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Navy League:
Vice Admiral
Sir Hastings Harrington
Buried at Sea

From a grey warship under an overcast sky, the body of Vice-Admiral Sir Hastings Harrington was committed to the sea.

Sir Hastings died in Canberra on the 17th December, 1965, at the age of 59 years.

He had retired in February after a distinguished 45-year career in the R.A.N., which took him from midshipman to Chief of Naval Staff.

In accordance with his wish, he was buried at sea off Sydney Heads, from the destroyer H.M.A.S. Vampire.

The ceremony began at Garden Island at 10 a.m. on Monday, 20th December, 1965.

A naval band, the drums and the swish of the seas as the ship rolled in the heavy swell, made the last march with rifles reversed.

Eight admirals were among the 10 pallbearers, flanking the hearse.

Drum Major’s mace trimmed in braid, gold swords and shining medals, the impression was one of grey uniform and grey sky, grey seas, grey warships.

And even with the crowd of mourners and sailors, there was an emptiness.

The service was broadcast to the Derwent, on which head-high sails lined the rails.

On the Vampire the lines of men swayed with the roll of the ship, the square collars and bell-bottomed trousers fluttered in the strong breeze.

Four seagulls hung almost motionless above the water.

The senior Anglican Chaplain to the R.A.N., Archdeacon J. O. Were, said Sir Hastings “gave everything he had to the Navy and when his time in the Navy was over, his life, in a way, was over.”

“Let us be thankful for his long service, courage and leadership.”

The coffin slid from under the flag and disappeared beneath the waves.

Three volleys rang out from the firing party of 12, the empty cartridges clattering on the steel deck.

Two buglers sounded the Last Post and Reveille which echoed back from the Derwent.

Vice-Admiral Sir Hastings Harrington had returned to the sea to which he had devoted his life.

Vice-Admiral Harrington was born on 17th May, 1906, at Maryborough, in Queensland, the son of J. H. E. Harrington, barrister-at-law, of Sydney.

After attending the Wycliffe Preparatory School, he entered the Royal Australian Naval College in 1920 and graduated in 1924.


As a Lieutenant-Commander, in 1939, Admiral Harrington took command of H.M.A.S. Yarra, and for 2 years served in the Mediterranean, the Red Sea, the Persian Gulf and the East Indies. While serving in Yarra he was promoted to Commander, awarded the Distinguished Service Order and was twice mentioned in despatches.

After leaving Yarra he was appointed Executive Officer of H.M.A.S. Australia, and in her top position as Flag Officer Commanding Her Majesty’s Australian Fleet in H.M.A.S. Melbourne.

He was appointed to wish him a long and happy retirement.

The editor does not hold himself responsible for manuscripts, though every effort will be made to return those found unsuitable and with which a stamped and addressed envelope is enclosed.

Retirement of . . .

Commander D. J. Mort, C.F.M., A.S.C.C.

Commander Mort commenced his Naval training on 23rd January, 1917, when he joined H.M.A.S. Tingira as a boy 2nd class.

Over the past 49 years he has served in more than 12 ships of the R.A.N. Commander Mort first joined the New South Wales Navy League Sea Cadet Corps in 1937 and apart from war service has maintained his interest in the Corps to the present day. His leadership and inspiring influence have been a source of encouragement to many boys over the years.

It is realised that it will be difficult for Commander Mort to sever all connections with the Navy, however, all who have personally known him or served under him will want me. I know, to wish him a long and happy retirement.

Editor.

CONTRIBUTIONS INVITED

The editor invites persons to submit articles and photographs for inclusion in the magazine. All Contributions should be addressed to the Editor, The Navy, Box CI78, Clarence Street, Post Office, Sydney, N.S.W., Australia.

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Periscope on Australia

RADAR EQUIPMENT ORDERED
The Royal Australian Navy has awarded a $200,000 contract to Griffillan Inc. for the supply of Quadradar ground control approach radar and associated electronics. Griffillan’s Quadradar is a lightweight, four-in-one terminal area VTC system providing surveillance, final approach, height finding and air traffic taxi information, and can be operated by one man.

HOBBIT-REX COMMISSIONS
The latest addition to the Australian Fleet, the guided missile destroyer HMAS Hobart, was commissioned at the U.S. Naval Shipyard, Boston, on 18th December, 1965.

The ship was accepted from her American builders by Mr. J. Keith Waller, C.B.E., Australian Ambassador to the U.S., and she is expected to arrive in Australia in August after working up in American waters.

NEW R.A.N. BASE NAMED "PLATYPUS"
The Royal Australian Navy’s submarine base at Neutral Bay, N.S.W., will be named HMAS "Platypus". The base is being developed to cater for Australia’s planned squadron of Oberon class submarines.

The Minister for the Navy, Mr. F. C. Chaney, said the name Platypus had earlier connections with the submarine fleet.

A former R.A.N. ship of this name acted as a mother ship for the Navy’s first six T class submarines, and escorted them on their delivery voyage from Britain in 1919.

Ten years later it was mother ship for Oxley and Oroya, the last submarines owned by the Navy.

"PERTH TO VISIT STATES"
Australia’s first guided missile destroyer, HMAS Perth, will visit all mainland State capitals between March 4 and April 5.

The programme is:
Brisbane, March 4 to March 7.
Sydney, March 9 to March 16.
Freemantle, March 22 to March 26.
Adelaide, March 29 to March 31.
Melbourne, April 2 to April 5.

The ship will be open for public inspection in each port.

CHRISTENING OF AN ARMY SHIP
The Army christened a former civilian freighter for the first time, at a ceremony at Chowder Bay, in Sydney, during November. The vessel, which was formerly operated as the "Marra" on the West Australian coast, was named "John Monash" after General Sir John Monash, a distinguished Australian soldier and engineer, who died in 1918.

NAMES FOR PATROL VESSELS
Names beginning with the letter "A" have been chosen for the nine 100 ft patrol vessels building for the Royal Australian Navy.

The vessels will be called, Attack, Assail, Advance, Acute, Adroit, Aware, Ardent, Archer and Arrow.

TARTAR MAINTENANCE
A question to the Minister for the Navy, Mr. Chaney, from Mr. Jess, M.R., brought an answer suggesting that the R.A.N. is preparing to do its own maintenance of the Tartar medium-range anti-aircraft missiles with which the new guided missile destroyers are armed, though this was not made entirely clear.

"Each of the ships will be equipped with a specified number of missiles as part of its armament and there will be in reserve a number of missiles determined according to standards laid down by the defence authorities," said Mr. Chaney.

"The maintenance of the missile system will be a joint project of the Department of the Navy and the Department of Supply, which is the Department ultimately responsible for the work.

"With respect to the training of technicians my Department has at present in the United States of America several members of the technical staff who are undergoing training where this kind of training is given. They will return to Australia with the necessary proficiency to undertake the training of technicians here."

TASMAN
A Brisbane man arrived in Auckland recently in his 18 ft plywood sloop "Piccaninny" after sailing unassisted across the Tasman. He is Mr. M. Brannigan, 27, an electrician, who took 42 days, and sailed more than 1900 miles.

He left Brisbane with food for 100 days' sailing—his staple diet was rice and bully beef.
Red Submarines "Off Australia and the U.S.".

Australia, the United States and China.

The United States leads in nuclear submarines with 60, but the Chinese have 140 conventional underwater craft for a total of 200. All 35 Soviet nuclear submarines were reported "operational" by Japan's "The Navy League".

Editor Raymond Blackman said Britain was greatly in need of more aircraft carriers, frigates and nuclear-missile submarines.

France was increasing the nuclear element of its fleet. West Germany was becoming a big European naval power with American help, Italy was producing interesting new ship designs and Italy was becoming the "United Kingdom of the Far East.

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Rear Admiral Otto Humphrey Becher, C.B.E., D.S.O., D.S.C. and Bar, U.S. Legion of Merit, retired from the Royal Australian Navy on 31st January, 1966, after forty-four years service. He had a distinguished career.

Rear Admiral Becher entered the Royal Australian Naval College in 1922 and graduated in 1925. He served with distinction during the Second World War and Korean War. While serving in the Royal Naval Cruiser, Devonshire, during the Second World War, he was awarded the O.S.C. for his good services in helping to withdraw troops from Norway. He was awarded the Bar to the O.S.C., when as Captain of Quickmatch, he took part in the inshore bombardment of a Japanese-held base at Sebang in 1944.

Rear Admiral Becher has held a number of important commands and staff appointments. These include, Deputy Chief of the Naval Staff (1952-1954) and (1959-1962), Captain of the aircraft carrier Vengeance (1954-1955), Captain of H.M.A.S. Melbourne (1957-1958), and Head of the Australian Joint Services Staff in London (1962-1963). He is a graduate of the Imperial Defence College.

He was awarded the C.B.E. in 1961, appointed Flag Officer Commanding Her Majesty's Australian Fleet. In January 1964. Flag Officer in Charge, East Australia area in January, 1965.

Rear Admiral Becher sent the following signal on his retirement from the R.A.N.:

"... I have thoroughly enjoyed my short year as FOICEA and feel that, with the uniformed and civilian elements of my team working so well together, we have achieved quite a lot in spite of known shortages of men and money. There is much more to be done before we can honestly say we are giving the Fleet the backing it needs but I am confident that with your continuing efforts, this will be achieved. I would particularly like to wish my many shipmates among the officers and sailors, who have shared with me the ups and downs of the Navy, all good fortune in the future, and to thank them for their continued support over the years. I am convinced that most members of my team are giving of their best, and I have enjoyed being the boss of such cheerful and hardworking Navy men, both uniformed and civilian. Well done and good luck."

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Change in Fleet Command

A ceremony on board the Royal Australian Navy flagship, HMAS MELBOURNE in Sydney on Friday, January 28, marked a change in the command of the Australian Fleet.

Rear Admiral V. A. Smith C.B.E., D.S.C., succeeded Rear Admiral T. K. Morrison, C.B.E., D.S.C., as Flag Officer Commanding H.M. Australian Fleet—the top sea-going appointment in the R.A.N.

Rear Admiral Morrison, who had commanded the Fleet for the past year, assumed the appointment as Flag Officer in Charge East Australia Area following the retirement of Rear Admiral Becher.

Admiral Morrison graduated from the Royal Australian Naval College in December, 1928. He gave distinguished service in the Second World War. He was awarded the O.B.E. for his work in H.M.A.S. Hobart during the evacuation of British Somaliland and was mentioned in despatches for his service at Leyte.

The D.S.C. was awarded to him after the war for the part he played in the operations off Lingayen.

He was appointed to H.M.A.S. Australia as Squadron Torpedo Officer in January, 1944, and left her for England in August, 1945, to do a staff course at the Royal Navy College, Greenwich.

From July, 1949, until August, 1951, he commanded the Battle Class destroyer Tobruk and was appointed Captain of the fast anti-submarine frigate Quadrant in 1954.

He has held the appointments of Director of Manning and of Deputy Chief of Naval Personnel and Director of Personal Services, Royal Navy Office Melbourne (1951).

As a cadet midshipman at the Royal Australian Naval College, Admiral Morrison proved himself a notable sportsman and gained his colours for cricket, rugby, hockey, tennis, and rowing.

Later, when he was serving with the Royal Navy, first as a sub lieutenant and afterwards a lieutenant he represented the Navy at cricket.

Other appointments include:

- Deputy Chief of Naval Staff from 1962 until the end of 1964.
- Captain of the aircraft carrier, H.M.A.S. Melbourne and Chief Staff Officer to the Flag Officer Commanding Her Majesty's Australian Fleet in December, 1958, until December, 1959. Australian Naval Representative and Navy Attaché at the Australian Embassy in Washington D.C. from July, 1956, until he left there for the United Kingdom to begin the Imperial Defence College Course.
- Rear Admiral V. A. Smith, entered the Royal Australian Navy College in 1927. He specialized in Naval aviation and gained his wings as an Observer in the Fleet Air Arm in 1937.
- He was Mentioned in Despatches for an air torpedo attack on "Scharnhorst" in fighter squadron operations from H.M.S. Ark Royal in 1941, for outstanding zeal, patience, and cheerfulness and for setting an example of wholehearted devotion to duty.

After his return to Australia in 1942 for liaison duty with the United States Navy, he was appointed to serve in H.M.A.S. Canberra and was serving on the ship when it was lost. During 1943, he served in H.M.S. Tracker in the Atlantic and on Russian convoys.

He was executive officer in H.M.A.S. Sydney during Korean operations in 1951.

Promoted to Lieutenant-Commander in 1944, he served on the staff of Flag Officer British Assault Area (Normandy). At cessation of hostilities he was on the staff of Vice Admiral (Q) British Pacific Fleet.

Rear Admiral Smith has held a number of important command and staff appointments.

He has been Director of Air Welfare Organisation and Training, Captain of the R.A.N. Air Station, H.M.A.S. Albacore; Commanding Officer of the First Frigate Squadron and Captain of the Flag Ship H.M.A.S. Melbourne.
Nautical Notes from All Compass Points
By SONAR

CANADA
Royal Canadian Navy's new 200-ton High speed ASW hydrofoil, scheduled to enter service with the main fleet early in 1966, was launched on September 25 at H.M. Dockyard, Chatham. She was named Itron, given by the Canadian Minister of National Defence. 

NEW ASW HYDROFOIL
An American-designed high speed ASW hydrofoil. The FHE-400 ASW hydrofoil - a 200-ton vessel, equipped with variable depth sonar, torpedoes, radar and nav-conv - being developed by de Havilland Canada with many interesting features. Its action information centre will be equipped with a DPS-2401 data processor supplied by the Electronic Defence and Space Centre, which is also under subcontract from Canadian Westinghouse, providing compilers for the hydrofoil's two computers. The DPS-2401 has a 400,000 word memory and cycle time of 2 microseconds.

HELICOPTER DECK-LANDING DEVICE
A Canadian-designed device to aid the landing of helicopters on ships. The system has been adopted by the Royal Canadian Navy in 1967-71, instead of the originally planned steam power plants. 

DESTROYER COMMISSIONS
The first of three Ombra-class submarines ordered by the Royal Canadian Navy was launched at Victoria Machinery Depot, Victoria, B.C., after a 13-month refit and conversion. The 366-ft Margaree is the sixth of the St Laurent class to emerge from the new construction program. The ships have been designed according to the survey and repair of Canada's three new O'G class submarines. The class is being commissioned in October, 1957, at Halifax Shipyards, Halifax, and arrived on the west coast in November, 1957. The ship was launched off in September, 1964, for refit and conversion.

MALAYSIA
GAS-TURBINE F.P.B. LAUNCHED
K.D. Perkasa, the first of four 50-ton patrol boats designed and built by Vosper Limited, Portsmouth, to meet the needs of the Royal Malaysian Navy, was launched in the Westminster Shipyard, on October 26, 1965, by Her Highness the Tengku Amirun of Selangor. She has a hull length of 204 ft, a displacement of 592 tons and a speed of over 70 knots. The boat will be crewed by 20 men, equipped with depth, air and surface search equipment, and a complete set of navigational aids; advanced ASW weapons including an IBM 360 30 computer to process data.
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He wanted to avoid conflict with Labor's Left Wing.

The Defence Secretary (Mr. Denis Healey) told Parliament the United States had agreed to extend the deadline for a decision on buying the F111 until March 1.

The original deadline was January 1.

TOULON, FRANCE. Operating from the diving ship "Recht", Royal Navy divers have completed 18 dives at a depth of 180 metres of up to an hour. Operating from a submersible research chamber, the divers used oxygen-helium mixtures of undisclosed proportion.

"ENCORE TO THE RESCUE"

An example of Fleet assistance was that given by the Fleet tug Encore, to the U.S. Navy ship Chepachet. The 10,000 ton tanker had broken down with engine trouble 300 miles north east of Singapore and about 30 miles of the Malay coast. Encore was sailed from Singapore and returned four days later with the Chepachet in tow. It resulted in a signal from the U.S. Navy saying "your prompt response and the professional assistance rendered to the U.S.N.S. Chepachet by Encore are appreciated and considered to be in keeping with the finest traditions of the British Navy. Please pass my heartfelt well-done to Encore". The signal was sent by Admral Glynn R. H. Trotman, U.S. Navy (Commander Military Sea Transportation Service).

Britain's joint R.N.—R.A.F. ASW School, established at Londonderry since 1946, is to be moved to Plymouth. Initially due next year, it in the control of the Royal Navy, it will permit frigates and submarines to spend more time in training, especially because of the more sophisticated geographical environment.

Bad news for Londonderry City. The Westminster Government has decided to transfer the anti-submarine school, H.M.S. Sea Eagle, from Londonderry to Plymouth.

The base in Londonderry was a de facto decision in the allied campaign against U-Boats during the Second World War. Since then it has been used not only by the Royal Navy for the development of anti-submarine techniques but by the Navies of the N.A.T.O. countries, including the United States.

The closure of the base will be phased over the next three years and the Westminster Government have undertaken to make a search for some alternative activity which can be located in Londonderry.

RESEARCH INTO SEA WATER

A research center is being installed at Troon, Ayrshire, for research into sea water distillation, will prove the designs of plants ranging in capacity from 250,000 to 10 m. gal.

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METAL FLAWS DOCK FIRST

Britain has withdrawn its first atomic submarine from service because of dangerous metal failures, naval authorities report.

The programme for four Polaris submarines is likely to be delayed. The source said. The submarine withdrawn from service is the 3000 ton Dreadnought, a hunter-killer carrying conventional torpedoes.

Officials said a series of hair-line fractures developed in welds in its hull. They insist these have produced no danger of a radioactive leak from the submarine's American-built reactor.

Huge discounts on all electrical installations and repair, motor-generator winding, radar installations, etc. - For ships, factories, commercial buildings, etc.

R.F.A. TANKER LAUNCHED

The R.F.A. "OLNA", the third of three new Fleet Replenishment Tankers for the Royal Fleet Auxil-

ary Service was launched from the Hebburn Shipyard of Hawthorn Leslie, Ltd. The naming ceremony was performed by Mrs Redman, wife of M. E. Redman, the Deputy Under Secretary of State (Naval).

She is designed to carry a mixed cargo of fuels, and equipped with modern handling gear for transfer. Cargo transfer operations are remotely controlled by hydraulic power from a Replenishment at Sea Office. She will be air-conditioned for service in tropical waters and cold climates.

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Hebburn Shipyard of Hawthorn Leslie (Engineers) Ltd. All controls and instruments essential to the operation of the main engines, the auxiliary plant, and auxiliary plant are completely automatic and are grouped within a central control room.

"OLNA" has an overall length of 648 feet, a beam of 84 feet and a draught of 34 feet. Her complement will be 87 R.F.A. officers and men, and there will be additional accommodation for the Royal Navy officers and men borne in wartime.

She will be the third Royal Fleet Auxiliary to bear the name. The first was built in 1920 and was sunk by enemy action in 1941. The second ship, built in 1945, is due to be withdrawn from service in the near future.

The O.N.A.'s sister ships are the "OLYNTHUS" and "OLYAN- DER", due to be completed during the next few months.

H.M.S. HYDRA

A vessel with a propeller in her bows, a helicopter flight deck and hangar, a garage and two scientific laboratories, is the latest survey ship to be launched for the Royal Navy. H.M.S. "HYDRA" was launched last year by the wife of the Navy's Chief Scientist, Mr. W. B. Lythall.

The last of three new survey ships, the "HYDRA" and "OLYAN- DER", due to be completed during the next few months.
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CHERRY BLOSSOM CRUISE, Reves Nov. 25-Apr. 3, From Sydney, Via Nagasaki, Hono, Julis and Wake Island to Hawaii. One Class fares from $826 (£413).

EASTERN CRUISE, May 27-Apr. 12. From Sydney, Via Nuku'alofa, Neumaua, Hayman Island, Return via White Island Passage, pass Lord Howe Island and Ball's Pyramid and Kyrons Island, to Sydney. First, $372 (£179); Tourist. $278 (£139).

TAHITIAN CRUISE, May 25-June 15. From Sydney, To Auckland, On July 3 last year, Gruman Aircraft is soon to conduct studies for the integration of the Phoenix air-to-air missile system into the A-4A.

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SUNSHINE CRUISE, Nov. 16. From Sydney, Via New Zealand, cruising in the Queen Charlotte Sound, and calling at Wellington. Fares from: First, $312 (£150); Tourist, $220 (£110).

ORIENTAL CRUISE, Oct. 19-Nov. 16. From Sydney, Via New Zealand, cruising in the Queen Charlotte Sound, and calling at Wellington. Fares from: First, $312 (£150); Tourist, $220 (£110).

DARTMOUTH, DEVON. After six years of research in their home laboratory at George, the well-known Dartmouth diver, and Dave Thomas have perfected a process for extracting 'agar' from seaweed. Agar is an expensive substance used in many industries for modifying the physical characteristics of ready-mixed foods, toothpaste etc., and as a base for growing cultures in medical research. Many of these products are expected to be valuable animal foodstuffs.

UNITED STATES OF AMERICA

Doubling of the production schedule of the U.S.M.C.'s CH-46A Sea Knight helicopter has been ordered by the U.S. Defence Department and Boeing-Detlco. The Sea Knight, which has been delivered to the Royal Navy, is soon to conduct studies for the integration of the Phoenix air-to-air missile system into the A-4A.

SOVIET SUBMARINE STRENGTH

The North American OV-10A Flies

The North American OV-10A counter-insurgency aircraft—winner of the August 1964 competition—made its first flight at Columbus, Ohio. North American were awarded a contract to build seven prototypes in August 1964, by the Bureau of Naval Weapons.

Pacific-based FBM submarines of the Los Angeles class are expected to be the first converted from the Polaris A3 missile to the more advanced Polaris A3E1 missile, now under development. Commentators forecast that three more Polaris submarines will be added to the fleet as soon as the A3E1 is ready. When this fleet is completed, the fleet will be manned by the first of the older members of the fleet is stocked for extensive overhaul in late 1966 or 1967 at the Puget Sound Naval Shipyard.

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FLIGHT-LAT-TOP

The U.S. Army is looking for an aircraft carrier. No intention of invading Navy’s mission, but it wants to set up a permanent air defence station aboard a carrier where it can land fighter planes as well as choppers.

The Army recently acquired the old Navy seaplane tender, U.S.N. Admiral, renamed it Corpus Christi, and is outfitting it as a floating repair shop. But the ship will be restricted to repair of aerial craft to cut down its size because it can’t take fixed wing planes aboard. Small World War Two jeep carrier, now a mothball, could accommodate Army planes.

Shipboard repair shops aren’t a new idea. Army Air Force had some in the South Pacific during World War Two. But while A.F. and Navy now fly planes to major repair depots in the Philippines or elsewhere in the Far East, the Army’s short-legged aircraft must be repaired nearby.

With all-condition workshops fitted with full assortment of machine tools, sheet metal equipment, etc., plus living quarters, Army’s Corpus Christi will be a big improvement over the four portable repair facilities now available in South Vietnam. If a second repair ship is needed, it’s likely the Army will get its carrier.

HELICOPTERS FOR SEA-BED RESCUE

The U.S. Navy is planning an “undersea helicopter” to rescue survivors of disabled submarines. Such a craft would have propellers at both ends to enable it to manoeuvre underwater like a helicopter does in the air.

The Navy is pressing ahead with its planning, following the tragic loss of the nuclear submarine Thresher, which went down in 8,400 feet of water off the coast of New England, April 10, 1963, with 29 men aboard.

The “undersea helicopter” concept is the mainstay of the Navy’s multi-million dollar programme to increase rescue research, and recover operations on the ocean floor.

Engineers have tabbed the proposed craft T.P.S.—for tandem propeller submarine. They say development of the vessel will revolutionise rescue techniques throughout the world where submarines become disabled.

Engineers say a prime advantage of T.P.S. is that it would have exceptional manoeuvrability at low or even zero speeds.

The T.P.S. would be capable of moving straight up and down, sideways, or roll over like a spacecraft. It could yaw, roll, pitch, heave or sway enabling it to get to a stricken submarine and place its hatch over the hatch of the crippled vessel.

As at present envisaged 12 to 14 men could be taken aboard a T.P.S. where rescue crew could be making repeated trips to a mother warship. Besides swift rescue operation, the Navy also envisages the T.P.S. as a vessel capable of carrying out research work at great depth.

Initially, it is planned for a test vehicle to operate down to 6,000 feet followed by four T.P.S. vessels operational to depths of 20,000 feet by 1971.

Also the Navy’s special projects office says it expects to let a contract for design studies this year.

Engineers say the biggest problem in building of such vessels is to obtain materials to withstand the tremendous pressure at great depth.

At 20,000 feet a force of 8,800 lbs pressure on every square inch of surface.

The motors turning the propellers or jet fans will therefore be located outside the inner pressurised hull of the craft.

Marine Corps also needs new trainers.

The TA-4E is an improved modification of the single-seat A-4E Skyhawk attack fighter. Powerplant is a General Electric J79 turbojet with 9,000 lbs thrust which gives it a top speed of just below Mach 1. A crucial feature of the TA-4E is the combat efficiency of the single engine of 4,500 lbs at a range of 3,000 miles. Maximum gross takeoff weight of combat ready condition, the TA-4E is the trainer that the Navy would normally operate at least.

The TA-4E, however, will be capable of conducting operations, with provision for bombs, rockets, missiles and landing aboard carrier such as the Kittyhawk and F-8 Crusader as well as airfields. It is 45.2 ft long, 28 in more than the A-4E. The span of 27.5 ft and 15 ft height are identical to A-4.

A new advanced Navy trainer is in the wings. Cougars have been operational for 10 years, trainer versions since mid-1956. Production of the TF-9J ended in 1959, with a total of 399 built.

NAVY ORDERS MORE TA-4E'S

Production of TA-4E Skyhawks through 1967 has been assured by a $25,000,000 contract awarded to the Aircraft Division for Navy procurement of 73 additional two-place Skyhawk jet trainers.

The second option exercised by the Navy on the original TA-4E contract last year, calling for 15 aircraft, has been increased to $29,400,000, including development costs.

The new option, exercised in June of last year, authorized production of 31 or more TA-4E's at a ceiling price of $14,000,000.

GRUMAN S-2 TRACKER

The U.S.N. is seeking a replacement for the Grumman S-2 Tracker as a carrier-based ASW aircraft, but the matter is still at an early stage and no contract for any new aircraft is expected to be reached until 1967—possibly 1968. Its requirement, designated VXS, has been under study by the Navy's Office of ASW Programmes since April 1964, and R & D sources are already making earnest efforts to study analyses of airframe, wing design, lift devices, powerplant, weapon system effectiveness of powerplant types, and the influence of various configurations on cost, development time, maintenance and support.

Development from this stage could probably take the project to basic get discussion phase, and possibly production in 1967 if sufficient urgency is attached.

ATLANTIC BID IN TINY SAIL-BOAT

William Verity, the American yachtsman who has just returned from his round-the-world voyage, has set a new transatlantic record by sailing his 12 ft home-made sailboat to Ireland in mid-May, 1966.

Verity's previous trip was postponed after he was blown off his course on the first leg of his cruise—from Vera Cruz, Mexico, to Fort Lauderdale. It took him 36 days to sail to Vera Cruz to Mobile, Alabama.

ALL-WEEKER CARRIER CARRIERS

Further development of the U.S.N.’s all-weather carrier landing system is to be undertaken. The system, by Bell Aeronetics, permits hands-off landings on pitching and rolling carrier decks regardless of weather; it uses radar units, data stabilisation equipment, a tracking computer, and radio consoles. Over 400 landings were made during recent trials on U.S.S. Kitty Hawk. For an automatic landing the aircraft is flown to the general vicinity of the carrier and is picked up by the system as it flies through an approach area or “gate”. It is tracked by radar which supplies data to a computer, the computer controlling the pitch and roll of the ship, and sending flight control signals to the aircraft via a data link.

This continues until touchdown. Under the contract, Bell will replace all existing manual landing and computer equipment with a more automated digital computer system to improve the system’s reliability.

US.S.R. MORE SOVIET MISSILES

New photographs of Soviet missiles continue to appear in Russian newspapers. A recent example, in the Pravda, shows a winged missile being slung aboard a fast patrol boat. Missiles are slung under the boat's hull after deck—four per boat. When opened they allow the missiles to be launched at an angle of about 30 degrees from trough-like ramps with the aid of undertail boost.

Configuration is that of a small piloted aircraft about 14 ft (4.27 m.) long with wings and a tail assembly with a vertical fin and tailplane with large aerofoil. Control surfaces are vertical rudders, elevators and rudder.

The missile, clearly subsonic, has a shape similar to that of a Russian, the homing radar. A sustainer rocket motor exhausts from the tail. It would appear to require some form of command guidance from the launching vessel and that the effective range would be more than 10 miles (16 km.).

Another picture shows a "missile capable of carrying a nuclear weapon" from a Soviet warship. Some years ago the Soviet Union had its warships on which the naval "sub-boat"class carriers as missile carriers. They were also equipped with a variant of the land-based long-range anti-air missile NATO code-named Guideline widely deployed in the Western Pacific region. This radar-command/beam rider missile is roughly equivalent to American Terrier.

Guideline, which has also appeared in Cuba, Iraq and Indoneisia, may have been the missile responsible for destroying American aircraft over North Vietnam last year.

On July 5th, F-4C Phantom flown by a missile 40 miles west of Hanoi; a Skyhawk suffered two near misses when it flew within ten miles of Guideline, which was on armed highway reconnaissance 60 miles south-west of the town. Seven missiles were the same fate on August 12th whilst another Phantom was also hit.

Admiral McDonald said some of the Russian submarines were nuclear-powered.

CRUSING

About 30 Communist Chinese and 80 Russian submarines are cruising the Pacific Ocean, according to the Admiral David L. McDonald, in an interview that appeared in the "Christian Science Monitor".

Admiral McDonald said some of the Russian submarines were nuclear-powered.
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International

The French deterrent submarine programme is already under way, following the launching last year of an experimental submarine for practical testing of the 1860 mile range missiles which will be used in the operational nuclear boats. By 1967 the Pacific Testing Centre in French Polynesia will be completed and will replace the present centres in the Sahara. A number of merchant ships are being bought by the French Government to accommodate engineers and technicians working on the Pacific missile testing range.

By 1970 the French Navy will consist of two attack carriers and one helicopter carrier; two cruisers and a missile frigate with a second under construction, forty destroyers and dual-purpose frigates. Of these nine will have been completely refitted: five corvettes; twenty-one submarines; ten mine-sweeping ships, including two oilers, an amphibious force of thirteen landing ships and craft; and one hundred minesweepers.

The French military budget has increased this year by £70m over the £654m figure, and naval expenditure has increased by £7m. The programme of the next five years will include production of nuclear materials, weapons development and production, and nuclear propulsion development.

International

JAPANESE LAUNCH LARGEST VESSEL

A 150,000 ton tanker—the largest ever floated—was launched at the shipyard of Isihaka Heavy Industries, Yokohama. Larger by 15,000 tons than the 135,000 ton (deadweight) Nissho Maru, also a Japanese tanker, the new vessel, christened Tokyo Maru cost £1,190,000. The mammoth tanker is 306.5 meters long and 47.5 meters wide and has 30,000 horsepower steam turbine engines which will generate a speed of 17 knots. It will carry a 29-man crew.

The Tokyo Maru will carry crude oil from the Persian Gulf to Japan for a group of Japanese oil refineries. Builders report the vessel can carry 150,000 tons of oil.

KENYA

HIGH COMMISSIONER LAUNCHES PATROL BOAT

The High Commissioner for Kenya, H.E. Dr. J. N. Karanja, launched the first of three patrol boats built by Vosper of Portsmouth for the Kenya Navy. These vessels will be 103 ft long, have speeds of over 20 knots, two 40mm guns and cruising ranges of some 1500 miles. The purchase was made possible by the British Government's gift of £1.3m, as part of a long-term aid programme for the Kenya Defence Forces. The High Commissioner, in a radio address, congratulated the achievements of the Forces as part of the programme for the establishment of a Kenya Navy.
KOREAN LST
IN VIETNAM

The Korean Landing Ship "Weebong" (LST 812) steams out of Sai- gon harbour en route to the Republic of Korea following eight months of service in the Republic of Vietnam. The homeward-bound vessel was relieved by a sister ship "Su Yong" (LST 813) at a unit rotation ceremony. During the ceremony Admiral Kim Kwang-ok, Chief of Staff for operations (Republic of Korea) received a Republic of Vietnam naval medal, presented by Vietnamese Major-General Tran Ngoc Tam. Two other ROK naval officers and 10 warrant officers were awarded Vietnamese medals of honour.

These Landing Ships are of the ex-U.S. LST Type; displace 1,653 tons standard, 2,366 tons beaching (4,080 tons full load), and are 328 feet in overall length. They are armed with 7—40 mm. and 6—20 mm. anti-aircraft guns. Diesel powered with two shafts—B.H.P.: 1,700 equalling 11 knots. Cargo capacity is 2,100 tons. Complement of 113 officers and men.

(U.S.I.S. Photograph)
U.S. SUBMARINE VISITS SYDNEY

The modified Balao class submarine, U.S.S. Archerfish (AGSS-311) began an eighteen day visit to Sydney on 18th December, 1965. This was the second Christmas leave spent in Sydney by the crew of the Archerfish. Two civilian oceanographers are aboard along with the crew—5 officers and 68 enlisted men—all bachelors.

HISTORY
Her keel was laid on January 22, 1943, at Portsmouth, New Hampshire, and four months later, March 29, 1943, Archerfish was launched and christened. Only one year to the day had passed since the laying of her keel before Archerfish first drew blood by sending torpedoes into a 9,000 ton enemy freighter on January 22, 1944. The high point of her wartime service occurred on the evening of November 28, 1944, while patrolling off Tokyo Bay. A large aircraft carrier screened by four destroyers was sighted departing the bay on a southerly course. An undetected chase ensued which ended just before dawn on November 29 with the firing of six torpedoes. Four direct hits proved fatal to the carrier which sank at 0545 hours that morning with the loss of 500 men. Although it was not known at that time Archerfish had successfully attacked the Shimano only 17 hours after starting on her maiden voyage following a construction period of more than four years. This ship displaced 59,000 tons and was initially designed as a Yamato class battleship. However, it had been converted during construction into a gigantic aircraft carrier which remained the largest ship ever built until the advent of the Forrestal class carriers nearly ten years later. For this Archerfish and her officers and men were awarded the coveted Presidential Unit Citation.

The end of the war saw Archerfish return to peacetime operations before being de-activated in June, 1946. In 1952, the reactivated Archerfish joined the U.S. Atlantic Fleet. Another tour in mothballs followed during the period 1955-1957. In 1958 Archerfish was introduced to hydrographic work and in 1960, she was selected for Operation Sea Scan, an extensive hydrographic survey of both the Atlantic and Pacific Oceans, upon which she was still engaged. In order to perform this mission, Archerfish seldom visits her home port, Pearl Harbor, and spends a great majority of her time at sea. Most months she covers at least 3,000 miles and during her best month to date, she covered over 10,000 miles. Due to the nature of her operations, the officers and men are all volunteers and nearly all are unmarried. The advantages of such a mission are the variety and number of exotic foreign ports visited.

STATISTICS
Archerfish is a Fleet Type Submarine, the same class which attained such success in World War II. Archerfish has received some modern equipment since the war. The boat displaces 1,807 tons and is 311 feet in length. For propulsion on the surface, the boat is powered by four nine-cylinder opposed piston engines driving attached DC generators which in turn furnish electrical power to the main motors that are geared to the two propeller shafts. Upon diving, the electrical power source for the propulsion motors is shifted to two storage batteries, each composed of 126 cells. The cells are of the standard lead-acid variety and each weighs approximately one ton. Due to her mission as a hydrographic survey vessel, Archerfish has been demilitarized by removal of the two torpedo tubes, torpedoes, and fire control equipment. At a cruising speed of 12 knots, Archerfish can sail 12,000 miles without refueling.

SEA CADET CORPS NEWS

EFFICIENCY TROPHY
The result of the annual efficiency competition among Australia's thirty-nine Sea Cadet units has been announced. The efficiency trophy, presented by the Navy League of Australia, was awarded to the training ship DERWENT in Derwent, Tasmania.

The Naval Board sent its congratulations to the Hobart unit.

Training ship DERWENT has seven sea cadet officers, five instructors and 120 cadets. Two cadets joined the R.A.N. during 1965 while four others joined the R.A.N. Reserve.

Award of the annual efficiency trophy is based on an inspection of the most efficient Sea Cadet unit in each State by the Director of Naval Reserves.

New South Wales has eight Sea Cadet units. Victoria 9, Queensland 7, Western Australia 5, Tasmania 6, South Australia 2, Australian Capital Territory, Northern Territory, one each.

NAVY LEAGUE VISIT TO H.M.A.S. PERTH

The Secretary of the New South Wales Division has arranged with the Commanding Officer of H.M.A.S. Perth, Captain Ian Cartwright, R.A.N., for Members of the Division to inspect our new Guided Missile Destroyer (DDG) H.M.A.S. Perth on Sunday, 17th April, 1966, at 10.00 a.m.

A letter will be sent to all members when final details are known as regards Perth's berthing arrangements.
The principle objective of the Navy League of Australia is to stress the vital importance of Sea Power to the Commonwealth of Nations and the important role played by the Royal Australian Navy.

The League in conjunction with the Commonwealth Naval Board administers the Australian Sea Cadet Corps, by providing finance and technical sea training for boys who intend to serve in the Naval or Merchant Services, also to those sea-minded boys who do not intend to follow a sea career, but who given this knowledge will form a valuable reserve for the Naval Service.

We invite you to swell our ranks and so keep up to date with Maritime Affairs to help build an ever-increasing weight of informed public opinion. The Navy League will then become widely known and exercise an important influence in the life of the Australian Nation.

The League consists of Fellows and Associates. All British subjects who support the objectives of the League are eligible for membership. Members receive free copies of the League’s magazine “The Navy”. For further particulars please dispatch the form provided below to your local Secretary.

TO: The Secretary, The Navy League of Australia.

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(please print clearly)

Address: ________________________

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Queensland — Box 376E, G.P.O., Brisbane.

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BOOK REVIEW

"THE EDUCATION OF A NAVY"
(The Development of British Naval Strategic Thought 1867-1914)

Author: Donald M. Schurman
Publisher: Cassell (1965)


Dr Schurman bases his study on six naval writers, five British, the Colombo, Laughton, Richmond and Corbett, and one American, Mahan. He relates with much scholarly detail how these writers, by describing naval war in the age of sail, helped to develop strategic thinking for the use of modern warships. In that age of great technical innovation, as he relates, strategic questions were often confused or obscured.

As a guide to reading, this book will be very useful to students of naval history. All recognised naval authorities agree that the study of naval history is to be encouraged. Where, then, do we find our reading matter?

The naval wars of this century have been well described in personal memoirs and by expert historians, both official and unofficial. The works of these authors are easily found in bookshops and libraries, and for that reason need not be mentioned here.

It is far harder to find the best literature on sailing-ship warfare. Official histories were commonly non-existent or fragmentary or produced long afterwards. For example, the Admiralty produced its first official account of the battle of Trafalgar more than a hundred years after the battle was fought.

Naval warfare is often mentioned by historians, but historians vary greatly in their understanding of naval matters. Some relatively recent books can serve as guides. For classical antiquity we have "Ancient Mariners," by Lionel Canon, and also Greek and Roman Naval Warfare", by W. L. Rodgers. For medieval Europe we have "Naval Warfare under Oars", by W. L. Rodgers. For eastern seas we have "Background of Eastern Sea Power", by F. B. Eldridge. Some scholarly writers on China and Japan, such as Sir John Davis, Edward Parker and Sir Ernest Satow, had had experience of the seas of the Far East.

Finally, let us consider sailing-ship warfare from the sixteenth century to the nineteenth century. The dominant naval power was Britain, and all modern navies have been to some extent modelled on the Royal Navy. Dr. Schurman's book is the best one-volume guide to that period; in discussing his six writers he provides a key to all the scholarly literature about it. Anyone who reads his book or who looks at his bibliographic note (pages 193 to 198) will be able to begin reading standard works on naval history. Much of this material is in periodicals and works of reference, which are not specifically naval. Laughton, for example, wrote the articles on the admirals for the Dictionary of National Biography. Dr Schurman makes a careful evaluation of the work of his six writers, and in passing introduces other important naval writers such as Bridge, Cushny and Burrows.

That, then, is probably the main use of Dr Schurman's book for most readers. Dr Schurman's immediate concern, however, is something more specialised, but very important and interesting. He describes the technological revolution of the nineteenth century as seeming at the time to have made all earlier strategic doctrines obsolete. Armies, however, did not become truly mechanised until the Second World War. Because they were technically backward, they maintained a body of doctrine based on earlier history. Fixed defences were highly developed, and the Navy was given a subordinate part even in planning the defence of Britain against invasion. The naval historians as Dr Schurman relates, played a big part in the naval revival that took place in the generation before 1914. From their arguments and from the events of the two world wars, we can learn much about the relation between theory and practice. Thus fortified, we can resist theorists of the atomic age who try to persuade us to forget the strategic lessons of the past.
The United States Naval Observatory

In August 1842, President John Tyler signed an act authorizing the founding of a Naval Observatory in Washington D.C. to provide fundamental data and standards derived from astronomical observations...

By Dr. Thomas D. Nicholson

An observatory is primarily a research institution in contrast to a planetarium which is a museum devoted to lecturing, teaching and exhibitions in astronomy. Its facilities — including telescopes of many kinds — and staff are selected to observe and acquire knowledge about the universe through research. Many observatories are affiliated with the astronomy or physics departments of colleges and universities. Others have tours for visitors in their programmes.

There are many observatories in the United States that are, at times, open to the public, and that make arrangements for people to look at the sky through telescopes. The United States Naval Observatory at Washington may be considered the nation’s official astronomical observatory. Its purpose is to provide fundamental data and standards derived from astronomical observation.

With respect to time, the Observatory furnishes the accurate standard time used by everyone in the country, including radio and television stations, navigators in naval and commercial vessels, scientists, space technicians, or anyone requiring precise measurement of time. Almost all of the data that comes to our attention, such as forthcoming eclipses; the times of sunrise, sunset, moonrise, and moonset; the duration of twilight; and the advent of the seasons, are derived from tables given by, and observations made at, the Observatory.

In 1838, a man was chosen by the government to survey the earth and for the location of the sun, moon and planets, and of astronomical observations at the original site Circle Division and the Seven-Inch Transit Circle Division. These observations are continually being made under the supervision of the Six-Inch Transit Circle Division. These observations are used to determine the fundamental framework of reference lines on the sky that act as a guide for geodetic measurements of the earth and for the location of celestial bodies.

The Astrometry and Astrophysics Division of the Observatory carries on an intensive programme of astronomical research. The principle instruments used by this division are a 40 inch (101.6 centimetre) reflector and a 60 inch (152.4 centimetre) reflector located at the Flagstaff Sta...
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Ships will go underwater

The retiring British Naval Commander in chief of the South Atlantic and South America, Vice-Admiral Sir Fitzroy Talbot, said with Naval brevity earlier this year: “Guns are dead, the Fleet Air Arm has a limited existence, and all vessels will travel underwater.”

He was looking 20 years ahead when satellites would be searching the world and underwater craft could probably move without being seen. He was replying to a suggestion that in modern rocket warfare any navy would become extinct.

The Admiral said the Navy would play a more important role than ever in rocket warfare. Even merchant ships would travel underwater, he said.

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The United States Naval Observatory is the oldest official scientific agency of the U.S. Navy. The dome houses the 26-inch (66-centimetre) refractor telescope placed in service in 1873. It was with this telescope that Asaph Hall, in 1877, discovered the two small satellites of Mars. Completely modernised in 1960, it is still being used actively in the observations of double stars, for the purpose of determining their masses and distances. There are two other moderate-sized refractors at the Observatory — the 12 inch (30.5 centimetre) refractor and a 15 inch (38.1 centimetre) refractor, the latter being used in recent years for observing and photographing asteroids.

The observatory facilities also include the two transit telescopes, used for timing and observing the positions of celestial bodies as they cross the meridian of the Observatory; a dual-rate moon camera, for observing the position of the moon among the stars in the measurement of ephemeris time; and a photographic zenith tube, which is used nightly to photograph stars passing near the zenith of the Observatory to determine mean solar time.

The scientific programme of the Naval Observatory actually goes far beyond its own staff and facilities, through participation in astronomical investigations and discussions with many other national and international groups.
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Report of Activities and Training Undertaken by the New South Wales Division for the Quarter Ending 31st December, 1965

No periods of continuous training were programmed for the quarter under review. However, weekend training was carried out in the following ships and Naval Establishments.

On Saturday 2nd October, 1965, well over 100 have been requested to date.

By permission of the Commanding Officer (Reserves), four Sea Cadet Petty Officers were allowed to participate in the first R.A.N.R. Petty Officer Divisional Course to be held in H.M.A.S. RUSCUTTER. This course which continued for nearly six months finished in November and is pleasing to report that two of the Sea Cadet Instructors topped the class at the conclusion of the final examinations. Chief Petty Officer Instructor E. M. DOPSON of T.S. SIRIUS took the honours and Chief Petty Officer Instructor K. G. GRIMLEY of T.S. WARRREGO gained second place. The value of this course to personnel of the Corps is immense and the improvement in the Instructors who took part was quite noticeable particularly so within the environs of their own Unit where they could put their newly gained knowledge to good use.

A second course is programmed for early 1966 and further Sea Cadet Instructors will be participating.

The Senior Officer and Officers of the A.S.C.C. (N.S.W. Division) partook of securing new recruits for the A.S.C.C. and to bring before part of the listening public an awareness of the existence of this organisation for boys. The Station was most generous in allowing a broadcast of half an hour. A supply of recruiting leaflets was left with 2GB who asked listeners to write in for a copy if interested and the response has been excellent.

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NEW ENERGY SOURCE FOUND

A team of German and American scientists have announced a breakthrough to sources of energy which "could dwarf conventional nuclear power."

The 11-member team has successfully created for the first time so-called anti-protons from light.

Professor Peter Stahelin reported his team had produced 18 such particles — negatively charged helium nuclei — which "explode" releasing enormous energy, when brought into contact with their normal counterparts.

Scientists believe that distant milky ways may consist of such antimatter.

The experiment was carried out at the West German electron synchrotron research institute in Hamburg.

Professor Stahelin said a stream of photons, or light particles, was directed at a target of liquid helium in the experiment, which also used a 25 metre (80 feet) long chain of various types of electro-magnet and particle-counters, coupled to a computer.

The anti-protons were separated from other particles, so-called pions, which are 2000 times as frequent in a so-called Cherenkov counter.

The professor said three young American scientists had taken part in the experiment. He refused to name any of the scientists involved because this was "a genuine team effort."

He was cautious about possible applications of the discovery, stressing that only a few anti-protons could be created in the experiment.

A new, emergency fire-fighting blanket, which literally can smother flames from whatever source, has been placed on the market by the North American Asbestos Corp. of Chicago. The Noramite fire blanket, (3 by 4 feet) is made of non woven, long fibres asbestos. The company says flames are squelched, on contact, when the blanket is thrown over a fire. The blanket itself will not burn, smoke or char. Price in the U.S.: $1.79.

BOOM

Small, precisely controlled explosions are employed by the International Research & Development Co. Ltd., of Newcastle upon Tyne, England to fix tubes in boiler plates. The patented process, which replaces conventional welding or riveting, is claimed to produce savings of one third in costs and 50 per cent or more in time, while providing joints of higher integrity. The miniature explosive charges are positioned by the operator and are held in place by plastisite. As many as 30 charges can be detonated at once. In addition to savings in boiler manufacture, the British firm says its process permits repairs of leaks without the loss of time involved in dismantling for repairs by conventional methods.

CRT PROJECTOR DEVELOPED

A new compact and lightweight unit which projects symbols from a cathode ray tube on to a flat surface has been produced by Computing Devices of Canada, Ltd., Ottawa. Its size makes it suitable for all types of aircraft and it is designed to give navigational or tactical information on a plotting board, chart or similar surface.

The unit takes manually injected or automatically fed information and converts this into conventional cartesian symbols which are displayed on a 2 in (5 cm.) diameter bright CRT. This image is projected through a lens system.

Typical displays could cover the changing pattern of anti-submarine search and attack, supply or para troop dropping.

Audax Ltd. (U.K.) has developed a new mobile telescope lighting tower, called Hi-lite, which is capable of lighting an area of up to 35 acres, and can have wide application at airports, dockyards, construction sites, etc., with alternative applications as a radar or radio aerial. The Hi-lite tower, fully self-contained, is mounted on a 4-wheel trailer, which also carries a 6kw diesel generating plant and four 1000 watt lamps. U.K. sales price with generator, starter equipment and lamps is £1656.

A fire access door for ventilating and ducting systems that allows smoke to escape and fire hoses to be inserted but prevents flames from spreading through the aperture, has been developed by James Green Developments, Ltd., of London. The unit consists of a double sided panel with an asbestos sheeting on the outer side and a perforated metal sheeting inside. If a fire in the ventilation system is suspected the outer asbestos door is smashed and the metal sheeting then allows the smoke to escape. The design of the perforated metal will not allow flames to spread into the building through the access unit. After the asbestos panel has been smashed, water hoses are directed at the panel, which will pivot inward under the pressure and admit water. Available in three sizes, the doors cost from $16 to $27.
**SOOTHE METAL**

General Electric of New York City has moved healing iodine out of the medicine cabinet and into the tool chest as a much-needed lubricant for space-age metals. Hence, a serious drawback to the fabrication and use in mechanical devices of titanium stainless steel and other "glamour" metals has been their notorious resistance to lubrication. When titanium or stainless steel parts are rubbed against one another, the parts size and weight together despite coating with the best lubricating oils. A new family of iodine lubricants, G.E. claims, will enable the metalworking industry to machine, roll and polish these space-age metals as readily as ordinary steel, and will spur their use in turbines, rotors, nuclear reactors, heat exchangers and pumps.

**LIFESAVER**

The development of a unique, lifesaving rescue blanket based on a super insulation material used to keep people warm has been announced by National Research Corp., of Cambridge, Mass. Called the SRC-Rescue Blanket, the new product is tissue thin, weighs less than 2 ounces, is tough and flexible and folds up into a handkerchief size. Made of an aluminium-plastic-base material, it keeps people warm and dry despite violent weather conditions. Essentially, the way the rescue blanket works is by reflecting the natural body heat of a person covered and by preventing heat loss. The material is an outgrowth of National Research Corp.'s super insulation which has been used in the Gemini IV and Apollo space missions. The blanket is used for rescue operations by police and other public service groups. The Rescue Blanket is now in use for first aid at all airports.

**CHECKUP**

A portable ultrasonic scanning system for detecting structural weaknesses in aircraft has been developed by Sperry Products Division of Automation Industries of Danbury, Conn. The system is said to locate and record on paper the presence of corrosion and other defects visible to the human eye, and even micro-organic trouble spots can be pinpointed in fully loaded cargo aircraft. The system is priced at $50,000 depending on instrumentation.

**WRAP IT**

An unconventional "swell" jacket without seams, fasteners or closures has been designed by Innerspace Corp. of Glendora, Calif., for cold-water swimmers, surfers and water-skiers. The "Sea Sarong," which fits everyone although it comes in only one size, is a simple strip of styrofoam rubber. The strip is wound tightly around the trunk upward from the hips, overlapping a third of its width on each strap. It is completed by putting one leg through a single hole at one end of the strip and then pulling the material over the shoulders. The material's great elasticity, the company says, permits wearers to vary tensions over different body areas, providing comfortable figure control. The Sea Sarong's tight fit all over the body contours allows the water to enter and is said to hold body heat better than conventional wet-suit jackets. Price: $10.95.

**QUICK HELP**

Sterilised foam dressings that can be applied to severe burns within seconds have been developed for first-aid use by Price Brothers and Co., Ltd., of Somerset, England. The dressings, which can be easily handled even by unskilled people, consist of sheets of 1/4 inch thick polyurethane foam sealed with nitrile rubber packs that are then sterilised by gamma radiation. The manufacturer says the first-aid device is designed for a patient considerable protection against pain while being moved and can remain on up to 24 hours. It is 10 inches long and 5 inches wide and is packed in a booklet size of 31/2 by 3 inches. The device is priced at $1.80 each. It is available at any hospital pharmacy.

**SLIDING TO SAFETY**

The inflatable escape slide allows passengers to leave an aircraft in a hurry. The need for such a slide—use in an emergency when an airport's conventional steps are not available—arises because the height big modern aircraft stand from the ground. The jump from the doorway is too great for the safety of most passengers.

Deflated, the device is compact and self-containing. When inflated it packs into the form of a wedge-shaped valise and occupies a space no bigger that 21 by 84 by 31 inches. It can be stored in any convenient place near the aircraft door, and requires only suitable anchorage points there. It is air-inflated automatically when it is pivoted about its anchor points and the free end is thrown from the door. Then it inflates within 10 seconds.

**MAKERS:** The Walter Kidde Company, Northolt, Middlesex, in conjunction with R.F.D. Company, Goshalming, Surrey.
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H.M.A.S. ANZAC (as converted to fleet Training Ship).
(Photograph by courtesy R. H. Lawrence)

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THE NAVY, February-March-April, 1966
The Senior Officer and Officers of the New South Wales Division held a successful "At Home" on Saturday, 11th December 1965, P.M., at the Hotel Manly.

More than seventy persons attended, including guests from the R.A.N., R.A.A.F., and Navy League. All were laudatory in their praise of the Hotel staff's courtesy and efficiency and the excellent food served.

The function, in the opinion of all present, was an outstanding success and it is hoped that other functions of this kind can be organised at some future date.
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THE NAVY, February-March-April, 1966

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SWIMMING CARNIVAL

The Annual Swimming Carnival
of the New South Wales Division
of the Corps was held at HMAS
Penguin on Saturday, 19th February,
1966.

All Units in the Division were
represented and there was a large
crowd of spectators at what proved
to be an afternoon of thrilling en­tertainment.

AGGREGATE POINT SCORE

<table>
<thead>
<tr>
<th>Unit</th>
<th>Points</th>
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<tr>
<td>T.S. Albatross</td>
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<tr>
<td>T.S. Condamine</td>
<td>19</td>
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<tr>
<td>T.S. Parramatta</td>
<td>6</td>
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<tr>
<td>T.S. Sydney</td>
<td>26</td>
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<tr>
<td>T.S. Sirrus</td>
<td>26</td>
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<tr>
<td>T.S. Tobruk</td>
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<tr>
<td>T.S. Warrego</td>
<td>21</td>
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</tbody>
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The Navy League Trophy was
awarded jointly to T.S. Sydney and
T.S. Sirrus.

The Sirrus Trophy for the 4x50 yards Freestyle Relay race was
awarded to T.S. Condamine.

The Weston Service Station Trophy
for the 4x50 yards Medley Relay
was awarded to T.S. Condamine.

The Editor is always pleased to
receive news and photographs con­cerning the activities of other
Divisions of the Corps.

THE NAVY, February-March-April, 1966
New Ships of the World's Navies

H.M.S. Euryalus

H.M.S. Euryalus is a Type 12 anti-submarine frigate and is the seventh of the Royal Navy's latest class of frigates known as the Leander Class. She was built by Scotts Shipbuilding and Engineering Co. Ltd., at Greenock, Scotland and laid down in November 1961. The Euryalus was launched by Lady Bingley, wife of Admiral Sir Alexander Bingley, K.C.B., O.B.E., on 6th June, 1963; the 160th Anniversary of the launching of the first Euryalus in 1803. The present Euryalus first commissioned in September 1964 and sailed for service in the Far East in the Spring of 1965.

H.M.S. Euryalus has a standard displacement of 2,300 tons with a length of 372 feet, and a beam of 41 feet. She has a complement of 41 officers and 245 men, many of whom are young sailors at sea for the first time.

Her main propulsion machinery consists of two sets of steam turbines developing 30,000 shaft horse power and giving her a speed in excess of 30 knots. She is fitted with twin rudders and stabilisers, which, together with her speed designed hull-form give her excellent sea-keeping qualities and high maneuverability at speed; important factors in modern anti-submarine warfare.

Although her primary role in war is the detection and destruction of submarines the Euryalus is equally able to engage ships and aircraft, and bombard targets ashore.

For her anti-submarine role the Euryalus is armed with a triple-barrelled anti-submarine mortar, mounted aft. This is automatically aimed and fired by the sonar (underwater detection) equipment, and can fire a pattern of projectiles set to explode at computed depths. In addition the Euryalus carries a Wasp helicopter, armed with homing torpedoes, to deal with enemy submarines at long range.

Her main gun armament is a twin 4.5 inch turret, mounted forward. This is directed by radar and fired automatically. In addition the Euryalus has two 44 mm. anti-aircraft guns in single close-range mountings. These will ultimately be replaced by Seacat, the Royal Navy's close range, ship-to-air guided missile system.

Great efforts have been made in the design and layout of the upper deck equipment to reduce the number of men needed to carry out various duties. The boats, gangways and helicopter are hoisted or moved by hydraulically operated winches.

Between decks a high standard of accommodation has been achieved for the ship's company. This includes bunks for every man on board, which can be converted to settees during the day; full cafeteria messing with separate dining halls for senior and junior ratings. The galleys are all electric and all operational spaces and living quarters are air-conditioned.

Historical Note: The present Euryalus is the sixth ship to bear the name. The most renowned was the first Euryalus, commanded by Captain Blackwood at the time of Trafalgar. It was to this ship that Nelson made his now famous signal, for all ships to read, before engaging the French Fleet — "England expects that every man will do his duty". The fourth Euryalus, an armoured cruiser, distinguished herself at Gallipoli in 1915. The 1st Battalion of the XX The Lancashire Fusiliers, who were embarked at the time, made a landing from the ship and won six V.C.'s before breakfast. In the action, the Battalion lost eleven officers and 350 men, and of the 80 naval ratings manning the ship's boats 63 were killed or wounded. Thus began an association between the ship and Regiment which has continued whenever there has been an Euryalus in commission. The ship's motto 'omnia Audax' (Daring in all things) is that of the XX The Lancashire Fusiliers and was adopted by the fifth Euryalus in 1951.

The fifth Euryalus endured two years of the bitterest fighting in the Mediterranean during the last war, which included the Malta convoys of 1941 and 1942. Later she was one of the first ships to enter Hong Kong to receive the Japanese surrender in 1945.

Euryalus, from whom the name derives, was a distinguished Greek warrior, considered to be one of the bravest men who fought at Troy. He was also a proficient athlete and a keen seaman, being one of the famous Argonauts who followed Jason in search of the Golden Fleece.
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