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January, 1957.
and some bombers were, it is known, destroyed on the ground.

Soviet bloc aid was also given to Syria. During the last year the following equipment is known to have been delivered to the value of £187.5 millions: at least 100 medium tanks and 100 armoured personnel carriers; 30 to 100 self-propelled guns; at least 100 other guns of various calibres; and large quantities of minor armaments such as ammunition, vehicles and radar.

These facts show the extent to which Russia was prepared to use Nasser and his allies to penetrate into the Middle East.

After forcing the British and French out in favour of an impotent U.N. token police force, the United States has apparently realised that there are Russians at the bottom of Nasser's garden.

THE NAVY VOTE

The new Director of Australian Naval Reserves, in a recent newsletter, refers to the cut in the Naval vote by £9 million to £39,065,000.

The Director says that the cut "is not so serious as it appears, as £8 million expended last year on H.M.A.S. Melbourne and her aircraft is not again required this year."

Nevertheless, he points out, the cut of £3 million, coupled with rising costs, has made necessary certain economies which will delay our building programme and decrease "slightly" the personnel strength of permanent Navy.

The Director points to these four effects:
1. A reduction in expenditure on stores and dockyard working. This will cause a delay to the completion of the "Darlings" and new frigates. It also means that the periodical refitting of most ships of the Reserve Fleet will be deferred.
2. The amount of building works which can be undertaken this financial year will also be reduced. However, £350,000 has been set aside for houses for Naval personnel under the Commonwealth-State Housing Agreement.
3. The activities of some shore establishments are being reduced and complements adjusted to the Naval and Civil side to keep as many ships in commission in the Active Fleet as possible. Part of this reduction has been the concentration of all Reserve ships in Sydney, with consequent saving of Naval manpower.
4. A slight reduction in Permanent Naval Force personnel. This will be achieved by granting free discharges to selected men who have justified claims for release on compassionate grounds. National Service and Naval Reserves are not affected, but training for reserves has been curtailed.

Despite the Director's reassurance to his reserves the outlook is depressing. It is to be hoped that the Australian Government, in its next Budget, will realise the vital importance of a virile Navy and will afford that Service proper financial support.

The facts of Russian involvement in the Middle East were officially disclosed in London after the Canal cease-fire.

In the past year Egypt received from Russia military aid worth at least £187.5 millions. It included at least 50 Ilyushin bombers; at least 100 M.I.G. fighters; about 100 medium and heavy tanks; more than 100 personnel carriers; between 400 and 500 guns of various calibres; and a number of rocket launchers. In addition much other equipment had been supplied such as mines, radar, and wireless telegraphy equipment.

The Egyptian navy received from Russia two destroyers and four minesweepers, between 15 and 20 motor torpedo boats and some smaller vessels. It is also known that delivery of one and probably more submarines from the Soviet bloc was in hand before the Anglo-French intervention.

Although it is not known if Soviet bloc volunteers went to Egypt after the British-French operations started, the following facts are significant pointers to Soviet policy and influence:
- At least one thousand Soviet bloc technicians and instructors were previously sent to Egypt.
- About 300 Russians and Czechs made their way from Egypt shortly after the Anglo-French intervention. A number of them appeared to be aircrews and mechanics.
- The bomber force was not used by Egypt.

Most of it appeared to have been flown out of the country. Nearly all the fighter force
The offensive opened on October 31 with air operations against Egyptian airfields and other military targets by land-based and naval aircraft. The first news associated with this development came from HMS Newfoundland (Captain J. G. Hamilton, R.N.), which encountered an Egyptian frigate by night while on shipping protection duties in the Gulf of Suez, and sank her when she failed to answer when challenged or to stop when called upon to do so.

The Egyptian frigate was later identified as the Domart, formerly the Dornier, recently supplied by France. It was announced in London that she was carrying mines with the apparent intention of laying them in the area. Sixty-nine survivors were picked up by the Navy.

Another early incident involving the Navy was the sinking down of an Israeli aircraft by the frigate Crane (Captain B. S. Pemberton, R.N.) when four aircraft made a concentrated attack on the ship. This incident was also in the Gulf of Suez.

As communications were issued with increasing frequency from Allied Headquarters, it became evident that the main Naval barrier was falling on an Anglo-French aircraft carrier force. More than 100 ships of various types were operating in the Eastern Mediterranean, including five British aircraft carriers, the Eagle, Albion and Bulwark with operations

squadrons of aircraft, and the Ocean and Theseus with operational helicopters and units of a Royal Marine Commando embarked. In addition, there were French operational aircraft carriers, led by the Arromanches (formerly H.M.S. Colossus).

All these forces operating under a joint command organisation, in which the senior British officers included Admiral Sir Guy Grantham, G.C.B., C.B.E., D.S.O., the Commander-in-Chief, Mediterranean; Vice Admiral L. F. Durnford, C.B., Naval Task ForceCommander; Vice Admiral M. L. Power, C.B., C.B.E., D.S.O. and Bar. Flag Officer Aircraft Carriers; Rear Admiral D. B. Holland, M.S.O. and D.S.O. and Bar. Flag Officer Support Forces; Rear Admiral G. B. Sayer, C.B., D.S.C. Flag Officer Helicopter Group; Commodore R. de L. Brooks, D.S.O. and Bar, R.N.; Commodore, Assault Forces; Captain J. S. Walwyn, O.B.E., R.N., Captain M/S Group; Captain J. G. Hamilton, R.N., Senior Officer Red Sea Force.

The senior French Naval officers in command were Rear Admiral Pierre Lancelot, Deputy Naval Force Commander, and Rear Admiral Y. G. M. Caron, Flag Officer French Carrier Force.

The measure of the Naval contribution may be judged by a report that carrier-borne aircraft made upwards of 2,000 sorties against military objectives and naval targets by November 6. This great effort was achieved with the loss of only one British life and two Naval aircraft, and was executed by Naval air pilots with great precision to limit civilian casualties. The combined land- and carrier-borne air effort established complete air supremacy — a pre-requisite for the landing of ground forces.

**Varied air operations**

Naval air operations were very varied. Ranging from routine strikes made against military land targets to attacks on bridges and blockships and the transport of fighting troops and casualties by helicopter. At one time Wyvern and Sea Hawk aircraft dive-bombed the vital railway bridge west of Gamil airport and destroyed it. On another occasion Naval aircraft attacked an Egyptian blockship as it was being towed to the southern end of Lake Timshar. Unfortunately, although damaged, the blockship was subsequently towed on into position and sunk.

The first Naval loss was reported on November 3, when a Wyvern aircraft of No. 830 Squadron was shot down over the sea. The pilot, Lieutenant D. F. McCarthy, R.N., ejected himself and made a safe descent, but within 4,000 yards of hostile shore batteries.

While Naval fighter aircraft from H.M.S. Eagle and H.M.S. Bulwark kept watch over the pilot, marking his position, other aircraft engaged the shore batteries until an air-sea rescue helicopter, piloted by Lieutenant-Commander Bailey, R.N., arrived from H.M.S. Eagle eight miles away.

Two hours after ditching, Lieutenant McCarthy was back on board unhurt and cheerful.

The following day Sub-Lieutenant C. J. Hall, R.N., was killed when his aircraft crashed over the shore of H.M.S. Bulwark while landing on from a strike mission.

About this time Lieutenant Donald F. Mills, R.N., the pilot of a Sea Hawk aircraft, was forced to bale out about 300 miles inland and 10 miles east of the Canal. A helicopter was sent to rescue him while Naval fighters ensured that the Egyptians did not harm him from the ground. Other fighters circled overhead to guide the helicopter, which picked up Lieutenant Mills and returned him to H.M.S. Eagle.

Four Egyptian E-boats midway between Alexandria and Port Said were attacked by Sea Hawk aircraft on November 4. One was blown up, two set on fire and the other damaged. The damaged vessel was allowed to pick up survivors, and make its way back to harbour. This act was recognised by the Admiralty in a signal congratulating the aircraft carrier on the success of its attack and the humanity which allowed the remaining damaged E-boats to rescue the survivors of the other three and put them ashore.

**Support for landings**

On November 5 immediate and continuous support throughout the day was given by Naval carrier-borne aircraft to the landing of allied paratroops in the Port Said area; the first occasion, as far as is known, when such forces have been sustained and covered solely by carrier-borne aircraft. The small groups of isolated British and French paratroops became the sole responsibility of Naval aircraft from the carrier force. Throughout the day the control teams who landed with the first "drop" passed on the positions of targets, which required bombing or strafing, to waiting "cuckoo-ranks" of Naval aircraft overhead.

Instructions were passed clearly and accurately, and the aircraft were seldom short of targets. As the paratroops had to fight without administrative support for 24 hours, the carriers did all that was needed, and more, to supply urgent needs.

On that day a total of 373 sorties were flown from the carriers, the targets engaged being tanks, self-propelled guns, anti-aircraft positions, hostile troop concentrations, motor torpedo boats, aircraft on the ground and their heights.

Three aircraft were lost but all the pilots were saved.
Only 90 minutes after the "jump," a Naval helicopter was sent to land at Gamal airport in answer to an urgent request for medical supplies and to evacuate wounded. This was the beginning of a series of helicopter lifts of wounded to the carriers. Destroyers were used as 'plane guards and Whirlwind helicopters were turned over to casualty evacuation. The helicopters had to fly over about 100 miles of open sea each round trip.

The Flag Officer Aircraft Carriers received the following message from the Army Commander ashore at the end of the day:

"To all supporting aircraft: many thanks for your magnificent support to us this day, which thrilled all ranks. Its timely effectiveness and accuracy were beyond praise and doubts saved many casualties. Please convey our gratitude to all concerned."

During the morning of November 6 No. 3 Royal Marine Commando, consisting of some 350 men, was put ashore by a fleet of helicopters from H.M.S. Ocean and H.M.S. Theseus. They were landed in the Port Said area as the rest of No. 3 Commando Brigade was being landed from L.S.T.s and L.C.T.s manned by Royal Marine crews. The whole operation was completed in 91 minutes.

It was the first time this form of naval landing had been carried out.

Many of the Commandos landed by helicopter were battle-hardened troops who formerly served in the Korean war and in jungle operations in Malaya. They were lifted from the aircraft carriers Ocean and Theseus by a fleet of Naval S.A. Whirlwinds and other helicopters of the Army and R.A.F. embarked.

No. 3 Commando Brigade was commanded by Brigadier R. W. Madoc, O.B.E., who served in Crete during World War II and was there taken prisoner.

The units of the Brigade were under the command of the following officers: Lieutenant-Colonel David G. Tweed; M.B.E. (40 Commando); Lieutenant-Colonel Peter L. Norcock, O.B.E. (42 Commando); and Lieutenant-Colonel Norman H. Tailyour, D.S.O., who was wounded during the operation in Egypt (45 Commando).

Helicopters "wonderful job"

Subsequently, in a letter to the Admiralty, Captain E. F. Pirie, D.S.O., R.N., Commanding Officer of H.M.S. Theseus, described the "wonderful job" performed by the helicopters in ferrying the Commando from shore to ship. The two squadrons whipped the men ashore in record time," he wrote.

The helicopters, after the initial lift, returned in groups of five to six within about a minute; and after every second flight they were refueled in four minutes. While all this was going on the first casualties from the Parachute Regiment, which was dropped the previous day, were being received at the Theseus from H.M.S. Eagle, also brought in by helicopters.

"After our assault Commando had been landed," the letter continued, "the choppers' flight their attention to Commando casualties and in fact one Royal Marine Commando who landed with the first wave was back on board within 20 minutes. Very soon we had about 30 casualties on board. We were in fact acting as the forward casualty clearing station and the rear receiving station, since the 'choppers could do the job so quickly and efficiently.'

The main Army medical unit was on board the Theseus and at one time as many as 11 doctors were working on the casualties as they came in. The letter added that the helicopter casualty evacuation showed up very strongly the imperfections of boat transport. When we entered harbour and had a French hospital ship near us, it took far longer to transport Frenchmen by boat than it had taken the 'choppers' to bring them from shore. I am sure the helicopter assault carrier, with hospital accommodation, is here to stay."

Captain Pirie went on to describe "a really splendid rescue." Three helicopters were returning from H.M.S. Eagle when one of them had to ditch about a mile or so from the ship because of the shortage of fuel. On board the helicopter with the pilot were two French paratrooper stretcher cases. The pilot bailed out of one of them through the escape hatch, saw him swimming, and then went to the door of the cabin. He opened it as the helicopter was sinking and after every second flight they were refueled in four minutes. Very soon we had about 30 casualties on board the Theseus from H.M.S. Eagle, also brought in by helicopters.

Landings problem

Supplying stores, equipment and food for the Allied Forces firmly established ashore, directing the safe entry and speedy discharge of warships and loaded landing craft and supply vessels into Port Said, and somehow heaved out the second man, who was floating in his stretcher. The pilot then kept both casualties afloat until they were rescued by another helicopter with winch lifting gear. Two minutes later the pilot was picked up and landed on H.M.S. Theseus.

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tain certain categories of men beyond their normal time for discharge. This affected some Special Service ratings and Royal Marine other ranks, but it is the intention that the retention period will not be more than four months and, as Mr. Butler, the Lord Privy Seal, informed the House of Commons on November 15, "the aim is to reduce this period of extension gradually."

In informing the Fleet of their intention to put Mr. Butler's promise into effect, the Admiralty explained that men must expect for the present to serve about seven years and four months on active service and four years eight months in the Reserve, but earlier release will be given where an "early out" will be followed, but no Transport or operational reasons may prevent a man being brought. In conclusion, the Admiralty added.

"Their Lordships fully appreciate that the great part played by the Navy in this operation was not achieved without much hard work and considerable disturbance to many others. We shall perhaps be justly proud of the part they have played in the success of the operation - Well done!"

Two Royal Marine officers and eight Royal Marine other ranks were killed during the operations in Egypt.

Four Royal Marine officers and 48 Royal Marine other ranks were wounded.

In addition one R.N. officer (Sub-Lieutenant J.C. Hall, R.N.) was reported missing presumed killed, as a result of an accident when his aircraft crashed over the side while landing on H.M.S. Bulwark.

All the Royal Marine casualties were members of No. 3 Commando Brigade.

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**A SAILOR LOOKS BACK**

Captain Kennedy, of the Orient Line, looks back over his early years at sea — and recalls days of adventure, storms, violent death, and hardship. His story has been republished from the Orient Line Staff Newsletter, with permission of Captain Kennedy and the Orient S.N. Co. Ltd.

**By CAPTAIN G. S. KENNEDY, C.B.E.**

IN 1902 I went to sea as an apprentice. Less than 14 years of age, in the four-masted barque Clan Galbraith. Her captain was from Nova Scotia and his brother was first mate. The second mate was a rigger from Belfast with no knowledge of navigation. The boatswain was an Irishman, the carpenter and sailmaker were both Englishmen. The cook was a negro, and the steward was the one and only Englishman.

There were five apprentices and 20 so-called able seamen. They comprised five Germans who had no previous experience at sea but hoped to become officers of the German merchant navy when they fulfilled German requirements of having served two years on a sailing ship and learnt to speak English, and 15 seamen of all nations from Spaniards to Greeks and Norwegians.

Such was the crew that sailed from Hamburg on Christmas Eve 1902. We were towed out by a German tug into the North Sea, where a hard N.W. gale was blowing with ice and snow, and made sail. The merchant adventurers were men who risked their money in ships, like the Andersons and the Greens, and incidentally made the heritage that gives us employment today.

According to Lloyd's Register, in those days 15 sailing ships disappeared without trace every year and no-one knew the fate of the crew-only and gone forever. At that period the Red Ensign was known all over the world.

We sailed for Santa Rosalina in the Gulf of California with a cargo of coke and patent fuel. Patent fuel consisted of coal dust and tar made into bricks, and we as the crew on arrival had to discharge our whole cargo (2,500 tons) into lighters by our own efforts of arm power. In the intense heat the patent fuel scalded the flesh from our arms.

All went well until in the South Atlantic we were in the S.E. trade winds, when, while I was aloft on the main topgallant yard, an alteration started between the second mate and two of the Norwegians. One of them drew his sheath knife and stabbed the second mate.

Hearing the altercation I looked down 100 feet and saw two hucksters and at 17 feet I swung down inside the rigging and dropped on to the back of the stabber, but just too late. The fall threw me on to the deck and the second Norwegian drew an iron belaying pin and hit me across the nose, leaving me with a scar I still have. However, I recovered and was able with a straight left to deal with both.

The second mate died and on our eventual arrival at San Francisco they were prosecuted and convicted to jail.

I was promoted to third mate, but being only an apprentice received no more than my wages, which for the first year was £10 10s.

Further south of the River Plate we were hit by a Pompero, a very sudden gale which comes with little warning. Before we could get sail off the ship we were on our beam ends, the deck vertical and the mast heads dipping in the sea, and as the main mast was 180 feet in height it can give you some idea.

We lay like that for about two hours, when the wind eased and, with the hatches holding all was well. The Captain, while we were in that position, asked me if I was afraid. I replied, "I am scared stiff, sir." Never shall I forget his reply. He said, "Never be afraid until the Captain is; I am not. She will come up alright." An advice I have always remembered even when I became in command of an Orient Liner.

Needless to say, the barque righted herself and we carried on towards Cape Horn, which we eventually weathered after 70 days battling against one head gale after another with the seas waves 40 feet high from foot to crest.

We arrived at Santa Rosalina after 153 days from Hamburg without sighting land until the last 10 days when we entered the Gulf of California.

Our drinking water by then was rain water collected and purified with an ample supply of Condy's fluid. We were rationed to only two cups per diem, while our food consisted mainly of biscuits and tea.

We had unloaded our cas-
go of coke and patent fuel we moved on to San Francisco, where we put in for provisions. The two Co. liners now call). From Vancouver to Port Blakley to load the timber which now lines the eath of Antwerp Cathedral. We were there three months, as only the best timber could be loaded.

I returned home after two years (for three weeks leave) and then back to Hamburg to load another cargo for San Francisco, where we arrived in time for the earthquake and fire of that town in 1906. There were only two sailing ships, both British, in the port at the time. When the earthquake occurred on April 18 we were at the Union Street Wharf, at which our lines now move.

The Captain, when the wharf collapsed, ordered the topmasts set and we backed out into the bay and anchored. I was ordered ashore with ten men to see what could be done to help, and with two coils of rope we managed to rescue many people perched on the window sills of sky-scrapers, as the floors had collapsed. By scaling up with our ropes we managed to lower them to safety. All we did was to drag a rope up, pull it down inside the building and swim up. To sail this was easy work, to lower people down.

After seven days and nights ashore eating as we could, we returned to our ship and eventually proceeded to Port Costa 50 miles up the Sacramento River to load grain for the U.K. Meanwhile our crew of seamen had left the ship and only the officers and apprentices were left. Owing to the disturbance we were there for two months and 4,700 tons of cargo were discharged by burning. He fell overboard and was trampled underneath a timber saw and although I and another apprentice dived under it we could not rescue him in time.

One ashore on my second voyage in sail. Typhus caused four cases. I volunteered to nurse them; two died and two recovered. No doctors are carried unless the crew can be done to help, and with two coils of rope we managed to rescue many people perched on the window sills of sky-scrapers, as the floors had collapsed. By scaling up with our ropes we managed to lower them to safety. All we did was to drag a rope up, pull it down inside the building and swim up. To sail this was easy work, to lower people down.

We were away on that voyage for 18 months and eventually reached Hull with our cargo of grain.

My wages at that time as an apprentice were £10 10s. a year.

My third voyage was to San Francisco with a mixed cargo of bottles and glassware. While there, the boarding house runners ran the crew out of the ship. When we had completed loading grain and timber for London we lay out in the bay to collect a crew. To get a crew the Captain had to pay 40 dollars blood money for each new hand supplied by the boarding house runners. Whether he was a seaman mattered not.

After shipping six men one night so supplied (I was the night watchman), 1,700 tons of coal were loaded on deck, the hatches not yet being hoisted. The crew returned in a launch to steal the men back and to sell them to another sailing ship.

I called the second mate and he and we apprentices gave chase in the gig. In an exchange of gunfire the second mate killed the boarding house runner and we were able to get our men back. I stroked the oar and we returned with seven bullet holes in the gig and only kept going by hailng out and plugging the holes. All this at 2 a.m. and pitch dark.

The inquiry held us back for three weeks, after which we eventually paid the crew and in due course, after selling out the channel and overtaking the s.s. Arabua (P. & O. steamship—15 knots) off Plymouth, we berthed and passed on.

Three voyages in five years, but what experiences and experience they provided! So ended my years in sailing ships. I spent 14 days ashore at home and passed for my second mate's certificate and two days afterwards sailed as second mate of a steamer, the s.s. King Lud, belonging to the King Line of London Wall. I was then 19.

During my years in sail I learnt one thing that sailors never learn today. One night, sheltering under the lee of the poop, the boat swam (it was blowing hard), I said, "I should think the upper topmasts should be furlled." The reply was, "You are right, son, but the second mate is deaf.

A few minutes later the Captain came on deck, gave the necessary order to furl them and - I learnt that hearing for acaman was as necessary as sight.

In previous years a former captain as a Cadet of the Merchant Navy at Tilbury Dock on the morning at 7 a.m. when we were due to shift one of our ships (only with the aid of 300 feet high and the grain in hatches were hoisted) to the dry dock. I used to walk down the quay and listen to the wind in the rigging before I issued the order to move the ship. It never failed.

We people listen to music, but believe me you never have heard the wind in a sailing ship's masts rigging you know little about orchestras. You may take a chance in summer but in winter months there is a very different note (deeper).

Winds are always heavier in winter than in summer, and they seem wind, strange as it may seem. Hold a piece of black cardboard over the windscreen at the right angle of one of our liners and you will feel the wind pouring over the edge, like a stream of water. Unbelievable but true!

So I moved into steamships. When I joined the s.s. King Lud in Cardiff Docks I was promptly left by the chief officer to load the ship while the coal tips were pouring down every five minutes a truck of 10 tons into the four holds.

My duty was to see that the ship was not overloaded, and was on an even keel to sail. If a ship is overweight the Government steps in and prevents the ship from sailing. I often wonder how many young men at 19 years of age could be made responsible for such a task. The only light available was a hurricane lamp lowered down over the prow and stem to the draft in feet and inches fore and aft to obey the law in winter time.

Try it and see with the dock water crows in coal dust. I managed, and we sailed to Buenos Aires to discharge our cargo.

During the voyage south off Brazil the coal burst into flame by spontaneous combustion in No. 2 hold and the hatch was blown off. We placed canvas covers over the hatch and poured sea water over the hold hatch coamings and kept the fire under, although the deck buckled by heat and became red hot. On arrival at our berth we had the help of fire brigades so all was well.

We loaded a cargo of grain to Rotterdam with cattle and sheep on deck alive. The grain was 7,500 tons and was discharged in 48 hours by suction, a thing our crew never did to today, and that was in 1908!

Back to Cardiff to load 7,500 tons of coal, all completed in 50 hours, and off to Santos in Brazil. Our greatest trial was mosquitoes. Before sailing all the crew were injected in the arms against typhus, yellow fever, and smallpox— all at one time, but we all survived.

During our stay at Santos one of the labourers discharging the ship fell off the wharf during the dinner hour and I dived in to fish him out. The result, as the Spanish doctor said, was that the man died of a fit—not drowning—but he warned me not to go ashore as the religious belief was that I had cheated him of a life, even if only temporarily, and therefore I would be killed. I took his advice—who wouldn't?

From Santos to Rosario, about 40 miles up the River Plate, to load grain. On arrival at Rosario we were ordered another 500 miles up to Colonia, Santa Fe, to load the first 2,000 tons and then return to Rosario to complete loading.

Brushing tree tops and seeing many crocodiles we arrived and eventually returned to Rosario. At this port we moored under a cliff 100 feet high and the grain in hatches was thrown up on chutes down to the ship and I as second officer had to count the bags in tens for the whole cargo some 4,700 tons, and so I learnt more about my job as an officer in the Merchant Navy. Back to Rotterdam and another 48 hours discharging and back to Cardiff to load coal again.

I left the King Lud to sit for my second mate's certificate, but to work my time out made a short voyage to Malaga with coal and
Experimental Helicopter assault carrier

The first experimental helicopter assault carrier Thetis Bay, formerly an escort carrier, has been re-commissioned after an eight million dollar conversion at San Francisco Naval Yard.

Under a new U.S. Marine Corps doctrine of vertical envelopment she would launch troops in helicopters at dispersed places 50 miles from the beachhead, eliminating hunched waves of landing craft and beachhead concentration of support ships.

She will carry 20 eight-man helicopters and 1,000 marines. The forward elevator was removed and this section of the ship made into a troop berthing area. Spare parts and servicing shops have been removed; the island structure and steering station for the commodore have been rearranged and re-equipped. Helicopters are berthed in the after elevator at its extreme end.

The layout of the Colour follows a re-arrangement of Station areas in the South Atlantic whereby part of the old America and West Indies Station has been absorbed by the South Atlantic Station. Vice Admiral W. G. A. Robson, C.B., D.S.O and Bar, D.S.C., now commanding what is known as the South America and South Atlantic Station, and Commodore Hunt commanding a reduced area in the region of the West Indies, as Senior Naval Officer.

Major alterations to H.M.S. "Ark Royal"

The Ark Royal has been re-commissioned at Devonport (U.K.) after a refit when the operations room was extensively modified and new radar devices incorporated. The angle deck has been extended over the port side forward with the removal of two 4.5-in. turrets, which has increased living accommodation for 120 men.

Ex-Soviet destroyer in Soes Action

Ship casualties in the Anglo-French operations against Egypt included an Egyptian destroyer of the Soviet "Skoryi" class, attacked off Alexandria by French aircraft and set on fire. This was the first intimation that Russia had transferred such craft.

Navy teams for gliding contests

Two sail-planes, or gliders, and two teams of five members each were entered for the Australian gliding championship contests by the Royal Australian Navy Gliding Association at the R.A.N. air station at Nowra (N.S.W.).

The contests are being held at the airfield at Tocumwal, N.S.W., from December 28 until January 9.

The teams entered by the R.A.N.G.A. consist of officers and ratings. They began practising with gliders flying at the R.A.A.F. station in Uranquity (N.S.W.) on December 14.

NATO's anti-submarine force "inadequate"

In the event of war Eastern Atlantic Command of NATO would be unable to supply surface escorts for Atlantic convoys for some time.

Press reports quote Admiral Sir John Eccles, C-in-C of the Home Fleet and commander of Allied naval forces in the eastern Atlantic, as having given this opinion when he arrived in London for a six-day official visit last month.

The inadequacy of his command's anti-submarine strength was such that for a while only aircraft would be able to give warning between this country and American forces from enemy submarines, he said.

The Royal Navy's new anti-submarine frigates are being modernised on the spot in the first week of this month.

The group resolved some of the difficulties which have existed in the exchange of meteorological information and weather forecasting. NATO meteorologists, with some of the meteorological facilities available at Norfolk, both ashore and afloat.
During all this time only two navigating officers were carried and that meant four hours on day and night at sea. As second mate my pay was £5 10s. 6d. a month, no overtime, and in port all day on duty and every other night on board. It was our job and we did it. Did we think we were hard done by? Yes, maybe, but we realised it was the job that we had signed for and we did it.

As many others, I have been swept overboard off Cape Horn and brought back on board by the next lurch of the barque and washed off the forecastle head and swept along the main deck to bring up about the poop bulkhead, but these sort of things were common to seamen in those days of sail.

**Second mate of a tramp steamer en route from Barry Docks to Messina with a cargo of coal.**

The straight course from Gibraltar was north of Sicily and so we carried on. How there was no wireless in those days and night at sea. As second mate my pay was £5 10s. 6d. a month, no overtime, and in port all day on duty and every other night on board. It was our job and we did it. Did we think we were hard done by? Yes, maybe, but we realised it was the job that we had signed for and we did it.

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The next signal was: "Where are you bound?"

Answer: "Messina with a cargo of coal when we can see it."

The next signal was: "We are sending an officer to board you."

The officer arrived and after a talk to the Captain and first mate we were ordered to remain where we were but to send two lifeboats ashore at Reggio to try and succour people. In the meantime he would intercept the R.M.S. Ophir (Orient Line), homeward bound from Australia and due through the Straits from the south that night, and give the Captain of the Ophir instructions.

I was landed with 20 men and appointed as beach officer to do anything we could at Reggio. I landed on Reggio beach with two lifeboats in the muck. We carried down to the beach many people, hurt or fit, and at 3 a.m. the Ophir duly arrived and anchored. The Ophir sent off about seven lifeboats to the beach as instructed. I saw her deck lights in the gloom. I and my men were stripped to the waist, second mate of a tramp steamer, as beach officer, obeyed without the slightest opposition! Here, I said to myself, is the Company I shall join as soon as I hold my master's certificate. And eventually so I did in late 1912.

**Continued from page 13**

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**Choicest Creamery BUTTER**

NORCO butter is the choicest of creamery butter from the best creameries in the choicest area. It is the choicest of creamery butter from the best creameries in the choicest area. It is the choicest of creamery butter from the best creameries in the choicest area. It is the choicest of creamery butter from the best creameries in the choicest area. It is the choicest of creamery butter from the best creameries in the choicest area.
**IN ANTARCTIC**

HMS Protector, netlayer, now engaged on her second tour of duty in the Antarctic, has equaled the earliest crossing of the Antarctic Circle made in the Weddell and Bellinghausen Sea areas during the Antarctic "summer" season.

The crossing was made on November 9. This record has been equaled only by a Norwegian whaler, which crossed on November 9, 1893.

Only three ships are known to have crossed the Antarctic Circle in this area before in November or December.

HMS Protector’s first duty on her return to the Antarctic was to rescue by helicopter the sledding party of the British Antarctic Expedition who had been marooned on Ross Island.

The rescue was effected on November 9 by helicopters (of which the ship carries two), five trips of about forty miles each way being flown.

Two men were picked up as the helicopters hovered over the pack ice and were returned to their base on Lent Island. Equipment and specimens were also taken off, together with nine huskies.

The dogs were reasonably docile even when being hoisted on board the helicopters.

Since then, the ship has landed in general, the Naval Board exercises control, but the Navy has nevertheless encountered a Force 8 (44-46 knots, with visibility down to 400 yards in snow, and a considerable amount of ice and small icebergs were seen).

The Navy League of Australia has a Federal Council, responsible for overall policy, and State Divisions in Victoria, New South Wales, Queensland, Tasmania, South Australia, Western Australia and ACT.

His Excellency the Governor-General is the Patron of the League in New South Wales. Rear Admiral H. A. Showers, C.B.E. (Retd.), is President of the Federal Council and of the New South Wales Division. The Governors are Patrons of each of the State Divisions. In the ACT, the President is His Excellency G. E. L. Allerton, C.M.G., the High Commissioner for New Zealand.

The responsibilities of the divisions are controlled by committees elected annually by League members. Their responsibilities include the implementation of League policy, conduct of domestic affairs, financing and training, and the provision of a Federal Council expense account.

Australia Sea Cadet Corps affairs (divisional) are supervised by the League through the Sea Cadet Committee appointed by the Divisional League Committee.

The Australian Sea Cadet Corps has a Federal Council consisting of Royal Australian Navy and Navy League representatives. The Council is responsible for advising the Navy or the Navy League on policy within respective spheres.

The responsibilities of the Royal Australian Navy in these matters include training, provision of uniforms, naval stores and equipment; provision of Naval instructors, where practicable; advice in regard to and approval of selection of instructors; some financial assistance.

In general, the Naval Board exercises control, but the Navy has nevertheless encountered a Force 8 (44-46 knots, with visibility down to 400 yards in snow, and a considerable amount of ice and small icebergs were seen).

The coloured page is printed on white paper, and the text is clear and legible. The page contains a map of the Antarctic, with various locations and markings. The text is presented in a standard font, and the layout is typical of a publication from the 1950s. The page is well-maintained, with no visible signs of wear or damage. The overall condition of the page is excellent, and it appears to be free from any significant markings or annotations.

The page contains text about the Antarctic, including information about the Navy League of Australia and the Antarctic expedition. The text is a mixture of paragraphs and bullet points, and it is written in a formal tone. The page includes a map of the Antarctic, which is depicted in red and blue colors. The map shows various locations and features, such as icebergs, rivers, and mountains.

The page also contains a section about the Navy League of Australia, which includes a description of the organization and its activities. The text is well-organized, and it provides a clear overview of the League's mission and objectives.

Overall, the page is a informative and well-presented piece of text about the Antarctic and the Navy League of Australia. The text is easy to read and understand, and it provides a comprehensive view of the topics covered.
mated their intention of joining either the R.A.N., or the Mer- 
building a good recruiting poten-
amongst the serving personnel in 
R.A.N.R. in Brisbane on attain-
a full investigation into the posi-
officers and instructors to main-
taining an adequate number of 
tain training at the college.
from its teaching staff, and efforts 
to obtain assistance for the Com-
manding Officer. Lieutenant A. R 
tee has been actively investigating 
"the ways and means" stage and 
cussions have not yet gone beyond 
for which thanlts are extended to 
cer, Commander J. C. B. Ander-
The former Divisional Senior Offi-
College awaiting the Naval 
cadets.
Training ships 
Creswell 
and 
H.M.A.S. Leeuwin. On each 
under command. Cadet Sub-Lieu-
a course at H.M.A.S. Leeuwin 
the beginning of the term.
T.S. Albany. Although attend-
ances at the monthly meetings 
have been small, the members of 
the Albany Branch are maintain-
ing their enthusiasm. Since the first 
parade on the Albany Sea Cadet 
Unit on February 17, 1956, 
parades have been held regularly 
each Friday under the command 
Lieutenant Commander R.A.N.V.R., 
and the average attendance has been about 45 
cadets. The unit is still passing 
through the initial difficulties of 
finding a full complement of offi-
cers and instructors. At present, 
the Commanding Officer is the 
only officer whose appointment 
has been confirmed, and there is 
only one Petty Officer Instructor 
whose appointment has been con-
firmed. Confirmation of the ap-
pointment of several other instruc-
tors is awaited. Mr. L. Gowan, 
do so much in arranging the training programme as 
Acting First Lieutenant has been 
transferred to Adelaide and the 
unit suffered a severe loss on 
the occasion of his departure. Mr. 
Gowan had five years' experience 
as an officer with Sea Cadets in 
England.

The branch has recently secured 
the lease of a boat shed and slip-
the town jetty which, after 
some repairs will, it is hoped, suit-
ably house the unit's whalers.

NEW SOUTH WALES

There are 310 active Sea Cadets 
in the Corps compared with 312 
in 1955. With officers, instructors 
and juniors the total number of 
personnel catered for by the Corps 
in almost 500.

The various units and the num-
ber of active Sea Cadets attached 
to each unit are:
T.S. Albatross (Wollongong) 
24; T.S. Australia (Waverton) 
38; T.S. Condamine (Manly) 25; 
T.S. Shropshire (Canterbury) 
11; T.S. Sirius (St. George) 75; 
T.S. Sydney (Snapper Island) 53; 
T.S. Tobruk (Newcastle) 29; 
T.S. Warrego (Woolwich) 32.

The officers and instructors of 
the Corps are continually dis-
played enthusiasm and ability, and 
the success of the individual units 
and the Corps in general is due to 
them. They are shorthanded, and 
it will be appreciated if any member 
can help, will communicate with the 
Secretary.

Whalers have a chapter to themselves, as do the recently de-
veloped oil/ore carrier. The book 
is excellently illustrated, both by 
umerous photographs and by 
many of Mr. Dunn's admirably 
drawings, plans and diagrams.

For good measure, he has not 
confined himself to the ships them-
seves. They are placed in their 
proper setting of the tanker-own-
 ing companies such as Nobel 
Brothers in Russia, Kledemann 
Hamburg, E. M. Moncrieff, 
Hunting & Sons, Anglo-American 
Oil Co., Standard Oil Co., Shell, 
and the British Petroleum Co., 
many of them still among the 
owners of the great tanker fleets 
of today.

An outstanding development 
since 1945 has been the steady in-
crease in size of the ships. There is 
a chapter on super-tankers, and the 
Suez crisis gives this additional point. It is now accepted that 
the cost of operating a large carrier does not increase propor-
tionately with the increase in ton-
age. It has been stated, for in-
stance, that the cost per ton of 
carrying oil in a 12,000 ton dead-
weight vessel is one-quarter more 
than in a 32,000 tonner. With this 
development has gone the gradual 
refining side of the industry from the oil 
fields themselves to Western 
Europe.

New refineries such as Llan-
darcy, Fawley and Island of Grain 
in Britain and Pernis in the 
Netherlands, are examples, and 
it is good economics to transport 
the largest possible quantities in 
one ship.

Distribution from the refinery 
is another matter. Split into differ-
ting types of refined products, it 
stands to reason that quantities 
of individual products must be less, 
and cargoes will inevitably be 
smaller.

Further, destinations will in-
clude many of the smaller ports.

The old age of the industry: 
therefore, is that there be a place 
for the coastal and interme-
tiate tanker: but there are many 
difficulties which for the bulk 
carrier of crude oil, the future 
may lie in the main with the 
super-tanker.

This development had already 
been accelerated in 1956, even be-
fore Egypt's nationalisation of the 
Suez Canal.

Mr. Dunn refers to the Sinclair 
Petroleum: an oil/ore carrier of 
55,000 tons dead-weight owned by 
Universe Tankships Inc. of New 
York. With a maximum loaded 
draught of over 40 feet she could 
not advantageously use the Suez 
Canal, and the owners of the 
Noel Brothers' fleet in Russia, 
unquestionably demand the 
Suez Canal for her operation. 
Here is a case of oil cargoes, 
which she could transit the Canal, 
being more economical to 
use her on the route via the Cape.

Another indication is 
that, despite the longer 
operation between the Persian 
draught of over 40 feet she 
shows that, despite the longer 
operation between the Persian 
Gulf and the Delaware River 
has been accelerated in 1956, even be-
fore Egypt's nationalisation of the 
Suez Canal.

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Suez Canal for her operation. 
Here is a case of oil cargoes, 
which she could transit the Canal,
carrying therefore in four voyages 120,000 tons.

In the same time she could only make three voyages via the Cape, but on each she could carry 50,000 tons, making a total of 150,000 tons.

Of the true super-tankers, of 45,000, 65,000, 85,000 or 100,000 tons, many yards can yet only yard numbers on a building slip or an order book. The Prime Minister recently told the House of Commons that they offer no immediate solution, and complete alternative to the Suez Canal in the transport of Western Europe's oil. Certainly, apart from their cost to build, deep-water berths, and for their repair large dry-docks, there are few United Kingdom ports which can handle them.

But the story is still incomplete. The Suez crisis appears to have given added momentum to the trend towards size, if orders placed in recent weeks are any guide. It may well be that, in 10 or 15 years' time, the pattern of trade through Suez will show much smaller oil carrying: and then perhaps Mr. Dunn will give us another instalment of the tanker story.—"Bluenose," in the London "Navy."

COLD TRAINING FOR WATER SKIER WHO PLANS TO CROSS NORTH SEA

As a test in preparation for an attempt to water-ski 360 miles across the North Sea this year, Alan Crompton, captain of the British Olympic snow ski team, travelled some 240 miles on water skis behind a motor boat on Windermere on November 25 in 7 hr. 50 min.

He started in a temperature below freezing and finished in heavy rain. He undertook the trial so late in the year because he wanted to get as near as possible to the conditions he is likely to encounter on the North Sea crossing attempt, which he expects to take anything from ten to fifteen hours.

During his trial, Mr. Crompton grabbed hot soup and sausages from friends at the end of a private pier at Waterhead, linking the tow rope to a hook fastened to a belt round his waist while he skied.

As a protection against the weather he wore three pairs of underwear, two pairs of socks, two pairs of light rubber boots, two pairs of waterproof trousers, two pullovers and a wind-cheater discharging her cargo, anchored off-shore, awaiting sale as scrap.

Discharging her cargo, anchored off-shore, awaiting sale as scrap.

Police say the gang rowed to the ship early in the day, surprised the six Indian watchmen, tied them up and locked them in a cabin.

The piracy was not discovered until the ship's agents sent a launch out for the watchmen, who were found still locked in the cabin.

The pirates spent nearly an hour stripping the ship. They took ventilator shafts, firehose nozzles, port-hole covers, and steam pipes.

Marine police have detained three men for questioning.

FLIGHT OF THE NASH OF THE WORLD

By AIR MAIL

From our Correspondents in LONDON and NEW YORK

Demand for tankers blamed for oil rise

The demand for tankers, particularly those needed to carry Middle East oil around the long Cape route to Britain, France, and other Western countries, has resulted in a sharp rise in freight of petroleum products, the director of the Petroleum Information Bureau in Australia, Mr. D. M. Pilcher, said early this month.

He predicted a rise in the price of petrol because of higher-cost tankers which was now arriving in Australia.

Nearly 60 per cent. of the world's tanker fleet is owned by interests outside the oil industry and is chartered by individual companies to transport their supplies," Mr. Pilcher said.

"When the great demand for additional tankers arose following the closure of the Suez Canal spot charter rates increased enormously."

The captain and all the officers and crew of the wrecked freighter San Antonio have been rescued by the French naval repair ship Vulcain.

The ship's agents in Sydney, John Manners and Co. Ltd., received messages stating this on January 9.

A Qantas Skymaster left Sydney on January 6. The ship's agents in Sydney, John Manners and Co. Ltd., received messages stating this on January 9.

For the first time in recent years, the director of the Petroleum Information Bureau in Australia, Mr. D. M. Pilcher, said early this month.

Mr. Dunn will give us another instalment of the tanker story.—"Bluenose," in the London "Navy."

Pirates' raid on Dutch ship

A gang of 40 pirates raided the Dutch freighter General Michiels off Singapore on January 8 and rowed ashore with most of her freight in a strong cord line attached to a heavy hook.

David lives with his family 100 feet above the harbour shore off which he set the line. He had seen many sharks off Chinaman's Beach from his verandah and decided to try to catch one.

Nearby people helped him tag the shark to the shallow water, where he slipped a noose around its tail. Later he boiled the flesh from the head and kept the jaws as a souvenir.
Syria by sea early this month.

Washington officials are quoted as saying the Russians are now shipping direct to Syria instead of bound for Syria are reported to have been destroyed in Egypt during the Anglo-French air action.

Two ships in dry dock mishap

Two ships in New Jersey (U.S.A.) dry docks on January 10 were reported in danger of toppling into the Hudson River.

The 16,000-ton Norwegian liner Oslofjord fell over in its dry dock and crashed into an adjoining dry dock containing another ship. Police said the dry docks were breaking up and that Oslofjord had a 60-degree list.

They said Oslofjord had its seawater cock open and "will sink right away if it hits the water."

Firemen worked for several hours to evacuate 290 seamen who were sleeping in the liner.

Two of eight injured seamen were admitted to hospital.

"Joyita" in another sea incident

The mystery South Pacific island trading vessel Joyita (70 tons) early this month was adrift for the second time in 14 months.

Her crew of 10 and eight passengers took to the boats and abandoned her when she went aground on Horsehoe Reef. The Burns Philp ship Tengau later, picked them up.

When a salvage ship reached the reef three days later it found that the Joyita had floated off unaided.

The crew of the salvage ship put 10 empty drums in her hold to give her extra buoyancy after they boarded her and found that she had been hulled near the keel on the starboard side. They then took her in tow.

In October 1935 the Joyita was found abandoned and derelict off Fiji. No trace of her 23 passengers and crew has since been found.

New service begun by Dutch line

The Staat Cook, first of four ships designed for the Royal Inter-Ocean Line's new service between Australia and East Africa, arrived in Sydney on her maiden voyage early last month.

In the past two and a half years the line has added three Australia-based services to its existing runs. The other two are Australia to Dutch New Guinea, North Bor- neo and Siam; and Australia to Ceylon, Western India and West Pakistan.

Gulls attack Duke in Antarctica

Two enraged Skua gulls had attacked the Duke of Edinburgh in the Antarctic, according to a message received at Buckingham Palace early this month.

The Duke, accompanied by Lord Cilcennin, had gone ashore from the Royal Yacht Britannia at Admiralty Bay, in the South Shetland Islands, to visit a "maternity home" for about 320,000 penguins.

The gulls swooped on him.

Lord Cilcennin picked up a whitened whale rib bone, one of many lying on the beach, and beat them off.

1936 ACTIVITIES SUMMED UP — Continued from page 20

year's events, the approaching retirement of S.C. Commander L.E. Forsythe will mark the end of an era. He has never failed to strive for the improvement of the Corps, and its growth during his long term as Senior Officer is proof of this. We wish him well, and record our thanks for his devotion to his chosen task.

The committee takes the opportunity of welcoming Captain S. Darling's decision to take over as Senior Officer in February 1937. We feel sure that, in his hands, the Corps will maintain the high standard it has under Commander Forsythe's leadership.

There is one unit's activities which single it out for mention. T.S. Albatross has for many years been struggling to complete a building at Wollongong. Early this year, an appeals committee was formed consisting of prominent members of the local community, who set themselves the target of raising £1,000. In all they raised £1,210 nett. For this wonderful effort all members will wish to be associated with our thanks.

The work is the focal point of our activities, and October 1936 saw:

A broadcast by Rear Admiral H.A. Showers on Station 2CH.

Navy League Ball, honoured by the presence of His Excellency the Lieutenant Governor of N.S.W.

T.S. Warrego annual ball.

T.S. Sirius annual ball.

Wreath laying ceremony at which Australian Sea Cadets formed the guard of honour.

Publication of and selling programmes at Garden Island public inspection.

Earlier in the year we joined publication of Cardington's public inspection.

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LEGAL HISTORY OF THE SUEZ CANAL — Continued from page 26

They would also reduce the transit time. With this was associated a programme of deepening and widening of the Canal in order to cope with the continued increase in traffic and in the size of ships.

With the increase in traffic the Company's revenue has been rising steadily, though this has been accompanied by an equally steady rise in expenditure. Increased revenue, however, has not been used to increase distribution to shareholders. Rather, tolls have been reduced during the last three years and are now slightly lower than they were in 1939, and additional funds have been placed to the reserves for new works and to extraordinary reserve.

Further, during the past 12 months the Company has been involved in a dispute with the Egyptian Government concerning the keeping of a proportion of its receipts outside Egypt. Under an agreement reached in May last the Egyptian Government recognised the freedom enjoyed by the Company in the use of its funds outside Egypt, whilst the Company undertook to keep larger funds in Egypt than hitherto.

The international position of the Canal has always been complicated, both by the nineteenth century rivalry between Britain and France in the Levant and even more by the condition of Egypt. Originally a province of the Turkish Empire, she came under British military occupation in 1882. In 1887 it was finally agreed that the status of the Canal should be settled by an international convention—the Convention of Constantinople—and Britain and France were asked to prepare a draft. The Convention was signed in 1888 by Great Britain, Germany, Austria-Hungary, Spain, France, Italy, the Netherlands, Russia, and Turkey. It provided, as is well known, that the Canal should be open, in war or peace, to every vessel of commerce or war, without distinction of flag, and that the Canal should never be subjected to blockade.

The Egyptian Government was to take the necessary measures for securing the execution of the Convention, calling on the assistance of the Imperial Ottoman Government, should Egypt not have the necessary means at her own disposal.

In 1914 Britain, being at war with the Ottoman Empire, declared a Protectorate over Egypt. This was recognised by the Treaty of Versailles and the other peace treaties in 1919, and these also recognised the transfer to Britain of the powers conferred on the Sultan of Turkey by the 1888 Convention.

Then in 1923, Britain recognised the independence of Egypt, but at the same time reserved to her absolute discretion the security of her communications in Egypt and the defence of Egypt against foreign aggression. When, in 1936, the military occupation of Egypt was ended and replaced by a treaty of alliance between Britain and Egypt, the treaty provided that "until such time as the High Contracting Parties shall agree that the Egyptian Army is in a position to ensure by its own resources the liberty and entire security of navigation of the canal ..." Britain should be authorised to station forces in Egypt to ensure the defence of the Canal in cooperation with Egyptian forces. This was in no way to constitute an occupation or prejudice the sovereign rights of Egypt.

Finally, the agreement of 1934, under which Britain withdrew her forces from Egypt, contained the following clause:

"Article VIII.—The two contracting Governments recognise that the Suez maritime canal, which is an integral part of Egypt, is a waterway economically, commercially, and strategically of international importance, and express the determination to uphold the convention guaranteeing the freedom of navigation of the canal signed at Constantinople on October 29, 1888."—From the London "Navv.

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 field for the right type of 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 numbers so that the Navy League in Australia may be widely known and exercising an important influence in the life of the Australian Nation?

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Hon. Secretary: 93 Pitt Street, Sydney, N.S.W.
Hon. Secretary: 12 Prince Street, Adelaide, South Australia.
Hon. Secretary: Box 14417, G.P.O., Brisbane, Queensland.
 Hon. Secretary: 62 Blenheim 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.
Submarines of the Atomic Age

**For Sea Cadets**

**WHEN Germany collapsed, the victorious allies shared the spoils of war, amongst which were of course the designs of all their enemies' weapons. So it was that the Russians, as well as ourselves, were made a present of the plans of the very latest type of U-boat, the dreaded Type XXVI, driven by the new "closed-cycle" internal combustion engine, and capable of doing at least twenty knots under water. It was the weapon which our Navy had most feared.**

**Therefore** the designs of all their enemies' weapons. So it was that spoils of war, amongst which were the lessons to be learned from the Battle of the Atlantic.

**A number of our smaller submarines of the "S" class appear to have been altered by "stream-lining" their upper-deck structures for the purpose, no doubt, of increasing their speeds under water. Since Germany was defeated there has been time to experiment and to digest the mass of new material which fell into our hands at the end of the war. But so far the Navy has hesitated to commit itself to a big programme of building new warships of all sorts. This is because of the invention of the atomic and hydrogen bombs.**

**These terrible weapons, which not only explode with a million times the violence of ordinary high explosives, but leave behind them a deadly cloud of radio-active particles which must be prevented from touching human beings at all costs, have raised doubts about the wisdom of building new submarines of the XXVI type. A number of our smaller submarines of the "SS" class have, on the other hand, been altered to carry atomic weapons.**

**Thus the task of designing and building an effective submarine powered by an atomic pile is far from easy, and everybody would like to know whether the Americans have succeeded in doing so.**

**If they have we shall soon hear of "repeat" orders being placed for hundreds of such craft; for, of all types of engine for use in a submarine, steam is the safest as long as it is not necessary to have holes cut in the submarine's pressure-hull for the funnels and air intakes, necessary when steam is generated by an oil-fired boiler.**

**While the submarines of the future are likely to be divided into many categories which will range from Midgets to 10,000-ton "submersible" cruisers, the advantages of invisibility and complete protection from radio-active rays which are fatal to human beings, so that they have to be shielded in "screws" made of concrete many feet thick. Thus the task of designing and building an effective submarine powered by an atomic pile is far from easy, and everybody would like to know whether the Americans have succeeded in doing so. If they have we shall soon hear of "repeat" orders being placed for hundreds of such craft;**

**In addition to this change in design it is more likely that our future warships will be armed with large rockets, capable of travelling a hundred miles with a heavy load of explosive, or even an atom bomb, instead of the big guns of the present-day ships. The effect of arming ships with what amounts to aerial-torpedoes, instead of guns would be to make their construction much cheaper and easier, because they would not have to be built so strongly as they are when the tremendous "kick" (or recoil) of a broadside of heavy guns has to be provided for. If the weight saved in building such ships was employed in providing them with pressure-hulls, capable of withstanding hundreds of pounds per square inch it would be possible for such vessels to become submarines, with the twin advantages of invisibility and complete protection from radioactivity. The time may be near when many more warships will be forced to seek safety by going under water; and so the submarine will once more change, and become the "bigger and better" vessel that many people in the past believed it to be, though for an entirely different reason.**

**This heat is used to boil the water in a specially contrived boiler and generate steam which will work the turbines as in the case of ordinary steamships. Already the United States Navy has produced "atomic submarines" called Nautilus and Sea Wolf, of which very little is known.**

**No doubt every potential enemy of America will send its spies to try and find out how successful such submarines will be. Atomic piles are far from being handy things, for they, too, send out radio-active rays which are fatal to human beings, so that they have to be shielded in "screws" made of concrete many feet thick.**

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the great possibilities which lay in helicopters for anti-submarine work. Certain secret listening apparatus has been designed which can be carried in the helicopter and lowered into the sea by means of a crane to such a depth that all the noises of the wind and waves are avoided, and the operator can listen for the sound of a submarine’ s propellers.

Such a development may well checkmate the fast U-boat of the future, for it is impossible in this world to produce high-speed in any form without noise.

There seems to be little doubt that the defence of the convoys of the future will rest mainly with helicopters. Each merchant ship may carry a number of its own helicopters which can take it in turns to act in the same way as did the screening destroyers, corvettes and frigates of the last war. The actual attacking of the U-boats, once they have been discovered, will probably be done by a “striking force” of heavily armed fast-moving vessels which will be able to steam to the spot indicated by the helicopter and then release its anti-submarine bombs and depth-charges with deadly effect.

From the above forecast of the lines on which the eternal struggle for mastery between different types of ship will develop the reader can understand that in naval warfare there is never the “complete answer” for which people are always seeking to any type of warfare. As fast as an antidote is found for one kind, something is developed which renders it of little value. So it has always gone on and so it always will.

As long as there is war there will be submarines, and they, like any other threat, can only be kept within check by the drastic use of every weapon which can be devised. — From the “Sea Cadet,” London.

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Collapsible tanks for liquid ship freights

Overseas shipping owners are investigating the practicability of using collapsible rubber tanks to carry liquid freights in the holds of dry-cargo vessels.

The tanks, which have been successfully used on land for storing emergency supplies of aviation fuel, are claimed to be ideal for carrying such liquid freight as crude oil, petroleum products, edible oils and wines.

They consist of a collapsible, fabric reinforced synthetic rubber bag contained within a light alloy, telescopic frame. When not in use, they can be folded flat and placed at the bottom of a ship’s hold beneath normal cargo.

The tanks have been made in three sizes, 1,620, 2,260 and 2,900 gallons.

If the tanks pass a series of extensive sea trials now being conducted, they could be adopted by some shipping owners to obviate the need for dry-cargo ships to sail in ballast when they cannot pick up suitable cargo.

The British inventors also claim that their product could be adaptable to road and rail vehicles and for freighter aircraft.

Japanese quest for sunken ships

Japanese salvage companies are interested in buying any reclaimable wrecks in Australian waters, according to a Japanese businessman who visited Sydney recently.

He is Mr. Yasunobu Banno, managing director of a Japanese importing and exporting firm. He arrived from Fiji, where he had been investigating the possibility of recovering shipping sunk in the islands during the war.

He said his firm was associated with the Japanese salvage company which recently bought four war-time wrecks in Darwin harbour for £30,000.

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The entry of the first capital ship, H.M.S. carrier “Illustrious,” into the Captain Cook Graving Dock on March 2nd, 1945, represents a great and visible achievement made possible only by an even greater but unseen achievement beneath the Dock itself. Many feet below the bed of Sydney Harbour, housed in mammoth caverns hewn from the solid rock are the mighty masses of G.E.C. and B.G.E. electrical equipment. These include three main G.E.C. alternators, motors of 1,200 h.p. each, and over 100 smaller motors; 45 route miles of Fireall-General cable; ten E.P.M. transformers, and other large-scale electrical equipment which plays a vital part in the smooth running of this great enterprise.

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Today drop-tanks are a major expendable in the operation of military aircraft.

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Bristol plastic drop-tanks were designed to get over these difficulties. They are much easier to produce than their alloy equivalents and utilise plant and skills that would not be particularly scarce in wartime. They are aerodynamically superior to alloy tanks and can be dismantled for easier stacking. They are unaffected by extremes of temperature and humidity.

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TANKER EXPANSION

By nationalizing and subsequently blocking the Suez Canal, President Nasser gave a fresh impetus to the expansion of the tanker fleets, already growing rapidly in response to the higher world demand for oil.

In the past few months strenuous efforts have been made to accelerate the completion of vessels under construction, while an unprecedented volume of orders has been placed, many of them for vessels of the largest size.

These movements may be illustrated from the half-yearly statistics compiled by Messrs. Davics and Newman, the London oil and tanker brokers.

During the first half of 1956, according to this source, 58 tankers with an aggregate deadweight tonnage of 1,147,000, were added to the world fleet. In the second half the increase was 87 vessels, with an aggregate deadweight tonnage of 2,333,000. Moreover, during the first half, 25 tankers were converted to other uses or scrapped whereas the corresponding figure for the second half was only 10.

Taking the year as a whole, the commercial tanker fleets of the world (vessels of 500 tons and upwards) registered an increase of 8 per cent., from 41,808,400 to 45,233,300 tons d.w.

Pre-war tonnage still forms 12 per cent. of the total, while war-built vessels account for 22 per cent., and post-war tonnage for 65 per cent.

The familiar shift towards the flags of convenience continued apace during 1956 and if present trends persist the Liberian fleet may well be the world's largest by about 1960.

The striking changes which have occurred in the national fleets since the war, notably the registration of many U.S.-owned vessels under the flags of Liberia and Panama, may be traced in the following table:

<table>
<thead>
<tr>
<th>Flag</th>
<th>May 1948</th>
<th>July 1956</th>
<th>Jan., 1957</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>5,438</td>
<td>8,210</td>
<td>8,317</td>
</tr>
<tr>
<td>Norwegian</td>
<td>2,370</td>
<td>6,899</td>
<td>7,067</td>
</tr>
<tr>
<td>Liberian</td>
<td>*</td>
<td>5,272</td>
<td>6,324</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>9,638</td>
<td>6,241</td>
<td>6,175</td>
</tr>
<tr>
<td>Panamanian</td>
<td>1,332</td>
<td>3,149</td>
<td>3,446</td>
</tr>
<tr>
<td>French</td>
<td>659</td>
<td>1,993</td>
<td>2,036</td>
</tr>
<tr>
<td>Italian</td>
<td>649</td>
<td>1,946</td>
<td>1,992</td>
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<tr>
<td>Netherlands</td>
<td>601</td>
<td>1,369</td>
<td>1,671</td>
</tr>
<tr>
<td>Swedish</td>
<td>520</td>
<td>1,581</td>
<td>1,641</td>
</tr>
<tr>
<td>Japanese</td>
<td>*</td>
<td>1,192</td>
<td>1,184</td>
</tr>
<tr>
<td>Other</td>
<td>1,945</td>
<td>4,904</td>
<td>5,200</td>
</tr>
<tr>
<td>World Total</td>
<td>25,352</td>
<td>42,056</td>
<td>45,233</td>
</tr>
</tbody>
</table>

* Includes under "other."
† Excluding U.S. Government tonnage.

The tonnage of tankers under construction or on order rose by almost 5.8 million tons during the first half of 1956 and by a further 8.5 million in the second half to a present aggregate of over 26 million tons d.w.

Of the 875 vessels included in this total (250 of which are actually under construction), 190 are of 40,000 tons d.w. or over, compared with only 79 six months ago.

The largest so far ordered — of 106,500 tons d.w. — is to be built in the U.S.A. for the Niarchos group.

No less than 17 per cent. — the largest share — of the vessels on order are to be built in Japan. The U.K. follows with 16.4 per cent. and Germany with 16.2 per cent.

With all yards booked up for many years ahead, delivery dates are an important factor determining where new orders are placed; the countries securing the most orders in the past six months were Germany (2.2 million tons), Sweden (1.4 million) and the U.S.A. (1.3 million).

CLEARING THE CANAL

Now that the Anglo-French salvage force has left Port Said, after completing tasks allocated to it by the United Nations, it is only fair to point to the considerable contribution made by this force towards clearing the Canal.

Without the speedy and efficient operations carried out by the Anglo-French units at Port Said, any prompt approach to a general clearance of the Canal would not have been practicable. Thirteen wrecks, totalling 17,000 tons, were removed from the harbour, and two channels were cleared for the largest ships using the Canal.

The Egyptians sank 22 ships in the harbour and these varied from 100 tons to 4,000 tons displacement. Some were sunk by explosive charges, which made salvage particularly difficult.

On the day of the cease-fire a salvage unit entered Port Said and began a survey of the harbour and wrecks. By November 24, a 25 foot channel through Port Said was open and the way would then have been clear for the Anglo-French salvage fleet to proceed with the clearance of the rest of the Canal.

By mid-December, 14 British, three French and two German lifting craft on charter to the Admiralty had been employed. Others were on their way and, altogether, some 40 salvage ships were employed or held in readiness.

After the withdrawal of the Anglo-French policing force on December 22, the number of Anglo-French salvage vessels was reduced to 11, which were placed under United Nations control, the crews wearing plain clothes and the ships flying the U.N. flag.

Among the wrecks raised by the Anglo-French salvage force was the Paul Soleme, of 4,000 tons.
RUSSIA AND THE MIDDLE EAST

By Rear-Admiral A. D. NICHOLL, C.B., C.B.E., D.S.O.

RECENT events in the Middle East, seen in terms of world strategy, are part of a well-defined picture. There was no mystery about Soviet Russia's military and political support of Egypt and the Arab countries; it followed the logical course which Communist policy has always followed towards the free world, the policy of eventual domination.

After the defeat of Japan in 1945, there were high hopes that the United Nations organisation, whose members together possessed overwhelming military strength, would be able to establish peace at last on firm foundations. Everyone started to demobilise as fast as possible—everyone except Soviet Russia. Then, all too soon, when the vast armies, air fleets and naval strength of Britain and the United States had evaporated, it was realised that Soviet Russia had not demobilised, while the consolidation of her power in the satellite countries and her intransigence and exercise of the veto in the United Nations showed clearly that Communism had not given up its aim of world domination.

The Communist seizure of Czechoslovakia sounded an unmistakable alarm in February 1948. There were those who were still dreaming of a peaceful dawn facing the threat of Soviet land and air forces of enormous strength, poised to drive into Western Europe.

It was a good time for the United Nations. With Soviet Russia sitting at the table and exercising the veto, the UNO was helpless. Soviet expansion could only be halted by military means; the only hope was for the free nations to band together to meet the dangers and to pray that they would have time to build up their forces.

With military forces to halt the advance of Communist military forces.

These direct interventions were sometimes by individual nations, sometimes by several acting together. The intervention against the aggression of North Korea on South Korea in 1950 has often been quoted as proof that the United Nations is capable of halting aggression but in military terms it was "civil war" within the United Nations. It was a mere accident or a miscalculation on the part of Soviet Russia, that her representative was not present to veto the action agreed by the Security Council.

Throughout the Korean war Soviet Russia, although not supplying troops in the fighting, gave strong military and full political support to the armed forces of Communist China. The Communist, for propaganda purposes, called "volunteers." But they were taken by the United States to prevent an attack by Communist China on the Nationalist Chinese. As a result of the mutual security treaty of 1954 between the United States and Nationalist China, the United States has deployed a fleet in the area where it patrols to prevent Communist attack by sea or air against Formosa or the Pescadores or, it is to be inferred (though the United States Government has been purposely vague on the point), against the islands of Quemoy or Matsu close to the Chinese mainland, which are held by Nationalist China. Incidentally, Communist China invariably referred to as "volunteers."
fers to this intervention by the United States as "aggression."

Britain has always attached vital importance to the security of the Middle East and has so far been unable to bring about a regional defence organisation, mainly because the Middle East countries, on a basis of equality, were frustrated by Egyptian intransigence and the best that could be achieved was the Baghdad Pact which Britain, Turkey, Iran, Persia and Pakistan, an alliance which at least provides a protective screen for the Arab countries, Israel and Egypt.

Unfortunately, in the matter of Middle East defence, there has so far been fundamental disagreement between Britain and the United States. In the view of Britain, the security of the Middle East is of vital importance to the free world and in particular to the countries of Western Europe. Middle East oil is of the utmost importance to their economy and, therefore, to their ability to build up and maintain their military strength.

The Suez Canal, as two world wars have shown, is of immense strategic importance to the defence of the territory of the Middle East forms the bridge between Europe, Asia and Africa and its loss to Communist domination would mean, among other things, that the NATO defence system for Western Europe had been outflanked.

It has always been obvious that the Soviet military appreciation of the Middle East was exactly the same as Britain's. Colonel Nasser deluded himself if he genuinely thought that the support and military assistance he was getting from Soviet Russia stemmed from Russian friendship for Egypt and the Arab countries. Russian intervention in the Middle East can be clearly seen as part of the Soviet grand strategy.

Russia's moves in the last ten years have been called the cold war but they are in every sense military operations: and in war, even if you call it cold war, economic blows can be as effective as military blows. If you can break the economy of your enemy, the road is open to victory. Soviet Russia is well aware of the vital importance of the Middle East oil to the economy of the free world. The importance of the Suez Canal both in peace and war and of the reliance of many of the free countries on the sea and air lines of communication which pass through the Middle East.

Soviet support of Egypt and the Arab countries was played into the hands of the enemy, and it was the first step in obtaining military control of the Middle East. Meanwhile, as events have turned out, the sabotage of the Canal by Egypt, the interference with oil supplies and the use of oil installations amount to an important Soviet victory which can only be discounted by the reopening of the Canal and the renewed flow of Middle East oil. The Soviet leaders care nothing for the effect on the Arab countries and on Egypt of the loss of their oil trade and prosperity which so largely depend on the operation of the Suez Canal.

So far as NATO is concerned it can at least be said that the British view has recently been gaining substantial ground.

A few months ago NATO at long last began discussions with the object of developing the organisation as a forum for frank and realistic appraisal of political problems such as those of the Middle East.

Clearly General Gruenther, who recently relinquished the post of Supreme Allied Commander in Europe, shares the British point of view on the vital importance of Middle East defence. Speaking in London on December 25, that is, before the Anglo-French intervention in the fighting between Egypt and Israel, he said that the situation in the central sector of Europe was now much easier than it had been last winter but that there was now a tendency for threats to materialise on the flanks.

His words were prophetic. Israel's attack on Egypt immediately gave rise to immense military dangers, particularly of intervention. The quick action of Britain and France forestalled this.

To quote General Gruenther again, when asked on November 13 to comment on the situation in the Middle East following the Anglo-French intervention, he said: "The very fact that the enemy has had to go round the flank, that is, to practise subversion of oil installations, has done nothing for the effect on the Arab countries and on Egypt of the loss of their oil trade and prosperity which so largely depend on the operation of the Suez Canal.

This particular operation followed the classic pattern: the obtaining of local air superiority by first pinning down the Egyptian air force and then destroying the Egyptian aircraft piecemeal on the ground; the setting of an airfield by paratroops; the subsequent landings from the sea and air to secure a port.

The whole operation provided a perfect example of the flexibility and versatility of naval power. Soviet sea power from carriers steaming close to the coast and working inshore, by paratroops; the subsequent securing of local air superiority by first pinning down the Egyptian air force and then destroying the Egyptian aircraft piecemeal, and their subsequent capture of Port Said; helicopters, from carriers, close in, carrying reinforcements and evicting casualties.

In the event, as in the case of the Korean war, our naval forces and convoys meet virtually no naval or air opposition. It would be unwise to assume, however, that this would always be the case in "limited war" operations of the future. Where total war is concerned, control of the sea by the Free World would be vital.

All the defensive plans of NATO and the other free world organisations are based on the assumption that the free world would continue to control the sea. The naval policy of Soviet Russia is to dispute and disrupt that control.

We are faced with this military balance sheet at the present time. Soviet Russia with her central position, huge, fully mobilised, and her forces is unassailable except by the strategic air power of the free world. To take a case in point, there was nothing that the free nations could do militarily to help Hungary, even if they had agreed on action; the free world does not possess the land force strength which would have been needed to drive the Russians out of Hungary.

Soviet Russia on the other hand has great military superiority over Western Europe, though deterred from attempting to use it by fear of nuclear counter-attack.

The free world has the advantage of strong naval forces, capable of contributing to strategic bombing, and with its world-wide chain of air and naval bases, it could counter-attack from many directions.

The free world by its unity and determination and by building up its military strength has so far been able to block the advance of Communism in Western Europe, in Korea, in the Western Pacific and, now, in the Middle East.

As the nuclear power of Russia increases, however, the free world will increasingly require to rely on the mobility and flexibility of its defences, attributes which demand that it retains control of the sea by maintaining its naval superiority and its world-wide naval and air bases.
Personalities

Promotions Announced

Promotions were announced on December 31 by the Minister for the Navy, Mr. C. W. Davidson, for five permanent service officers of the Royal Australian Navy and eight Naval Reserve officers. They are:

ROYAL AUSTRALIAN NAVY

COMMANDER TO CAPTAIN

Commander (Acting Captain) James M. Ramsay, D.S.C., of Toorak (Melbourne). Director of Standing Service whilst in command of H.M.A.S. Warramunga. He was born in Hobart.

LEUTENANT COMMANDER TO COMMANDER

Lieutenant Commander Dacre H. D. Smyth, of Toorak (Melbourne), serving at Navy Office as Staff Officer (E) to the Flag Officer-in-Charge. He was born in Sydney.

NAVAL RESERVES

LEUTENANT TO LEUTENANT COMMANDER


R.M. appointments, etc.

The Admiralty announces that Her Majesty The Queen has been graciously pleased to approve the following appointments:


The following changes on the Flag List are announced to date 10th December:


Rear Admiral A. R. Pedder, C.B., promoted to Vice-Admiral in Her Majesty’s Fleet.

FRENCH HARBONISING TIDES POWER

French engineers have begun work on the world’s first tidal power station.

It will harness the force of the tides in the estuary of the River Nance (Brittany).

They predict the station will be ready in 1965 and will generate about 820 million kilowatt hours a year.

There is a difference of 40 feet between high and low in the estuary. A dam will be built well up the estuary, where it narrows to 700 yards.

The power station will be housed inside the dam.

How Long Before Space Travel?

By A. V. CLEAVER, F.R.A.S.

(Chief Engineer, Rocket Division, De Haviland Engine Co.)

The author of this article predicts satellite vehicles by 1975, an announcement made in a 1962 article, by about the same time, and by the end of this century the first landing on the moon.

The simple truth is that exactly the same sort of criticism might have been made when Columbus, Raleigh, Drake or Scott proposed their own voyages of exploration—with equal fairness, or lack of fairness, depending on one’s personal point of view.

Space flight is just one with all the previous efforts of mankind in the fields of exploration, discovery, research and invention. It is just another manifestation of our questing drive for new knowledge and experience, and greater control over our general environment.

Perhaps it will be the greatest example of all. Without too much strain on the imagination, it is surely easy to believe that this is no more than likely to be so, because only our children, and their children and grandchildren, will know for sure.

I believe that the enormous popular interest in the subject, particularly among young people, stems from an instinctive appreciation of these things. Once one has accepted man as being the sort of creature he actually is, this attitude appears entirely sensible—a conclusion which must be set against its more extravagant forms of popular expression, such as the wilder and more juvenile examples of “science-fiction” which were mentioned earlier.

Of course, spaceships are not going to be suddenly invented, but their development will occupy a comparatively long time. Astronautics will evolve gradually and naturally, just as aeronautics did, with one achievement leading to another and more difficult one, and so on.

Consider the work of Cayley, and Henson and Stringfellow, then the Wrights, Bleriot, the old biplanes of the first war. Alcock and Brown, Imperial Airways and the Schneider Trophy, the Spitfires and Lancasters and the Douglas C-47, a century of history, culminating in today’s London Airport, the “Comet,” and the Fairey Delta’s 1,132 m.p.h. record.

A similar process of development for space-flight has already been in progress for some time, the work undertaken so far has often (even usually) been for other, and much more immediate, avowed objects.

Ancient dream

The history of astronautics may truly be said to have begun about the turn of this present century. During its first quarter, a number of pioneers realised the fundamental fact that the rocket offered a possible means (indeed, still the only one known to us) of realising this ancient dream of travel to other worlds across space.

The reason for this, of course, is that a rocket engine, by definition, carries along all the material to generate its propulsive jet; for example, a fuel (as source of energy) and an oxidant (to burn with the fuel and so release its energy), both fuel and oxidant being called “propellants.”

It is thus independent of any surrounding atmosphere for its...
functioning, not needing atmospheric air to support combustion. Indeed its thrust actually increases slightly (by about 15 per cent) in vacuo, as compared with at sea level, due to the absence of atmospheric back pressure on its nozzle area: the forward thrust is the result of pure reaction, from ejecting the exhaust rearwards, and of course it always acts so long as this ejection continues.

Small and light

A rocket can therefore accelerate to a higher speed, relative to its starting point, than the speed of its exhaust relative to the rocket. Another relevant factor, arising from the essential simplicity of rocket power plants and their high working pressures, etc., is their light weight and small size for very large outputs of thrust or power; this also would be very important for any interplanetary vehicle.

In the 1920s and '30s, rocket or interplanetary societies grew up in many countries; the British Interplanetary Society was founded in 1933. Two of these societies, working with only very crude and amateur resources, were responsible for most of the early practical experimental work; these were the American Rocket Society and the German Verein für Raumschiffahrt.

Just before the war, many of the leading personalities of the latter group were mobilised by the Nazis, including Wernher von Braun, who went on to become the technical director of the great Peenemünde establishment and responsible for V2 and many other rocket devices.

It is no exaggeration to say that the Germans were responsible during the war for the birth of rocketry as a serious branch of scientific engineering.

Since the war, it is common knowledge that work on rocket aircraft and missiles of various kinds has intensified in the U.S.A., the U.S.S.R., the U.K. and France.

The present position is that the Bell X-1 and Douglas' 'Skyrocket' piloted rocket planes have flown at over twice the speed of sound, some 16 miles high; a two-stage rocket missile (the V2 plus WAG corporal) has ascended nearly 250 miles, and some monkeys and mice have achieved the distinction of riding in an Aerobee rocket into the extreme upper atmosphere (to an altitude of about 60 miles), and returning safely in a parachuted capsule.

All these achievements will undoubtedly be far surpassed within the next five or ten years.

The Bell X-2 is already flying and working up to a higher performance than its predecessors. Announcements have also been made that work has been started on the North American X-15, to carry a pilot at Mach 10 up to 600 miles, and on a rather similar Douglas project.

In the field of unmanned intercontinental ballistic missiles (ICBMs) the Americans are working on the Convair 'Atlas,' the Martin 'Titan,' the Douglas 'Thor,' and on the joint Army/Navy 'Jupiter' project at Redstone Arsenal, where Wernher von Braun, of the V2, is in technical charge.

Seven years

Our own last Defence White Paper told us that there is a comparable British project of high priority, while Mr. Kruschev has said (not surprisingly) that the Soviet Union will not be behind in this particular heat of the arms race. These ICBMs, incidentally, will need to attain speeds of the order of 15,000 m.p.h.—some 60 per cent of the velocity of escape from the Earth's gravitational field, and about three times that of the fastest rocket so far built.

Most significant of all, for the future of interplanetary travel, is the announcement by both the Americans and the Russians that they hope to establish temporary artificial satellite rockets during the 1957-58 International Geophysical Year.

The general consensus of opinion in the astronautical movement, I think it is fair to say, is that we shall see piloted satellite vehicles by about 1975, with possible practical uses for military reconnaissance and as short wave radio relay stations.

Mars and Venus

Perhaps about the same time, an unmanned instrument-carrying missile might be landed on the Moon, or sent to circumnavigate it, equipped in either case with telemetry. Soon afterwards, more ambitious piloted flights into space should follow, again including the circum-lunar mission, and perhaps by the year 2000 A.D., men will have landed on the Moon and returned safely.

More ambitious expeditions, to Mars and Venus, would probably be undertaken within another generation from that historic achievement.

With some truth, it has been said that spaceflight probably will be the greatest adventure still awaiting mankind. It will certainly also be one of the most fascinating and difficult technical achievements of our species—From the London "Navy."

OLD SOLDIER DIES

James Cooper, oldest returned serviceman in Britain, has died in Chatham (Kent) Hospital at the age of 104.

He served under Lord Kitchener at a time when the famous general was still only a lieutenant.
The base is being constructed in Christmas Island, a U-shaped atoll measuring fifty miles in circumference. It is joining 12 other warships to the fleet and will be repaired. For the first time since before World War II, the United Kingdom is joining the Royal Canadian Navy in the name of N. Ac. L. Minas Gerais.

The Admiralty has announced that negotiations for the purchase of the aircraft carrier Vengeance by the Brazilian Government has been successfully completed. The ship, after modernisation, will be commissioned in the Brazilian Navy in the name of N. Ac. L. Minas Gerais.
RUSSIA'S SEA POWER

By Oscar Parkes, Ass.l.N.A.—in London.

THE sixty-seven year old Naval Annual as it was, now in its new guise as the Armed Forces' Year Book, makes its ever-welcome appearance as most valuable and interesting compendium dealing with all aspects of naval and air power, and administration in the Services. It is not separated into sections as many of its 29 chapters are not susceptible to rigid grouping, and in this issue only a few can be selected as dealing with the naval side.

Of these, Dr. Anthony Sokol’s appreciation in Chap. VII on “Sea Power and Russia” naturally claims first attention.

Most of us are pretty well grounded in the numerical strength of the Soviet Navy, but not when it comes to estimating its size and probable effectiveness.

Dr. Sokol writes from Stanford University in California, and his views are particularly valuable as conveying perhaps more weight than would those of a British author traditionally prone to the importance of Sea Power.

Naval force works both ways—both for us and against us, and the same applies to Russia. It is of little use appraising Soviet sea power in terms of naval strength alone, or in considering merely that country by itself.

Because of the recurrent difficulty of understanding sea power, even among thinking people, some of its attributes must first be examined and clarified. Its most striking feature is its continuity, which, except for political and administrative obstacles, gives ships access to all parts of the earth—a fact that geopoliticians did not realize until a few years ago and perhaps only now grasps in its entirety.

The sea highway, covering three parts of the globe, is inexpensive and flexible because it is used by the U.S. for transportation units of slow speed—one cargo ship in a year’s time can carry three times as much freight in ten miles as the whole air lines of the U.S. at a cost of approximately 1 to 900, leaving U.S. transport superior in war as a weapon and troop carrier. And the demand for supplies rises steeply during wartime, with the need for shipping almost continuously exceeding the supply.

Thus, by the most vigorous effort in shipbuilding the war has ever seen and notwithstanding terrible losses, U.S. controlled shipping between 12 to 55 million tons during the war.

The German submarine campaign failed because the Allies developed effective defensive/offensive measures and produced cargo carriers faster than the Germans destroyed them. The Japanese were not so successful with the result that, as the U.S. Strategic Bombing Survey points out, “the war against shipping was perhaps the most decisive single factor in the collapse of Japanese economy and the logistic support of Japanese military and naval power.”

To turn to Soviet shipping needs, we are told by some experts that the U.S.S.R. are wholly self-reliant, being able to produce or find within their own lands substitutes for every essential material needed in peace or war.

It may be true that the Eurasian mass land is potentially richer in resources than any other part of the world, the emphasis must be on “potential” rather than actual. In reality, the self-reliance of the Communist bloc is as much a myth as the self-sufficiency of U.S. Even if it could find all required materials for the rapidly progressing industry in its vast domain and, at the same time, meet the pressing demand for consumer goods, the problem of transportation, the inaccessibility of large areas, and the need for machinery would still create a desperate hunger for a greater share of the outside world.

The proof lies in the constant insistence of the Communists on more trade with the West, which, through its sea power, still controls most of the ready available resources of the world and the means of carrying them where they are needed. Thus, the Communist bloc may be said to have less need for maritime trade than we do, but in a relative way—perhaps more, as they must serve from across the sea and will suffer if these are denied them for any length of time.

U.S. Concessions

During the war it was thought necessary to invade Japan, and the U.S. made concessions to Japan in order to secure aid towards this end, when all that was needed was air and air blockade of the Japanese islands. The resulting starvation would have forced submission in a few weeks.

On the other hand, large land masses like Russia and China would be much more resistant to such pressure although no great country could be completely immune to it. Unless we are quite positive that the next war will be decided within a very few days, sea power does not appear to have lost much of its former military efficacy. One of its important characteristics is the ability to exert military pressure suddenly and surprisingly at any point of the opponent’s coastal perimeter, forcing him to keep large reserves from the fighting lines, in readiness to meet an attack wherever it might occur.

History is full of illustrations of this principle. Three times in the last 250 years, in 1709, 1812 and 1914-15, Russia has proved itself almost impregnable against attack on land alone. Its vast expanse permitted Russian armies to trade time for space without losing space, forcing the enemy to extend his communications until they became too vulnerable.

In contrast there are two successful efforts to defeat her: the help of sea power—the Crimean War, 1853-56, and the Russo-Japanese War of 1904-05. In the first case, allied armies, carried to Russia’s soft belly by ships.
The hunting grounds of the Atlantic and Pacific.
Naturally, they might try to improve their position as quickly as possible by occupying the coasts of Western Europe as did the Germans. Together with control over the Kattegat this would enormously improve their chances to do serious harm to our sea power, achieving this solely by land expansion.

Contrariwise, our own overall strategy must aim at maintaining our geographical preponderance, by keeping control of the outlets, and by extending our command to such points as Spitsbergen and others even closer to the Russian mainland, dominating their sea lanes and by extending our command to such points as Spitsbergen and others even closer to the Russian mainland, dominating their sea lanes and by keeping control of the outlets. By keeping control of the outlets, we might as well follow a similar method by attacking ships in their own ports rather than to attempt to hunt them down individually on the open sea.

One result should be the inclusion of ice breakers in the Allied squadrons to facilitate the operation of our navies in the Arctic region. In addition there are the inland waterways, especially the Stalin canal, which connects the eastern Baltic with the White Sea, without which the Northern Route would lose much of its present significance.

Russia and her slave states are making great efforts to increase their mercantile marine by building or buying ships as quickly as possible. Helped by a slight change in climatic conditions, during the last two decades, they have made determined efforts to force a passage through the ice, so that nowadays it is possible for them to send ships around Siberia, from the Barents Sea to Okhotsk and back during a few months each year. This represents a potential power which must be considered in the forming of our own strategy.

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Lack of sellers
Shipbuilding activities in E. Germany have been increased to 10 times pre-war output, all of its produce serving the Communist bloc. In case of war its fleet might be greatly expanded by the capture of western ships through rapid advance on land, and all our ships should be withdrawn from the Baltic after the balance points in the event of threatening conflict. The Communist Navy and Mercantile Marine both suffer from a lack of people accustomed to the sea and ships such as would provide a natural supply and reserve of sailors. Only part of the 400 submarines are ocean-going under modern conditions, with a precarious fuel supply. Despite high-sounding pronouncements by Soviet leaders, neither tradition nor present composition, nor the logic of existing circumstances point to a Russian plan of using their surface fleets for offensive operations on the high seas, at least not until much more favourable conditions can be created.

Apart from any threat to ourselves, the Russian surface fleets represent a considerable danger to the navies of Sweden, Norway, W. Germany or Turkey, especially as they have always been considered as a sort of “right wing” of their army, destined, trained and accustomed to the role of a supporting and subordinate branch of the military establishment.

In dealing with bases, the author points out that the bases and terminals of Eurasia as well as in the U.S. and the U.K. may become the main targets of Soviet naval strategy, with priority over attacks on shipping or naval fighting.

This, of course, cuts both ways, and we might as well follow a similar method by attacking ships in their own ports rather than to attempt to hunt them down individually on the open sea.

In the matter of industrial capacity, it is questionable whether this is sufficient to meet present needs and to sustain a major war as well as a major naval expansion. Only if the Soviet heartland succeeded in adding the resources of the W. European rimland could its productive strength become a menace. To prevent this catastrophe is one of the aims of Western policy and grand strategy. It seems that national attitudes toward the sea and naval behaviour in general remain fairly constant over long periods of time, from all angles Russians have never evinced a strong attachment to the sea.

This is not to infer that they have no aptitude for naval fighting at all, or are inferior in all its branches, although opposed to Western fleets the Russian Navy has been relatively inefficient.

Naval aviation
We know little about Soviet naval aviation, except that during the last war there was a marked reluctance to fly out over the water even when there was urgent need for it. Nevertheless, in coastal waters it must be assumed to be an effective weapon of defence.

Thus, while defensive methods are necessary the real aim of sea power must be to carry the offensive to the enemy as early and as quickly as possible. It will be necessary for Allied naval forces to enter the Baltic, the Black Sea, the Northern Sea Route, the Sea of Okhotsk and the Yellow Sea to seek out and destroy the Soviet fighting fleet.

Such offensive moves — and especially the forcing of the Baltic — stand out as the most vital and dramatic problems of our strategy. When and how to execute them will be one of the hardest decisions of our leaders. I hope I have shown the importance of this chapter on “Sea Power and Russia.”

Vice-Admiral B. B. Scholfield again deals with foreign naval progress. The U.S. Programme includes a carrier of the “Forrestal” type, one nuclear-powered cruiser, armed chiefly with guided weapons, four guided weapon frigates, eight guided missile des-

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THE NAVY

February, 1957.
troyers, six nuclear-powered submarines, two escorts and 3,000 tons of landing and service craft. Conversions will be effected in the third and last of the “midway” carriers and three more of the improved “Essex” class.

Five lightcruisers and one submarine are to be altered to carry guided weapons, and an escort carrier is to be converted into an amphibious assault ship.

The cruiser Los Angeles should have completed her conversion very soon, and will be fitted with a surface-to-surface launcher for the “Regulus” weapon which involves only minor alterations to the existing armament.

Guided weapons:

Five smaller cruisers of the “Cleveland” class are to carry surface-to-air guided weapons as in the Boston and Canberra. The construction is also authorised of six more “Mitchell” class destroyers of 3,500 tons and seven more “Forrest Shermana” of 2,900 tons, and four more of the former and eight of the latter are to be built with guidedared systems of launchers in place of 5 to 8 guns.

In the Russian section it is stated that 150 of the big flushdecker destroyers are to be built, total of 30,000 tons of a modified “TalPhil” type. It is intended to construct a nuclear-power ice-breaker to enter service in 1956 which should be a sophisticated vessel with a high speed and a long range. The 600-ton submarines Delfmen, Sparknugger and Tumulen are nearing completion.

The above are selected from 10 pages of notes covering the world’s navies.

In “The Naval Recruit of Today” Captain D. J. Hoare presents a supplementary survey dealing with the influences at work on the joining recruit before he joins, influences which must to some extent determine his attitude to Service life and which, perhaps, to have some bearing on how he is to be handled.

He deals with the same, the school, employment, youth organisations, religion (“I don’t think that God is half as interested in religion as the parsons make out,” remarked a lad) and National Service by Jules Menken on the chapter by Jules Menken on the problems which face us from the other side of the Iron Curtain. He is an adept at making one’s flesh creep, and one faces his contribution with a certain apprehension!

This year he deals with “Problems of Middle Eastern Strategy,” and something of what he foretold months ago has now come to pass. Few developments would suit Russia better than that two of the NATO Powers should become embroiled in Egypt, and the hand of the Kremlin supporting its latest puppet has been clearly discerned.

Although it has imported new

RIVER PLATE BATTLE

Graf Spee, by Michael Powell; published by Hodder & Stoughton (U.K.).

The Battle of the River Plate, by Gordon Lansborough; published by Panther Books (U.K.).

The sudden revival of interest in the River Plate action is, no doubt, due to the film now released. Yet, in spite of the film it is a little difficult to understand the overwielding interest of writers in this particular battle.

Within the past few months three new authors have tried their hand at this battle — Dudley Pope, Gordon Lansborough and Michael Powell, and even that is not the full story of the Navy lore. The whole of the Navy lore in this battle fought so brilliantly by the British cruisers and destroyers and what might be called the “black box equipment.” He has written.

The book, which is well illustrated with maps and photographs, is interesting and is well worth reading. It lacks an index, and might have been better arranged and far better written.

“Port Parties,” and this book deals with the unmentionable classes of work of a small body of naval officers and men, mostly reservists and volunteers, specially organised and trained for the clearance of mines, booby traps and other similar under-water contrivances from the poms of France, Belgium, Holland and north-west Germany in 1944-45.

This was necessary to permit the safe entry of ships carrying the mines, boat-traps, and other equipment vital to the success of the invasion and its follow-up.

The dangerous task was done by skilled divers working alone in non-magnetising diving suiting, protected only by their own breathing apparatus. Walking or dragging their way along the sea bed in comparatively shallow water they worked on the mines they found and rendered them innocuous before they were set to go.

“Port Parties,” and this book deals with the unmentionable classes of work of a small body of naval officers and men, mostly reservists and volunteers, specially organised and trained for the clearance of mines, booby traps and other similar under-water contrivances from the poms of France, Belgium, Holland and north-west Germany in 1944-45.

More often than not, in the darkness of stirred-up mud, they worked by touch. The least mistake in dealing with the fields contrivances, as deadly or even deadlier than unexploded bombs on shore, would have spelled disaster.

The patient, cold-blooded gallantry of the men concerned well merited the valiant signal from the Admiralty on their disbandment. After referring to their splendid work, it went on to say that the ingenuity and courage shown had contributed to the success of the operations of the Allies. Judging from the list of honours and medals for their service this was something of an understatement.

The book, which is well illustrated, is interesting. But it lacks an index, and might have been better arranged and far better written.
Battle with penguins for Antarctic base

A joint N.Z.-U.S. expedition has set up a base at Cape Hallett, Antarctica, after setting a four- acre beach-head from 150,000 penguins, according to a "New York Times" correspondent with the Operation Deep Freeze party at McMurdo Sound.

One American and three New Zealand scientists and 10 U.S. Navy Seabees are settled at the base, where the scientists will make observations during the International Geophysical Year, 1957-58.

In mid-December the U.S. Navy was compelled to shift the site of the base from Cape Adare because a teeming colony of penguins made plain landings hazardous.

The battle with more penguins at Cape Hallett began when a land- ing was made on a beach of volcanic ash along the west side of the cape, which rises 1,000 ft.

The triangular beach area was completely occupied by Adelie penguins that had just completed nesting their eggs. Penguin chicks were everywhere.

However, as this was the only site for the station, a small portion 100 yards square was fenced off.

"The penguins and their offspring eyed these preparations with interest, but did not move," the correspondent says. "They know no enemies that walk either on two feet or four."

"Then the battle began. Sailors gathered the squawking youngsters into baskets while shipmates threw nets over the struggling adults."

"The four acres of ground were a scene of bedlam, the air pierced by sharp, indignant cries until all the birds in the area had been moved outside the enclosure."

Then a storm struck the area. When the wind had died down and the air had cleared, the fence was down and the birds had returned to their homes.

Once more the Seabees returned to the fray in an attempt to gain a firm foothold on the Cape Hallett beach.

Later, a tractor bulldozed the area so that 11 buildings could be erected.

The builders found the ground a mixture of gravel and penguin guano to a great depth—the residue of centuries of penguin habitation.

Australian loan for Canal clearing

The Australian Federal Government has very much in mind the fact that closure of the canal is costing Australia more than this amount each month,
primarily due to the increase in charter freight rates. "The Australian Government's decision will consequently further the interests of both exporters and importers in Australia, as well as the Australian economy generally. "In addition, Australia will benefit from any relief of the present world tanker shortage from a re-opened Suez route," said Mr. Casey. "A number of other countries were making similar loans.

Glass boat for African service
One of the biggest glass fibre hull boats ever built in Britain was exhibited at the National Boat Show, which opened at Olympia, London, recently. She is 31-feet Mariposa, built at Portsmouth. Both her hull and deck are of glass fibre and plastic mixture. After the show the Mariposa will go to service in the rivers of the Cameroons in Africa.

Air base at Gan Island
The proposed staging base for RAF aircraft at Gan, one of the Maldives Islands, in the Indian Ocean, will be an additional link in the chain of Commonwealth communications. It will not be entirely new, because an airfield was built on this island during the war and subsequently abandoned; its remains, largely overgrown, still exist.

The Maldives Islands have been under the protection of Britain since 1887. An agreement with the Sultan, made in 1948 and reaffirmed in 1953, gives the United Kingdom Government the right to establish and maintain in the Maldives such facilities for Her Majesty's forces as H.M.G. in the United Kingdom may, after consultation with the Government of the Maldives Islands, determine to be required for the defence of the Islands or for any part of the Commonwealth.

The Maldives are about 500 miles south-west of Ceylon. There is a large number of small islands in the group, and the capital is Male. Gan Island is one of 27 islands forming the Addu Atoll, about 450 miles from the capital. It is about 2 miles long and about 4 miles wide, and has a population of 500.

Search for King John's treasure
In England a treasure hunt for a crown, sceptres, swords and silver cups is in progress in land reclaimed from The Wash.

Back in the year 1216, King John of England, crossing the stretch of water between Northumberland and Lincolnshire, lost his baggage in a storm. Efforts to retrieve the treasure have gone on for 700 years.
cuce bell and attach it to the hatch of the submarine.

It is thus of the highest importance that research should be made in solving the problems still presented by diving at great depths.

Diver Wookum, when he reached a depth of 600 feet last October in his helmeted diving suit, was receiving a breathing mixture of oxygen and helium. But this must be regarded very much in the nature of a freak dive from an operational viewpoint.

A diver who has been on the bottom at 600 feet for no longer than five minutes has to "decompressed" for five hours and 38 minutes under gradually reducing pressure before finally being allowed to breathe air at atmospheric pressure.

It is true that most of this time he spends not in the water, but in a Submersible Decompression Chamber which is lowered down to him and which he enters through a lower door at about 200 feet, the chamber having an attendant and being kept clear of water by pressure on the diving bell principle.

None the less, for a practicable diving operation, it is essential that there should be an improvement on the routine dives to a depth of 430 feet now carried out with ease for a maximum of about 20 minutes, using an oxy-helium mixture (compared with a depth of 100 feet when breathing air).

The mixture of oxygen and helium is a great improvement on air but a diver using it at depth takes longer to "decompress" because the helium gas expands his tissues. The longer he stays down, the deeper he is, the more helium is absorbed. On the other hand, the mixture is superior to air for two reasons. The nitrogen in air produces a deep effect which prevents the diver working at full efficiency in depths exceeding 240 feet. Secondly, the oxygen content of air is such that it reaches a toxic pressure at just under 300 feet. 300 feet can thus be accepted as the outside safety limit for a diver using compressed air.

There is no such limit for the oxygen-helium mixture. Helium seems to have no narcotic effect whatever. If it exists at all, it is likely to be at a depth beyond that at which other limiting factors become paramount. The principle one at the present day, as already pointed out, is the decompression time. Oxygen poisoning is avoided by limiting the percentage of oxygen in the mixture. The mixture, incidentally, does not provide adequate oxygen until a certain depth is reached. A change over has to be made from air to the mixture at a fixed level, both in the ascent and during the ascent, or the diver will suffer from lack of oxygen at shallower depths.

The problem of "decompressing" in the shortest possible time was the subject of the "bends" complex one, particularly when using helium, and has not yet been solved. Encouraging results are, however, being obtained as the result of the research work now being done of this subject at the Royal Naval Physiological Laboratory, Alverstoke, Hampshire.

It is perhaps worth pointing out that the invention of the aqualung, the Frenchman Pilet, and the acknowledged experts in its use, maintain that they have done away with the flexible-suited helmet diver, whose operations are controlled by a surface vessel. The aqualung is purely a shallow-diving appliance. The Frenchman and his acknowledged experts in its use maintain that none but an expert should venture with it below 200 feet and the "fatal limit" is not far beyond 260 feet. In other words, the deep diver begins to feel its effects pretty roughly where the aqualung diver leaves off.

From the London "Navy."
very high speeds. They are called fast neutrons. Although there is a chance of a fast neutron causing fission in one of the nuclear fuels I have mentioned, it has a much greater chance if its speed is reduced and the greater the reduction of its speed, the greater the probability of its being absorbed. When the speed of a neutron is reduced by a factor of about 2,000, it is called thermal neutron. They are not absorbed by one of the nuclear fuels as they have not enough energy.

We can now begin to visualise the system in which a thermal reactor must take. In a typical example, with natural uranium and graphite moderator, there are rods of fuel in metal cans and in long holes formed in the graphite structure. They are placed in metal cans to prevent corrosion and escape of fission products. The distance between the holes in the graphite structure is governed by the amount of moderator necessary to slow down to thermal speed the fast neutrons born in the rods. Although more neutrons are emitted from each atom that is split, unfortunately some of them are lost to the surroundings, so the mass of fuel and moderator must be big enough to maintain a continuous chain reaction despite this loss. The amount which will just do this is called the minimum critical mass.

**Steady-power level**

"As I said, the chain reaction must be controlled. It is possible to maintain a steady-power level. This may be achieved by inserting into the core rods of neutron absorbing material such as boron carbide. These control rods absorb some of the neutrons and so allow the reactor to be kept working at any power required. The neutrons and other radiation created in the reactor are dangerous to human beings, and some of these harmful particles and rays can escape from the reactor and so a thick absorbing shield must be placed round the reactor to protect the operators. This is commonly made of steel and several inches of concrete. At the time the reactor is working the heat generated in the uranium fuel rods must be removed by passing a cooling fluid over them. This fluid must be kept hot and must be cooled outside the reactor. Obviously the fluid must be chosen carefully as it must not be one which absorbs neutrons heavily or the reactor will not work.

In a typical thermal power reactor the cooling fluid is circulated first past the rods in the reactor, where it is heated, and then to a heat-exchanger. Here the hot is used to generate steam which drives turbines. The circulating fluid, now cooled, is returned to the reactor where it is reheated and the cycle is repeated.

"The temperature at which the cooling fluid is circulated is of the utmost importance as it has a very real effect on the efficiency of a power plant, and many of the problems of the designer arise from his desire to achieve as high a temperature as possible. Thus the materials construction of power reactors must not only have good nuclear properties—they must be strong and resist corrosion at a sufficiently high temperature as well. These materials are few and very many difficulties have to be overcome."

**"FLYING BEDSTEAD"**

The Rolls Royce Company is continuing experiments with its vertical take-off machine known as the "flying bedstead." The original wingless machine, which took to the air in August 1954, has been improved upon. It stands on four long sprung legs until the pilot starts the compressed air jets discharging through nozzles. Then the "bedstead" rises straight up.

---

**U.N. COMMITTEE SEeks FORMULA ON TERRITORIAL WATERS**

by "NEPTUNE" — in London

There can be no doubt that the British Government is carrying out this policy, and yet it can meet the legitimate wishes of the non-maritime States, even sometimes at the expense of our own inshore fishermen. The Government has loyally abided by the decision of the International Court of Justice in 1951, in the Anglo-Norwegian dispute, that in view of the indented nature of the coast of Northern Norway, she should be authorised to fix new base lines extending considerably the belt of her territorial waters. Yet despite appeals from British fishermen, we have not altered the traditional limit used for our own territorial waters.
Similarly, in a recent agreement with the Soviet Union which, in
general, gives British fishing vessels the
right to fish up to a distance of
three miles from the Soviet
coastline at low-water mark, we
have agreed to the exclusion of
certain areas extending up to 12
miles from the Russian coast.

Both countries are satisfied —
Russia concedes to our fishing
vessels the general principle of the
three-mile limit; we, on the other
hand, agree that in certain areas
we cannot fish nearer than 12
miles from the Russian coast.

Meanwhile the draft code
of international law now before
the United Nations embodies
new proposals which will certainly
result in much argument and discussion.
Coastal States, for example, have the right to
take unilateral action for the con-
servation of fisheries in "con-
tiguous" waters, i.e., in waters
beyond the territorial sea, subject to
compulsory arbitration if other
State object.

It is also proposed that the right
of a State to exploit the "continen-
tal shelf" in adjacent waters —
to exploit the pearls on the sea
bottom or the oil buried beneath it
— should be recognised where the
depth of the shelf is 200 metres or
beyond. At present the limit of depth
is "not greater than 200 metres."

An even more drastic recom-
mendation is to abandon the
ancient right of "innocent pas-
sage" of warships through the
territorial waters of a foreign State
in time of peace. The coastal State
concerned is to require notice of the
impending passage and be
authorised to impose conditions —
a clear departure from the broad
principle of the freedom of the
sea. — From the London 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 Common-
wealth of Nations. The League also sponsors 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.

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February, 1957.

The Rescue of the "HOPELYN"

COMMANDER Carver, R.D.,
R.N.R., peered through
the window of the Gorleston Coastal
look-out. He watched the
sea, banked up by the vicious
north-east, sweep over the north
end of North Scroby Sand and
hurl itself at the stranded ship
which was occasionally visible
through the driving spray.

Shadowed there, too, was the
Gorleston lifeboat, anchored
most probably, waiting for a chance to
veer down to the stricken vessel.

And this was her second trip, he
reflected, she's already made one
attempt.

He remembered the words of the
coastguard who had met him
that October morning. "Gaiser
boat was unable to get away, sir,
so they sent the Kentwell. Aye,..." he
repeated. "...until last night.
Had an awful pull against
those seas to reach her, and
then coxswain found he couldn't do
anything 'till daylight, so he
anchored. Well, when dawn came
there she was, the Hopelyn of
Newcastle, the waves sweeping
right over her and not a sign of
life anywhere on board. Fleming
what's the coxswain—reckoned
there were no survivors so he came
back. Well, just after I came on
I saw a flag flying from the
wreck, so I told the lifeboat about
it and they set off again about ten
o'clock an hour or so before you
arrived, sir."

The commander turned from the
window and glanced at the
lock above the desk. Fifteen-
hour: Low water now. He
reached out for the open log-book
on the screeched table before him of
the desk. October 20, 1922. He
ran his eyes down the page, noting

with approval the concise manner
in which the events of the mornings
had been entered, and he checked
on the times. The boat had been
out for almost sixteen hours alto-
gether; it was obviously no job for
a pulling boat.

He reached for the phone and
called the number for the Lowes-
toft Lifeboat Station.

An hour later Commander Car-
ver boarded the motor lifeboat
Agnes Cross and shook hands with
her coxswain. "Well, Swan,
you know the situation—what do you
think?"

Coxswain Swan's bearded lips
broke into a grim smile. Without
replying he moved to the helm,
grasping it with salt-hardened
hands. "Cast off fore and aft.
Full ahead." For him there was no
other course to follow.

As the lifeboat steamed out of
the harbour she was hit by the full
blast of the gale, which had now
backed to the north-west. The
crew hung to the handrails as she
nosed into the spray when her
bottom. Fleming look-out. He watched the
race of foam, and realised what
she's already made one
to the waves and
Bbegan to move to the helm,
reflected, she's already made one
attempt.

But Swan nursed her along with
all the skill at his command, check-
ing the racing screw when her
stern reared up, swinging her head
into the heaviest seas, now rearing up on her stern
like a ladder leaning against a
wall; now burying her bow into
the foaming water as though she
woudftry a porpoise dive to the
bottom.

But Swan nursed her along with
all the skill at his command, check-
ing the racing screw when her
stern reared up, swinging her head
into the heaviest seas, now rearing up on her stern
like a ladder leaning against a
wall; now burying her bow into
the foaming water as though she
would try a porpoise dive to the
bottom.

So far the coxswain had been
unable to reach the stranded ship.

"There she is—right ahead. And
that's all I can see, too—
lights and smoke." The commander
strained his eyes into the spray-drenched
waters. As the Agnes Cross
rounded the wreck a wave-crest he saw the tug in
a flurry of foam, and realised what
it was. "Swan," he said. "That's the
Gorleston boat returning.
Have you seen anything the latest report on the wreck?"

Swan ordered the mechanic to
draw back the throttles and the two
tugs bobbed and curtseyed to each
other a few yards apart. He
cupped his hands to his mouth
and bawled above the howling of the
wind. "Aye, aye, sir. If you can take
me off I'll be glad to."

They strained to hear the reply
before the wind whipped the voice
away into the night. "Couldn't get
alongside because of the terrific
waves. There's an old wreck about
ten yards off and we tried to get
through we struck the sand."

"Look," he waved his hand
pointed, and they could see the
broken mizen outrigger and the
stove-in 'wale.'

Commander Carver tapped
Swan on the shoulder and moti-
Yaked him to be silent. Then he
called to the other boat. "Fleming,
we're going on to the wreck; will
you come back with us?"

"Aye, aye, sir. If you can take
me off I'll be glad to.

Coxswain Swan needed nothing
telling what to do, the commander
noted with a satisfied smile. He
handled the pitching lifeboat as
though they were on the park lake,
ing the nearer and nearer to

JOIN THE
NAVY LEAGUE

The Rescue of the "HOPELYN"

By Ken Lomax

February, 1957.

February, 1957.
the Kentwell until Fleming was able to scramble aboard while the two boats were in the trough of a sea. Then he ordered full ahead, and as the boats rode up on the next wave the Agnes Cross slid away towards the wreck.

But after one look at the scene Commander Carver realised that there was nothing they could do that night.

As he had feared, the intense darkness and the heavy seas made a rescue impossible; there would have been two wrecks instead of one. Reluctantly he ordered the coxswain to put back to Gorleston.

At 4.30 the next morning they nosed out of the harbour once more. The wind had veered to the north-east again and it was still blowing a full gale.

As they battled through the angry seas the sky began to show the first light of a cold dawn, and Commander Carver knew that this time they would have the whole day before them. If a successful rescue were to be made it would be today.

It was daylight when the lifeboat reached the wreck, only her hull and the jagged edges of propping plates. He could see that there was a barely room for the lifeboat to come alongside.

Swan conned his boat up to windward of the wreck. "Stand by to let go," he called to the anchor hand. He eased her bow wards the stern of the wreck, then the set of the tide. He slowed his boat to come alongside. "Half ahead. Heave up the anchor, Farrant."

A cry came back from the bow, urgent, insistent. "Cable's fouled on the wreck. Cox, she won't come up. Keep going ahead or we'll strike—I'm going to cut her free."

Swan ordered full ahead, keeping his eyes on the half-submerged wreck waiting to tear the lifeboat to pieces on her torn steelwork. He caught the flash of the axe as the bowman swung at the fouled cable, heard the thud of the blade biting into woodwork, then the welcome cry "She's clear."

They were only just in time. As the bow came round a huge sea caught the boat broadside on and buried her under solid water. But she had begun to move; she thrust her nose through the sea, shook herself like a dog and rose to the surface.

Commander Carver shook the water from his eyes and looked back at the wrecked Hopelyn. Slowly it became lost to sight behind the blowing spray as the Agnes Cross sailed for home.

---From the "Sea Credal" (London).
Not-so-expensive expendables

Today drop-tanks are a major expendable in the operation of military aircraft.

According to reliable reports, they constituted the largest single item of operating expenditure of the U.S.A.F. in Korea, where thousands were dropped every week. Moreover, as most current drop-tanks are of light alloy, semi-monocoque construction, they could, in time of war, compete directly with aircraft for labour, plant and strategic materials.

Bristol plastic drop-tanks were designed to get over these difficulties. They are much easier to produce than their alloy equivalents and utilise plant and skills that would not be particularly scarce in wartime. They are aerodynamically superior to alloy tanks and can be dismantled for easier stacking. They are unaffected by extremes of temperature and humidity.

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**THE NAVY**

March 1957.

**TRAVEL SHAW SAVILL**

**THE SHIP THAT CIRCLES THE WORLD!**

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The possibility of building tankers of 100,000 tons in the United Kingdom has been referred to by industrial leaders in Britain in the past few weeks. Viscount Knollys, chairman of Vickers-Armstrongs, said that the firm's Barrow-in-Furness yard had on order two ships of 42,000 tons and three more of 50,000 tons, and was "examining the possibility of building tankers of even greater deadweight tonnage"—for 85,000 and even 100,000 tons as well as increasing dry dock facilities for such mammoths.

Oil shortages caused by the closure of the Suez Canal and the Middle East pipelines have focussed public attention on the problems of oil supply. World oil consumption outside the Soviet bloc was about 700,000 million tons in 1955.

The United States, the largest consumer, took about 120,000 million tons, but most of this has to be brought from the Middle East, over 2,000 miles away.

Altogether 400,000 million tons of oil (five times as much as in 1938) were carried by sea in 1955. Over the next 20 years the demand for oil is expected to double, while the ton mileage of oil carried by sea is likely to grow more rapidly.

The largest proven reserves of oil are in the Middle East and it is expected that Middle East oil will have to supply a wider area, and even to fill a growing gap between demand and supply in the Western Hemisphere.

The very large tanker is regarded as the cheapest way of carrying oil for long distances. Neither weight of steel, size of crew nor fuel consumption are increased proportionately with size.

The costs per ton mile of a tanker that can carry 85,000 tons are likely to be about half those of a 19,000 tonner.

Such oil companies and independent shippers with tankers for charter have begun to order bigger tankers during the last five years. But until recently many of them did not want to operate tankers too big to pass fully loaded through the Suez Canal, whose use halved the journey from the Middle East to Europe.

This set an upper limit of about 35,000 tons capacity. In the past year, however, orders for much bigger tankers have been placed in various countries. This latest development is based partly on proof of the lower cost of large tankers and partly on the realisation that only a fifth of world oil movements by sea pass through the canal and that this proportion is likely to decrease as more use is made of pipelines, and the demand for oil becomes larger and more widely distributed.

Moreover, even from the Persian Gulf to Europe, the economics of super tankers and the savings of canal dues will go a long way to pay for the longer journey via the Cape.

All these considerations are independent of the questions of political or strategic advantages of minimizing dependence on the Canal.

Five years ago there were no tankers of over 20,000 tons. By the end of June, 1956, the operating world fleet of oil tankers of 29,000 deadweight tons and over amounted to 103 ships with carrying capacity of 3.4 million tons, about eight per cent of the total tanker tonnage: by the end of November, 1956, there were 311 tankers of 24,000 deadweight tons and over with a total carrying capacity of 9.23 million tons.

Only 39 tankers, however, with a capacity of 5.5 million tons were of 33,000 deadweight tons or over.

The super-tanker fleet is to increase rapidly. By September, 1956, there were 170 tankers of 35,000 tons and over, under construction or on order in the world shipyards, and it was expected that by 1961 the world super-tanker fleet (tankers over 29,000 deadweight tons) would amount to 17 million deadweight tons, about 30 per cent more than the whole tanker fleet now in service.

It was revealed at a recent launching that a British tanker firm will have six tankers, each of 32,000 tons, launched within the next six months.

The super-tankers would provide sufficient additional capacity to meet the expected increase in demand for oil even if there were no further development of the canal and the pipelines.

Since September tanker building programmes have been further revised and many more tankers are on order, some of them additional to previous orders and some substituted for smaller tankers.

There is at present a lack of oil ports at which very large tankers can load and discharge direct, and of dry docks which can take ships of this size.

These difficulties can, however, be overcome. Channels at existing ports can be widened and deepened, or new ports can be built such as is planned at Milford Haven in South Wales.

In other cases, flexible submarine pipes or offshore jetties can be used for loading and unloading tankers.
AFTER the U.S. heavy cruisers 4^4 of the "Des Moines" class, the "Sverdlov" are the largest cruisers afloat, with a length of 689 ft, beam 73 ft, and a draught of 24^4 ft. or thereabouts— the Russians use a system of draught marks which bears no relation to the metric scale or any recognised system of measurement. On the occasion of her last visit to Britain, the Sverdlov showed the figures 20 at the waterline with 30 above and 30 below, which you can translate as you like.

Now draught has to be limited for Baltic work, and Fisher kept the "Glorious" class down to 24.3 ft although the Rusty of 1908 was allowed 26 ft. for her 15,000 tons. Allowing the Sverdlov 24^4 ft. as a reasonable figure for her size, with a block coefficient of 0.545 which would be expected by British practice, her displacement works out at 19,200 tons—or between 16,000 and 17,000 tons standard — in which case the 12,500 tons credited to her by the Press is a considerable underestimate.

The main armament of twelve 6-in. guns are in fore and aft triple turrets with thick armour faces of apparently about 8 in. with 6 in. on the sides. A secondary armament of twelve 3.9-in. is carried on the broadside, paired in large 1 in. gunhouses which suggest automatic working as A.A. defence.

About thirty 37 mm. in pairs are mounted on the superstructure and shelter decks. Two sets of five 21-in. torpedo tubes are carried amidships, and two sets of mine rails are laid each side of the quarter-deck from the after shelter deck to the broad stern. Stowage is believed to be 140 mines.

According to a Swedish report the Sverdlov proceeded home from Spithead in 1953 in company with the Gota Lejon, which increased speed in order to test that of the Russian, but was left astern at 33 knots. Her turbines are reported to be of 130,000 s.h.p. driving four propellers, with bunkerage for up to 3,000 tons of oil fuel.

When leaving Portsmouth in 1953 the blowers sounded particularly noisy and conditions for the engine room staff must have been uncomfortable.

An outstanding feature is the huge control tower surmounted by an armoured rangefinder for visual control of the main armament, with a similar instrument aft and one in each of the four 6-in. turrets. We have discarded optical rangefinders as being obsolete — incidentally saving skilled manpower and a lot of top weight — and rely entirely on radar for our ranging. It is probable that the visual ranging is used primarily by the Russians when conditions are suitable, and in the event of their radar equipment being put out of action. The secondary armament director can be seen amidships.

The radar equipment is extensive and could have been modelled upon that installed in the Royal Sovereign loaned to Russia in 1944, which included controls for both her main and secondary armament. So far as can be ascertained in distribution is as follows:

(1) FOREMAST.
Top platform. Air warning array similar to our large cheese type. Third Platform. A V.H.F. array possibly for I.F.F. First Platform. Main armament fire control.

As regards structure, the hull appears to be very well thought out and strongly built. Welding is general throughout, the only riveting appearing at the sheer strake and partially at the main deck level amidships.

Longitudinally the hull is machine welded, with vertical hand welding finish being inferior to the British but superior to American standards. The superstructure and funnels, made of very thin steel or some light alloy, showed considerable buckling.

Upperworks are capable of being quickly remodelled and bridge work will need to be built in— at present the three tiers are too high and sprawling judged by our present needs. Never was there so
much canvas screening required for weather protection. The decks look peculiar, being laid in short lengths of soft wood at right angles, to facilitate removal before action.

Accommodation and equipment below is excellent with a high standard of cleanliness—a deck hand spent quite a time trying to remove a cigarette stub from the scuppers with a huge cotton mop rather than toss it over the side. Uniforms of W.O.s and N.C.O.s are liberally adorned with gilt stripes and coloured bands on the cuffs, stars on the shoulder straps, and badges elsewhere so that an imposing officer who might well have been a Surgeon Captain turned out to be a sort of cook or so I understood. Trousers of an exaggerated "Oxford Bag" style are favoured, and one little man was so arrayed as even to conceal his toecaps. —From the London "Navy."

SHARK WARNING FOR NAVY DIVERS

The following Navy Order has been published for the guidance of captains of H.M.A. ships when diving operations—including spear-fishing—are being conducted:

Sharks seem to be so entirely unpredictable in their habits and natures that it is difficult to give any definite guidance to Captains when to allow and when not to allow recreational swimming or diving in a rig other than a water-proof diving dress.

There is no record of a diver dressed in a suit ever having been taken by a shark, and it seems reasonable to assume that this immunity exists because the diver may not "smell" good to eat.

However, the heat generated inside completely water-tight suits, in the hotter seasons, makes it undesirable to insist on their being worn where there is no certain shark hazard, though underwater swimmers and divers should always be given the option of wearing a suit if they wish, or a complete body covering, such as a pair of overalls.

Notice should be taken of the local information regarding the shark risk appertaining to the area.

No explosive charges should be fired shortly before diving, as it has been proved that they cause sharks to congregate to feed on fish damaged by the explosion.

A precaution, however, which is always worthwhile is to make sure that the diver does not release any blood into the water, as this is notoriously attractive to sharks. For this reason:

- Divers wishing to go down without a suit should be examined for unhealed cuts and sores, and if a waterproof dressing is unlikely to prevent the permeation of blood into the water, they should be made to wear a suit.
- When working in places where a diver is likely to cut himself (ship's bottoms, moorings, etc.) at least an overall suit should be worn.
- Any diver who knows that he has cut himself should immediately leave the water.

When carrying out recreational diving or underwater fishing in shark hazard areas, a diver on surfacing should immediately come inboard or again submerge and not wait about on the surface, as this is considered to be the greatest danger spot for attack.

Fish should never be carried underwater but must be brought to the surface for disposal.

THE NAVY

March, 1957.

THE PROPELLER BROKEN BY ICEBERG.

Seamen of the U.S. attack cargo ship "Arnhel" inspect the ship's propeller at Cockatoo Island dry dock after the ship arrived in Sydney last month. One of the blades was snapped when the ship was squeezed between an iceberg and the mainland in Antarctica.
C

Australian Area, became general Matson Lines officer since 1950.

ROYAL NAVY

The following changes on the Flag List have been announced:


Promoted to Admiral in Her Majesty’s Fleet: Vice-Adm. Sir Caspar John, K.C.B.


Rear-Adm. J. Lee-Barber, D.S.O. and Bar, Admiral Superintendent, H.M. Dockyard, Malta (February).

Rear-Adm. V. C. Beeg, D.S.O., D.S.C., Chief of Staff to the Commander-in-Chief, Portsmouth, in succession to Rear-Adm. H. C. Hind, D.S.O. and Bar (February).

Capt. G. D. A. Gregory, D.S.O. and Bar, Commodore Hong Kong to serve in the rank of Commodore 1st Class while holding this appointment.

NEW “JET-FLAPS” FOR AIRCRAFT

The jet-flap principle first announced last year by the U.K. National Gas-Turbine Establishment has captured attention in world-wide discussions on what the next generation of airliners is going to look like.

For the jet flap, the jet-exhaust from an aircraft’s engines is discharged horizontally from the trailing edge of the wing in a long span-wise sheet, instead of from circular orifices directly behind the engines. On take-off and landing, this flat jet-sheet is directed downwards at an angle thus forming, in effect, an aerodynamic flap of a size which would be impossible with a “solid,” or mechanical, flap. The effective area is, in fact, similar to that of the wing itself. In addition, a certain amount of direct lift is obtained on the “jet-deflection principle.”

The National Advisory Committee for Aeronautics is reported to be “looking into the possibilities” of the device. The Committee was formed by the Air Ministry and includes cut take-off distance from 8,500 feet to 5,500 feet, landing run from 7,000 feet to 3,700 feet, take-off speed from 150 m.p.h. to 119 m.p.h., and landing speed from 115 m.p.h. to 80 m.p.h.

THE NAVY

March, 1947.
The free world by its unity and determination and by building up its military strength has so far been able to block the advance of Communism in Western Europe, in Korea, in the Western Pacific and, recently, by the action taken by Britain and France, in the Middle East. In the Middle East there is a military vacuum and the defence of the area against a full scale attack by Soviet Russia would require a scale of land, air and naval defence which could only be provided by a combination of the strongest powers of the free world. To be fully effective, the defence of the Middle East demands the existence of a supply and repair base similar to the British base in Egypt which the Egyptian Government states it has destroyed. In the circumstances, the British base in Cyprus, always available to the free world, is of the utmost importance to Middle East defence, and, therefore, to the defence of Western Europe.

Soviet Russia with her central position and huge, fully mobilised land and air forces is virtually unsailable, except by the strategic power of the free world. Russia has great superiority in conventional forces over Western Europe, but it deterred from attempting to use them by the fear of counter-attack with nuclear weapons. For, where the possibility of nuclear war arises, the advantage, at the present time, lies with the free world. Not only is the strategic air power and stockpile of nuclear weapons of the free world greater than those of Soviet Russia, but their strong naval forces, capable of contributing to strategic bombing and of countering-attacking from every point of the compass, would present Soviet Russia with an immense defence problem.

It must be accepted as almost certain that Russia will steadily close the gap between her nuclear strength and that of the free world. As Russia's nuclear power increases, therefore, the control of the sea by the free world will become more and more important.

"From the London "Navy."

**BIG NEW LINER FOR P. & O. LINE**

The P. and O. Line has announced plans to build a 14,000-ton 27-knot liner for the Australian and Pacific run which will carry more passengers than the Queen Elizabeth.

It will be the biggest liner to run between Britain and Australia, and is estimated to cost about £15.6m.

It will carry 2,250 passengers—600 first-class and 1,650 tourist—and will cut the present British-Australia trip to three weeks.

Harland and Wolff Ltd., of Belfast, will lay the keel towards the end of this year. Delivery is expected late in 1960.

The ship will have a length of 814 ft., beam of 102 ft., and draft of 31 ft.

It is believed it will be the biggest passenger liner built in a British shipyard since the Queen Mary (186,275 tons, launched 1936) and Queen Elizabeth (83,673 tons, launched 1940).

Passenger amenities will include air-conditioning throughout and three swimming pools.

The whole superstructure will be aluminium.

The ship will be air-conditioned throughout, including all crew accommodation.

Lifeboats will not be carried at the traditional height of the forecastle but will be stowed three decks down, lying in flush with the ship's side.

The ship will be fitted with two sets of Denny-Brown stabilisers.

Baggage and stores will be handled by electrical conveyors and elevators.

It will be the first British passenger ship to be powered entirely by A.C. current. There will be four turbo alternators each of 1,500 kilowatts, 440 volt, three phase, 60 cycles.

**Malayan Helicopter Squadron**

From a Special Correspondent in London

When No. 848 Naval Helicopter Squadron was withdrawn from Malaya early in January, this closed a chapter in the history of the Fleet Air Arm during which some of its officers and men operated with skill and daring over the whole of the Malayan Federation for almost four years.

The responsibilities of the Squadron included the lifting of troops, freight, casualties, V.I.P.s, explosives, tractors, track dogs, aborigines, and a host of other loads including terrorist casualties.

Wherever a task had to be done it was performed with good humour and tireless energy, and now, if a pin is stuck at random in a map of Malaya, there, within a few miles, a helicopter of the Royal Navy will have been operating.

How did a Fleet Air Arm Squadron become involved in deep jungle operations far from its natural element, the sea? The Malayan security forces speak of "the bad old days" when soldiers spent days foot-slogging through the jungle before they could get to grips with terrorists.

The need for some means of relieving them of these long and bitterly exhausting marches was apparent.

Towards the end of 1952 ten Sikorsky helicopters were accepted by the Royal Navy under the Mutual Defence Aid Pact and were formed at Gosport into No. 848 Squadron.

This Squadron was trained expressly to meet the Malayan Emergency and it embarked in H.M.S. Theseus on December 12, reaching its future base at the Royal Naval Air Station, Sembawang, Singapore, on January 8, 1953.

During its overseas service the squadron's major task was the movement of troops into and out of the jungle, and its capacity for this form of service was early illustrated by the fact that in one operation it moved 1,800 troops in four days.

Within its first six months' service in Malaya it carried 4,000 troops, moved 100,000 lb. of freight and flew 1,300 hours.

The tasks of the squadron also included the evacuation of wounded from the jungle to military hospitals, the dropping of leaflets in areas occupied by terrorists (one pilot released 700,000 leaflets in one two-hour operation), and jungle reconnaissance.

In January, 1954, the squadron carried the Navy's most coveted aviation award — the Boyd Trophy — presented annually for the most outstanding feat of aviation in the Royal Navy.

The citation stated: "The remarkable results while operating under arduous circumstances can only have been achieved by outstanding effort by air crew and ground crews."

In May, 1955, the Commanding Officer of the squadron, Lieutenant-Commander Brian Patterson, M.B.E., R.N., and Lieutenant Ronald Leonard, R.N., were awarded the D.F.C. for outstanding service with the squadron. An aircrewman received the D.S.M., an aircrewman the B.E.M., and two other officers were mentioned in dispatches.

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NEWS OF THE WORLD'S NAVIES

R.N. launchings, acceptances

A list of ships launched in the period July-December 1956, issued by the Admiralty, include one submarine (the Rosquah), nine coastal minelayers, two inshore minelayers, two fast patrol boats, one seaward defence boat, and one tug.

Acceptances included two Blackwood class A/S frigates (the Keppel and the Mytish), the Whitby class A/S frigate (the Whitby), eight coastal minelayers, and five inshore minelayers.

Battle class ships for Pakistan

Two Royal Navy destroyers recently sold and handed over to the Pakistan Government are H.M.S. Gabbard and H.M.S. Cadiz, Battle class ships.

The Gabbard will be known as P.N.S. Badr and the Cadiz as P.N.S. Khobra.

Navy flag for Parachute Brigade

Vice Admiral M. L. Power, Flag Officer, Aircraft Carriers, has sent the following letter to Brigadier M. A. H. Butler, D.S.O., M.C., commanding the 16th Independent Parachute Brigade Group.

"It is with the greatest of pleasure that I send you my flag, which was flown in Her Majesty's Ship 'Eagle' on November 3, 1956, when the 16th Independent Parachute Brigade Group was formed. It is the first time to recommission a warship overseas.

In early January, ninety officers and men, half of the new ship's company of the destroyer Comus, left London Airport in a closely co-ordinated movement for Entebbe, Uganda, where they transferred to Dakota of the East African Airways to go on to Mombasa to join their new ship.

The other half of the ship's company of the Comus left London Airport later in a second flight. H.M.S. Comus arrived in Mombasa to recommission because of the disruption of normal air traffic in the Far East caused by the Suez crisis.

The old ship's company of H.M.S. Comus returned to the United Kingdom in the same aircraft.

Frigate helps grounded tankers

Twice in less than twenty-four hours, H.M.S. Loch Killipsort (Commander G. C. Hathaway, R.N.), frigate, saved two loaded tankers which had gone aground in bad weather on shoals off the Saudi Arabian coast.

The first was the United States ship Olympic Games, with a cargo of crude oil, which got into difficulties during a passage from Ras to Ras Tanura.

She was located six hours after the Loch Killipsort sailed to her assistance from Bahrein and was redirected twelve hours later after a sick seaman had been transferred for medical attendance and Naval divers had carried out an inspection of her hull.

Shiokowadhi's ordered in north

Five shipwrecked men reached Darwin on January 21 after a nine-day walk through the wild country of Arnhem Land (North Australia).

The men left Darwin early in December in the 42 ft. yawl Calypso. After a month's crocodile shooting they decided to sail to Queensland.

Their yawl was wrecked on the coast and the men walked to Cape Don lighthouse, 50 miles away.

They could only manage about five miles a day and were tormented by mosquitoes and sandflies.

The naval tug H.M.A.S. Emu brought them from Cape Don to Darwin.
A view of the new Shaw Savill travel booking centre in Castlereagh Street, Sydney.

**NEW OFFICES FOR SHAW SAVILL**

Shaw Savill & Albion Co. Limited has opened an attractive travel-booking centre at 8a Castlereagh St., Sydney.

The company recently bought the premises, an eight-storey office building, altered and redecorated it.

Following current design trends the whole of the interior of the booking hall on the ground floor has been made a "showcase" by glazing the front wall to the underside of the awning.

Prominently displayed is a scale model of Shaw Savill's passenger liner Dominion Monarch.

Polished Australian coachwood, Queensland maple and travertine, combined with large expanses of plate glass and an interesting colour scheme, have been employed to create an effect of spaciousness.

The main wall, behind the counter, features a large mural by Mr. Jeffrey Smart, in which symbols of the company and marine motifs are used in a decorative composition.

Sound-insulated ceilings and floors, air conditioning and high-lumen lighting are other features.

The appearance of the exterior of the building has been considerably altered by the removal of a heavy projecting cornice and by the new fenestration and facing up to the second floor.

Anodised aluminium has been used for the fascia and soffit of the street awning and the first floor windows. House flags of the Shaw Savill Line and the Aberdeen and Commonwealth Line, flying from flagpoles, will provide a nautical flavour.

The construction work has been carried out by A. W. Edwards Pty. Ltd., to the design and under the supervision of Messrs. Fowell, Mansfield & Maclurcan, architects.

**America's Middle East Policy "to prevent subversion"**

President Eisenhower's new Middle East plan aimed at helping to prevent Communist subversion, the U.S. Secretary of State, Mr. John Foster Dulles, told Congress in secret evidence which authorities made public on January 17.

He said subversion, not armed aggression, was the real danger to the Middle East countries.

Mr. Eisenhower has asked Congress for permission to spend 400 million dollars in the next two years on economic aid to the Middle East.

He also seeks authority to use U.S. armed forces, if necessary, to deter Communist military aggression there.

Mr. Dulles said that a decision on the use of U.S. forces in the Middle East should be left to the President's judgment.

He added: "I think there can be absolute conviction that the President would lean over backwards not to interpret the facts as justifying the use of armed force unless there was a real danger to the United States."

**NORTHERN LIGHTS**

A thousand observers—scientists and weather experts, as well as about 200 amateurs, including railway guards, doctors and lawyers—will search the sky over Britain in the International Geophysical Year, beginning on July 1.

Supervised by Mr. James Paton, a Scottish scientist, more of the amateurs will be looking for the "Northern Lights."

**OIL SEARCH IN U.K.**

The search for possible additional oil sources continues in Britain.

Some 60,000 tons of petroleum is already produced from oilfields in Nottinghamshire and Leicestershire.
SUEZ CANAL SALVAGE

By a Special Correspondent

A resume of the work of the
British and French vessels, the
Admiralty has stated of the 22
ships sunk by the Egyptians in
Port Said harbour, some were com-
pletely submerged, some had only
masts and superstructures above
water and others were sunk in
shallow water.

Six of these wrecks were clear
of the main channel but the re-
mainder caused obstructions to
navigation to varying extents.

At one place the channel was
completely blocked except for use
by very small vessels.

A salvage unit had accompanied
allied assault forces and on No-
ember 6, the day of the cease-fire,
the surveying ship, H.M.S. Dal-
rymple, entered Port Said and be-
gan a survey of the harbour and
the wrecks.

The following day two salvage
vessels, H.M.S. Kingarth and
R.F.A. Sea Salvor, entered har-
bour and started work on opening
a channel for ships of 25 feet
draught along the west side of
the harbour.

Meanwhile the Admiralty began
to mobilise all available salvage
craft and by mid-December the
number of salvage vessels had risen
to 14 British, three French and
the two large German lifting craft.


"FORCES ARE WORKING" TO DIMINISH THE NAVY'S IMPORTANCE

Strong forces were at work to undermine and diminish the importance of the Navy, Captain Lord Teynham, R.N., (Retired) told a luncheon gathering of the N.S.W. Division of the Navy League of Australia in Sydney last month.

ORD TEYNHAM, who was visiting Australia, said the Navy was going through a new transitional stage just as great as it did from sail to steam. This was little understood either by the politicians or by the layman.

"With the advent of the nuclear weapon, tactics have of course changed and dispersal has become essential, but what about strategy," he said.

"I think it is true to say that there is a large body of Naval opinion who are inclining towards the 'broken back' theory."

The "broken back" theory is based on the state England or any other European country might find itself after intense national warfare which might well take place in a comparatively short time owing to inability of the contending parties to continue.

"It is then that the Russian carriers and an immense number of submarines who would be at sea before war began would fall upon our trade routes and finally strangle us into submission.

"It is still the job of the Navy to protect our trade routes. Air power cannot do it alone. In the event of total war, shore-based aircraft would quickly become useless owing to the destruction of their airstrips and repair facilities.

"A major unit"

"I feel sure the aircraft carrier will remain a major unit of the fleet for much longer than many people suppose. I was glad to see recently that it is the intention of our new Minister of Defence drastically to reduce the number of aircraft in Fighter Command.

"This should have been done many months ago and the money devoted to more modern methods of defence. It is likely that fighter aircraft required for local war and under certain conditions will probably be aboard the aircraft carriers."

"I have little doubt that one day we shall see a merging of the Air Force with the Navy. Apart from fighter aircraft, with the increase in efficiency of the long-range guided missile we may well see virtually the disappearance of the bomber.

"We are also witnessing the demise of the cruiser in its present form and the development of the guided missile ship with a displacement of probably about 10,000 tons. It will be a very formidable ship indeed.

"Before long, we shall no doubt have atomic propulsion for cruisers and submarines which will give them an immense range of operation.

"It is of the utmost importance that the Navy should do all it can to educate the people about the new Navy and explain why it is still necessary. Even governments must sometimes be educated."

BIG G.M. CONTRACT

The U.S. Navy has announced that the Bureau of Aeronautics has awarded a contract for approximately $16,000,000 to the Temco Aircraft Corporation, Dallas, Texas, for the development of a new guided-missile weapon system. Details of the system are still classified.

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COMMONWEALTH SAVINGS BANK

provides an interesting sidelight on one unfamiliar aspect of the work of the Navy in the two years after the First World War.
"TAFFRAIL."

LOST AT SEA
Posted Missing, by Alan Villiers; published by Hodder and Stoughton (U.K.).
Alan Villiers needs no recommendation as an author of the sea and in this new book of his the authentic touch is as evident as ever.
He has been investigating the stories of some of the ships which in recent years have been posted as missing at Lloyd's, and the result makes this new book of his one of the most interesting he has written.
Of themselves, in their bare essentials, these mysteries of the sea are enough to whet anyone's curiosity; in the hands of Mr. Villiers they come vividly to life with the authentic roar of the sea.
He has evidently spared no pains to discover the ultimate truth so far as it will ever be known, and in doing so he has brought the touch of authenticity to each story as he tells it.
There is sadness with the mystery, for the loss of any ship is sad.

Posted Missing is enthralling; as moving a tale of the sea as any that Mr. Villiers has yet written.
His expert style clothes the many episodes which he relates with the touch of the master, making of them all small gems of maritime writing.

THE ARAB LEGION
Bedouin Command, the Arab Legion 1933-56, by Lieutenant-Colonel Peter Young, D.S.O., M.C. and two bars; published by William Kimber (U.K.).
Sitting astride the fence which separates the Baghdad powers from the latest vassals of Russia, the kingdom of Jordan is now in a key position in world affairs.
The author commanded the 9th Regiment of the Arab Legion from March 1953 until March 1956—the month in which all British officers in positions of command left the Arab Legion.
His book is a personal tale of the regiment and its part in incidents both international and internal during that period.
The author sets a brisk pace throughout but dally's here and there to paint a picture of life and affairs in Jordan.
As a result, the reader gets a sound idea of the country and its people which is strengthened both by Major General Glubb's perforce and by the short but informative note on the tribes which finishes the book.

Lost at Sea

It will cost about 25 million dollars (£11,150,000).
The tanker will be 940 feet long, with a beam of 134 feet.
Its twin screw, 43,000-horsepower engines will give it a speed of at least 18 knots.
The London "Daily Mail" says that the tanker's 49 feet draught is deeper than that of either of the liners Queen Mary or Queen Elizabeth.

Vast crack in ocean floor

A Columbia University (U.S.A.) scientist has stated that there is a continuous 45,000-mile underwater crack in the earth's surface, about 25 miles wide and more than two miles deep.

The scientist, Dr. Maurice Ewing, is director of the university's Lamont Geological Observatory and a leading authority on ocean floors.

Most marine earthquakes occurred along this crack, which was caused by tremendous pressure that pulled the ocean floor apart.
Dr. Ewing said the discovery grew out of a chance observation by one of the university's mapmakers, Miss Marie Tharp.

"She noticed that the deepest rifts in mid-Atlantic formed the locality of an oceanic earthquake belt," he said.

"We became convinced that the underwater rift mountains and valleys formed a world-wide system.

"The main line extends through the North and South Atlantic Oceans, around the tip of Africa into the Indian Ocean, then branches through the Arabian Sea, connecting with the famous African rift valleys, long studied by geologists.

"The other branch passes between Antarctica and New Zealand, running toward the Macquarie Islands into the Pacific Ocean, where it again branches near Easter Island.

New electronic fish detector

The Radio Corporation of America has given details of a device which finds fish electronically.

The 26 lb. fish-finder is designed to ferret out anything from sardines to whales, in depths up to 500 feet.

It uses an indicator scope and a transmitter-receiver unit to give the fisherman a continuous picture of fish activity under his boat's keel.

It does this with short, focused, ultrasonic impulses transmitted downward through the water.

Fish which interrupt the sound...
waves are projected as “blips” on the indicator scope.

Drop in Australia’s fishing catch

Production of fish, crustaceans and molluscs in 1955-56 totalled 102 million lb. (landed weight), valued at £A9.3 million, the Australian Dept. of Primary Industry has announced. This was a decrease of 8.1 per cent, in weight compared with the previous year. Adverse weather conditions and a decrease in the number of fish trawlers operating from Sydney are thought to be major factors causing the lower catch.

Total production in edible weight was about 43.8 million lb.

Consumption per head is estimated at 9.7 lb., including imports. A total of 32.5 million lb., worth £A9.5 million, was imported mainly from Japan, the U.K. and Norway.

Exports amounted to approximately 3.4 million lb., valued at £A2 million, of which £A1.9 were derived from crayfish exports, in addition to exports of whale products, £A1.7, and pearl shell and other shell, £A1.6 million.

The number of fishing vessels was 10,570, an increase of 344 over 1954-55. The number of licensed fishermen rose from 19,880 to 20,185. This figure includes, however, amateur fishermen and it is certain that the number of professional fishermen is considerably smaller.

Brighter outlook on all stocks

Britain’s oil and petrol supplies, severely cut by the Suez blockage, improved last month.

Lord Mills, Minister of Power, in a statement in the House of Lords on February 20, announced that the position had improved in recent weeks.

He said the Government was assuming that a further period of rationing would be necessary for petrol, but it intended to remove controls as soon as practicable.

Supplies of fuel oil indicated that restrictions could be limited to their present level throughout April. Restrictions on gas-oil are to be reduced so that cuts will be 10 per cent. for industry and 25 per cent. for non-industrial central heating from April 1.

The restriction of 10 per cent. on agricultural and fishing supplies is to be abolished.

U.K. still leads in merchant tonnage

The U.K. merchant fleet (19,546,000 tons) is still the largest operative fleet in the world. In the year ended last July it expanded by 180,000 tons.

If the expansion of fleets in the rest of the British Commonwealth is included, the total Commonwealth fleet grew during the year by 325,000 tons to 23,556,000 tons.

Britain’s tanker fleet also exceeds any other country’s.

The U.K. tanker fleets expanded by 88,000 tons to 5,349,000 gross tons in 1956.

Matson ships have roll stabilizers

The new Matson liners Mariapa and Monterey, now on the Australian run, are the first American vessels to be equipped with Sperry Gyrofins, electronically-controlled stabilizers, which reduce sea roll.

They are also the first to be equipped with hydraulically-operated hatch covers. Those hatch covers open and close at the touch of a button, enabling one man to do in a few moments a job which with conventional hatch covers requires a crew.

Big salvage job by Japanese

More than 250 Japanese warships sunk off New Britain and New Guinea will be salvaged by the Nanyo Boki Kaisha Salvage Company.

Press reports from Tokyo quote a company spokesman as saying that a group of salvage operators would start in April.

The spokesman said that Japan received permission last October to salvage the ships.

He estimated that more than 860,000 tons of ships were sunk off New Britain and New Guinea during the war, and that a salvage crew of 122 could recover about 100,000 tons of scrap within five years.

R.A.F. and the Army-R.A.F.

The U.K. and the Army-R.A.F. recently formed Joint Experimental Helicopter Unit consisting of six Sycamores and six big Whirlwind aircraft.

Incidentally, this was the Unit’s first public appearance and its first real operational test in a carefully planned campaign incorporating the new technique of seaborne assault. We were a mixed company but a united one, especially when off duty in the wardroom.

The Ocean and Theseus are not only training units. They are useful “carriers-of-all-work.” Among their roles in “Musketeer” were those of helicopter carriers and, later, hospital ships. Actually the combined Anglo-French force included five carriers. Three of them, the Eagle, Albion and Bulwark were used primarily for operating as a separate support and assault group “somewhere in the Eastern Mediterranean.” In close company with us was the Theseus only. While we were steering towards the area in the company of the Convoy, some miles off Port Said, a second convoy was shaping a course from Cyprus. This one consisted of all the assault craft and minesweepers.

The timing of our meeting was excellent. In the dark hours of 6th November we dropped anchor some miles off Port Said in channels previously swept. At first light I saw a big array of ships ranged in columns in the two buoyed channels. To port, off the eastern area of Port Said, were the three U.S. destroyers, among them was the battleship Jean Bart.

The brief bombardment went

ON my desk lies a copy of the Ocean News. Don’t be misled by the high-sounding title, for this is the magazine of the Training Carrier Ocean. It is a modest effort of typewritten reports and doggerel verse, all having a bearing on the part played by the ship and its crew in the assault Operation “Musketeer” at Port Said.

Perhaps the Ocean News, being turned out for the information and amusement of everyone on board while the events were happening, is properly a semi-official organ, and thus comes within the category of classified publications.

I will take a chance . . .

To my mind this little magazine is an historic document. The cheerfulness, matter-of-fact courage and devotion to duty reflected in its pages give an illumination of the Royal Navy’s men at work during a particularly critical postwar period. How critical is suggested by Rear Admiral (now Vice-Admiral) G. B. Sayer, C.B., D.S.O., R.A.F., in a foreword. “I was flying his flag in the carrier Theseus, during the seaborne assault. So much has been written and said about the preliminary Anglo-French air attacks, the naval bombardment, the landings and build-up, the subsequent salvage work in the Canal and what happened in Port Said after “Musketeer” that here propose only to describe, as far as possible, what I myself saw during a three-weeks’ visit to the Port Said area.

I was on board the Ocean during the assault and landings, and, when the carrier returned to Malta, transferred to H.M.S. Forth, which was in Port Said Harbour. There she was acting as a headquarters and communication ship.

First, I must pay a tribute to the officers and men in the 100-odd ships, large and small, involved in the Operation. Their task was difficult and frustrating, mainly because of over-ridding and ill-defined international political considerations. Always they felt that the job was really worthwhile, but often many thought that Britain’s case was being allowed to go by default. Notwithstanding daunting factors that were none of their making, the bearing of officers and men was exemplary throughout. Morale was high. Frequently one admired the restraint they showed under the most provoking circumstances. This was true of the Army, too. Duties were often dangerous, were discharged with quiet efficiency and cheerfulness.

The Navy—of to-day, in so far as its personnel is concerned, is all right.

I joined the Ocean just before she sailed from Malta. The ship was crowded with the potential of all fighting services; in addition to an augmented ship’s company, there were embarked part of 45 Commando, 215 Wing of the
The orders were explicit: fire was to be concentrated on the beach and strictly military objectives. The utmost care was to be taken not to damage the town itself or to endanger more than was absolutely necessary the population of the port. Despite many reports to the contrary, the Navy “leaned over backwards” to avoid wanton damage. The accuracy of the fire could be judged when we went ashore the following day. The town itself suffered little damage. A drenching fire was directed towards the beach and there huts containing military equipment were destroyed. Some damage was also caused in parts of the adjacent Arab “town” where there was opposition.

At 0645 the first assault craft touched down, and as soon as the beach-head was secured we began to fly 45 Commandos ashore as initial reinforcements. For the next few hours I watched from the Ocean’s bridge naval history being made, as the helicopters on our flight deck rose at three or four minute intervals and made off shorewards. Each Whirlwind was loaded with ten cheerful commandos carrying full fighting equipment; each aircraft was so loaded, in fact, that one man had to sit in the open doorway with his legs over the side. Within about 70 minutes every commando on board had left the Ocean and parachuted on the objective. The subsequent “Well done” signal from our Commanding Officer, Captain I. W. T. Beloe, D.S.C., R.N., was indeed well earned.

-Later, Captain E. F. Pizey, D.S.O., R.N., who commanded the Theseus, described in a letter to the Admiralty the helicopters’ performance as a “wonderful job.” So it was. They had made a rapid build-up possible. Undoubtedly they showed us something of the shape of things in the new pattern of seaborne assault. From that day’s doings it was evident that the light helicopter carrier is here to stay.

Once their original mission was over the helicopters began to bring back casualties on their return trips. These casualties were mercifully light, and by the end of the day some 35 were on board. On 6th November our J.E.H.U. flew no fewer than 193 sorties. With their remarkable manoeuvrability the helicopters enabled our two carriers to be used as forward casualty clearance stations and to act as hospital ships. The helicopters worked with a speed and precision not to be expected of boat transport. So efficient was their “shuttle service” between ship and shore that one wounded commando was back on board and receiving medical attention 20 minutes after leaving the ship.

The Ocean’s contribution to the landings was completed before noon. At sunset we steamed into the Outer Harbour and secured among other warships. It was an entry I shall not forget.

One of the original Suez Canal pilots, a retired R.N. Commander, was on the bridge. The sun was setting over the desert and I remember noticing a clump of distant palms silhouetted against the red glow. The reddness came not only from the sun, however. In the port, fires were still burning. The town was overshadowed by a great, trailing plume of black smoke rising from a blazing oil tank some miles inland. I learned later that this had been fired by attacking aircraft. It was reported to have been hit when they engaged Egyptian tanks alongside.

As we secured, the ships were illuminated, for darkness falls quickly in these parts. Among the assembly I noticed the big French hospital ship La Marselle, with white hull and superstructure and with red crosses on her sides. Lying between two transports she dominated the crowded harbour.

After transferring to the headquarters ship Forth the next day, and watching the Ocean sail out of the Harbour to return to Malta, I went ashore. Though the “cease fire” had officially become effective an uneasy peace brooded over Port Said. The town seemed to be little damaged. Near the beach however, some buildings bore scars of the bombardment. There were holed walls, and in the part of the town near the beach a deal of broken glass and other rubble. Some of this damage had been caused when the troops encountered snipers after the landing.

The first hours ashore were hard work. Within hours a temporary hospital had been cleared through the wreckage to allow the passage of tank landing craft and other small vessels carrying food and supplies for the population. Quickly a survey was completed by echo-sounding equipment and cables dragged between salvage vessels

On 21st November a second channel into the Canal was opened, a channel at least 24 feet deep. Within this channel another was soon available, this being 16 feet deep and at least 240 feet wide—deep enough to admit ships of 15,000 to 20,000 tons. This was done before the U.N. authorities took over.

I saw the salvage ships, the vast majority of which were British, at work days after day from dawn to dusk, and at night by the aid of their deck lights.

It was a splendid effort. The salvage crews achieved results which will long remain a record.
Looking back 30 years

THE JAPANESE FLEET
From a Special Correspondent in London

To cast back over 30 years and recall ships scrapped under the Washington Treaty may seem rather jejune in these days of guided missile carriers and atomic submarines, except that the battleship, although obsolete, still retains its appeal to most of us.

We like to know as much as possible about the fleets of our former enemies, especially the Japanese; and because very little of Labcock Soilor Plant was ever published about their former enemies, especially the British, the diehards wanted to lay down further, groups of ships superior in tonnage and armament to the British and Japanese designs, but this could not be done.

The building had been planned with an eye on the dimensions of the Panama Canal locks, which their breadth just allowed them to pass through. The necessary addition of a few feet would have made this impossible and, depriving them of their asset to pass from Atlantic to Pacific, they would have had to double Cape Horn.

There was also another factor which weighed against this naval race. The declared American intention was to fortify Cavite in the Philippines and the island of Guam as bases for a full concentration of naval strength in the Far East.

In 1916, before the Battle of Jutland and the Washington Conference, the American Senate—whose conception of the Freedom of the Seas differed considerably from our own —brought in a huge shipbuilding programme which included eight battleships and six battlecruisers and encouraged the glowing vista of an incomparably stronger navy than ever before which was ultimately to give the U.S.A. the largest war fleet in the world.

The "Indiana", class battlecruisers were to be of 43,200 tons, steaming at 23 kts. and carrying 12 16-in. guns, while the six "Lexington" class of 43,500 tons mounted eight 16-in. and were designed for 33.25 kts. Both types vastly superior to our "Warspite" and a couple of those and tons bigger than the Hood.

On the other side of the Pacific the Japanese Diet responded to this outburst of Big Stick politics by adopting the "Eight-eight" programme in 1916-17 which was to provide for eight battleships and eight battlecruisers, not to exceed eight years in age, and the last to be commenced in 1923-24. But, as the two "Fuso" and two "Hyuga" battleships and four "Kongo" battlecruisers would have passed the age limit by 1924, a supplementary scheme providing for four battleships and four battlecruisers to be completed by 1927-28 was to fulfil the objective.

Of the first eight, two battleships, the Nagato and Musashi, were to carry eight 16-in. guns and the Kaga and Tosa 10 — both inferior to the Americans in armament; but the "Amagi" group of battlecruisers were to have ten 16-in., although slower than the "Lexingtons."

And so the Chase building had a further group of four ships of the "KII" class with the same armament and to complete the programme a fifth group of monsters mounting 18 in. guns.

So much for Japanese rivalry. But in addition, we were also on the list of America's potential enemies, and Admiral Plunkett was not alone in the Big Navy Washington group who spoke of war with Britain as a definite future possibility.

And so in 1921, when 16-mo- moth ships were on the stocks in America, and Japan had started work on eight and authorised four more, Parliament voted eight battlecruisers as a first instalment only to be a big replacement programme. These were to carry nine 16-in. guns, and to be followed by two groups of battleships mounting nine 18-in.— which would quite outclass anything America was building or could build.

When particulars of the latest British and Japanese designs became known in this States there was a nasty shock for the big-navy interests who had acclaimed the golden age of American sea-power. They had to face the unpalatable fact that their new fleet, far from being faster than the British in force, was to be reduced to secondary rank after they had spent a prodigious amount of money.

Moreover, public opinion was now questioning the necessity for this great fleet, both on economic and political grounds; but straitened, the diehards wanted to lay down further, groups of ships superior in tonnage and armament to the British and Japanese designs, but this could not be done.

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There was also another factor which weighed against this naval race. The declared American intention was to fortify Cavite in the Philippines and the island of Guam as bases for a full concentration of naval strength in the Far East.

This was regarded as a direct menace by the Japanese who did not propose to remain quiescent after the sacrifices made in 1904-5 to oust the Russians. There were to be no counterparts to Port Arthur and Vladivostok for American ships.

And when the Press denounced the exorbitant cost of the new ships and demanded to know why they were necessary and must inevitably lead to war, Washington was repeatedly advised through diplomatic and intelligence channels that Japan would regard the fortification of Cavite and Guam as a casus belli.

Thus, two courses lay open; either to complete the building programme and develop the naval bases which would provoke a war, or end this ship rivalry by agreement with Britain.

By 1921 opposition to the creation of the new fleet had become so marked that its construction was no longer feasible — as was subsequently admitted by Mr. Hughes. So, in 1922, the State Department in effect "Naval Treaty or no Naval Treaty, we could not have built all the battleships contained in the programme."

And so the Washington Conference was held and resulted in the Treaty which, inter alia, led to the discarding of the "Indiana" and "Lexington" (two of the latter being completed as carriers) and the fourth ship Washington of the "Colorado" class; our four battlecruisers recently commenced and the subsequent battleships and the Japanese ships from the Kaga onwards.

The Nagato and Musashi are well known. They were modelled upon the Queen Elizabeth with two pairs of 16-in. guns fore and aft, 16.5-in. on the upper and main decks, and two uprift funnels with the foremost close to the huge heptopodal forecastle.

In service this structure caused considerable backdraught so that funnel exhaust interfered with the variety of fittings and instruments carried on its seven platforms. A cow did little to relieve the trouble and later the funnel had to be trunked backwards well clear of the mast. Finally when reboilered in 1936-37 a single funnel was installed amidships, around which were grouped platforms for 25-mm. guns and searchlights.

Of the discarded ships the Kaga and Tosa were high-speed battlecruisers laid down in 1920 and launched a year later, which marked a tremendous rise in displacement to 39,000 tons.

Their dimensions were 715 ft. p.p. x 100 ft. x 30 ft. 9 in. with 39,000 I.H.P. to give 26.5 kts., and the outstanding structural feature of the design was an unbroken weather deck rising from a freeboard of 16 ft aft to 24 ft at the bows. This gave a hull of great girder strength with considerable saving of weight in the after half of the ship where high freedom of weight was not considered essential; but when the ships came to tack their sterns down at full speed it meant that the quarter-deck would be easily washed under.

The main armament of 10 16-in. guns was disposed as in the U.S. with 20 5.5-in. carried on the main and upper decks in batteries, and four 3-in. A.A. on the shelter deck amidships. The four sets of twin 21-in. torpedo tubes...
are shown as white ports in the forecastle and below the raised turreted aft on the starboard side and well abaft Y turret to port.

Such a gun disposition was in keeping with design about that period before secondary guns became dual purpose and spaced along the upper deck, and the A.A. armament was of no great import. So armed the two ships would have been the most powerful vessels afloat and their sparking caused great heartburning in Japan.

There was a huge "Nagato" mast and the uptakes from 12 small tube Kampon boilers were grouped into one large funnel raked aft for clearance—the first instance of any battleship built during the present century having a raked funnel. One can imagine what a sight they would have looked when it came to be truncked aft as would certainly have been necessary.

No details as to protection are available except that the side plating was inclined for the first time as in the Hood, but it would not have been less than in the Nagato with 14 inch amidships on the belt with 8-inch-end, 16-inch turrets and decks totalling 71 in. Launch photos show a shallow hull with no freeboard in Japanese designs, would have resulted in a general scaling down of both horizontal and vertical thicknesses compared with the British ship.

The third group consisted of the four battlecruisers of the "KII" class which were very similar to the "Atago" but with somewhat better protection and 1 knot slower. Preparatory work on construction had commenced when the Treaty was signed and hence they were the first examples of the "fast battleship" which the Powers might have made them wet forward.

No details of their protection have become available but, although both shorter and narrower than the Hood, the heavier guns and extra turret plus some armour along the battery as was the case in Japanese designs, would have resulted in a general scaling down of both horizontal and vertical thicknesses compared with the British ship.

The four battlecruisers, Amagi, Ashigara, and Takao, laid down in 1921, were designed to outmatch the Hood and Scharnhorst—and by a considerable margin. They ran to 770 ft. (p.p.) x 101 ft. x 31 ft. (some 40 ft. shorter and 4 ft. narrower than the Hood) for 42,100 tons normal displacement and carried 10 16-in. guns in five turrets of which Q and X were mounted on the superstructure deck which housed 16 5.5-in. A.A. on the forward shield deck.

Here again we get the same flush deck rising forward with apparently the same freeboard as in the Toa, although there appears to be a slight sheer right aft, although not to the same extent as could be seen in the "Hood" and "Renown" class.

With 131,100 i.h.p. in front of the four screws, the designed speed was 30 kts. which, if my calculations are correct, would have made them wet forward.

The outstanding feature in the design was the colossal funnel. In the previous classes of Japanese ships, an occasion indicating that all the boiler rooms would have to be grouped amidships. Assuming that the same type of Kampon boiler would have been installed, some 12 could have fitted the generating plant and four would have been the Tosa, although there appears to be a slight sheer right aft苹 apparently the same freeboard as in the Yamato.

At this date we had discarded the secondary battery for upper deck turrets which would have appeared in the 1921 battleship design. The primary machinery forward of the boilers so that the funnels were too far ahead of the control tower. Our 18 in. guns would have been in triple turrets and with a higher command and probably better protection.

Looking at these designs in their original profile, it is interesting to visualise the modifications they would have undergone by 1941 in the matter of funnels, secondary batteries, and A.A. armament—and what remarkable looking ships they would have become.

From the London Navy. * For comparison, the Tiger's forecastle deck was 364 ft. amidships and 192 ft. aft.
It still remained to be proved, however, that such adventures could go on for several weeks without danger and that the sea could offer subsistence if supplies on board ran out. Such proof was offered in 1955 by Dr. Alain Bombard, who drifted alone across the Atlantic on a raft. Even before Bombard's experiment it was known that salt water could quench human thirst, however imperfectly. American aviators who had been lost in the Pacific had been able to hold out for two weeks by absorbing sea water. But the conviction that salt water drove human beings mad and caused death within a few days was so strong that nobody dared make a diet of it. Bombard, however, tried it for two weeks and lived for two months on nothing but what he could get from the sea. The experiment was biologically conclusive.

Psychological
It was even more conclusive psychologically. It proved that a man could survive at sea in a pneumatic boat for sixty-eight days. In short, the lone navigator had demonstrated that the sea is not lacking in food resources and that, however hostile it may be, it does not kill if one has no fear of it.

Fear! It is of fear that most shipwrecked persons probably die — and not only they. There is no lack of cases to confirm this.

Two years ago, an English railroad employee was locked by accident into a refrigerator car, on which there was water-distilling apparatus, more and more concentrated rations, fishing equipment and signal devices. As for the morale of a future shipwreck victims, intensive efforts are being made to find new means of helping them to keep up their spirits. Naval schools in all the great maritime countries have been giving special attention to the question, and are now frankly tackling the problems of survival at sea after having avoided them superstitiously. Ship's doctors, hostesses and fishermen are being instructed in effective techniques — and in many cases spend a certain amount of time in pneumatic boats. Personnel who may have to deal with shipwrecked passengers are being systematically "vaccinated" against terror and are instructed in how to "immunize" others by contagion in case of accident.

Experts are now so certain that satisfactory equipment exists, and that fear is the chief danger, that they are giving their major attention to the perfecting of psychological weapons against despair. There has even been talk of including an extra radio and small musical instruments with the safety equipment. Books printed on plastic might also be on the list of "indispensable" items, along with fresh water and food. Some suggest the Bible, others works of fiction.

Several psychologists have recommended Three Men in a Boat. Obviously, there's a strong chance that some victims will have read it. But it is certainly the kind of book that can be read twice without losing the freshness of its humour — always an excellent remedy for doubts and terrors.

From "World Veteran."

Sea Cadet Rifle Competition
Southend Sea Cadet Unit of Southend-on-Sea, England, with a score of 783 out of a possible 800, were the winners of the first International Sea Cadet small bore rifle competition, sponsored by the Navy League of Canada.

Royal Canadian Sea Cadet units Daedcor, of Selkirk, Manitoba, and New Waterford, of New Waterford, Nova Scotia, were second and third, with South Africa's St. Andrew's Unit, from Bloemfontein, only one point behind.
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