

The ship was the *Severn*, an obsolete type of cruiser, heavily gunned, but of indifferent sea-going quality. We lay most of the year at a buoy off Harwich. In spite of the odd appearance of the ship, and her antiquated armament and fittings, I felt rather proud of being in command of my small detachment of marines, about 40 of them, and a clumsy old powder firing 8-inch gun on the poop.

When the Captain carried out his annual inspection of one of his tenders, I had also to inspect and render a report on the marine detachment. This was not a very arduous task, as a torpedo gunboat's detachment consisted of a Corporal and three marines. Going on board one of these small ships, after reporting myself to the Captain, I walked aft and was received with the customary "present."

This however was not quite as impressive as it might have been, as the "detachment," drawn up, consisted of one man under the Corporal! It appeared that of the "fighting tail," he was the only one remaining, as one was sick ashore, and sadder still to relate, one had "run." Nevertheless I had to fill up a long form stating my opinion of the efficiency of the detachment at arm drill, etc. It was a little difficult to report on the "efficiency of the marines at gun drill," as the whole available detachment formed only part of the crew of a three pounder, the smallest gun in the fleet!

As it was reported that the state of the *Severn's* bottom plates did not justify her taking to the sea, we were ordered to Chatham dockyard, there to turn over to what seemed to me a still more obsolete specimen of the same class, called the *Mersey*. Shortly after, we were ordered to join the rest of the Reserve Fleet—mainly composed of the "gobbies"—which was assembling at Torbay for annual exercises under Vice-Admiral Sir Gerard Noel.

The effort to reach Torbay was almost too much for the antiquated *Mersey*. With some difficulty we managed to get as far as the Nore, and had to be towed back next day for some further defect to be seen to.

At last we cleared the dockyard and proceeded to stagger round the South Coast at our utmost available speed—15 knots was our full speed, but this was seldom attained. We broke down not less than six times on the way to Torbay and had two hulls\* permanently bent on, ready to be hoisted. Affairs reached a crisis when our steering gear broke down off Portland Bill and we had to switch to hand steering, with 13 men on the three concentric wheels aft.

As we passed in under the stern of the flagship on the way to our allotted moorings, everyone on deck became aware of the stony gaze of the Admiral, as he stopped pacing his stern walk, and fixed a withering look on his laggard cruiser.

After two quiet days by ourselves at Milford, we again found ourselves surrounded by fellow "gobbies" and under orders for sea. Next morning we steamed out in the teeth of a south-west gale, taking our allotted station

three miles ahead of the flagship. We discovered this was not as a screening cruiser, but out of consideration for the safety of the remainder of the ships, and our invariable station when cruising with the fleet was either three miles ahead, or astern, of the Fleet.

The battleships had preceded us out of harbour and we had to pass through them to reach our position. It was a sight I shall never forget. The "Admiral" class were low freeboard ships, but very top heavy with their 16-inch guns and heavy wrought iron armour, and moreover their steering was none too good at the best of times. As the clumsy masses of steel and iron reached the open sea they looked more like a dangerous half submerged reef than a fleet of ships. You could see right down their funnels as they rolled 30 or 40 degrees, in a head sea; what happened in a beam sea I never saw.

After a short stay at Douglas, Isle of Man, where it continued to blow hard, we left for the south. During the passage we had been relegated—for the greater safety of our Fleet, no doubt—to a position three miles astern.

A destroyer attack was to be looked for during the night. This was our unexpected opportunity. The destroyers made their attack on the battle fleet, and passed astern, sighting what only looked like the lights of a tramp steamer coming up behind. Suddenly, to their surprise, our searchlights blazed out and the flotilla came under the close fire of our 10 6-inch and two 8-inch guns.

We scored heavily, and took our departure from the Fleet two days later with our stump tail well up!

\* Signal for "not under control."

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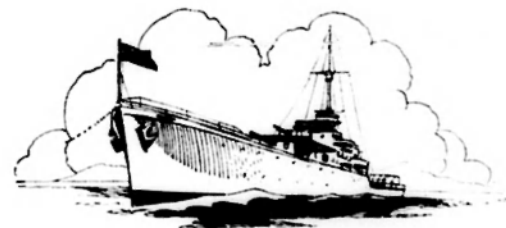
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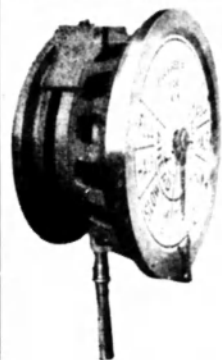
THE Bristol Aeroplane Company, with its two subsidiary companies Bristol Aircraft Ltd and Bristol Aero-Engines Ltd, forms one of the largest design, research and manufacturing organizations in the British Aircraft Industry. A major part of its resources is now devoted to production of the Britannia airliner and its Proteus turboprop engines; this aircraft is expected to command a substantial world sale for some years to come. Bristol has pioneered the development of British helicopters; the single-engined Sycamore is in service in many parts of the world and good progress is being made with the larger twin-engined machines. Among the wide range of aero-engines being built by the Company is the Olympus turbojet which made possible the present world's altitude record and now powers Vulcan bombers. A design licence for the engine has been sold to the United States. The Company is also engaged on the development of the BE25 supercharged turboprop and the lightweight Orpheus jet engine. There is an extensive programme of research and development in the field of guided weapons and their ramjet power units. Bristol two-litre cars and aircraft plastic drop tanks are other branches of successful enterprise, and to complement the parent organization are the associated companies, Rotol, British Messier and Short Bros & Harland, and associated and subsidiary companies in Canada, Australia, New Zealand, France and Spain.

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## A Ship in a Bottle . . .

Children and adults alike are intrigued by those puzzling model ships which find their way into bottles.

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His most intricate job is arranging the masts and rigging so they can be raised after the ship has been inserted in the bottle. Lengths of cotton, attached to the tops of the masts and leading out of the bottle, do the trick.

The perfection of detail of some of these ships can be judged by the models which the Bo'sun of this Shell tanker is completing.

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# THE NAVY

Australia's Maritime Journal



Vol. 19. JUNE, 1956. No. 6.

## THE RUSSIAN GESTURE

Neither Britain nor the United States is likely to be caught napping by the Kremlin announcement last month that Russia will cut her armed forces, including her active fleet.

The United States reaction was promptly defined by the U.S. Secretary of Defence, Mr. Charles Wilson, who stated that "we expect to maintain our forces at their present size for years to come and to give them better weapons."

In London, early official comment was wary but newspaper reaction was bluntly cynical.

"The Times" Diplomatic Correspondent saw the announcement for "its obvious value as a propaganda gesture," and said the real reason was probably the Soviet's need of manpower for industrial expansion. Other London newspapers expressed the view that behind the announcement lay Russia's confidence in her nuclear weapons and her belief that massed armies are becoming obsolescent in modern warfare.

The Russian announcement, made in Moscow on May 15, was that she had decided to:

Disband 63 divisions and separate brigades, including three Air Force divisions and 30,000 men stationed in East Germany;

Put 375 warships into reserve;  
Reduce armaments, military equipment and military expenditure; and  
Provide the men released with employment in industry and agriculture.

"Other Governments, including the Governments of the United States, Britain, and France, in so far as they sincerely want to contribute towards strengthening peace, cannot but follow this example," the Moscow announcement added.

Unofficial Government comment in Washington a few hours after the announcement seized on three important points. The first was that there was no way in which the Western Powers could confirm that Russia really carries out the reduction of her armed strength. The second was that existing Russian and Western armed strengths were no comparable because Russia maintained her full armed strength after the war while the Western Powers cut theirs. The third was to point to similar cuts made by America earlier when she felt she could get along with fewer men as the result of her new atomic weapons.

Naval observers, looking at the proposed placing into reserve of 375 warships, will realise that most of Russia's fleet—described by Admiral Earl Mountbatten as the second most powerful in the world—is kept active. The value, in terms of arms-reduction, of this move cannot be assessed

without knowing the types of vessels in this list and considering the big navy build-up which Russia is now carrying out.

In no circumstances does the naval element of Russia's proclaimed cut in armed force warrant any reduction in the Western Power's existing or proposed naval strength.

In that regard it is interesting to look back a few months on the First Lord of the Admiralty's Explanatory Statement, published with the British 1956-57 Navy Estimates.

"The shape and size of the Fleet change, but its tasks remain and, indeed, in the world as it is to-day, tend to increase rather than diminish," the statement began.

The statement, summing up these changes, said the concept of the battle group, centred around the modern carrier, with its multi-purpose aircraft, was "nearing realisation." The next step in its development would be to add the new guided weapons cruiser and destroyer.

However, that next stage seems a dangerously long way off. Referring to the new cruisers, the First Lord said that work on the three "Tiger" class cruisers was "going on well." The design of the new type cruiser with its anti-aircraft guided weapons was "going forward." Britain was also "looking further ahead" with the object of providing more powerful guided weapons than those at present being designed.

Admittedly this is "Fleet of the future" talk, but just what progress has been made to achieve these—to use the First Lord's own words—"necessary changes enable the Navy to meet the latest advances in science and the new developments in strategy?"

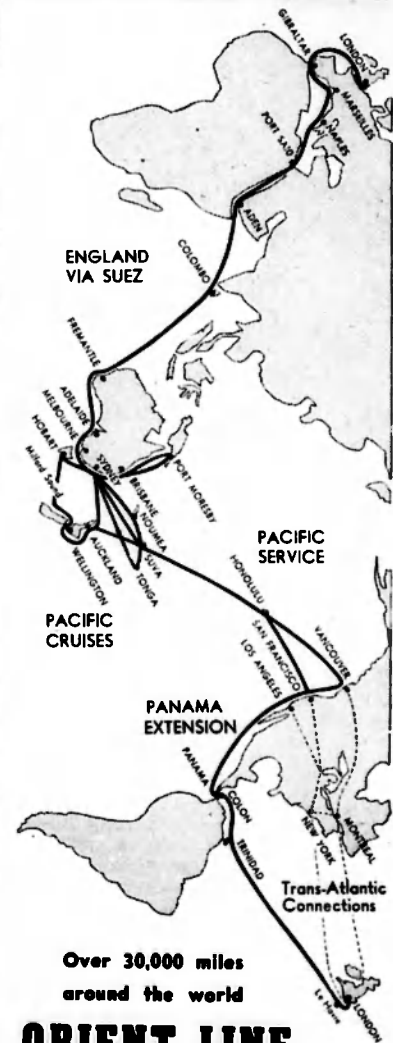
The one and only guided weapon trials ship, *Girdle Ness*, is listed officially as part of the Fleet in the coming year. But so far as is known the Navy has not yet fired a single guided missile at sea, although the U.S. Navy has several guided weapon ships operational.

The destroyers to which the First Lord referred were the Fleet escorts—a type of super-Daring class—two of which were "arranged to be ordered" last year. The statement shows 21 destroyers in the operational Fleet, but no destroyers or super-Darings in course of construction.

A similar disturbing situation exists with the Royal Navy's "multi-purpose" carrier-borne aircraft. The *Sea Venom* is virtually obsolescent. The DH110 is to replace this aircraft, but not all reports about it are favourable. The only aircraft that looks likely is the N113, which is still in the prototype stage and has not done any deck landing trials.

No, when it comes to reduction of naval forces, Britain and the Commonwealth just can't afford to drop a single work-boat or a single rating. We have much too big a job ahead trying to catch up to within cooee of the leaders.

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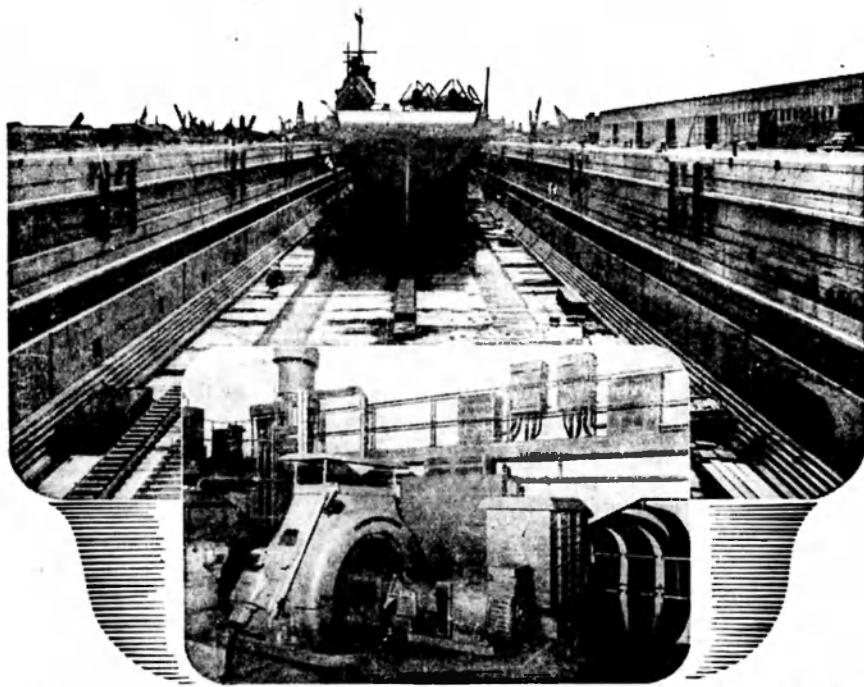
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## THE NAVY OF THE ATOMIC AGE

By DONALD BARRY — in London

FOR many reasons the years since World War II have, for the naval onlooker, been exceedingly confusing and exasperating.

At one time it seemed the value of sea power had been reduced by the advent of the atomic bomb, and there remained no yardstick by which to measure the present or future needs of the Navy. A new Navy was needed for a new age. That was evident. But what form would it take in the thermo-nuclear era?

For obvious security reasons, the Navy cannot reveal its blueprint for the future, but in the past twelve months sufficient information has been made public to enable the onlooker to reach three important conclusions, and on the basis of these conclusions, it is possible, to consider with greater equanimity the future of the Navy. They are:—

1. The role of the Navy is unchanged and is just as vital in the age of thermo-nuclear weapons as it was in the days of sail. It is to deny the seas to the enemy (and this includes control of the air over the sea as well as control on the surface and beneath the surface) and ensure the use of the seas by ourselves and our allies. Obviously the existence of nuclear weapons must affect the design of ships, the composition of fleets and the tactics of naval warfare, but the reason for a Navy is unaltered.

2. A revolution of ideas has been taking place in the Navy — a revolution more important than that actuated by the invention of the steam engine. Many known post-war achievements make this indisputable: the adaptation of jet aircraft for naval use, the incorporation in aircraft carriers of many

devices to make possible the operation of faster and heavier aircraft, the introduction of new methods of propulsion. Then, in addition, important preparations have been made for guided weapons to be added to the armament of the fleet, and the practical planning work associated with the design and development of a marine nuclear power plant begun. And to fit the Navy for the way ahead, radical changes have been made in service and living conditions and much "dead wood" has been removed from administrative departments.

3. The Navy knows what it wants and is proceeding to put its plans into operation. The newly elected Parliamentary Secretary (the Hon. G. R. Ward) made this point recently in the House of Commons when he said: "We know what ships and aircraft and weapons we want and we see clearly the course we must follow to get them."

The dreams of scientists and experimental officers are becoming reality. Since the war, millions of pounds have been allocated for experimental and developmental work.

In the present financial year, £11,536,000 has been voted for equipment and material for research establishments and for contract work on miscellaneous research schemes. A further £5,356,000 is set aside for the salaries, wages and allowances of members of the Royal Naval Scientific Service engaged on scientific research and experiment.

The results of much of this work may not be seen by the present generation, and in some instances may never be applied, but it is evident that this vast pro-

gramme is paying dividends and that among other things the scientific resources of the Navy are now being applied effectively to the problems associated with guided weapons and nuclear propulsion plant.

These two factors are the crux of naval development. How far have we progressed in this direction?

In the field of nuclear propulsion the Admiralty has concluded that "nuclear energy may well become, in the future, the main source of propulsion for both naval and merchant ships" and that in the first instance nuclear power will be applied to submarines.

This announcement has momentous implications, but it has been robbed of some of its significance by the fact that the United States Navy already has a nuclear-powered submarine in the *Nautilus*. Trials have shown this submarine to be a very effective vessel. The announcement by the U.S. Navy that 14 others are to be built is proof of this.

The fact that America leads in this important field is, however, partly due to the fact that the Royal Navy has deliberately pursued projects of more immediate practicability: the development of the new techniques for landing aircraft at sea which have made possible the renaissance of the aircraft carrier, the gas turbine and high test peroxide methods of marine propulsion, early warning radar and anti-submarine weapons.

Possibly the U.S. Navy would not have advanced so far in the field of nuclear propulsion if they had not benefited by some of these British developments.



Many people in America recognise this important factor and, as a return, would have welcomed, as the *New York Times* has stated in a leading article, "a greater rapprochement between the two English-speaking nations in nuclear developments" than the Congressional interpretation of the U.S. atomic energy law has permitted.

The United States has a high regard for Britain's technological skill, as indicated in the same article in the *New York Times*, which added that now the British are starting to develop their own type of submarine reactor the United States might be sure, from experience, "that it will contain some ideas worth trying."

The Admiralty has a team at Harwell concerned with the project of atomic ship propulsion. It

has also been announced that three well-known commercial concerns — Vickers, Ltd., Rolls-Royce, Ltd., and Foster Wheeler, Ltd.—have formed an industrial group whose first task will be the application of nuclear energy to marine propulsion.

In the development of guided weapons, Britain would also appear to be lagging behind the United States in their application to naval use. Pictures have been released showing U.S. Navy guided weapons ships operating in the Caribbean, but such weapons have not yet been tested at sea by the Royal Navy.

A considerable allocation has, however, been made in the Navy Vote this year for the development and adaptation of guided weapons for naval use, and there are two other pointers to progress

in this field.

The first is associated with the annexation of the island of Rockall last September. Then the Admiralty stated: "The annexation of this island was necessary since it is within the sector of the sea which is likely to come within the orbit of the projected guided weapons range in the Hebrides."

The second is the expectation that the maintenance ship *Girdleness*, now being converted at Devonport, will operate as a guided weapons trials ship later this year.

Thus, ships propelled by atomic power and armed with guided weapons are no longer a dream of the future, as they were only a few years ago, but the logical and now practical development of naval power. The application of such revolutionary developments must, however, be a tardy process.

There are those who would blindly pin their faith to the new and abandon the old. For a nation with such far-reaching overseas responsibilities as Britain to do this would be folly even in the restful days of peace.

New weapons and methods of propulsion can only be made efficient by a long process of trial and error. The days of the steam turbine and gun may be numbered, but if they are, their replacement will not come about for many years.

For this reason the Navy must, while planning for the distant future, be prepared with conventional ships and weapons for all possible immediate eventualities.

The modern conception of a fleet is one of aircraft carriers operating the latest aircraft: powerful ships armed with guided weapons; escorts capable, in co-operation with carrier and shore-based air forces, of providing protection for our shipping; submarines and amphibious forces;

and minesweepers to keep the sea lanes clear for the passage of vital supplies. In this light, the material strength and projects of the Navy must be considered to-day.

The most powerful striking unit of the Navy is the aircraft carrier with her various types of aircraft.

The value of the battleship continues to decline as modern weapons are developed, and now the *Vanguard* has joined the four "King George V" battleships in the Reserve Fleet, the eventual passing of this type of ship can no longer be doubted. The battleship would, however, still have an important part to play in any war of the not too distant future. It still remains the most difficult ship to sink and the one against which lesser surface ships would hesitate to pit themselves.

The role of the aircraft carrier, on the other hand, increases in importance. Viscount Montgomery, who at one time doubted the value of the carrier in an atom age, appears now to have been convinced that it has an important part to play, though he believes that something smaller and cheaper could be designed.

The U.S. Navy, however, is building bigger carriers. The mammoth 70,000-ton *Forrestal* is to be joined by sister ships and designs for an atomic powered carrier are reported to be on the drawing board. This type of ship may be even bigger than the *Forrestal*, including two angled decks, instead of one, and six catapults.

The boggy of the vulnerability of the carrier appears to have been laid by the argument that an immobile aerodrome would be in greater danger from atomic attack than a floating carrier base, because the latter's mobility would make it difficult to find and, when properly supported, very costly to attack.

The Royal Navy, nevertheless, is inclined to the view that the Americans are allowing the carrier to become too big. The emphasis on this side of the Atlantic will be to improve the ability of carriers to operate modern aircraft without increasing their size, and, when vertical or near-vertical take-off becomes a practical possibility at sea, to reduce their size. Needless to say, it will be many years before new methods of take-off become operationally possible.

Britain's present carrier strength is fourteen ships, seven of which are in commission.

On May 16 Britain exploded an atomic weapon in the Monte Bello Islands, off the coast of Western Australia. This picture shows the radio-active cloud rising after the explosion, which was officially described as "small". The bomb was on the top of a steel tower which disintegrated. Reporters on the minesweeper H.M.A.S. *Freemantle*, 12 miles from the explosion, felt only a slight shock that failed to ripple the surface of the water.

## STRENGTH OF THE ROYAL NAVY

Based on information contained in the Navy Estimates and Explanatory Statement 1956-7

TYPE OF SHIP	In Commission	In Reserve, extended life, or undergoing modernisation or conversion	TOTAL	Under Construction in the U.K.	To be ordered 1956-57
Fast Battleships	—	—	—	—	—
Cruisers	7	7(b)	14	3(c)	—
Guided Weapon ships	10	12	22	3(d)	—
Fast Minelayers	14(e)	—	14	—	4(f)
"Daring" Class Destroyers	4	—	4	—	—
Destroyers	24	44	68	—	—
Frigates	31	110	141(h)	24	10
Submarines	44	15	59	24(i)	not stated
Minesweepers	67	149	216(j)	70(k)	—
Coastal Craft	29	41	70(l)	10	—
Large Landing ships	8	64	72	—	—
Surveying ships	7	—	7	—	—
Fleet support	41	74	115(m)	—	1(n)

### REMARKS

- Really super cruisers.
- One to be converted to Fleet Support.
- Work on two suspended.
- "Tiger" class.
- "Girdle Ness" converted for testing missiles.
- Larger than "Daring".
- The "Appollo" class. There are also smaller ships fitted for minelaying.
- Of these 11 are conversions from destroyers and two are new construction.
- Does not include those building but not yet launched.
- 60 of these are the large ocean type, 91 coastal and 105 inshore.
- 45 coastal and 25 inshore.
- 42 F.P.B., 28 S.D.C.
- The Strength of the Fleet support above consists ferry carriers, destroyer and submarine depot ships, headquarters ships, repair ships, submarine rescue ships, controlled minelayers, boom defence and decontamination vessels. The above strength does NOT include Royal Fleet Auxiliary tankers, supply ships, salvage vessels, cable ships, tug, motor launches, trawlers and many harbour craft.
- Purchase for conversion.
- Since this table was compiled it has been announced that H.M. Cruiser "Dard-m" and four Destroyers have been sold to Pakistan.—Ed.]

H.M.S. *Triumph*, one of those now in reserve, is to be converted for fleet support as a heavy repair ship. Work is proceeding on the construction of one new carrier, H.M.S. *Hermes*, sister ship of the *Centaur*, *Albion* and *Bulwark*, and on the modernisation of H.M.S. *Victorious*.

Both these ships, when completed, will be capable of operating the next generation of naval aircraft and some of the aircraft to be borne in the ships will be capable of launching atomic weapons.

The *Centaur* is this year to be fitted with steam catapults, and improved radar and communications, and H.M.S. *Warrior* is about to complete a modernisation, including the fitting of an angled deck. Other carriers will be brought up to date in turn. Soon the new fighter-strike-ground attack aircraft, the N.113, eventual successor of the *Sca Hawk*, will carry out deck landing trials, while the D.H.110 all-weather fighter is being developed satisfactorily.

In recent years great concern has been expressed about the Navy's cruiser strength. By pre-war numerical comparison it has diminished alarmingly. To-day the White Paper shows only 10 cruisers in commission and 12 in reserve, and these are approaching the end of their useful life. Before naval aircraft assumed many duties formerly done by cruisers, 70 was regarded as the Navy's absolute minimum.

Obviously the Navy has been holding its hand until the basic conception of the guided weapons cruiser of the future was evolved. Anxiety is to some extent relieved by indications that the Admiralty has now made up its mind on this subject.

This is to be found in two recent statements: the first, that the design of the new type cruiser

with anti-aircraft guided weapons is going forward; the second, that it has now been found possible to design two fleet escorts (which it was arranged to order last year) with guided weapons instead of anti-aircraft guns, and to order two more of this type.

The first statement, of course, refers to a ship, probably of heavy cruiser category—the direct successor of the conventional cruiser. The second category of ship will be based on the design of the present "Daring" class ships, but will be bigger than any "Darings" now afloat and virtually of light cruiser category, though it may not be known as such.

These projected ships will undoubtedly form part of the future battle groups. But when will they join the fleet? The answer to that question is unknown. Until it is known there will continue to be disquietude about the cruiser programme in view of Russia's growing naval strength. As a stopgap the three "Tiger" class cruisers, *Blake*, *Tiger* and *Defence*, are being completed with the new fully automatic six inch gun turrets, but even these ships may not be expected to join the fleet for a long time.

Until the cruiser programme assumes a more rosy complexion, to talk of a carrier force supported by guided weapon ships is merely to theorise.

The situation with ships below cruiser size is more satisfactory. These categories are headed by the eight "Daring" class ships, whose performance and sea-keeping qualities are proving to be of high order.

The destroyer force of 68 ships (24 operational) is much smaller than the pre-World War II force. But destroyers have been relieved of many defensive duties by the creation of a large frigate force, and it is likely they will be used

more as offensive ships and less as "maids-of-all work."

A very sizeable force of 161 frigates exists, with 51 of them in commission. The programme of conversion of wartime destroyers into fast anti-submarine frigates is virtually concluded.

Thirty-one ships have been converted and they are expected to be excellent ships for many years. Meanwhile, the momentum of the frigate building programme has increased. By April next some 12 new ships will have joined the fleet. At present 24 are under construction.

In addition, 10 more ships are to be ordered: five anti-submarine vessels of the design proving most satisfactory, one anti-aircraft frigate, one aircraft direction frigate, and three of general purpose design.

The general purpose frigates are not designed for any specialised role, but though they are the least costly of the new construction frigates, they each cost about £1,500,000. First rate frigates cost £2,750,000. It is interesting to compare these figures with the cost of a World War I destroyer—£250,000.

As it nears completion, the extent and significance of the mine-sweeper programme becomes clear. To-day the Navy has 254 ships of this category. Sixty of these are the ocean-going type of World War II vintage, but all the other vessels, coastal and inshore types have been built since the war. A further 70 (45 coastal and 25 inshore) are under construction. The cost of this programme many prove to have amounted to about £75,000,000.

Minesweeping is an unspectacular task, but it is vital that we should have an adequate force to keep our sea lanes of communication clear in war. If the Navy failed in this respect all other effort would be of no avail.

The Navy continues its policy of not announcing submarine construction until vessels of this type have been launched. Only two are shown to be under construction. These are the experimental craft *Explorer* and *Excalibur*, which employ high test peroxide in a closed cycle engine.

The potentialities of these craft are unknown, but their speed and endurance under water are expected to set a new standard for the Submarine Service and be of the greatest value to effective anti-submarine training. An intermediate class is known to be under construction, though no details are available. And now nuclear propulsion is also to be applied to submarines, the Service will find itself with further new worlds to conquer.

The Navy of the future is thus taking shape within the Navy of the present. It will be a smaller Navy than the British public has known in this century. Parliament has decreed that it must be based on the deployment of a smaller fleet than at present and limits its size in ships and manpower by the amount of the Navy Vote.

Many will say the Navy is becoming too small. Too small by previously accepted standards, no doubt. But there are, as yet, no standards by which to judge naval power in the nuclear age. Whereas naval power was formerly judged by national merit it is now, in the Western world, calculated by combined strength.

As the First Lord of the Admiralty said in the debate on de-

fence in the House of Lords, "defence in isolation" is no longer practicable. Our security can only be preserved if we stand together with our allies and pool our efforts in the common cause.

This year, the estimated cost of the Naval programme is £401,670,000. The Navy is the only Service which has been voted more money than last year.

(From the London "Navy.")

## LAST D.P. CAMP IN EUROPE CLOSED

APRIL, 1956, saw the closing of the last D.P. camp in Europe, and with it closed a long chapter in human suffering.

The displaced persons camps were established by the Allies after World War II to house concentration camp inmates, slave workers and others who had been uprooted from their homes by the war.

They were put under German control in 1951, and even then there were still dozens of them scattered about Germany and Austria.

Now at last, Fochrenwald near Munich, has been closed.

But refugee camps, housing people who have fled from post-war political upheavals, are still very much in business—and Fochrenwald itself has been bought by a Munich religious organization to house German refugees expelled from countries to the East.

(From the "World Veteran.")

We are the music makers and we are the dreamers of dreams,  
Wandering by lone sea breakers and sitting by desolate streams;  
World-lost and world-forsaken on whom the pale moon gleams,  
Yet we are the movers and the shapers of the world forever it seems.

—O'Shaughnessy.



## "The Big Friendly Stores"

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June, 1956.

## BRITISH COMMENT ON SOVIET WARSHIPS

Everyone was interested to see or hear about the Russian warships which brought Mr. Bulganin and Mr. Krushchev to the United Kingdom on their recent visit.

The B.B.C.'s Defence Correspondent, Rear-Admiral A. D. Nicholl, C.B., C.B.E., D.S.O., had this comment to make about the ships.

THESE Soviet warships are fine looking vessels—very clean and smart with their scrubbed canvas screens on bridges, ladders and gangways. There were large groups of Russian officers and men on deck welcoming the public with broad smiles. The sun shone brightly, and lively Russian music from the ships' loudspeakers resounded through the dockyard. Occasionally the music was interrupted and a polite voice, in excellent English, requested visitors to keep moving.

The *Orel* is of the same class as the *Sverdlov* which visited Britain for the Royal Coronation Review, and again last October when the British and Russian naval squadrons exchanged visits. She is a cruiser of entirely conventional type, that is to say, there is nothing new or mysterious about her design or armament.

"She is of bigger tonnage than our own largest cruisers, but, of course, all warships are a compromise. For a given tonnage you can only get so much armament, protective armour, speed and cruising range. If you want more of one thing, you must accept less of something else.

"The Russians have gone in for cruisers with a most formidable armament—12 six-inch guns in triple turrets, a considerable number of anti-aircraft guns, 10 torpedo tubes and a lot of mines, which are stowed between decks. You need a very big ship to carry so many weapons.

"British war-time experience has led us to concentrate on a less extensive armament. For example, our cruisers don't carry mines. And a thing I noticed is that the *Orel* has optical range-finders—two in each director and one in each of the four turrets, a total of eight. She has radar as well. We rely entirely on radar for our ranging and has discarded optical range-finders as obsolete, incidentally saving skilled manpower and a lot of top weight.

"The Soviet destroyers are smaller than our *Darings* and comparable to our *Battle* class destroyers. Like the cruisers, and in fact nearly all Soviet warships, they carry mines. I noticed that they have an ice-breaker bow and that they carry rather more radar

equipment than our destroyers. This means extra top weight and they compensate for it by having lighter construction above the upper deck.

"Again, it's a question of what is the best compromise. British experience in two world wars with intense operations in the Atlantic, has shown the need for very robust construction. The Russian destroyers have more radar sets, but they wouldn't be able to take rough weather as well as ours.

"I did not see a weapon for throwing depth charges ahead of the ship, of the type fitted in our anti-submarine vessels; but there was a blank space where one could be fitted, I daresay, if the Soviet navy has developed such a weapon.

"To summarise my impressions, I would say that where British ships concentrate on robust construction and the accuracy and speed of hitting with their gun armament, the Soviet navy, perhaps, goes in for speed, for a large number of guns, and the ability to lay mines. The Russian cruisers are bigger than ours, but they certainly do not outclass them."

## UMBRELLA SHIELDS ATOMIC WORKERS

SOMETHING new in building operations is helping work to proceed unhampered on the erection of the £A.18½ million atomic power station at Dounreay, Caithness.

A huge "umbrella" of 1,100 yards of flax-derived material now covers the half-completed sphere at the site, shielding the construction workers from rain and cold winds so that they can maintain a fast schedule in all weathers. Inside the half-finished hall engineers are building the centre of an atom furnace.

It was by no means a straightforward job to produce this "umbrella." The making of the cover-

ing (by Thomas Black and Sons, of Greenock, tent and marquee specialists) offered many difficult problems because of the necessity of weatherproofing a circular structure. It was made in six segments, with each segment so designed that it is laced to its neighbour.

Erecting the covering—its official title is "fast reactor-vault roofing"—was something of a major operation for the area is often swept by strong winds.

In all, about 1,000 people are employed at Dounreay seven days a week and they undoubtedly appreciate their "umbrella."

## ATOMIC FUEL FOR R.N. SHIPS

"Nuclear energy may well become the main source of propulsion for both naval and merchant ships... The Admiralty's intention will be to employ nuclear power in the first instance in submarines."—The First Sea Lord's recent announcement.

By "PERISCOPE"

THE test of a super-hydrogen bomb in Russia so soon after the failure of the Geneva Conference was well timed. The Soviet rulers well know that a war against the West would bring no worthwhile victory for either side but they want to make quite certain that this is fully realised by the Western nations.

Under the shield of the hydrogen bomb they can pursue with safety their aim of spreading Communism throughout the world. Why destroy themselves needlessly by committing a deliberate act of aggression on the Continent of Europe? Their military strength can be put to better purpose in support of the cold war, wherever they can find a soft spot.

The Kremlin must indeed be

noting with satisfaction Britain's efforts to add a substantial number of V-bombers to the already adequate deterrent provided by the massive United States Strategic Air Force. With our limited resources we cannot give priority to all our defence requirements. But in the event of a major war Russia's first object would be the elimination of this country. It is thus essential that we should have the best possible anti-aircraft defences and that our Navy should be strong enough for offensive operations to reduce the scale of attack.

The Navy, too, will have a vital part to play in safeguarding the essential imports of food and oil and manufactured goods to enable us to survive.

With V-bombers costing about

£500,000 each and the need to re-equip our Armed Forces with modern weapons and gear them to a nuclear capability there are likely to be heavy cuts in what are called conventional forces. The Board of Admiralty may well have to fight hard even to obtain an adequate number of the "guided missile" ships which have been promised as replacements for our aged and war-weary cruisers.

No doubt the First Sea Lord has all these considerations very much in mind. For he is doing a great deal at the present time to maintain public interest in the Navy, notably in emphasising our intention to have submarines with an atomic power plant. Whether this pronouncement will not prove embarrassing to Government spokesmen remains to be seen, for



Service chiefs landing at Onslow, Western Australia, on May 15 to witness the atomic tests held in the Mooto Belle Islands the following day. The picture shows the officers after leaving their R.A.F. Hastings (left to right): Captain J. S. Mesley, Group-Captain B. A. Eaton, Lieutenant-General Sir Henry Walls, Vice-Admiral R. R. Dowling, Air Vice-Marshal E. C. Wickett, and Lieutenant-General A. R. Garratt.

June, 1956

his important qualification "but the Royal Navy will not have them for some years yet" is of less news value and readily forgotten.

A few weeks ago the U.S.S. Nautilus—the first submarine in the world to be built with an atomic power plant—completed 25,000 miles without refuelling on her trials. It was also announced at the same time that the land-based reactor which was the prototype plant for the Nautilus was then being refuelled for the first time after two and a half years of continuous operation. Why do we delay in building submarines with this remarkable performance?

In view of what is already known to atomic scientists and marine engineers, there is a great deal of unnecessary secrecy, both in this country and in the United States, regarding new forms of propulsion for ships. The building of the Nautilus and Sea Wolf was the direct outcome of the conviction of (the then) Captain Rickover, U.S.N., that the United States Navy must have a submarine "which could proceed submerged indefinitely at high speed."

Because of the large reactor core and consequent heavy shield-

ing required at that time, they are very large vessels—well over 3,000 tons—thus presenting a good target for asdics and being less handy and manoeuvrable submerged than the normal submarine.

Moreover, the noise of the heat exchanger pumps is audible in the hydrophones for several miles, though this difficulty is likely to be overcome in the Sea Wolf and later submarines which use liquid metals instead of water as a heat exchanger.

All these disadvantages seem to have been accepted by the U.S. Navy and had we had available the necessary fuel we might well have followed the Americans and built two similar vessels as an alternative to three 20,000-ton "Hermes" class aircraft carriers, at a total cost of £36,000,000. Instead, the Royal Navy investigated over a number of years the performance of one of the 100 German submarines of 850 tons building, but not completed at the end of the war, which were to have had engines using hydrogen peroxide and light diesel oil.

It is known from authoritative German sources that a maximum

endurance and speed submerged of 158 miles at 25 knots was claimed for these vessels, which, in the opinion of many submarine experts, meets at least the essential requirements of the true submarine.

Very high speed, it should be noted, cannot be used while attacking owing to the strong hydrophone effect in a surface ship's asdic installation given by the wake of a fast-moving vessel.

It is primarily for use in bursts—when the submarine believes the hunting vessel has temporarily lost asdic contact—and subsequently, when she feels she can safely continue at high speed, to take her right out of the area. High speed submerged may also be required for an hour or two to intercept a target, with aircraft escort, reported 50 or 100 miles away. In any event, the Admiralty must consider that a performance of this nature is sufficient as a temporary measure, for one submarine with engines using hydrogen peroxide has now been built and another is completing, for the Royal Navy.

None the less, there are obvious advantages in having submarines which can proceed for prolonged periods at a speed of 25-30 knots, whether submerged or on the surface.

Designers can thus now think in terms of fast neutron reactors with cores no larger than a 40-gallon petrol drum (with a consequent substantial saving in the weight of shielding required) which makes it practicable to install an atomic power plant in a relatively small submarine.

Hence the building of these vessels is becoming purely a question of expense (for reactors are still very costly) in relation to our other defence commitments.

—From the London "Navy."

## FISHING SMACK & TIRPITZ

By RONALD PAYNE

If you were asked who holds the highest number of British naval decorations, both as a rating and as an officer, you would hardly imagine the answer to be a foreigner who was never even in the Royal Navy.

IT was on a clear, crisp morning in February 1941 that a little ten-horsepower motor vessel from Norway chugged its way into Lerwick harbour in the Shetlands, off the Scottish mainland. Its crew were a strange collection, with callings ranging from an air mechanic to a bus driver, and they had scanned the approaching friendly coastline with justifiable pride. The rough crossing of the North Sea would have taxed far more experienced seamen, but, more important still, they had successfully escaped from their homeland which now lay in the grip of the Germans.

At the helm in the four-by-four wheelhouse stood Leif Andreas Larsen, then 35 years old. As the master of a small passenger ship operating from his birthplace of Bergen in Norway, the sea was certainly no stranger to him, but he had never before attempted such a long journey in so frail a craft as the one which he and his comrades had clubbed together to buy for their escape. His lean, weather-tanned face turned to the guardship now leading them in and he wondered what might be in store. He was, and for that matter still is, an exceptionally quiet and modest man, and had he known what honours lay ahead for him no one could guess the emotional torment he would probably have felt.

At that time in the war a building in Battersea, London, formerly a school for young ladies, was occupied by the British Intelligence Service for the purpose of questioning refugees who had found their way to Britain from

other countries. Great care was taken to check their stories because it was a favourite method of spies to try to enter Britain in the guise of refugees.

While Larsen was undergoing this long period of investigation in Battersea, he was noticed as promising material and eventually received an invitation to take part in the secret sea traffic between the Shetlands and Norway. He was delighted to accept, for he had come here in the hope of being able to strike back effectively at the Germans.

But things were not that easy. The Shetlands Gang, as the gallant band of Norwegians were called who sailed almost every day from the Scottish islands, had not merely to be excellent seamen. Their duties also included every kind of intelligence and resistance work.

So Larsen began a series of extremely hard courses, held in large country houses in remote districts of England and Scotland.

He learnt commando tactics and unarmed combat, how to cipher wireless messages, how to blow up railway lines, even how to parachute from an aircraft.

There were times when he wondered if he would ever get to sea again, but he stuck it with an almost fierce determination and his reward came when at long last, several months later, he was posted to join the Gang at Lunna Voe, a bleak and lonely harbourage on the north-east coast of the Shetlands.

Now the point about the Shetlands Gang which explained their

success but at the same time accounted for the great danger of their job, was that they used ordinary little Norwegian fishing smacks which usually went unnoticed in their home waters. In these the Gang took over or brought back secret agents and delivered guns and high explosives.

As camouflage the little craft were ideal but the trouble was that in the storms so often met on the long journeys which were anything up to a thousand miles, they were tossed about like nutshells and called for the greatest skill in handling. In addition, if intercepted by patrol boats, as they sometimes were, they had only a couple of Lewis machine-guns (normally concealed in oil drums) with which to defend themselves.

The lanes they use to and from Norway were far too near the enemy for any shipping to follow, so that even if they managed to escape an attack, crippled, they had little hope of being picked up. They were very brave men.

Larsen had not made many trips before the craft in which he was serving foundered in heavy weather and the crew went into hiding in Norway. They became split up, Larsen assumed command of the group he was in, and from that moment he remained a skipper for the rest of his career.

It seems strange to us, but as on every trip the Gang were revisiting their own country they sometimes took the opportunity to call in on their families, dodging the German troops with the help of their civilian friends. Stranger

Continued on page 20





# SYDNEY'S WELCOME TO NEW CARRIER

**S**YDNEY gave the R.A.N.'s new aircraft carrier H.M.A.S. *Melbourne* one of the greatest welcomes ever given to an Australian warship when it arrived on May 9.

Navy vessels which escorted the *Melbourne* up the Harbour included the carrier H.M.A.S. *Sydney*, the frigates *Queenborough* and *Quickmatch*, the destroyer *Arionta*, and the British submarine *Thorough*.

Twenty-two naval aircraft flew overhead at the *Melbourne* entered the Heads.

Three thousand people stood on Garden Island and cheered noisily as the carrier berthed. They included wives and children of many of the men aboard.

On her way along the Australian coast the *Melbourne* and the *Sydney* made a ceremonial rendezvous. This was off Kangaroo Island (S.A.) on April 20.

The *Sydney* approached the *Melbourne* from ahead, executed a turn of 180 degrees, and took station of her port beam. The *Sydney* was wearing the flag of Rear-Admiral H. M. Burrell, Flag Officer commanding the Australian Fleet.

The *Melbourne* saluted the Rear-Admiral's flag with 13 guns and the flagship replied with seven guns.

Both ships paraded guards and bands were fallen in.

In *Melbourne* the Lord Mayor, Sir Frank Sellick, at a civic reception to the Captain of H.M.A.S. *Melbourne*, Captain G. G. O.

Gatacre, and members of the ship's company, presented a silver plaque to the ship.

It is inscribed: "This plaque was presented to H.M.A.S. *Melbourne* by the Lord Mayor, Councillors, and citizens of Melbourne to commemorate the commissioning of the ship."

In *Sydney*, Captain Gatacre told a Press conference that the *Melbourne* would be the most lethal unit of the Australian Fleet.

It had the new angled deck, steam catapults, mirror landing aids, and a force of hard-hitting anti-submarine aircraft.

The addition of the *Melbourne*

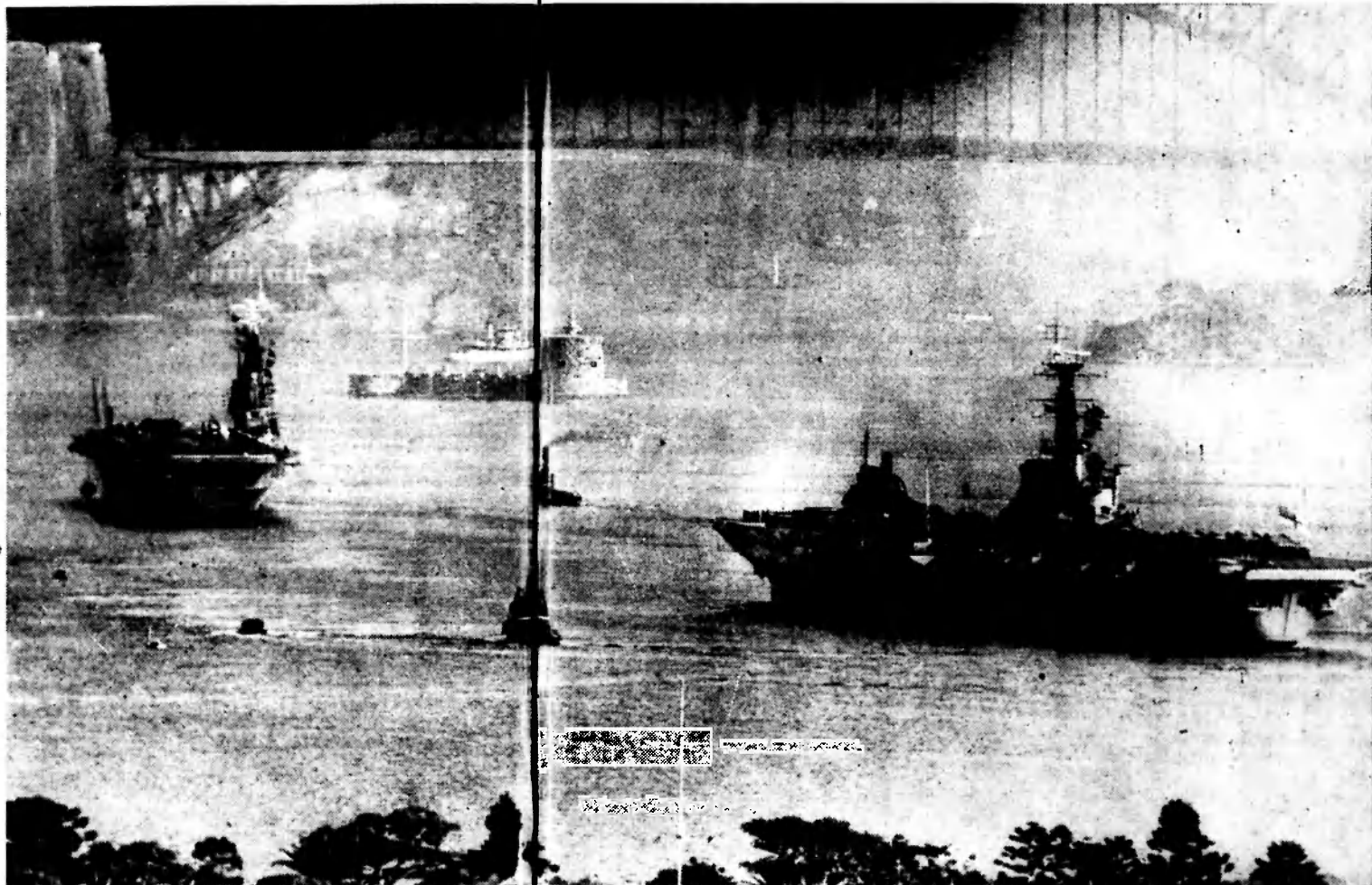
to the Australian Fleet would bring it into line with the fleets of other countries, he said.

Most of the 1,000 men on board the carrier went on leave soon after it berthed in Sydney.

Sydney newspapers featured the fact that 60 members of the ship's company married in England

while waiting to bring the ship to Australia. Some newspapers called the *Melbourne* the "cupid carrier."

The *Melbourne* became the flagship of the Australian Fleet on May 14, when Rear-Admiral Burrell transferred his flag to her from the *Sydney*.



**Keep a Good  
Lookout  
FOR THE NEXT ISSUE OF  
*The Navy***

# MARITIME NEWS OF THE WORLD

From our Correspondents in  
LONDON and NEW YORK

By  
AIR MAIL



## Lifesaving gear in "deplorable" condition

Fire and lifesaving equipment on some migrant ships was in deplorable condition, Senator Paltridge, Australian Minister for Shipping, said in the Senate on May 1.

Senator Paltridge said the Government had written to ship masters, owners, and the consuls of the Governments concerned "in the strongest terms."

"We have told the owners that a ship will not be allowed to leave the first Australian port of call unless its fire fighting and lifesaving equipment conforms with international requirements," he said.

Senator Paltridge said the Government had successfully prosecuted the captain of one ship whose equipment was not up to standard.

The migrant ship *Aorsa Kulm* left Fremantle for Melbourne on May 10, five days late.

Repair of faulty lifeboats caused the delay.

Commonwealth Navigation Department inspectors had found that only eight of *Aorsa Kulm's* 20 lifeboats were in order.

The other 12 were faulty, although the ship had brought 800 Austrian and Maltese migrants to Australia.

On May 7 in Melbourne the master of the Italian liner *Toscana* was fined the maximum of £100 in the District Court for having failed to keep life-saving equipment in his ship ready for use.

The master Giuseppe Bonivenuto, who is on his last voyage before retiring, pleaded guilty.

Thomas Alan Coles, an officer of the Commonwealth Investigation Service, told the Court that two of the ship's 16 lifeboats were rotten, and galvanised water containers were holed and corroded.

Coles said that Bonivenuto had received an international safety certificate at Trieste on March 15.

In Port Melbourne Court on April 19, the master of the Italian liner *Surriento* was fined £100 for having failed to keep lifesaving equipment in his ship ready for use. Inspections at Fremantle this year have revealed defective lifesaving equipment on seven migrant liners.

## Complimented on fast ship repair job

The P. & O. Company was so pleased with the speed with which Australian workmen carried out repairs to its 29,000-ton liner *Iberia* that it entertained them and their wives to afternoon tea aboard the ship.

Ninety men employed by the

Cockatoo Docks and Engineering Co. Pty. Ltd. in Sydney repaired the badly damaged side of the *Iberia* in 17 days—one day ahead of schedule.

The commander of the *Iberia*, Captain G. A. Wild, said: "In no other port in the world could work be carried out as well or so quickly."

The damage was caused when the *Iberia*, on its way to Australia, collided with an oil tanker near Colombo late in March.

In Sydney two shifts of 45 men worked 24 hours a day seven days a week to complete the repairs.

## Sea-water distillation plant contract

One of the largest sea-water evaporating and distilling plants in the world, capable of providing 8,000 tons of fresh water daily, has been ordered from a Glasgow firm for installation at Aruba Island, Netherlands Antilles.

The contract, worth about £A.1,600,000, was obtained against intense international competition.

Aruba Island, in the Caribbean, is an area where there is practically no rainfall, and the inhabitants are entirely dependent on fresh water distilled from the sea for all their needs. During the past 30 years, the Glasgow firm concerned has installed a number of smaller plants in the island,

each with an output of 300 tons a day, but increasing local demands now call for a much greater supply.

The new plant, which will be completed in 1958, will comprise four evaporating units, each with a daily output of 2,000 tons of fresh water. A fifth similar unit may be ordered within the next six months.

Among recent large orders received by the same contractors for sea-water distilling plant are two for the Lobitos oil fields in Peru to supply 270 and 500 tons of fresh water daily. The first of these occupying a complete special train, was recently despatched to Liverpool for shipment. Another installation has just been completed at Kuwait in the Persian Gulf, and is producing about 4,500 tons a day for domestic supplies in the town.

## New 40,000-tonner for Orient Line

Confidence that air traffic is more likely to produce new passenger traffic than to lessen the present sea traffic, is stated to be at the base of the proposal of the Orient Steam Navigation Co. Ltd., to build a 40,000-ton liner for the United Kingdom-Pacific sea routes.

Mr. A. I. Anderson, chairman, told the recent annual meeting of the company that the new ship would have a service speed of 27 knots, which is  $4\frac{1}{2}$  knots faster than their ships of the *Orcades* class.

He said that this was the minimum advance in speed that would give five voyages a year to Australia with itineraries that could be suitably phased in with those of their other vessels.

To obtain 27 knots without an unduly large increase in oil consumption, the minimum length of the ship would have to be about 800 feet.

"If, as we at present intend, the new ship spends much of her time running between the United Kingdom and North America via Australia and New Zealand, she will do this much longer round voyage in much the same time as our pre-war ships now do the round voyage between here and Sydney," said Mr. Anderson.

## Extending shipping facilities in Sydney

The New South Wales Maritime Services Board has completed the first stage of a major plan to extend deep-sea shipping facilities in Sydney Harbour.

The plan provides for the demolition of Glebe Island Bridge, deepening of Blackwattle and Rozelle Bays, and removal of large timber yards from these bays to Homebush Bay.

Oil storages on the harbour foreshores will also be removed to Homebush Bay.

The Board has reclaimed 94 acres of land in Homebush Bay as new sites for the timber yards and other harbour industries.

It will ultimately reclaim about 400 acres of what is now swamp-land.

A board official said that the scheme was being carried out on a long-range basis to provide more shipping space in the harbour.

It would cost "some millions," but no exact estimate of cost had been prepared.

## New addition to B.H.P. fleet

The freighter *Iron Knight* on May 6 arrived in Newcastle to join the B.H.P. fleet of ships.

The vessel, which is 5,437 tons gross weight, formerly belonged to a French company.

Officers and crew flew to England in January to bring it to Australia.

The B.H.P. company named the vessel after the *Iron Knight* which a Japanese submarine sank off the Australian coast in 1942.

## Order for six tankers placed

The Furness Shipbuilding Company (U.K.) has secured a U.S. £13 million sterling order for six tankers.

The order was placed by the Gulf Oil Corporation.

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## FISHING SMACK v TIRPITZ

Continued from page 15

still, they were, in fact, civilians themselves.

Their unit, for want of a better name, was called Military Establishment No. 7 but they received a few pounds as civilians for each trip they made. They were commanded by a British Army Officer, who was controlled by the Admiralty, who in turn received requests and instructions from the intelligence headquarters in Chiltern Court above Baker Street Station in London.

They must have been one of the most unorthodox fighting formations ever to receive official recognition. But the Germans were unimpressed by such niceties. The Gang were a painful thorn in their side and all too many were shot or disappeared after they were captured.

Larsen had been having a secret family reunion, after the wreck and a long cross-country tramp, when the bosun's mother rushed into the house and told them the Germans were searching nearby. A 60-foot fishing vessel lay outside in the bay. The men boarded it and escaped, just in time, back to the Shetlands, though not before Larsen had made a detour to pick up oil from another anchorage.

That was how he "acquired" the indomitable *Arthur*, a really wonderful craft that became almost as famous as he did. She weathered the worst North Sea hurricane of the war and in her he had adventures far too numerous to mention here.

Her going was sad but could hardly have been more distinguished. It is one of the most remarkable stories of the war. Everyone has heard of the great German battleship *Tirpitz* and of what a menace she was to us. The enemy were careful to keep her,

very heavily guarded by gunboats, torpedo nets and anti-aircraft guns, a long way up a Norwegian fjord. The defences were, they boasted, impregnable. Efforts by the Royal Navy to tempt her out for an engagement failed, but the fact that she was there at all meant a heavy commitment of naval and air units to keep a continuous watch on the area. Bombing had met with only limited success, yet somehow she had to be put out of action.

You can imagine Larsen's feelings when the Admiralty nominated him and the *Arthur* for the job! The idea had certainly occurred to him before, but only as a wild dream. He had never supposed that the Admiralty would take seriously the notion of pitting a fishing smack against 40,000 tons of concentrated armour.

But he forgot to take into account the many brilliant minds who were developing new weapons for specific tasks. It was clear to the Admiralty that a direct attack by normal naval units could never penetrate the fjord's defences deep enough to be of serious danger to the *Tirpitz*.

So an idea was borrowed from the Italians and work began straight away on building midge, two-man submarines. These could breach torpedo nets without much difficulty and manoeuvre easily in a restricted space.

Each submarine, or "chariot" as they were called because their crew sat astride them; carried a detachable warhead capable of doing a great deal of damage. But their range of operation was very limited. They would have to be carried over to Norway and smuggled into the fjord by an innocent-looking craft that could bluff its way past the enemy control points. And the most likely

one for that mission, without any doubt, was the *Arthur*.

A period of intense training followed, with security measures so strict that very few people had any idea of the ultimate target. Then, when every last detail had been checked and re-checked, the *Arthur* set off for Norway with a "chariot" lashed on either side of her deck and covered with tarpaulins and nets.

With the help of experts flown specially to London, Larsen had drawn up elaborately forged ship's papers and bills of lading for a cargo of peat in his hold, supposed to be in transit from one Norwegian port to another. From then on it would be a game of wits.

At a pre-arranged point along the enemy-occupied coast they dropped anchor and prepared for action. The attentions of aircraft delayed matters considerably, but eventually they were able to launch the submarines and proceed on their way, towing them alongside under water. As they approached the first vital control point, drawing up slowly towards a guardship which had signalled them to stop, things became tense.

Then Larsen noticed with a sickening shock that the breeze had died, leaving the water so calm and clear that the submarines were perfectly visible!

To turn back would have been equally disastrous: he took his luck in both hands and carried on. We rarely see things we are not specially looking for, and to the Germans lolling over the rail of the guardship the *Arthur* was just another trading vessel.

Except one of them, that it. He was hardly more than a boy and a good, observant sailor. The crew of the *Arthur* saw his eyes widen in amazement and it was obvious he had seen the "chariots."

Continued on page 29

## NEWS OF THE WORLD'S NAVIES

### International co-operation in Antarctic applauded

Rear-Admiral Richard Byrd believes Antarctic co-operation by 40 nations, including Russia, is "one of the best things for good-will that has happened in the world for a long time."

In a radio interview in Washington Admiral Byrd described the Antarctic as "an untouched reservoir of natural resources... put aside by some supreme intelligence to provide resources for the world when we will have expended them by our reckless behaviour."

### Army gets Navy troop-carrying 'copter

Delivery has begun of the first troop-carrying helicopters to the British Army. They are Westland Whirlwinds.

The Whirlwind is the largest helicopter in production in Britain, and large numbers are in service with the Royal Navy and the Royal Air Force.

Hitherto only light and medium weight helicopters, with seating accommodation of up to four, have been used by the Army. The Whirlwind's payload allows for the carriage of up to ten fully-equipped troops in a spacious cabin similar to that in the civil version of the Whirlwind used for passenger services by British European Airways.

### High altitude tests of breathing equipment

Flight trials began last January of a prototype liquid oxygen system for aircraft made by Normalair Ltd. of Yeovil (U.K.). The first such trials to be carried out in a British aircraft, they are being organised by Normalair as part of an extensive programme

of flight testing, currently in Meteor NF. 11 and later in Canberra B.2 aircraft.

This programme is designed to speed up the development of high-altitude breathing equipment, and of cabin pressurisation and air conditioning units.

Two important advantages, from the aircraft designer's point of view, stem from the fact that a given volume of liquid oxygen will provide over 800 times its own volume of gaseous oxygen.

By storing the aircraft supply as a liquid in a liquid oxygen converter instead of as a gas in conventional storage cylinders, significant reductions can be made in installation weight and space occupied, namely a saving of 67 per cent. of the total weight and 81 per cent. of the total storage space.

The system being flight-tested by Normalair employs a liquid oxygen converter of 5 litres liquid capacity, giving a gaseous supply equivalent to that provided by six standard 750 litre storage cylinders.

### America begins big sea-lift to Arctic

The United States Navy has begun the first phase of this year's sea-lift of material and supplies to Arctic bases.

The first seven of approximately 113 ships are already loading cargo at West Coast ports. These ships will supply bases on the West Coast of Alaska.

The seven ships will deliver approximately 26,000 tons of cargo and 109,000 barrels of bulk petrol.

Other ships will load in June and July at Seattle and Long Beach on the West Coast, and at

Hampton Roads, Philadelphia, and New York on the East Coast.

Much of the cargo and supplies to be loaded and delivered later this year will be for completion of the DEW Line Chain of radar stations. These stations are being erected along a 3,000-mile stretch of the northern perimeter of North America.

The DEW Line sea-lift will be divided into two projects. Ships of one task group will enter the connecting waterways across the top of the continent from the Pacific side for the long 1,730-mile haul through Beaufort Sea, Amundsen, Coronation and Queen Maud gulfs. Ships of the other task group will proceed from the Atlantic side in Davis Strait to the East Coast of Baffin Island, and via Hudson Strait into the previously uncharted Toxe Basin.

### Tests of three new U.S. Navy jets

Three of the United States Navy's newest jet aircraft have been tested aboard an aircraft carrier for the first time.

The Chance-Vought F8U-1 Crusader, new supersonic fighter; the Douglas A3D-1 Skywarrior, first Navy all-jet heavy attack bomber; and the Grumman F11F Tiger, another supersonic fighter, all have had their first catapult launchings and arrested landings from the decks of the U.S.S. *Forrestal*.

With a gross weight of 70,000 lb. and a wing span of 72½ feet, the A3D Skywarrior is the heaviest and most powerful American aircraft ever flown from the deck of an aircraft carrier.

Equipped with tow J-67 Pratt

and Whitney turbo-jet engines, the skywarrior is capable of speeds in the 600-700 m.p.h. range, and has a service ceiling of over 40,000 feet on combat missions.

According to Vice-Admiral T. S. Combs, Deputy Chief of Naval Operations for Air, the A3D is a significant advance on the Navy's programme of jet modernisation of the fleet.

"It will extend the striking range of our carriers beyond any point hitherto attained," the Ad-

miral says.

The F8U Crusader is one of the world's first aircraft to operate in an entirely new speed range well beyond the supersonic. The Navy has placed orders totalling 145,000,000 dollars for the plane.

The carrier tests of the three planes included a total of 29 catapult launchings and 29 arrested landings.

A U.S. Navy spokesman described the tests as "generally satisfactory."

## R.N.Z.N. cruiser is commissioned

The Royal New Zealand Navy's newly acquired cruiser *Royalist* was commissioned at Devonport during April. She will be doing a series of trials in the North Sea, before sailing for New Zealand later in the year to be flagship of the Royal New Zealand Navy.

Acquired by the New Zealand Government from the Admiralty, the *Royalist* is of the improved Dido class, 5,900 tons, 512 ft. in length and with a 52 ft. beam. Her main armament consists of eight 5.25 in high angle/low angle guns. She has the latest gun direction equipment and air and surface radar.

## Soldiers commemorate loss of H.M.A.S. Centaur

The 2/12 Australian Field Ambulance unit held a service at the Cenotaph, Sydney, on May 14, to commemorate sinking of the Australian hospital ship, H.M.A.S. *Centaur*.

The unit was serving on the *Centaur* when she was sunk.

A Japanese submarine torpedoed the ship 40 miles off Brisbane on May 14, 1953.

Of 1,362 aboard, 299 lost their lives, including doctors, crew, and 11 of 12 nursing sisters.

The ship was not carrying patients.

## British submarine in collision

The 1,090-ton British submarine *Talent* was damaged in a collision off the Isle of Wight, the Admiralty announced on May 9.

Travelling at periscope depth it collided with a tanker.

The *Talent* returned safely to base under its own power with a bent periscope and superstructure damage.

Continued on page 31



"From the Crack of the Pistol." by F. S. Horan; published by Longmans (Dorchester) Ltd. (London).

Occasionally I go to the library to get a book without having any idea of what I want. I go through the shelves picking books at random, opening them, reading a few words here and there (never the last page), studying the title, the author's name, illustrations (if any) and finally picking the book I want.

I have no clear idea of what makes me pick any particular book, but I do know what things about a book make me discard it.

*From the Crack of the Pistol* is a book that I might have discarded very quickly. It has an uninteresting jacket: it was written by a retired parson in his eighties (he is now 86): the photographic illustrations are not in any way inspiring. It is subtitled "A Personal Saga" and it starts off with an "Author's Apology." It is full of quotations, and quote marks. Exclamation marks and footnotes abound, and it has a quite unnecessary (for the general reader) index. But having had to read it to do this review I have this to say: it is one of the most charming (I think charming is the right word) books that I have come across in a long time. It is the simple straightforward biography of a man who was born in 1870 and is still going strong. It is a cross between a personal diary, a parish magazine, a family bible, and a ship's log.

It is not a book that will set the heather on fire, but it will give a lot of pleasure to anyone who has a more dependable

method of picking good books off the library shelf than I have. I hope that when I am in my eighties that I will be able to look back on a life that has been one tenth as full and as interesting as F. S. Horan's and that I will be able to write one tenth as attractively as he can.

For the record and in no way critical, as my own spelling and geography are not beyond reproach, but just that I happen to live in Scotland, Grandtown-on-Spey is not in Perthshire and Moffat does not have two t's. — H.L.

—In the London "Navy."

"Air Power." By Asher Lee published by Duckworth (London).

Since the days of General William Mitchell, plans to combine the three fighting services have repeatedly appeared. Whenever they do so, they provoke violent controversy and some of this controversy arises from the powerful (and praiseworthy) loyalties of individuals to their own service. Nevertheless, the subject is one which requires examination and it is a possibility that the day will come when some form of combination will be tried.

Mr. Asher Lee speaks with considerable authority on such matters because he spent a great deal of time on the Air Intelligence Staff of the Royal Air Force and because he has made careful, and, indeed, classic studies of the German Air Force and of the Soviet Air Force. He tends to the view that a combination of the services might be an advantage, at any rate at certain levels, and he directs

Continued overleaf

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LAMP AGENTS THROUGHOUT AUSTRALIA

Continued from page 23

attention at the dangers which occur when rivalry between services goes beyond that point when it is purely a stimulus to efficiency. The case of Japan is mentioned, where the Navy, by obtaining priority for their type of equipment and aircraft, "hindered," according to Mr. Lee, "the army-air expansion." This led to keen inter-service competition for manufacturers' favours and sometimes "to sharp practice." The inter-service rivalry, according to this author, also hampered German production in 1943 and 1944. "In the British defence against the flying bomb in 1944 service pride and priority hindered the use of the most effective tactics at one stage."

It should not be thought, however, that Mr. Asher Lee has devoted this book to arguing the case for or against combining the

services. The work covers a wider field and takes in its scope such matters as the value of strategic bombing, the use of transport aircraft and of parachute troops and the employment of new ballistic missiles and vertical take-off aircraft. On naval air power the author is clear and concise and he believes that in the future more than in the past air power will be needed to stave off the menace of enemy submarines.

This book is well argued and well documented and deserves the attention of all who would be informed upon the progress and possibilities of air power.

O.S.

—In the London "Navy."

"Dieppe at Dawn." By R. W. Thompson; published by Hutchinson (London).

This book makes it quite clear — from German documents

obtained after the war — that the Germans knew nothing about the Dieppe Raid beforehand. This might, perhaps, have explained its disastrous results.

It is not an easy book to read. It must have been a very difficult book to write. It is not for picking up and laying down or for reading in bed. It is a round by round painstaking record of the Dieppe Raid. It is not entertaining. It is heavy going, but I am prepared to accept it as a valid historical document.

If you took part in the Raid or if you are interested in this sort of thing, it will well repay the time taken in studying it — reading is not enough.

There are several quotes in it that appealed to me, e.g., this entry in the Germany War Diary at the Headquarters of the Commander-in-Chief in the West,

Continued on page 26

### Personalities

## New Appointments For R.A.N. Officers Announced

New appointments for two senior officers of the Royal Australian Navy were announced by the Minister for the Navy, Senator Neil O'Sullivan, last month.

CAPTAIN R. Rhoades, D.S.C., A.D.C., R.A.N., at present Captain (D) of the 10th Destroyer Squadron and commanding officer of the Battle class destroyer *Trobruk*, serving with her sister ship *Aurac* in Malayan water, has been appointed Captain of H.M.A.S. *Watson*, the Navigation-Direction School at South Head, Sydney.

Commander R. T. Power, R.A.N., Naval Assistant (Executive) to the Second Naval Member of the Naval Board, has been appointed Captain of the *Port*, Sydney, in the acting rank of Captain.

Both officers are graduates of the Royal Australian Naval College and served with distinction in World War II.

Captain Rhoades, among other things, commanded the destroyer *Vendetta* on the Tobruk ferry run and also took part in the evacuation of Greece and Crete.

After the war he held the post of senior officer of the 1st Frigate Squadron in the rank of commander and then became executive officer of the R.A.N.'s newly-established air station at Nowra (N.S.W.). He later left Australia for the United Kingdom on exchange duty with the Royal Navy to take up the appointment of Commander (D) of the *Nore* Destroyer Squadron. He was promoted to the rank of Captain during this exchange.

On his return to Australia he was appointed Captain of the Air Station at Nowra.

Commander Power served in the cruiser *Perth* in the Mediterranean and was present at the Battle of Matapan and at operations off Greece, Crete and Syria. In May, 1943, he was in command of the ocean mine-sweeper *Gympie*.

In October, 1947, his services were lent to the Royal Navy and he was appointed to the staff of the Commander-in-Chief, British Pacific Fleet. On his return to Australia in September, 1949, he served as second-in-command of H.M.A.S. *Aurac*, and subsequently as Captain of H.M.A.S. *Rushcutter*, Sydney.

### Captain Whinfield

Captain N. A. Whinfield, Commodore of the Orient Line fleet, retired at the end of last month.

He was captain of the company's newest liner, *Orsora*, since it was built in 1954.

He was appointed Commodore of the fleet on September 1, 1954.

Captain Whinfield served in both world wars, and won an award for gallantry in 1916.

Since joining the Orient Line in 1923 he has served on the *Orontes*, *Ormonde*, *Orion*, *Orcales*, and *Orsora*.

### Captain Marks

Captain W. B. M. Marks, D.S.C., R.A.N., has been awarded the Legion of Merit, Degree of Legionnaire, by the Government of the United States, for services against the enemy forces in Korea from early July, 1950, when he was the commanding officer of H.M.A.S. *Bataan*.

Announcing this, the Minister for the Navy, Senator Neil O'Sullivan, said that the award had been made to Captain Marks for carrying out the successful bombardment of shore batteries and for outstanding professional skill, resourcefulness and unswerving devotion to duty through blockade operations. Senator O'Sullivan said that Captain Marks, who at present was the Director of Naval Ordnance and Underwater Weapons, at Navy Office, Melbourne, had upheld the highest traditions of the Naval Service.

### New liner for Australian run

The Port Line has announced that a new freighter, the *Port Lauenston*, will be launched at Belfast in September.

The new 8,500-ton liner will trade between England and Australia.

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# BOOK REVIEW

Continued from page 24

Field-Marshal von Rundstedt, "1740 hours, 19th August, 1942. No armed Englishman remains on the Continent," and "As a Naval Operation it (the Raid) was a success. The Air Battle was a victory. The Military Operation was a disaster."

Not a book that I would recommend to my maiden aunt, but I am sure many of my war-time friends will read it with much thought.

H.L.

—In the London "Navy."

"The Gallant Story." By J. H. B. Pell; published by Arthur Barker (London).

All those who have enjoyed Mr. Peel's previous work will welcome the appearance of his new novel. This is the life story of a woman, who, against great odds, rises to the heights as an actress to become a legend in her own life-time. The ups and downs of Avicé Gallant's inner and emotional life are interwoven with the steady ascent of

her professional one, and the result is a fast-moving and absorbing story. The detailed background is drawn with the vivid imagery and imagination of a poet, the descriptions and creation of atmosphere are excellent, and the author shows a wide knowledge of character, particularly in the case of the minor parts. Through the story runs the background of the Cornish sea-coast, where the heroine was born, where she returns at a time of crisis when her emotional life has failed, and where she finally finds peace in retirement.

J.C.

—In the London "Navy."



About 1000 men in the new aircraft-carrier H.M.A.S. "Melbourne" sleep in bunks instead of hammocks. Picture shows E.M.I. Pat Lysaght, of Townsville, reclining on his bunk writing a letter home, while R.E.M. Robin Peterson, of Sydney, looks on.

## For Sea Cadets

# THE MAGNA CARTA

By JOHN K. LAVETT

President, the Sydney Branch of The Royal Society of St. George.

ON June 15, 741 years ago, King John placed his seal on a lump of wax to show that he consented to keep the promises set out in Magna Carta — a document symbolising the foundation stone on which our present liberty is built.

Representing a summary of the native rights of Englishmen, Magna Carta (a Latin expression meaning Great Charter) has many times since been renewed and reaffirmed. Its provisions have been extended to cover more than those who originally drafted it intended, and probably, if they could come to life, they would be

amazed at what Magna Carta means to us to-day.

Magna Carta was at once a grant of liberties made by the King and a treaty between King and Subjects. It declared the fundamental principles of government in accordance with established law and custom, bound all parties to observe those laws and sanctioned armed resistance to any attempt to over-ride or change them without consent.

It was not, in itself, a piece of revolutionary legislation but embodied the basic principle of English political progress that neither King, Barons, Church-

men, nor commons may over-ride or ignore the law of the land. It is still, happily, part of the law of the land, just as much as any new law passed by Parliament to-day.

Magna Carta established that no one could be punished without fair trial, that punishment must be proportionate to the offence, and that justice must not be denied, delayed or sold.

Although originally dictated (to a considerable extent) by baronial interests, the Great Charter, nevertheless, corrected evils and wrongs from certain customs and abolished tyrannical practices.

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 also sponsors the Australian Sea Cadet Corps to interest the right type of lads in the Royal Australian Navy — either to start them upon a career or to provide a healthy pleasurable means of qualifying them to be of service in the Senior Service in the event of emergency.

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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NAVY LEAGUE,

Secretary: 312 Flinders Street, Melbourne, C.I., Victoria.

Secretary: 83 Pitt Street, Sydney, N.S.W.

Hon. Secretary: 12 Pirie Street, Adelaide, South Australia.

Hon. Secretary: Box 1441T, G.P.O., Brisbane, Queensland.

Hon. Secretary: 62 Blencowe Street, West Leederville, W.A.

Hon. Secretary: 726 Sandy Bay Rd., Lower Sandy Bay, Hobart.

Hon. Secretary: 49 Froggatt Street, Turner, Canberra, A.C.T.

It reaffirmed ancient public rights that had previously been violated time and time again.

The sealing of Magna Carta by King John at Runnymede (near Staines) on June 15, 1215, marked a very important epoch in English history, and the event stands out as a striking landmark in the liberties of the British race.

Magna Carta is a large sheet of parchment on which are written, in a neat court hand, a number of clauses in Latin. Originally there were 49 clauses or chapters, but this number was afterwards increased to 63. Each clause deals with a different matter and the interests of nearly all classes of the King's subjects were safeguarded.

Clause 39 of the Charter, for instance, reads: "No freeman shall be taken or imprisoned or disseised or exiled or in any way destroyed, nor will we go upon him nor send upon him except by the lawful judgment of his peers or by the law of the land."

Converted into modern-day English and usage, this means that no man shall be punished in any way except by law, and that whenever he be charged with a crime he shall have the right to be tried before a jury composed of his own countrymen.

Another very important clause (No. 40) reads: "To no one will we sell, to no one will we refuse or delay right or justice."

Then there is clause 20 which says, in effect: "No freeman, merchant or husbandman shall be excessively fined for a small offence: the first shall not be deprived of his means of livelihood."

This clause is as important today as it was in the 13th century, and the carrying out of its provisions is sometimes of the greatest benefit to poor people.

Take the case of the seamstress who earned her living by the use of a sewing machine. Bailiffs, act-

ing on the instructions of a creditor, seized the machine, whereupon the woman appealed to a magistrate who declared the law had been broken, and ordered the creditor to return the machine and pay compensation. In this instance, the bailiffs, acting for the creditor, had infringed clause 20 of the Great Charter. The poor woman, claiming her rights under Magna Carta, was supported by the magistrate and obtained damages.

We can understand what a wise rule it is that men and women, when they get into difficulties, should be allowed to keep the tools by which they earn their living. It is the article of Magna Carta which enforces this.

There were many other useful provisions in the Great Charter. It was stipulated, for example, that no widow should be compelled to marry so long as she preferred to live without a husband. Illegal fines were stopped and also the practice of seizing goods and vehicles for Royal use without payment.

John has been described as the worst King who ever ruled in England. He had brilliant abilities which he occasionally brought into play in brief spasms of energy, but he was the slave of his own passions and inordinate vices. He was a tyrant and a murderer, faithless, reckless, vindictive and cruel, but, oddly enough, England was the gainer, for he made himself so generally detested that many elements in the country united in opposing his oppression and forcing him, eventually, to seal the Great Charter.



Let us commemorate the day by pondering over the subject and reminding ourselves of what it means to us in these times when liberties are being lost or filched away in other countries and when subversive organisations within our own portals are attempting, similarly, to undermine the freedom our forebears so ardently won.

We are spiritual beings with a spiritual destiny to achieve. We must strive to build the new era into which we have recently entered on the foundations of service and spiritual verities.

With tolerance, with good-will, with love, with the desire to serve, with the aim of co-operation and advancement of moral standards, we can have enduring peace and a world fashioned in harmony. The same spirit that animated men of noble ideals to cleanse our Empire of tyranny and darkness in the past must animate us in the present-day world. We must respond to the call of service, and not only desire, but work to make life on earth better, fairer and richer for all.

Let us so seek to exercise ourselves that we become living instruments of Him who created us, who fashioned us in His own Divine image and filled us with a part of His Divinity. Let us always be conscious that we are His instruments, and know that with faithfulness, service and fidelity to that trust which is laid upon us, we can go forward fearing nothing, knowing that our difficulties will melt away as shadows before the glory of the sun.

Let us rejoice that opportunities have been given us to serve, and let us pray that we may be given still greater opportunities in the days that lie before us and thus help to perpetuate the good that has come from Magna Carta.

## FISHING SMACK v. "TIRPITZ"

Continued from page 20

He opened his mouth to shout, but the Norwegians were quicker. The next moment a line, cast to make the *Arthur* fast to the guardship, flashed through the air and encircled him in a neat lasso. A roar of laughter rose from his ship-mates and, blushing blood-red, he angrily extricated himself and bolted below, overcome with embarrassment.

Larsen received the inspecting German officer on board, bluffed and talked his way through the papers, and the *Arthur* resumed her course, towing the submarines behind her.

The excitement did not end there. Engine trouble developed, necessitating help from a village mythy in the dead of night. A high wind sprang up, reducing the number of knots they could make. The whole timetable was in peril. But the marvellous little *Arthur* penetrated right into the fjord and up to the torpedo net enclosing the *Tirpitz*—only to find at the last moment that in the sudden gale the submarines had slipped their hawsers and were probably several hundred fathoms down.

The disappointment was heart-breaking, and the danger almost as great as if the attack had been pressed home. The *Arthur* could not return, as her papers were strictly one way only, and so in the darkness Larsen scuttled her and the men went into hiding ashore. It was a tragic failure and their subsequent experiences before they returned to the Shetlands, during which on of the "charioteers" was killed, is another story.

A long time later the *Tirpitz* was, of course, successfully attacked by midget submarines but on that occasion they were towed by a full-size sister craft.

## THE SPOTLIGHT IS ON THE HEAT BARRIER

**T**HE recently-achieved British world speed record of 1,132 m.p.h. has spotlighter the next great aeronautical problem—the heat barrier.

United Kingdom scientists are now actively engaged in solving this problem, the evolution of a metal which will withstand great heat without losing its properties and even melting. The heat is naturally generated by the friction and compression of the air as an aeroplane passes through it at speeds greater than sound.

Fairey Aviation's Chief engin-

For Larsen, although he felt the failure of the mission probably more keenly than anyone, the event was still early in his career, so he compensated for by other achievements. The Germans swore to catch and dispose of him, but they never did.

Once he rowed dying shipmates 150 miles back from the Polar Circle in a leaking lifeboat shattered by continuous aircraft attacks.

As a foreigner he was not eligible for the Victoria Cross, but the British Government did the next best thing. When at last he was able to give the final order to "Make fast, fore and aft" and take up again his quiet life in Bergen, he held, in addition to his Norwegian decorations, the Conspicuous Gallantry Medal (the highest award we can make to a foreigner), the D.S.O., D.S.C., D.S.M. and Bar.

Lief Larsen is certainly a remarkable man. He lives for small boats and since the war has crossed the North Sea in an aluminium one of his own design. When he is on water, he is happy. (From the London "Navy.")

eer, R. L. Lickley, has stated that steel is likely to replace light alloy in any successor to the record-breaking F.D.2 aircraft.

Flying at 50,000 feet, where the temperature is minus 57 degrees Centigrade, an aircraft achieving 1,320 m.p.h. would reach a temperature of about 112 degrees Centigrade, states the Society of British Aircraft Constructors. If the speed were increased to 1,980, flying in the same temperature, the temperature of the aircraft would reach 330 degrees Centigrade. At 2,640 m.p.h. the temperature of the aircraft would rise to 640 degrees Centigrade.

This heat rise must be overcome by refrigeration or other means to avoid impossible conditions for crew and passengers, the bad functioning of engines and components, especially electrical ones, and even a tendency to melt the aeroplane itself.

At speeds below 1,980 m.p.h. it may be sufficient to refrigerate only certain parts of the aircraft—cockpit, engine and so forth as is probably the case with the record-breaking aircraft F.D.2.

Because of the effects of heat on mechanical compressors, it has been estimated that turbo-jet engines will not be used at speeds above about 1,640 m.p.h.

Titanium, says the Society of British Aircraft Constructors, is best at speeds below about 2,380 m.p.h. for an aircraft flying at 36,000 feet, while at greater speeds steel gains the ascendancy.

At extreme temperatures, hafnium carbide is likely to be used. In the immediate future, hafnium may be utilised in the construction of turbine blades for turbo-jets, exit nozzles for ramjets and other engine parts where temperatures are very high.

# SOME CUSTOMS OF THE SEA

By A. Tranter

ALTHOUGH much of the romance of the sea has ceased with the disappearance of the sailing ship, there are still many occasions when colourful ceremony returns to brighten up the dull routine of nautical life. In the Royal Navy, for instance, traditions of the sea are jealously preserved.

No officer nor rating, for example, would dare to step on the quarter-deck of a man-of-war without saluting. The exact origin of this is obscure. Some explanations state that the salute was originally to a shrine which in medieval days was placed on the quarter deck. Others state that it is due to the fact that the seat of command, representative of the royal prerogative, lay there. Probably the true explanation is that it was introduced as a measure of discipline.

Indeed, discipline is the basis of most ceremonial in the Fleet, but there are time-honoured customs that have never been officially recognised in Queen's Regulations or Admiralty Instructions.

An example of this is the paying-off pendant flown at the main truck by H.M. Ships when they leave their fleet to return to their home port to pay off. The pendant, with a balloon at its end to keep it out of the water, is the length of the ship if she returns home at the end of a normal period of foreign service, plus a proportionate increase for any extra service. It is similar to, and flown in place of the mast-head pendant, and is displayed when the ship is entering or leaving harbour on her passage home. It

is also the custom on all stations for a ship to fly the paying-off pendant on the Sunday preceding her departure or, if already in her paying-off port, on the Sunday preceding the day on which she pays off. This custom originated before the Napoleonic Wars.

Paying-off pendants have now been adopted in the Merchant Service, but in their case the length depends on the number of years the liner has been in service. The Merchant Service and the Royal Navy also have the custom of dressing their ships with flags on festive occasions. This consists of signalling flags and pendants tried up over the whole length of the ship.

British warships salute each other when they pass in harbour, and the nature of the salute depends upon the relative ranks and seniorities of their respective Flag Officers or Captains or any V.I.P.s who may be on board. H.M. Ships do not usually exchange salutes at sea, with each other or foreign warships, but when a merchant ship passes close to a warship, either at sea or in harbour, she dips her ensign as an act of courtesy and this is acknowledged by the warship, who dips her own in response.

Merchant ships also dip their flags as a matter of company routine. Thus the senior captain, known as the commodore, is saluted by all other ships of the same company when meeting at sea. In some companies, the rule is extended right down the seniority list, each captain being first saluted by his junior.

Gun salutes play a very important part in sea ceremonial. As

well as heralding the approach of Royalty or some other distinguished person, they are used as a courtesy between nations. There is an agreed international scale of gun salutes to avoid confusion in the number to be fired. All large warships are fitted with small saluting guns, firing blanks.

The maximum salute fired in honour of a foreign flag during visits by British warships is twenty-one guns to a British flag in our waters.

Another custom observed in the Royal Navy is that of "Piping the Side" when the quartermaster pipes the captain on board. Royalty, foreign naval officers and commanding officers of the British Navy are honoured in the same manner.

The Boatswain's Call, used in these cases, is of very ancient origin, being introduced to the English Navy in the fifteenth century, when it was the badge of office of the Lord High Admiral.

Another ancient ceremony, observed in both the Royal Navy and Merchant Service is that of "Crossing the Line" in which those who have never crossed the Equator before are hauled before the court of King Neptune.

In former days these playful indignities were often very violent and after one bruised victim had appealed to the law courts, it was agreed that anyone unwilling to go through the ceremony could be excused on appealing to the captain.

Although the ceremony varies in different ships, the main features remain the same. His Oceanic Majesty King Neptune, a venerable, bearded figure, takes

the deck, supported by members of the crew disguised as his courtiers. He proceeds to conduct a mock trial, and those proved not to have crossed the Equator before are shaved with a huge dummy razor. The ceremony is concluded by tipping the victim into a large bath of water infested by "sea-dogs" or "bears."

At Cork there is an interesting ceremony called "Throwing the Dart." The dart—a steel javelin—is taken on board a vessel that conveys the Mayor and Corporation as far seaward as an imaginary line between Poor Head and Cork Head. The Mayor, standing in the bow, throws the dart as far into the sea as he can, thus marking the limit of his jurisdiction.

The custom of breaking a bottle of wine over the stem of a ship when launching her originates from the old practice of toasting prosperity to the ship in a silver goblet of wine, which was then cast into the sea in order to prevent a toast of ill intent being drunk from the same cup.

The practice proved too expensive and was replaced in 1690 by the breaking of a bottle of wine over the stem. It was also the custom, which is still observed, to pray for Divine blessing on the ship and her company throughout her life.

Until 1811, in the case of H.M. Ships, the ceremony was always performed by a Royal Personage or a Royal Dockyard Commissioner; but in that year the Prince Regent introduced the custom of allowing ladies to perform the ceremony. In this connection it is interesting to note that on one subsequent occasion a lady who was performing the ceremony, mistook her aim and the bottle struck and injured a spectator, who sued the Admiral for damages.

—From the "Sea Cadet," London.

## NEWS OF THE WORLD'S NAVIES

Continued from page 22

### Milk — without rum — is the favoured drink

Strange changes are going on in the habits of British servicemen, reports the British Navy, Army and Air Force Institute, which operates canteens supplying refreshments to the services.

Fifty years ago 95 per cent. of the business done in service canteens was in alcoholic drinks—beer, whisky and gin being favoured by soldiers, rum by Navy men.

Last year, only 5 per cent. of the business was in alcoholic drinks.

For the first time, milk sales have topped beer sales to Royal Navy sailors.

The Army and the Air Force are downing three times more tea, coffee, milk and soft drinks (once known with contempt as "lolly water") than they are the foaming brew.

Royal Navy men, entitled from ancient times to free rum, are refusing their free drinks in ever-increasing numbers and having coffee instead.

Even Aldershot, home of the British Army which won at Agincourt and Waterloo on a diet of beef and beer, is going over to the new style — the famous soldiers' canteen there is installing an espresso coffee machine.

### Fortune came from a sailor's kitbag

Two sailors walked into a Plymouth shop and sold a kit-bag full of stamps that they had won in a raffle while ashore in Cape Town. The year was 1863 and the price for the stamps—there were thousands of them—was £5 sterling. Now many of them are worth anything up to £225 each, and some as much as £1,300 each.

That historic purchase was made by the young pharmacist

and proprietor of the shop, Edward Stanley Gibbons, who had begun dealing in stamps as a sideline in 1856, when stamp collecting was just becoming a serious hobby.

It was at about the time of the purchase that Stanley Gibbons sold his chemist's business and became a whole-time stamp dealer, founding the firm that still bears his name.

At the centenary exhibition in London recently, stamps on view were worth about £A.152,000. The rarest and most expensive was the 1851 Hawaiian Missionary two-cent stamp used with a 13-cent stamp of the same issue and valued at £A.5,625.

### U.S. Navy's first atomic reactor

The United States Navy's first atomic reactor for research is nearing completion at the Naval Research Laboratory in Washington, D.C.

It will be the first nuclear reactor in the nation's capital, as well as the first research reactor to be constructed, owned, and operated by an agency of the U.S. Department of Defence.

The reactor will be of the "pool" type, so named because the reactor itself is suspended in a pool of water. The water "moderates" or slows down the neutrons produced by the uranium fuel thus making the nuclear chain reaction possible. The water also serves as an excellent shield against the radiation from the core, and acts as a cooler to remove the heat generated.

The pool will be 40 feet long, 26 feet wide and 20 feet deep. It can be divided into two sections by a water gate across the centre. This allows one side to be drained so that physicists may set up an experimental apparatus while the



reactor is operated underwater in the other half.

Initially, the Naval Research Laboratory reactor will be operated at 100 kilowatts. It will provide large quantities, or fluxes, of uncharged nuclear particles — neutrons — and other radiation for research.

The reactor will also serve as a major new scientific instrument for the Laboratory's investigations in physics, chemistry, metallurgy, and other scientific fields.

#### New R.N. uniform issued this year

A new, improved type of uniform for seamen of the Royal Navy has been approved and will come into use later this year.

The new uniform retains the traditional "square rig" of collar, jumper and bell-bottomed trousers but is given added smartness by the new coat-style, zip-fronted jumper and smoother, yet even harder wearing diagonal serge cloth that has been selected.

Uniform caps with crowns of white plastic have been introduced this year and will eventually replace the present caps with crowns of blue and white cloth and detachable white cap covers.

#### Navy orders new turbine machinery

Orders have been placed for prototype propulsion machinery installations of a new revolutionary type for use in frigates and fast escort vessels, the Admiralty states.

The principle employed is that of highly efficient steam turbines and gas turbines geared to the same propeller shaft. The gas turbines provide a high concentration of power in a very compact form and will be used to boost the steam turbines for sustained bursts of high speed.

The machinery installations

have been conceived and designed by the research department of Yarrow and Co. Ltd., in conjunction with the Admiralty. Metropolitan Vickers Electrical Co. Ltd. are designing and manufacturing the steam turbines, gas turbines, gearing and control mechanism and will carry out full scale shore tests on a large part of the prototype equipment.

Warships in which this lightweight and compact machinery is installed will be able to carry more fighting equipment than would otherwise be possible with orthodox machinery.

#### U.S. arms programme for Allies reported

According to the "New York Times" the United States proposes to put the forces of the Allied nations on essentially the same armaments footing as American forces.

The programme includes guided missiles, supersonic fighter planes, and radar systems.

The newspaper quoted United States Government sources as its authority.

It added: "While nuclear weapons are not included in the programme, many missiles have interchangeable warheads and could be fitted with fissionable charges."

It added that the United States Administration had asked Congress to appropriate 530 million dollars (£A.237 million) for the programme.

#### Japanese Navy First destroyer for

The first destroyer to be built in Japan since the war has been delivered to the Maritime Self Defence Force.

The 1,068-ton destroyer *Inazuma* (Lightning) was built by the Mitsui Shipbuilding and Engineering Co.

#### VICTORIAN CADETS

The past few weeks have been amongst the busiest on record for the Victorian Sea Cadet Division.

Cadets from T.S. Melbourne and T.S. Anzac took part in ceremonies at the Melbourne Shrine of Remembrance on Anzac Day. At Portland and Bendigo cadets mounted the guard on the Cenotaphs.

Cadets from T.S. Mildura marched in the Anzac Day Parade in that area and were drenched by a sudden downpour of rain during the march.

Empire Youth Sunday again put a heavy demand on the various units. At Geelong, Melbourne, and Bendigo, Sea Cadets paraded the Australian National Flag and led the very large youth parades.

Victorian units extend a hearty welcome to officers and cadets from other divisions who visit areas in which a Unit operates. We shall be pleased to meet and entertain you, just look us up when you are in the State.—D.J.N.

#### Survivors taken from blazing tanker

Thirty-seven survivors of the burning Norwegian tanker *Erling Borthen* landed at Dover on May 6.

They abandoned the tanker after it collided in a Channel fog with the freighter *Santa Rosa*.

Meanwhile the *Erling Borthen*, carrying 17,000 tons of oil, was burning and the French tug *Jean Bart* had towed it to just off Boulogne.

The British coastal ship *Harbrook* landed the survivors at Dover.

The survivors included four wives of members of the crew.

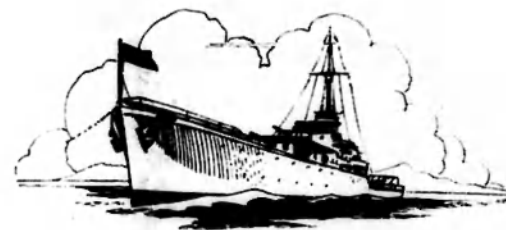


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