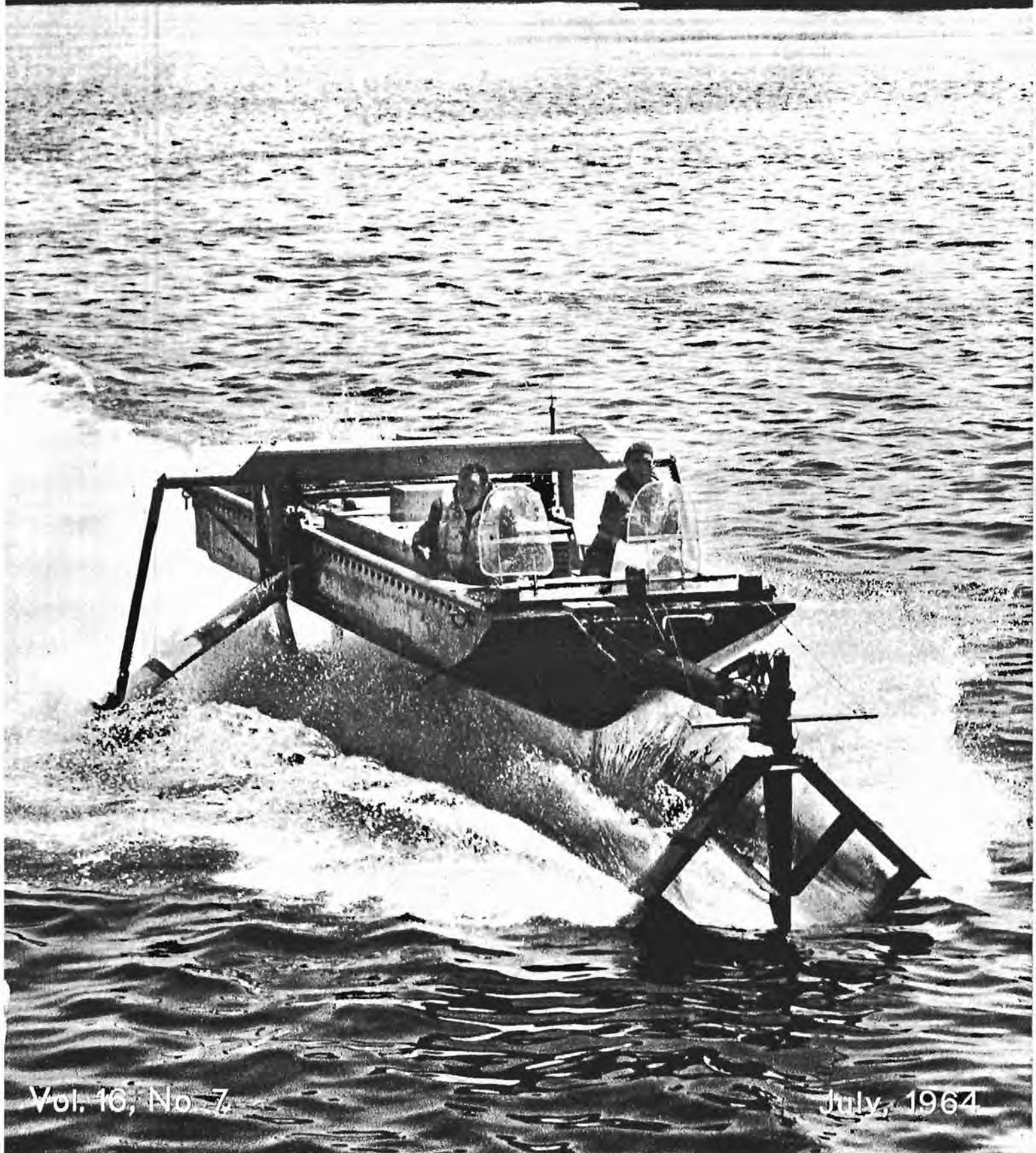
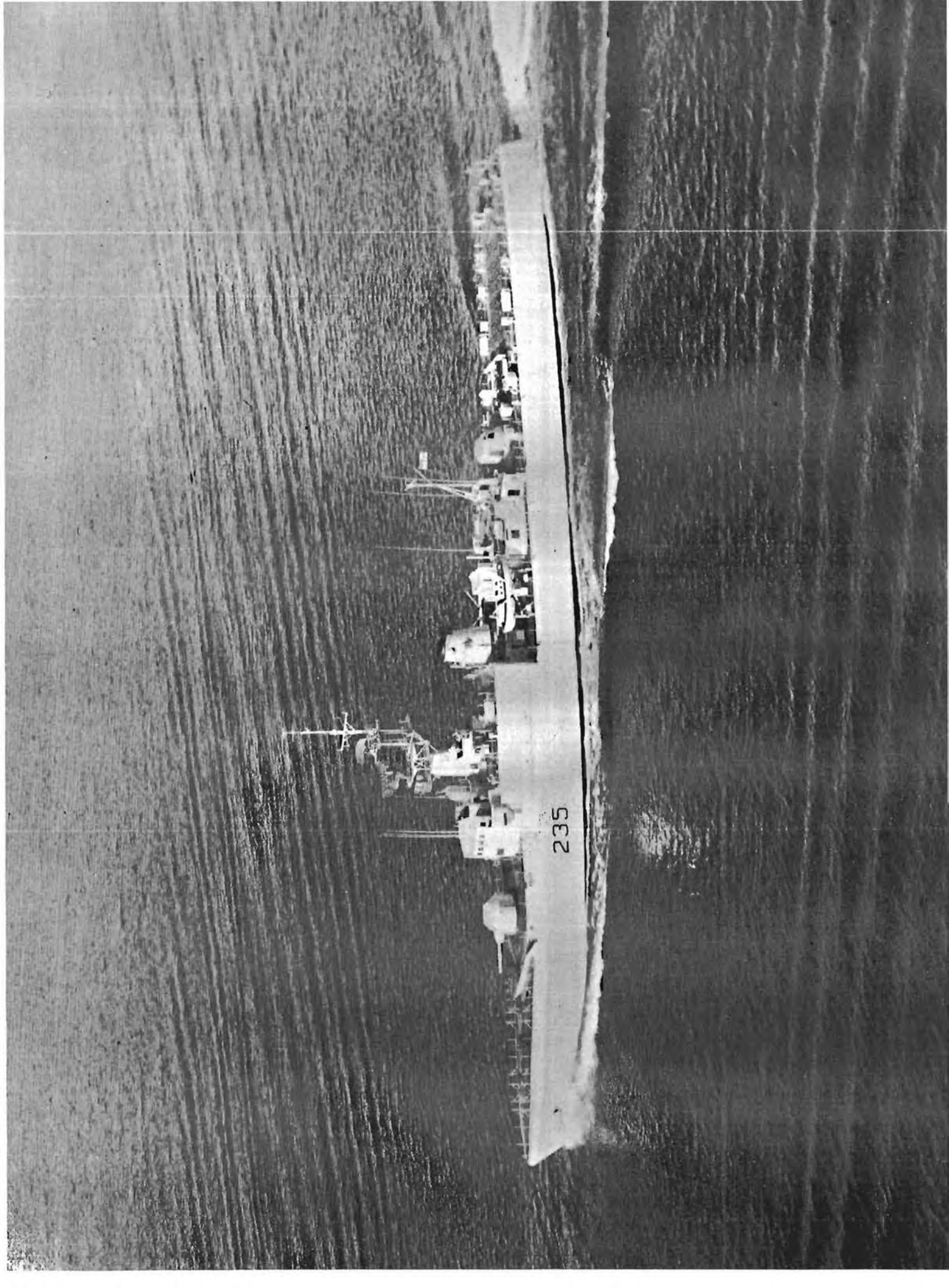


The CROWSNEST





235

The CROWSNEST

Vol. 16 No. 7

THE ROYAL CANADIAN NAVY'S MAGAZINE

JULY 1964

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LADY OF THE MONTH

All 14 destroyer escorts of the St. Laurent and Restigouche classes have had their portraits appear inside the front cover of this magazine as "Ladies of the Month", with a single exception—HMCS *Chaudiere*. This situation is herewith remedied, although she has not been entirely neglected and has appeared as "cover girl".

The *Chaudiere*, the last of the seven Restigouche class DDEs to be commissioned, was laid down at Halifax Shipyards on July 30, 1953, launched on Nov. 13, 1957, and commissioned on Nov. 14, 1959.

Based at Halifax, she has inherited, along with her sister ships of the Fifth Canadian Escort Squadron, the insignia of the famous Barber Pole Brigade of the North Atlantic convoy lanes. (DNS-32271)

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EDITOR,
The *Crowsnest*,
Naval Headquarters,
OTTAWA, Ontario.

The Cover—The research hydrofoil craft, *Rx*, designed and built by the Defence Research Board's Naval Research Establishment in Dartmouth, N.S., was a star performer on Navy Day in Halifax on July 22. The *Rx* was fitted with a quarter-scale hydrofoil configuration of the kind envisaged for the FHE-400 fast hydrofoil escort discussed in this issue.—NRE Photo by W. R. Carty



RCN News Review

Some of the RCN's warships have had helicopter hangars and landing platforms installed on their quarterdecks. Others, like HMCS Saskatchewan, are satisfied with nothing less than the British Columbia Legislative Building. The picture was taken by Jim Ryan, ex-Navy photographer, in Victoria's Inner Harbour during the Spring Daffodil Festival. (Courtesy Ryans Brothers Photos, Victoria)

CNS Retires At End of July

The announced retirement of Vice-Admiral H. S. Rayner, DSC and Bar, CD, as Chief of the Naval Staff on July 20, at the conclusion of his four-year term in that position coincides with the reorganization of National Defence Headquarters. Admiral Rayner is the Royal Canadian Navy's last Chief of the Naval Staff.

Also disappearing from the scene, after 22 years of existence, is the Naval Board of Canada, established in 1942 to cope with the sudden growth of the RCN to a major fighting force. Thus during July, there will be hauled down symbolically the personal flag of Admiral Rayner and the flag of the Naval Board of Canada.

The armed services will be headed by a single Chief of Defence Staff and each of the functional branch chiefs serving under him will have tri-service responsibility.

Chosen for the top position of Chief of Defence Staff has been Air Chief Marshal Frank R. Millar, CBE, CD, present Chairman, Chiefs of Staff, and a former Deputy Minister of National Defence.

The Navy will be represented on the new Defence Staff by Rear-Admiral K. L. Dyer, DSC, CD, who will become Chief of Personnel and will be Acting

Chief of the Naval Staff until the enabling legislation has been proclaimed. On becoming Chief of Personnel, he will be promoted to the rank of vice-admiral. Commodore R. P. Weland, DSC and Bar, CD, was appointed Acting Vice-Chief of the Naval Staff for any interim period.

Tattoo Planned For Centennial

The Department of National Defence will participate actively and extensively in Canada's Centennial Celebrations in

1967. Its main contribution will be the Canadian Armed Forces tattoo which will tour Canada from coast to coast during the summer of 1967, according to an announcement by Hon. Lucien Cardin, Associate Minister of National Defence.

The tattoo, an historical pageant featuring martial music, will visit most major cities and a number of smaller communities during its five-month itinerary and is expected to be one of the feature attractions at Expo '67 in Montreal.

The Department and the Centennial Commission will work in close association with each other in the planning of the tattoo, which should be one of the most colourful highlights of the centennial year.

Keel of Second Submarine Laid

The keel-laying of the second of three Oberon class submarines being purchased for the RCN in Britain took place June 18 at HM Dockyard, Chatham, Kent.

Designated SS73 until she is named *Onondaga* at her launching next year, this submarine will be the 54th to be built in Chatham Dockyard since submarines were first built there in 1907, and is the first to be built incorporating Canadian design considerations from the keel up.

Unkind Words for Canadian Food

The aircraft carrier *Bonaventure* paid an informal visit to Toulon, France, in February before the Cyprus crisis resulted in her sailing from Halifax to the Mediterranean with military aid for the Canadian contingent.

In his report of proceedings, Captain R. W. Timbrell, the *Bonnies'* commanding officer, wrote of Toulon in part as follows:

"Forty girls from a local orphanage were entertained at a party in A hangar during the afternoon of February 13. After consuming many glasses of cola, eating large quantities of cake, cookies and ice cream, not to add several chocolate bars, one little girl of approximately eight years stated she 'did not consider Canadian food palatable'."

The first of the three submarines purchased from Britain by Canada was HMCS *Ojibwa*, which was launched at Chatham in February this year and is to be commissioned in the RCN following her scheduled completion in September 1965. The third boat, the *Okanagan*, will have her keel laid at Chatham next year.

The keel-laying ceremony is traditionally carried out by wives of shipbuilding staffs, and the *Onondaga's* was presided over by Mrs. I. L. T. Hogg, wife of Rear-Admiral I. L. T. Hogg, Admiral Superintendent of HM Dockyard, Chatham.

Canadian wives taking part in the ceremony were Mrs. Joan Finlay, wife of Lt. Ferguson Finlay, RCN; Mrs. K. Bowness, wife of George Bowness, of Ottawa and Barrow-on-Furness, and Mrs. Rose Fitzgerald, wife of Lt.-Cdr. J. O. Fitzgerald, RCN. Lt. Finlay and Mr. Bowness are Canadian naval technical representatives at Chatham for the Canadian submarine program, and Lt.-Cdr. Fitzgerald is standing by the *Ojibwa*.

Medical Trade Structure Revised

A revised regular force medical trade structure has been established within the Canadian Forces Medical Service (CFMS), effective last May 7. The trade specifications are identical in all three services. These are outlined in the CFMS Trades Manual (1964), compiled by the Surgeon General, which is being distributed.

The seven trades incorporated in the new structure, together with their trade group and pay level are:

Medical Assistant (MA), 1, 2, 3Y and 4; Nursing Assistant (NG), 1, 2, and 3X; Operating Room Assistant, 4; Hygiene Technician (HK), 3X, 4; X-Ray Technician (XT), 3X, 4; Laboratory Technician (LB), 3Y, 4, and Biosciences Technician (BT), 3Y, 4.

The trade of Pharmacist (PM) has been retained temporarily but no further entries or transfers into it will be permitted.

Certain of the trades, Medical Assistant, Hygiene Technician and Biosciences Technician, will be open to men only. The trade of Nursing Assistant applies only to wrens. The remaining trades—Operating Room Assistant, X-Ray Technician and Laboratory Technician—are open to both men and wrens.

Under the new structure, all Medical Assistants are retaining the same trade and designator, wrens serving as Medical Aides are being transferred to

Nursing Assistant and all Operating Room Assistants are retaining the same trade and designator. Similar transfers are being made between the other former trades and the corresponding new ones.

The primary duties of the Biosciences Technician, a trade in which there is a limited requirement for men, are in the field of applied physiology, including research in environmental and thermal stress, human engineering and survival. Retention in this trade will be by selection. Those not chosen will qualify for transfer to Medical Assistant.

RCN personnel will continue to compete only with one another for promotion, advancement and course selection.

Further particulars of the medical trade structure changes may be found in Cangen 158 and in BRCN 113 (4) (60) as amended.

Ships Take Part In Festival

Four ships of the Pacific Command, the *Fraser*, *Mackenzie*, *Margaree* and *Qu'Appelle*, sailed from Esquimalt on June 15 for 10 days of exercises in local waters and then proceeded to



An old Chatham Dockyard tradition was observed when wives of the men in charge of the construction of the Oberon class submarine *Onondaga* for the Royal Canadian Navy manned a capstan that moved a prefabricated section of the hull into place on its construction berth. Taking part were 11 wives of senior dockyard officers and three Canadian wives. The latter were, from left in lower picture, Mrs. K. Bowness, wife of George Bowness; Mrs. Rose Fitzgerald, wife of Lt.-Cdr. J. O. Fitzgerald, RCN, and Mrs. Joan Finlay, wife of Lt. Ferguson Finlay, RCN. (508-149; 508-153)

Vancouver to participate in the mainland city's Maritime Festival.

Also taking part in the exercises was the submarine *Grilse*, which had been at Portland, Oregon, from June 10 to 14, representing the RCN at the Portland Rose Festival. The *Grilse* returned to Esquimalt on June 20.

The destroyer escorts, on arriving at Vancouver, anchored in English Bay on the early afternoon of June 25. All four ships were illuminated that night, and the following day went into Vancouver harbour. Members of the ships' companies participated in festival activities, including the parade through Vancouver on June 26 and "open house" programs over the weekend. Plans for the Vancouver visit were co-ordinated by Captain John Gray, Principal Naval Overseer, Vancouver.

Sailing in HMCS *Fraser* was Captain R. J. Pickford, recently appointed Commander Second Canadian Escort Squadron, who succeeded Captain G. H. Hayes.

The four ships returned to Esquimalt on June 29.

77 Graduate From Royal Roads

Seventy-seven officer cadets of the three armed forces, nearly half of them from Ontario, graduated from the Canadian Services College, *Royal Roads*, on May 29 in a colourful and impressive graduation ceremony attended by some 1,500 guests. The bands of HMCS *Naden* and the First Battalion Queen's Own Rifles of Canada, provided music for the marching manoeuvres executed by the cadet wing.

The inspecting officer was Major-General Robert P. Rothschild, MBE, CD, Quartermaster General of the Canadian Army.

Following the formal inspection, the march-past and the address by the inspecting officer, another highlight of the program was the presentation of major awards to officer cadets who had distinguished themselves by their academic, sports and military achievements.

The graduation marked the end of an activity-packed week which started the previous Sunday with a wing parade in honour of ex-cadets of the services college. On Wednesday there was a full dress rehearsal of the graduation ceremony. The next day the college held the "Parents Day" portion of the graduation program, at which there was a gymnastics display and the presentation of various academic and sports awards.

On Friday evening the graduation ball was held on the college quarterdeck in the Grant Block. The *Naden* dance orchestra supplied the music.

The 34 Air Force, 26 Army and 17 Navy officer cadets, after summer training, will attend the Royal Military College of Canada in Kingston, Ont., for the next two years. On successful completion of their studies there, they will graduate with university degrees and commissions in their respective services.

Commissions for 33 Chief and POs

Thirty-three chief petty officers and petty officers of the Royal Canadian Navy have been promoted to the rank of commissioned officer after successful completion of qualifying courses. They will take up their appointments in ships and naval establishments later this year.

The newly-commissioned officers are: William J. Walsh, Patrick Mackinnon, Thomas A. Miller, William F. Hooper, Leslie P. Graydon, Geoffrey E. Embley, Thomas B. Edwards, Richard C. Duiven, James D. Cummings, Ronald P. Coster, Michael B. Forward.

Ronald Bosquet, Gordon H. Wings, Peter E. Hill, Daniel C. Spicer, Bruce P. Beacock, Andrew J. Black, William H. Taylor, James A. McCullough, Thomas W. Gardner, Hugh A. Millman, Ronald W. Quick.

James E. Wright, John Wandler, Clive D. Pattison, Lawrence W. Larson, Henry L. Clarkson, Sydney D. Bryant, Frederick W. Hoyle, Ernest R. Mueller, Robert K. O'Neil, Kenneth O. MacLean, Graham H. Sherwood.

British Envoy Visits West Coast

His Excellency Sir Henry Lintott, British High Commissioner in Canada, visited the Pacific Command of the RCN in May.

Accompanied by N. S. Belam, principal British Trade Commissioner in Vancouver, His Excellency toured HMC Dockyard and visited the destroyer escort *Mackenzie*. The visitors were accompanied by Rear-Admiral W. M. Landymore, Flag Officer Pacific Coast, and Commodore H. A. Winnett, Commodore Superintendent Pacific Coast.

Later the party visited the British Columbia Maritime Museum.



Naval communicators representing the RCN communications branch at the annual NATO Naval Communications Training Competition in HMS *Mercury*, Petersfield, Hampshire, England in early June were: AB Henry Witter, HMCS *Janquiere*, left, who finished fourth in flashing; AB Ronald Keifert, Naval Radio Station, Frabisher Bay, N.W.T., who came fifth in radio reception and Ord. Sea. Marvin Lane, HMCS *Naden*, who came fourth in teletype. Elimination trials conducted in HMCS *Cornwallis* in May resulted in the above men representing the RCN. The closeness of the contest can be gauged by the fact that the difference in marks between first and fourth places in flashing was only 1.6 per cent while a mere .075 per cent separated first and fifth places in radio reception. Twenty-two contestants representing the navies of seven NATO countries participated. Competitors had to have less than six years' seniority in order to participate. (E-77101)



The Royal Canadian Navy's interest in hydrofoil development goes back to the years just after the First World War. HMCS Patriot, a destroyer, is shown towing at 14 knots the HD-4, a hydrofoil craft designed by Dr. Alexander Graham Bell and F. W. (Casey) Baldwin, on the Bras d'Or Lakes, near Baddeck, N.S. The HD-4 established a 60-knot speed record that stood for a generation. (CN-2947)

HYDROFOILS

THE HYDROFOIL CRAFT is, quite literally, a ship with wings. These wings, or foils as they are called, operate on the same basic principles of fluid dynamics as do the wings of an airplane, the only differences being due to the fact that their working fluid is water, not air.

There is nothing novel in this concept. Marine craft using water wings, or hydrofoils, to support them have been with us in one form or another for more than 50 years. The Wright brothers experimented with such a craft as early as 1907 and it is interesting, though idle, to speculate what might have happened had they decided to devote their energies to this instead of to the heavier-than-air flying machine.

The early history of hydrofoil craft has been dealt with very adequately in the technical literature, but the early work of Alexander Graham Bell and F. W. (Casey) Baldwin is considered worthy of mention here since, firstly, it was Canadian and secondly, it culminated

**C. Beaumont Lewis,
BSc, DCAe, APRAeS.**

*Deputy Director
of
Hydrofoil Development
Royal Canadian Navy*

ated in a craft, the HD-4, which is reported to have exceeded 60 knots. This was in 1919, and this was not bettered until 1953, when the American Grumman XCH-4 attained speeds in excess of 70 knots. Both these craft were powered by reciprocating aircraft engines driving air propellers.

Capabilities

THE HYDROFOIL CRAFT is capable of operation at slow speeds as a normal displacement vessel. It is handicapped, in calm water at least, by having to drag along its foil system. In

rough water these appendages are made to work their passage, for they provide powerful damping forces, even at very low speeds or hove to, which greatly reduce ship motion and give the hydrofoil craft seakeeping qualities comparable with vessels of very much greater tonnage.

At higher speeds—over 30 knots—whereas the conventional hull runs into wave-drag humps and its operation becomes hopelessly uneconomic, the hydrofoil boat really comes into its own. It is able to take off from the surface of the sea and fly with its hull clear of the water and totally supported by the hydrodynamic lift of its foils. It is thus able to attain speeds of 60 knots or more. However, it runs into problems of its own at these higher speeds, namely cavitation and ventilation, of which more will be said later. At present these problems limit its maximum speed in calm water to about 60 knots.

The seakeeping ability of larger (i.e. 200 to 500 tons), practical, naval hy-

drofoil craft has yet to be finally determined, because such craft have yet to be built and present knowledge is derived from extrapolations from tests of smaller craft and computer simulations. However, displacement craft have been made with encouraging results.

Weight saving is of vital importance in the design of hydrofoil craft if useful payload and range are to be achieved. For this reason the designer is forced to adopt, and adapt, the techniques of the aircraft designer rather than those of the naval architect and marine engineer. Indeed, it is the development by the aircraft industry of efficient materials and structures, and high-power/light-weight propulsion units which have made the design of large hydrofoil craft feasible today. The hydrofoil designer still has to remember that his structures have to resist the pounding of a fluid 900 times denser than air and immeasurably more corrosive. It also has to be habitable for

several days rather than for several hours. He cannot afford to ignore the experience of the naval architect and the marine engineer if his boat is to remain in one piece.

Configuration

THERE IS a so-called "conventional" configuration in which the boat has its foils disposed somewhat like those of a modern airplane. (Figure 1). The weight distribution is about 70 per cent on the front foils and 30 per cent on the rear foils. In a larger craft this arrangement complicates somewhat the internal arrangement of machinery, fuel tanks, living spaces, etc.

The next configuration uses the "tandem" arrangement of foils and this is used by the well-known Supramar boats. The weight distribution is roughly 50-50 on front and rear foils. This configuration permits a wide CG

travel and consequent flexibility of internal arrangement. It also has the advantage of equal span foils which can usually be confined to an overall width of little more than the beam of the hull. However, this configuration has some structural disadvantages.

Finally there is the "canard" configuration adopted for the Canadian FHE-400. In this, the weight distribution is roughly 10 per cent on the front foils and 90 per cent on the rear foil unit. In a boat designed for rough water operation this configuration permits very fine lines forward, thus reducing impact loads, and also makes for good internal arrangement and engine installation. It also can be given good stability in following seas.

Type of Foil System

HYDROFOIL BOATS are also classified according to the type of foil system used. In order to stabilize



Three of the experimental predecessors of the FHE 400 are illustrated. At the upper left is the *Massawippi*, designed by naval architect Philip L. Rhodes, of New York, for Cdr. D. M. Hodgson, RCNR, of Montreal, who proposed an attempt on the world's water-speed record. The *Massawippi* project was taken over by Defence Research Board and the craft, built for the Naval Research Establishment, Dartmouth, attained speeds of up to 55 knots. The next craft, the *Bras d'Or*, built by Saunders-Roe in Britain and brought to Canada on board the *Bonaventure* in early 1957, is 75 feet long, compared to 45 feet for the *Massawippi*. Much useful knowledge has been gleaned from her operation. The *Rx*, shown at lower left, is more like a barge than a boat. She is used to test various foil designs.

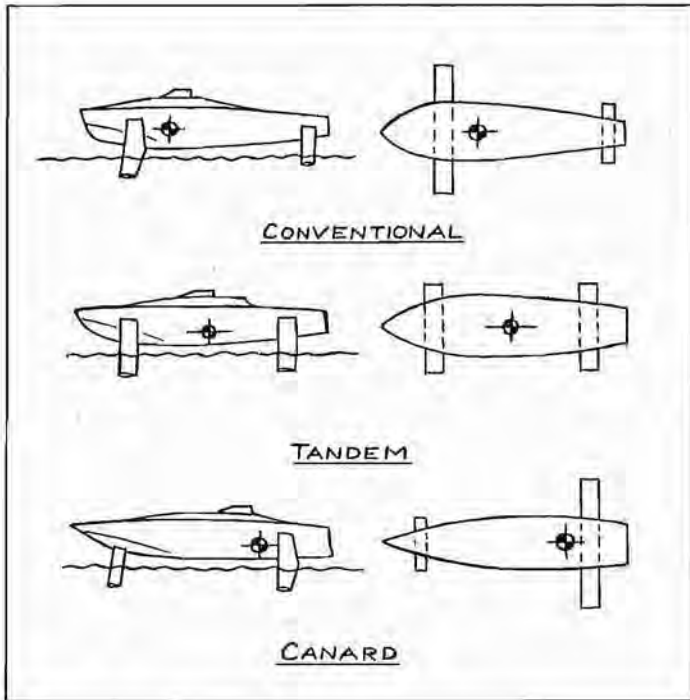


Figure 1

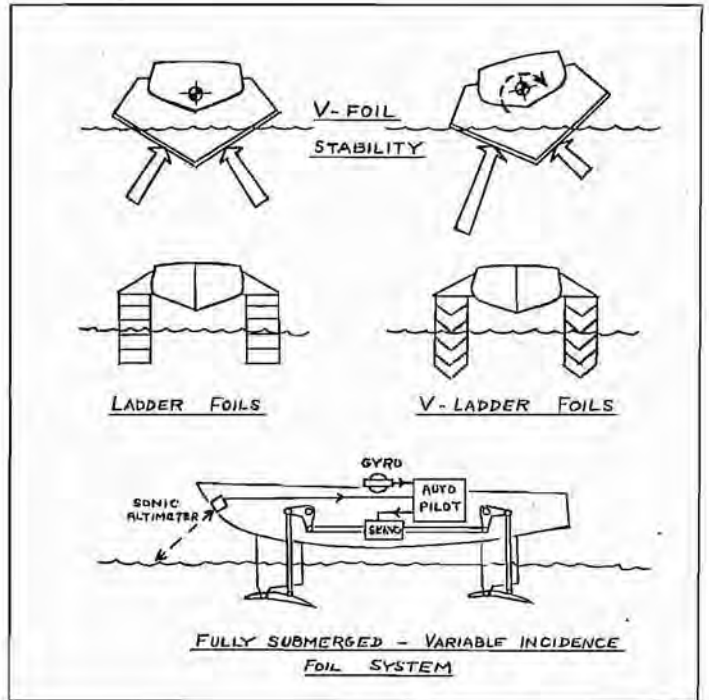


Figure 2

a boat, it is necessary to provide restoring forces and couples by varying the lift of the foils. This is generally done in one of four ways:

First, area-stabilized foils. These are necessarily surface-piercing foils and the lift is varied by immersing more or less of the foil in the water. Within this classification comes the V-foil, the ladder-foil system and combinations of the two. (Figure 2).

Secondly, there are the incidence-stabilized fully submerged foil systems.

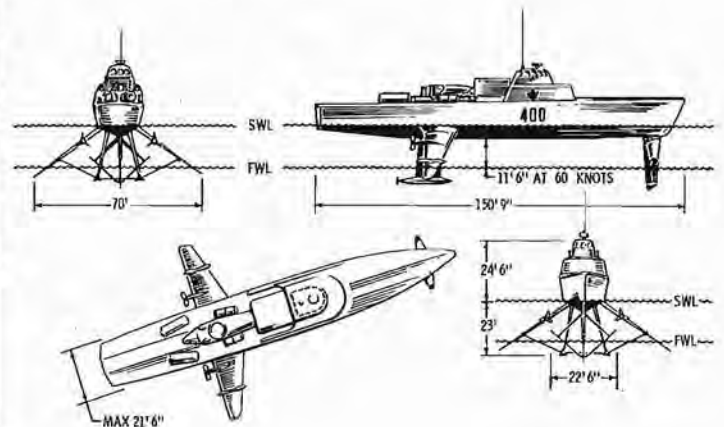
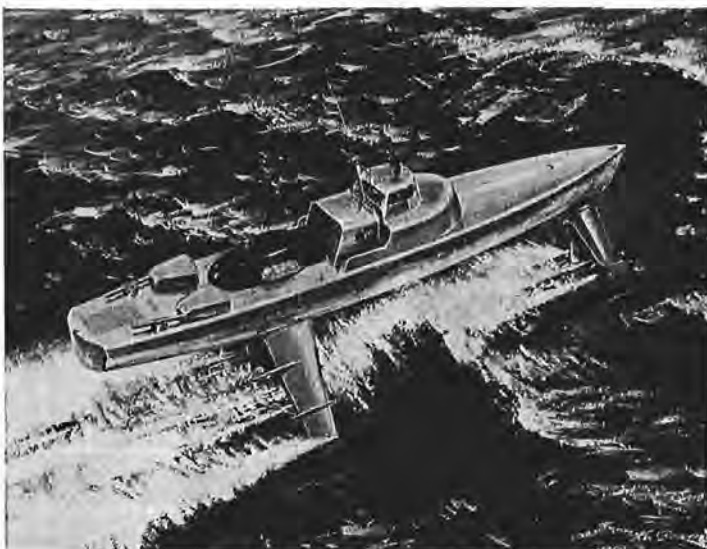
These systems vary the lift of the foil as required by changing its incidence. This may be achieved by sensing changes in the boats' attitude and altitude, and providing these as error signals to a feed-back control system which continuously adjusts the incidence of the foils.

Thirdly, the lift may be varied by changing the effective camber of the foil surface by the use of flaps. Here again it is necessary to use an autopilot and powered controls. (Figure 3)

A fourth type is the trim stabilized system, in which the foil remains fixed relative to the hull, but its angle of attack is changed by changes in pitch trim of the craft. Such changes in trim are effected by a "feeler" foil which is sensitive to changes in the sea contour.

In all the foregoing, the foil sections themselves may be classified as:

Sub-cavitating—similar in profile to low speed aerofoils, and designed for speeds or loadings at which cavitation presents no serious problems.



Illustrated in artist's drawings is the RCN prototype of the anti-submarine hydrofoil ship, the FHE 400. The line drawings show that the hull, at high speed, will be lifted 23 feet so that there is an average clearance of 11½ feet between keel and water surface.

Delayed-cavitation—similar in profile to transonic aerofoils, and designed to avoid peak suction in the chordwise pressure distributions and hence to delay the onset of cavitation to much higher speeds.

Super-cavitating—these sections are intended to “live with” cavitation rather than to avoid or delay its onset. They are designed so as to create, at high speeds, a thin continuous cavity at the upper surface extending from near the leading edge to behind the trailing edge. Nearly all their lift is due to the positive water pressure on the lower surface.

Super-ventilating—here again, these sections are intended to “live with” ventilation (i.e., access of air from the free water surface to the foil surface) rather than to use means of preventing it. Access of air to the upper surface is encouraged, and the lower surface of the foil develops lift as a planing surface. (Figure 4)

Response to Wave Systems

HYDROFOIL CRAFT are sometimes classified according to the way in which they respond to major wave systems; that is:

Planforming—the craft is designed so as to have zero response to waves so that it cruises at constant altitude and without pitch, heave, or roll. This ideal can only be approached with very large craft, or in very small waves.

Contouring—the craft is designed so as to have full response to the wave motion and faithfully follow the contours of major waves.

Semi-contouring—the craft has a partial response to wave systems that lies between the two extremes above. Thus, it is designed to ride smoothly through small waves and to have less than full response to big waves. (Figure 5)

The above attempt at a classification of hydrofoil craft forms is really little more than a glossary of some of the terms used in describing them. The forms that have been adopted are many and varied, as in the early days of aircraft design, and no one predominant form has yet evolved. The operational use to which hydrofoil craft are put will determine many things. Whether their bodies will resemble a ship's hull or an aircraft's fuselage, whether they will use air or water propellers or even air or water jets; these things, and many others, will depend on their missions, and on whether they are used on lakes and rivers or on the open seas.

Cavitation and Ventilation

CAVITATION AND VENTILATION are terms that have been used already and perhaps a brief explanation of these phenomena is now in order. Together they represent the major differences between the fluid dynamics of hydrofoils and aerofoils.

Cavitation—For both types of foil, the pressure on the upper surface decreases as speed increases. In the case of the hydrofoil, a point is reached at which the local pressure on the upper surface falls below the local vapour pressure of the water, and the water then boils. This causes bubbles or

“cavities” of vapour to form and seriously disrupt the hydrodynamic forces generated by the foil. The appreciable loss of lift resulting can cause violent heave instability, aggravated by pitching moment changes and hydroelastic effects. Serious drag increases and erosion of the foil surfaces (by water impact when the cavities collapse) also occur.

Pressure distribution over the foil surface is also dependent on angle of attack or lift coefficient and thus cavitation imposes limits on both the speeds and the range of lift coefficient that can be used. In practice, foil loadings are thus limited to about one ton per square foot; this particular ill wind blows some small good in that this provides an effective “fuse” for structural loads on the foils.

Ventilation occurs when there is access by atmospheric air from the free surface of the water to the low pressure regions on the submerged foil or strut surfaces. Flow over these surfaces is then drastically disrupted. This problem besets both fully submerged and surface-piercing foil systems, though more serious in the case of the latter. Designers have attempted to control or inhibit ventilation by the use of “fences” on struts and foils, their optimum locating being determined by cut-and-try methods.

Craft Size

MANY YEARS AGO aircraft designers were plagued by the so-called “square-cube” law. This was based on the fact that lift was supposed

Figure 3

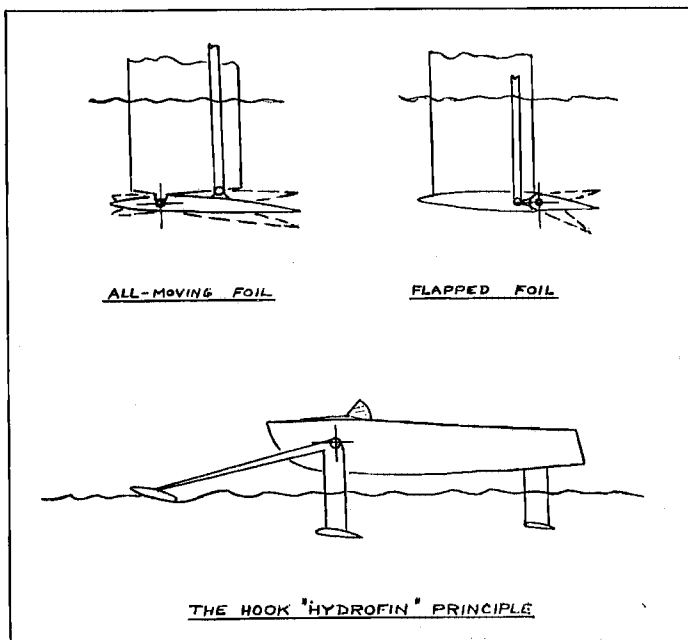
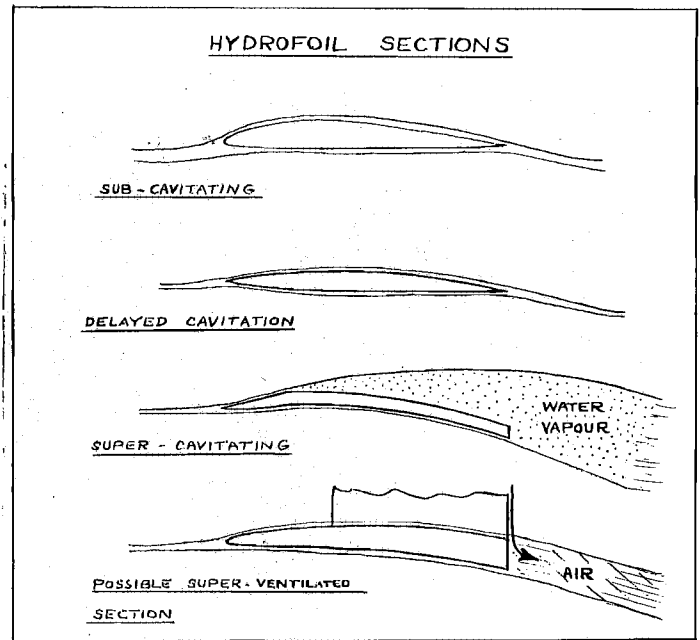


Figure 4



to vary as the square of the linear dimension, whereas the weight was supposed to vary as the cube of the linear dimension. Neither of these suppositions was found to be strictly true, particularly the latter, and designers managed to beat the law by increasing wing loadings (and landing speeds) and getting improved structural efficiency with increasing size.

However, hydrofoil designers have not been so fortunate in shrugging off the "square-cube" law, since cavitation limits foil loadings to about one ton per square foot.

Thus, in spite of all designers can do, the foil weight fraction tends to increase with increasing size. However, hull structure and outfit weight fractions tend to decrease with increasing size, and the fraction of the gross weight taken up by payload and fuel together remains sensibly constant over a wide range of sizes from about 150 to 300 tons.

Above this size, however, the foil system weight fraction increases rapidly, and, in this author's opinion, makes the dream of large foilborne transoceanic cargo or passenger ships quite unrealizable from both the engineering and economic standpoints.

However, small (below 60 tons) hydrofoil craft have for several years operated commercially on carefully selected routes, and larger craft are being built for commercial use by both USSR and USA.

Naval Craft

TURNING NOW to naval craft, it is obviously desirable to work in the most economic size range if this is compatible with other operational requirements.

The factors which will determine the size of a naval hydrofoil craft are, in rough order of importance:—

- (a) seakeeping requirements and habitability
- (b) military load
- (c) range (both foilborne and cruising)
- (d) available power plants.

Other things remaining equal, seakeeping ability increases with size and this factor may well override all others in determining the minimum size of an open-ocean craft for a specific role or roles. Habitability is an important factor, and what is acceptable for an assault landing craft or coastal patrol boat may not be so for an open-ocean ASW craft.

Factors (b) and (c) can obviously be traded one for the other. In the range equation, increasing size has a negligible

effect on propulsive efficiency and specific fuel consumption, and the increase in lift/drag ratio with size is less than for a displacement craft because of relatively increased foil system drag.

Thus, the displacement cruising range for hydrofoil craft between 100 and 300 tons remains approximately 3,000 nautical miles for zero military load. However, as the military load is increased from zero, the range falls rapidly for the smaller craft. The exchange rate for a 100-ton craft is about 100 nm/ton of military load, whereas for a 200-ton craft it is only about 50 nm/ton.

Propulsion Systems

THE PRESENT feasibility of larger hydrofoil craft owes much to the development of "marinized" aircraft gas turbines, which are available today giv-

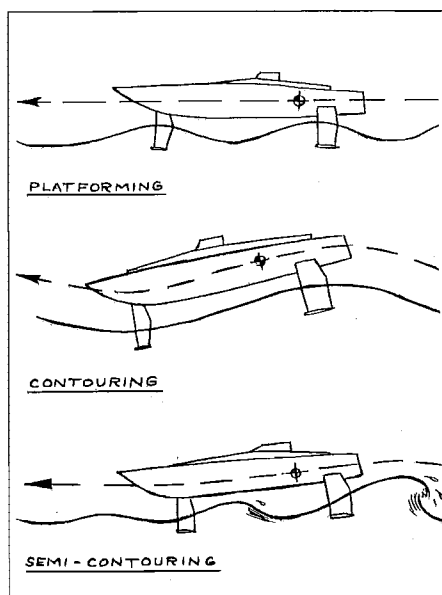


Figure 5

ing power/weight ratios a whole order higher than the best marine diesels, and may soon be available giving up to 25,000 SHP in a single package. Such engines are the obvious choice for foilborne propulsion of the larger hydrofoil craft.

The choice of units for displacement cruising (requiring only a small fraction of the foilborne power) is more difficult in many respects, and will depend greatly on the operational use of the craft. A high-speed troop transport or assault landing craft would probably use a smaller gas turbine for displacement cruising and manoeuvring, whereas an open-ocean convoy protection vessel, which would cruise for long periods at displacement speeds, would probably use diesel engines.

The choice between air propellers, water screws (conventional, variable pitch, or super-cavitating) and water jets is also greatly dependent on the operational use and environment, and subject to the all-pervading considerations of component weights and efficiencies.

The Canadian Role

THE AIM of the Canadian hydrofoil program has been to find the smallest, simplest, and least costly vehicle which can operate with reliability and reasonable comfort in the open ocean and have a high degree of effectiveness in the many phases of anti-submarine warfare and in additional naval roles as appropriate.

The Defence Research Board's interest in hydrofoil research stems from the early work of Graham Bell and "Casey" Baldwin referred to above. Research at the Naval Research Establishment of DRB was originally aimed at developing the potentialities of the Bell-Baldwin ladder-type foil system for application to open-sea operation of naval craft. NRE has been primarily concerned with the development of small craft capable of operation in rough water in the 45-60 knot speed range.

In 1951, NRE took over the five-ton *Massawippi* (R-100), which had originally been designed by a New York naval architect, Philip Rhodes, for an attempt on a water speed record. It has been a very successful craft and was used in trials until a few years ago.

This work led to a series of design studies and model tests for a larger craft capable of open-ocean patrol. This in turn led to a contract being placed with Saunders Roe, England, for design and construction of the 17-ton *Bras d'Or* (R-103) which was delivered to NRE for trials in 1957.

During 1958 and 1959, NRE made a comprehensive study of the hydrofoil craft's potential in ASW.

This was the first serious attempt to synthesize a concept for an ASW hydrofoil system based on the study of both technical and operational factors.

NRE believed that naval applications of hydrofoil craft need no longer be limited to coastal patrol type operators. They suggested that a hydrofoil craft of about 200 tons displacement would be highly effective in many open-ocean ASW roles, and that the relatively low cost of such a system would make it feasible a "small and many" concept offering more operational effectiveness per dollar expended than any other single ASW vehicle.

This led to a contract being placed with the de Havilland Aircraft of Canada

for a comprehensive design study, based on the NRE report, to examine the premises and conclusions in depth and to ascertain the engineering feasibility of the proposed design by means of extensive computer simulation and a model test program.

This work was financed from DDP Development-Sharing Funds, with DRB providing the technical project officer and some of the test facilities and personnel, and it was followed with close interest by the RCN.

This study was aimed at producing preliminary design for a 200-ton vehicle for use primarily in open-ocean ASW roles. Design data was obtained from a comprehensive theoretical and model test program which included:

- (a) development of a special technique for delayed cavitating foil and strut sections.
- (b) hydrodynamic model tests on
 - (i) a small complete model for resistance measurement in calm water and waves at hullborne and take-off speeds, and a qualitative assessment of hullborne seakeeping, (ii) 1/8 scale models of the bow and main foil units for measuring lift, drag, moments and, in the case of the latter model, pressure distribution over the critical regions, (iii) a coupled beam model for measurement of drag and pitch and heave response in waves, (iv) a representative 1/4 scale model of the foil system mounted on the R_x experimental craft at NRE and used for investigations of stability, seakeeping and performance intended primarily to check the validity of the analogue computer simulation of the full scale craft.
- (c) an analogue computer simulation of both the 1/4-scale R_x and the full-scale R200 craft. In many respects this simulator study was the hub of the Phase II design program. This computer study is believed to be the most comprehensive ever made on a hydrofoil craft. The computer was used to simulate the highly non-linear equations of motion of the surface-piercing system in 6 degrees of freedom in sinusoidal seas and random State 5 seas. The simulation took into account the orbital velocities in head, beam, and following seas, partial ventilation of foil and strut elements, unsteady flow hydrodynamics, virtual inertia effects in

waves, and the onset of local cavitation.

This study has produced prediction of craft motions and accelerations in heave, pitch, roll, yaw, side-slip and surge, of foil system loads for rational load analysis and fatigue stress determination, and of maximum and average resistance in regular and random seas.

The R_x craft has been run in regular and random seas of various headings with instrumentation to measure the craft response and the trials sea state. This work has so far shown a reasonably close agreement to exist between experimental and computer results, but some further work is required to acquire a more statistically significant quantity of test data.

Most important of all, perhaps, the computer study has shown (and R_x trials have confirmed) that a surface-piercing foil system can be designed which will be stable on all headings in sea states up to 5 and above.

The Phase I study soon confirmed that something special in the way of foil materials was required if we were to wring the last drop of performance out of a delayed cavitation system and still meet the strength and operational life requirements. At this time the "Maraging" Ni-Co-Mo steels seemed to offer considerable promise, though very scanty design data was then available. The RCN thus embarked upon a separate investigation of high-strength steels and coatings to determine their suitability for hydrofoil and other marine uses.

We now believe that a craft of about 200 tons displacement with the particular foil system developed during the above study will be capable of open-ocean operation in various naval roles.

RCN Hydrofoil Project

THE RCN has made a very thorough technical assessment of the design proposed by the contractor and is now proceeding with the detailed design and construction of a "one-off" development prototype, known officially as the FHE-400.

The aluminum-alloy hull of this craft will be about 150 feet long. Since it seems likely that it will spend by far the greater part of its total time at sea in the "hullborne" mode, the hull lines have been optimized for low displacement resistance and to reduce slamming and wave impact loads. The damping provided by the large fixed surface-piercing foil system gives displacement seakeeping comparable with a much larger ship, and, as we clearly demonstrated by early model tests, this damping results in a surprisingly low rough

water increment of resistance. Thus, although the fixed foils impose a drag penalty in calm water, they really pay for their passage in rough water.

The foil system is of canard configuration, using area-stabilized surface-piercing delayed-cavitation foils of the "V" or "hoop" type. It is a semi-contouring, or partial response, system which does, in fact provide inherent stability and control without the moving parts, sensors, and "autopilots" employed in the USN designs. It had been adequately demonstrated that this system can give good seakeeping in calm water and in modest sized waves. We now have evidence from the comprehensive computer and model test program of the past three years that a fixed, surface-piercing, foil system can be designed to operate successfully on all headings in sea states up to and including SS.5.

Recent work has completely discredited the once widely held view that surface-piercing systems could not perform satisfactorily in certain following-sea conditions, the 3-ton, 1/4-scale R_x can take off and operate successfully on all headings in waves exceeding appreciably a model state 5 sea. The bow foil unit is steerable and provides a rudder for both foilborne and hullborne operation. For low speed manoeuvring the widely separated variable pitch propellers can also be used.

The propulsion system is fairly orthodox and is believed to be well within the state-of-the-art. Separate systems are used for hullborne and foilborne propulsion, the former using a diesel engine and the latter a single large gas turbine. Both systems use "Z" drives through bevel gear boxes located in the hull and in the propeller pods. The displacement propellers are normally out of the water at foilborne speeds.

Considerable attention is being given to the habitability question. The human thresholds of tolerance to ship motion are fuzzy, and it is difficult to predict the reaction of the crew to the foilborne motions indicated by the computer studies of the craft in random seas. Even if these indications are realistic, there are many other factors which we cannot even attempt to simulate. Also, due to the stiff damping action of the foils, the hullborne motions are somewhat unusual.

Living accommodation is not cramped, by submarine or MTB standards, but it will require careful location, and special provisions (such as seat belts) might be required for foilborne operation. Good habitability is essential for crew efficiency, and the crew cannot afford to have their wits dulled by long

periods of hullborne sea-sickness. Every effort will be made to provide the optimum degree of automation for both control of the machinery and for operational control of the craft.

The development prototype craft will be used for extensive engineering trials and for an operational evaluation by the RCN of the usefulness of this type of craft in various ASW roles. For the operational evaluation, the ship will have a representative outfit of fighting equipment. This is being developed concurrently, and will make maximum use of components now existing or in development for other purposes, although system organization and packaging must necessarily be designed specifically for the hydrofoil ship.

The Future

THE SHIP just described is, of course, only one of several hydrofoil craft currently under development for naval and commercial roles. These range in size from a torpedo-like single-seat Russian craft (reportedly capable of 37 knots) to the 100-ton, 45-knot, PC(H) now undergoing trials by the U.S. Navy. The U.S. Navy is also constructing a 280-ton hydrofoil craft, the AGE(H), which will be roughly contemporary with the Canadian FHE-400 which is due to be launched in early 1966.

The fastest hydrofoil now operating is the 80-ton "Denison", built for the U.S. Maritime Administration by Grumman. In its initial calm water trials this craft achieved 63 knots and has since operated at speeds up to 55 knots in 4- to 6-foot waves. Commercial craft—mainly the 30- and 60-ton Supramar boats—have been in service on sheltered waters for many years.

Nevertheless, there are many questions remaining to be answered before we shall know whether or not the large hydrofoil ship is capable of sustained open-ocean operation as a naval vehicle, and if so, what degree of military effectiveness it has in those roles which are of particular interest to the RCN.

The Canadian project is designed to obtain, in conjunction with the hydrofoil program of the USN, the answers to those questions and within a very few years now we shall know whether or not the potential naval usefulness indicated by paper studies can be realized in fact.



HOT SUIT TAKES CHILL OFF DIVING

CLEARANCE DIVING in the wintry Atlantic is a chilly pastime, but a West Coast leading seaman has invented a special suit to warm up the job.

Ldg. Sea. W. H. Nehring, now of HMCS *York*, Toronto, found he got the chills even in relatively balmy Pacific waters, so he started to work on the problem. His answer was a vest made of absorbent materials, worn under a regulation wet suit and heated by hot water.

Normally, divers can work for about half an hour with a wet suit in cold water, then they must surface to warm up. Wearing Nehring's vest they can extend their working time tremendously.

The new vest has been christened a "hot suit". It has undergone tests at both Pacific and Atlantic coasts and the results have aroused the enthusiasm of Navy divers. Final evaluation of the hot suit is being conducted at Downsview, Toronto, by the Clearance Diving Trials and Development Facility. These trials will be completed by summer and, if they are satisfactory, RCN divers could have hot suits in time for next winter.



Ldg. Sea. Lloyd (Chuck) Doyle, of HMCS *Granby*, clearance diving depot ship in Halifax, flushes hot water through a new type of diving suit, designed by a West Coast diver, Ldg. Sea. W. H. Nehring, to keep divers warm in chilly winter waters. (HS-74203)

Here's how the suit works: Before entering the water, a diver fills his Nehring vest with hot water from a hose. While he is working underwater the warm fluid inside his vest cools fairly rapidly, depending on how cold the water is. But when the vest fluid loses its heat, a hot water hose can be lowered to the diver and he can flush fresh warmth into his suit without surfacing. The system keeps divers much more comfortable and saves the time formerly wasted by divers in surfacing to warm up.

Ldg. Sea. Nehring's invention came at a most opportune time. Canada, the U.S. and Great Britain together have agreed to investigate various diving fields, and Canada's investigations are to be channelled into the field of cold water diving.

The Nehring vest also scores marks because it can be fitted to a conventional wet suit for only a few dollars.

ASSAULT SHIP LAUNCHED FOR RN

HMS *Fearless*, the first of two new assault ships being built for the Royal Navy, has been launched at the Belfast shipyard of Harland and Wolff Limited.

The second ship of this class, the *Intrepid*, is being constructed on the Clyde by John Brown and Company Limited.

This entirely new class of ship is designed to carry heavy tanks and equipment to support an amphibious assault and will be capable of landing troops of an infantry battalion (900 men) or a Royal Marine commando and vehicles by means of landing craft.

The landing craft will be carried in the ship's dock and launched from a special compartment in the open stern which can be flooded, enabling the craft to be floated out.

Ships of this class will have a displacement of 10,000 tons, a length of 520 feet and a beam of 80 feet. Four Seacat guided weapons systems will be fitted, together with two 40mm Bofor guns. *Jane's Fighting Ships*, 1963-64 estimates speed at approximately 20 knots.

HMS *Fearless* is scheduled to be completed in December 1965, while the *Intrepid* is scheduled for completion in May 1966. The ships will cost between \$21,000,000 and \$24,000,000 each.

OFFICERS AND MEN

Fellowship Goes To Officer Cadet

Officer Cadet Raymond Paul Cej, 21, a naval cadet in fourth year chemical engineering at the Royal Military College of Canada, has been awarded a \$3,675 fellowship from the California Institute of Technology, Pasadena, California.

Officer Cadet Cej is working on a thesis on the efficiency and characteristics of trays in distillation columns. When he reports to Cal Tech in the first week of September he will follow a program of studies which will include heat transfer, fluid dynamics, thermo dynamics, nuclear engineering and control systems, towards a master's degree in chemical engineering.

He is the son of Mr. and Mrs. P. Cej of Prince Albert, Sask. He graduated from St. Mary's, Prince Albert, in 1960 and attended *Royal Roads*, where he obtained high second class honours before going to RMC in 1962.

At the college he held the appointment of Cadet Flight Training Officer, "A" Flight, and played on the College hockey, rugby and basketball teams.

New Hydrographer At Headquarters

Lt.-Cdr. Bryan Leslie Judd has been appointed Naval Hydrographer at Naval Headquarters.

Lt.-Cdr. Judd entered the Royal Naval Reserve in 1942 and transferred to the Royal Navy in 1946. In 1948, he joined the Royal Canadian Navy. He has served as commanding officer of the cadet training yacht *Oriole* and, most recently, as a member of the staff of the Director of Naval Operations, Naval Headquarters, Ottawa.

Mural Unveiled In 'Stad' Mess

The Atlantic Room of the chief and petty officers' mess at HMCS *Stadacona* was opened May 1 by Rear-Admiral Hugh F. Pullen, RCN (Ret).

In opening the Atlantic Room, Admiral Pullen unveiled a 20 by 5-foot mural depicting a Second World War battle as painted by Lunenburg, N.S., artist Joseph Purcell.

In his remarks, Admiral Pullen described chief and petty officers as the



Rear-Admiral H. F. Pullen, RCN (Ret), unveiled a mural on May 1 to mark the opening of the Atlantic Room in the *Stadacona* Chief and Petty Officers' Mess. The mural, created by Joseph Purcell, Lunenburg, internationally-known Nova Scotia artist, is based on the Battle of Atlantic. Above, left to right, are Mr. Purcell, Joseph Zatzman, Mayor of Dartmouth, Rear-Admiral Pullen and CPO Charles Smylie, mess president. (HS-74891)

"backbone of the Navy", and reviewed the role of the Navy during the Second World War.

Also attending the official opening was Captain D. G. Padmore, commanding officer of *Stadacona*; Mayors Charles A. Vaughan, Halifax; and Mayor Joseph Zatzman of Dartmouth.

Mess President CPO Charles Smylie expressed his pleasure with the new Atlantic Room and said the Battle of the Atlantic mural and motif was to impress upon younger men the importance of the role played by the Navy during the war.

NOAC Convenes In Ottawa

The 41 delegates to the 19th annual annual convention of the Naval Officers' Associations of Canada, meeting in Ottawa on June 11 and 12, re-affirmed the role of the organization as Canada's "maritime watchdog".

National President Liston B. McIlhagga, of Winnipeg, urged member as-

sociations to keep a vigilant eye on current developments to assure that the Navy should continue as an effective part of the country's armed services.

At the opening session, Rear-Admiral K. L. Dyer, Vice-Chief of the Naval Staff, outlined the implications of integration of the services and the Navy's role in implementing the new defence policy. He presented a broad picture of the naval program for the next few years, this being supplemented with technical details from other members of the Naval Board.

Delegates were assured that, while difficulties would undoubtedly have to be overcome in implementing the new policies, the effectiveness of the Navy in the defence of Canada would not be reduced.

The association unanimously re-elected Rear-Admiral Walter Hose, RCN (Ret), of Windsor, Ont., who is in his 89th year, as honorary president. Admiral Hose, first officer of the RCN to be designated Chief of the Naval

Staff and who is known as the "father" of the naval reserve, spoke briefly to the convention. He received a standing ovation.

Honorary vice-presidents are Vice-Admiral H. G. DeWolf, RCN (Ret), and Cdr. F. C. Aggett, RCNR (Ret). Honorary counsel is C. H. Wills. Honorary chaplains elected by the directors are Very Rev. N. R. Burke, Chaplain (P), RCNR (Ret), and Rev. Fr. M. J. MacIsaac, former Chaplain of the Fleet (RC), who retired in 1957.

Vice-presidents of the NOAC are: H. R. McDonald, Maritimes; A. B. Mundy, Quebec; R. G. Bundy, Ontario; H. B. Vannan, Prairies; R. Rich, West Coast, and Captain J. M. Robertson, RCNR, of HMCS *Carleton*, Ottawa, representing the Naval Reserve.

Continuing in office as secretary and treasurer respectively until a permanent secretary-treasurer is appointed are Harry McClymont and E. W. Burns. The association expressed its profound regret at losing the loyal and highly professional service given by Lt.-Cdr. McClymont in his many years as secretary.

The annual dinner of the NOAC was held in the RCAF Officers' Mess, Gloucester Street, Ottawa, on June 12. Directors and their wives were received at Government House at 1100 on June 13.

Two Captains Appointed

Captain Reginald J. Pickford, of Montreal and Halifax, has been appointed Commander of the Royal Canadian Navy's Second Escort Squadron, based at Esquimalt. He succeeds Captain Godfrey H. Hayes, who has been appointed Canadian Naval Member to the Military Agency for Standardization and executive officer of HMCS *Niobe*, London, England.

Shot in the Dark

The following paragraphs on work-ups appeared in the Report of Proceedings of the captain of a West Coast destroyer escort—not the *Mackenzie*:

"Three light-line transfers and approaches were made by the *Mackenzie's* officers-of-the-watch during each of the night watches, with both ships darkened. These evolutions went off remarkably well.

"During one pitch-black approach, difficulty was experienced in locating the *Mackenzie's* bolo line. After much shouting by me, to my chagrin, it was located tangled in my binoculars. A good shot!"

Captain Pickford was born at Outremont, Que., and entered the war-time RCNVR in 1940. He was mentioned in despatches "for preventing war materials from falling into enemy hands" while engaged in demolition work at Brest, during the evacuation of France. Later, he survived the sinking of HMS *Listrac*, in action with enemy destroyers in the English Channel.

Captain Pickford took command of HMCS *Kootenay* when the destroyer escort commissioned at Vancouver in 1959. Before his new appointment Captain Pickford was Director of Naval Plans at Naval Headquarters.

Captain Hayes entered the RCNR in 1941 after training in HMS *Conway* and service in the Royal Navy. He was awarded the Distinguished Service Cross during the Second World War for "gallantry and devotion to duty" while serving in HMS *Gatinais* on convoy escort duty in the English Channel.

Captain Hayes had been Commander of the Second Canadian Escort Squadron since September 1962.

Officers' Wives Help Hospital

The naval officers' wives of the Atlantic Command held a gigantic pantry sale at the annual Kermesse in Halifax. The Kermesse (village fair) is a large bazaar held every year to raise money for the Halifax Children's Hospital.

In previous years the naval officers' wives have held teas and parties, as well

as having a bake table at the Kermesse. This year they decided to put all their efforts into the bake table. Each naval officers' wife was asked to contribute two homemade items from her pantry.

The response was enormous. There were homemade breads and rolls, pies, fancy breads, cookies, squares, jams, jellies, pickles, mayonnaise and many, many more delicious things. There was even an enormous cake shaped and decorated to look like the destroyer escort *Assiniboine*.

The Kermesse was held on June 12 on the parade grounds of the Canadian Army's Windsor Park. It was a rather blustery day and the Army provided tents for each group to display its wares and protect everyone from the inevitable rain.

The tables were piled high in the Navy pantry tent. Despite the weather the crowds came. By the end of the afternoon about 80 per cent of everything had been sold. However, because of the weather and the abundance of stocks held by all the groups in their various tents, the convener of the Kermesse decided to hold a continuation of it the following day. The naval officers' wives, convened by Mrs. Robert Timbrell and co-convened by Mrs. Kenneth Vause, packed up what was left and the following morning sold all of it.

The profit from the pantry table was \$615, which was turned over to the Children's Hospital shortly thereafter. It was a wonderful response for a worthwhile cause.—J.G.



"Tall in the saddle" is a phrase often used of Texans, only in this case it's the captain's chair on board the *Crescent*. When the destroyer escort visited Washington, D.C., in April Congressman Graham Purcell, of Texas, boarded the ship at Quantico, along with press, television and radio representatives, to journey up the Potomac to the *Crescent's* destination. The congressman is shown with Cdr. V. J. Murphy, the *Crescent's* captain. (Official USN Photo)

Q-SHIP CAPTAIN

The first part of this account of the career of Cdr. Archibald Heurtley (Cappy) Reed, retired from the merchant service, the RNR and RCNR and now living in Vancouver, told of some of his adventures in the days of sail. The following part finds him near the end of his sailing career and about to begin a new one in steam. A few brief years after that (in terms of the 91 years he has spent on earth) he became interested in naval matters and joined the RCNR. His story, as related to Captain William A. Herbert, of HMCS Discovery, continues:

Part Two

AFTER SIX YEARS with Shaw, Savill and Albion Company, "Cappy" Reed had risen to third mate. At this point in his career, he had a terrific row with the second mate and left. "I nearly starved".

Eventually he signed on with the Falkland Island Company as second mate and, on board the *Thetis*, worked the wool trade from the Falklands to London.

After passing his first mate's examination, he decided he would forego the sailing ships for the steamers and joined his old company in the 6,000-ton *Maori*. In 1896 he transferred to the Canadian Australasian Line *War-emo* and in that year made his first trip to Vancouver. He remained on the Sydney-Vancouver run for nearly four years and then, having obtained his extra master's ticket, applied for and obtained his RNR commission as a lieutenant.

"Cappy" Reed realized he had to qualify and so, from 1899 to 1901, he galloped through his gunnery and torpedo courses, ending with a first class reserve in gunnery. In 1901, he was appointed—still a reservist—to HMS *Terrible* under Sir Percy Scott, in China during the Boxer Rebellion. Sir Percy at that time was revolutionizing the gunnery of the Royal Navy.

His life in the *Terrible* came to an abrupt halt. The cruiser HMS *Argonaut* was short of officers and within two weeks of joining the *Terrible* he was informed he would have to leave for the *Argonaut*. His farewell party on board was a gay one, as he remembers it.

The CO of the *Argonaut* was Captain George Cherry, described by Cdr. Reed as a "martinet". He said that Cherry was stern and drove both himself and his ship's company unmercifully. Reed reports that he was not cowed by Captain Cherry and maintained his independence, with the result that he stayed aboard for an additional period, winding up with an appointment of 18 months.



Cdr. Archibald Heurtley Reed, 91-year-old retired RCNR and RNR officer, inspects one of his prized possessions, an autographed picture of Admiral Lord Jellicoe, whom the oldtime officer considers to have been the greatest naval officer since the days of Nelson. Behind the frame of the autographed portrait is a personal letter from the British admiral to Cdr. Reed which will be passed on to Cdr. Reed's son, Cdr. Bob Reed, who is attached to HMCS Donnacona in Montreal.

EVENTUALLY his reserve time expired and Reed returned to England where he had been promised a job as commanding officer of a patrol boat organized to police the African lakes. But he was required to wait six months. Living high in London, with expensive dinners and theatre nightly to impress his fiancée, Reed suddenly came to the conclusion that he was going broke and would have to get a job. He applied to Canadian Pacific Steamships and was sent to Vancouver to join the *Empress of India* as fourth officer in 1902. He remained on board the White Empresses of the Pacific for seven years and on one occasion, when his captain fell ill, by special permission from Lloyd's took the *Empress of Japan* under command for two trips.

"Cappy" Reed recalls that he underwent the usual typhoons and gales and the social whirl of passenger liners on

his Oriental trips but he always managed to spend time on naval training to maintain his status as an officer in the RNR, taking his training in the RN's reserve centre in Hong Kong. His CPR passenger service took him from Vancouver to Yokohama, Nagasaki, Hong Kong and Woosun, the port of Shanghai.

He was married in 1903, at St. James' Church (High Anglican) in Vancouver, to the girl he had courted while going broke in London and in 1911 decided that he wanted to settle down. So he applied for and was successful in getting the post of Harbour Master and Port Warden in Vancouver. After two years of service, a Board of Harbour Commissioners was formed and "Cappy" ruefully explains that the more lucrative post of warden was taken away from him and given to a "politician". As Harbour Master he ruled the waterfront with an iron hand. He expected his orders to be carried out to the letter and woe betide any company or ship that ignored his commands. He was fearful of no man or company and to this day claims that his career was jeopardized by his forthright attitude towards "those b . . . politicians".

IN LATE JULY 1914, when war seemed certain, Cdr. Reed, RNR (Ret), reported to the Admiralty he was ready to serve. His offer was accepted and he was told to report to London at once. He hastily called his Board of Commissioners, informed them that he was going. In spite of their protests, he was adamant and, receiving their promise that he would be reinstated when the war was over as Harbour Master, took the first train available out of Vancouver. In Montreal, he discovered there were four or five ships waiting but they had been held in port because of a submarine scare. He did learn that one ship was to go. He visited his friends in the CPR and told them that he knew they couldn't tell him which ship was going to make a run for it but they could fill in the name of that ship on his passage ticket. They did and he joined the ship that same night and by early August was at the Admiralty in London reporting for duty.

He was sent to Chatham, spent two days there before being assigned to the survey ship HMS *Hearty*, which was sent at once to the North Sea where he spent six months on the dangerous job of surveying the Belgian coast. He appealed to his captain, Lt.-Cdr. Jack Edgell (now Sir John) for a transfer to a "fighting ship" and was successful in being appointed to HMS *Benbow*, then the pride of the third battle

squadron. He was a watchkeeping officer as a two-and-a-half, with the 10 six-inch guns she carried under his command. He spent only a month in the *Benbow* before being transferred to the battleship HMS *Duncan* for service in the Eastern Mediterranean. It was in the *Duncan* that an anchor wire snapped and he jumped on it to prevent sailors being injured. It wasn't until after the war that his fingers and toes were amputated from the results of the daring deed. "At my expense, too," he sighed.

Lt.-Cdr. Reed was promoted to commander on Sept. 30, 1916.

Does the loss of his fingers bother him? Not a bit. "I can steal just as much as I ever did," he chuckled.

He was transferred back to Chatham after two and a half years in the *Duncan* as assistant gunnery officer.

ONE DAY he was summoned to the C-in-C's office and informed that next morning at 1000 he was required at the Admiralty to see the Second Sea Lord.

"I immediately wondered whom I had offended or what I had stolen," Cdr. Reed laughingly remembered, "but, next morning, booted and spurred, there I was in London. Imagine my surprise when I was informed that a couple of admirals had recommended me for special duty.

"At the Admiralty, they asked me if I had ever heard of 'Q' Boats and, of course, I replied that I had heard of them but knew nothing about them. They wondered if I would volunteer to serve in them as a commanding officer and I assured them that I would, knowing absolutely nothing about their work.

"I was accepted, told to return to Chatham and look up a couple of officers and some senior petty officers who had served in them and bone up all I could and I would be advised when to join my ship. My appointment came and I went to Dundee to join a small coastal ship named *Goodwin*, which was being built for the coastal passenger trade. On the outside she had the outline of a merchant ship, but her insides were like that of a small cruiser.

"Of course, the name '*Goodwin*' was not on any list, either Admiralty or Lloyd's, and her sea-going name, HMS *Underwing*, was known only to the Admiralty. Our only identification was a number across the front of the ship, 'PC-49', which I had taken from a song popular at that time."

Cdr. Reed was reluctant to discuss his career in Q-ships since his role, according to him, was just routine, not the "guts and glory" events that happened to some of his compatriots. However, to

the accompaniment of a beating of the arms of his chair, he did recount what he says was his most interesting action which secured for another Q-boat commander a DSO and almost a court-martial for Reed.

His "chummy" ship was the *Rule*, commanded by Cdr. Ronald Langton-Jones, and frequently, while in harbour, the two used to work out plans to kill a submarine under certain sets of circumstances. Cdr. Reed said they had worked out about 50 of these attack schemes. One of them was quite simple. When a ship in convoy was torpedoed, he would manoeuvre his *Underwing* alongside and offer himself as "live bait" to the lurking U-boat.

ONE DAY, steaming with a convoy about 200 miles south of Cape St. Vincent, Gibraltar-bound, a large merchant ship was "fished". According to his pre-arranged plan, Reed steamed the *Underwing* alongside, launched boats to pick up survivors and generally made himself useful around the unfortunate steamer. At this point, Reed interjected an explanatory note. On assuming command of his Q-boat, Admiralty had instructed him to "Do anything you want. We'll back you up. Don't be afraid to lose your ship, because if you get one submarine you've proved your value." But there was a standing Admiralty order from the early days of the First World War stemming from three warships having been destroyed by a single, submarine, one after the other, because they had stopped to pick up survivors. The order stated that on no account was one of HM Ships to stop and assist a stricken ship in the presence of the enemy.

The ruse near Cape St. Vincent worked completely. While Reed went about rescuing people, the *Rule*, under Langton-Jones, kept a sharp lookout and sighted the U-boat's periscope slicing through the water, bent on shooting up Reed's ship.

"I heard some dull explosions", Cdr. Reed recalls, "and though one of my men on the bridge thought it was our boilers, I knew it was something else. Then, White Ensign unfurled, the *Rule* swept by me at full speed, messaging: 'Submit have confirmed kill.'"

"What had happened was this: Langton-Jones had kept behind the submarine and, as soon as he saw the periscope, he knew the German was lining up ready to blow me to Kingdom Come. He ran over the U-boat, dropped four depth charges on him, which blew him to atoms. Our plan had worked perfectly.

"There was great excitement at Gib. Langton-Jones was given a hero's wel-

come, and they added a bar to his DSO. As for me, I was sent for by the Chief of Staff who wanted me to submit my reasons in writing for having stopped my ship in the presence of the enemy contrary to standing Admiralty orders. I could be court-martialed, I was told.

"Well, I called him a fool and told him that if I did set down my reasons in writing, he'd look like an ass and I had no intention of writing anything. Later that day, I met Captain Evans, of the *Broke*, who complimented me on my ruse and I told him that COS was after my scalp. He told me not to worry. I didn't and I heard nothing more about it. But there was the *Rule* getting all the glory and I was getting a rocket. But we did kill that submarine."

WHEN HE RETIRED, "Cappy" Reed moved to Bowen Island, just outside the Port of Vancouver, where by hand he cleared seven acres of timber land and built a house. Shortly after his retirement, he received a top secret letter from the RCN, through Intelligence, wondering if he would consider "an assignment that was almost 99 per cent certain fatality". Because of his experience as a hydrographer, Reed was needed if he would agree to make surveys of the Burma beaches, preparatory to an invasion under Lord Louis Mountbatten, then Supreme Commander, Southeast Asia. Reed immediately volunteered, but the plan was cancelled.

"I told them I was as fit as a man of 25 and would be willing to go anywhere. I told them, too, that even though I had one kidney removed after a steeplechase horse had fallen on me, the doctors told me that with a lot of care, I might possibly live for another 20 years—maybe! They apparently couldn't get a force mounted for the Burma show, because I didn't hear any more about it," reflected the retired officer.

Cdr. Reed is proud of his two sons. Robert, who holds a commission as a commander (E) in the RCNR, is an executive with Canada Steamship Lines in Toronto and served throughout the war with the Royal Navy. The junior Cdr. Reed won the DSC and was mentioned in despatches four times. Dick, who worked with an aircraft factory during the Second World War is with a large engineering firm in Montreal. Mrs. Reed died in 1949.

For all his pepperpot speech, "Cappy" Reed is a deeply religious man. He attends St. James Church regularly, walking the two and a half miles into Vancouver's East End and back every Sunday.

He abhors television, except for the rebroadcast of the Grand National Steeplechase, keeps apace of the news through newspapers (he still subscribes to the *Sunday Times*) and his small radio, paints ships under full canvas in water colours and has an entire wall filled with military history, with the emphasis upon Sir Winston Churchill's works and accounts of naval actions in both world wars.

"Cappy" Reed still drinks a tot or two of lime juice instead of eating vegetables, sometimes spicing the drink of his apprentice days with a liberal two-ounce splash of something stronger. His most prized possession is an autographed picture and personal letter from Admiral Lord Jellicoe, whom "Cappy" considers to be the greatest sailor in the world.

He feels that if Canada is to keep up with the times she should have nuclear submarines today but he hastens to add "anyone who spouts off about today's Navy is liable to make a plain ass of himself. We should keep abreast of the times, though, keep in the running."

Cdr. Reed admires the young sailors of today, not as seamen, but because of their scientific knowledge.

What is his recipe for a long and happy and healthy life?

"No recipe at all. Keep out self entirely. Try to help someone else, even if it is an old tramp down the street. Be natural, devote yourself to some service," he thundered, as he took another pull at his drink and banged on the arm of his chair.

The End

RN'S FLAG 100 YEARS

MOST PEOPLE appear to think that the White Ensign has been the flag of the Royal Navy from time immemorial, but it was not until July 1864 that the White Ensign really became the flag of the RN.

For over 200 years previous to this date, the Royal Navy was divided into three squadrons, which were designated by their respective squadrons, red, white and blue. The red squadron ranked first, the white came next.

Ships sometimes moved from one squadron to another and it was necessary, therefore, that they should carry three suits of colours to be able to hoist the correct ensign.

The red and blue ensigns were not easily recognizable in the smoke caused by battles and could be mistaken, at times, for the flags of foreign ships. For this reason, Nelson, Vice-Admiral of the White, at Trafalgar, ordered the British Fleet to hoist the White Ensign, this being more easily distinguishable from the French flag. Collingwood's squadron would normally have worn the Red Ensign.

Seniority difficulties regarding the admirals on the red, white and blue lists caused difficulties, but an Order in Council on July 9, 1864, put an end to the three-flag system.

The same Order in Council directed that the White Ensign was to be hoisted at 8 o'clock from March 24 to September 20, and at 9 o'clock from September 21 to March 24 at home and 8 o'clock or 9 o'clock, as the commander-in-chief directed, when abroad. Flags should fly until sunset, when they were to be hauled down.



The ceremonial hoisting of the ensign has over the years altered a little. Old-timers will recall how in barracks a guard and band were always paraded for "Colours" but, now that bands are few and far between, this ceremony is going by the board to a great extent, although, of course, hoisting is always carried out with considerable respect. In Portsmouth Barracks, the ensign is hoisted at 8.30 every morning of the year.—*Navy News*, newspaper of the Royal Navy and the Royal Naval Association.

AFLOAT AND ASHORE

ATLANTIC COMMAND

HMCS *Restigouche*

June 9 again brought annual inspection for HMCS *Restigouche*. Officiating was the Commander of the Fifth Canadian Escort Squadron, Captain D. L. Macknight.

Captain Macknight spoke to the ship's company and recalled the part played by the *Restigouche* in escorting HMCS *Bonaventure* to Cyprus and return. He also spoke of future commitments of the ship and encouraged the ship's company to keep up its high standard of efficiency.

The following day, in company with HMCS *Terra Nova*, the *Restigouche* proceeded to local areas to demonstrate her proficiency at anti-aircraft and surface shoots. At the end of a busy day, the ships anchored in St. Margaret's Bay and proceeded to carry out competitive drills at anchor under the direction of the inspecting staff. The inspection ended with a mock attack by divers from HMCS *Granby* in the early hours of the next morning.

Shining Target Attracts Shark

From all accounts, there are supposed to be literally millions of sharks in the Indian Ocean, where three Pacific Command destroyer escorts took part earlier this year in the big Commonwealth training exercise "JET '64".

But in weeks of steaming few of the sharp-toothed denizens of the deep were seen by members of the ships' companies.

Squadron dental officer Major David Carmichael wondered about the presence of sharks on one occasion when the *Fraser* was at a stand-still during an exercise. He didn't have to wonder very long.

He tossed overboard the bright lid of a large, empty paint can. The shiny disc zig-zagged its way into the clear blue water, and within seconds a six-foot shark was in the immediate vicinity. Its blue-grey body bore down on the paint can top and, all of a sudden, the lid's flashing descent was stopped. But only for several seconds—enough for the shark to realize that paint can lids are tough and not tasty.

The lid continued its descent. The shark vanished, too, probably needing services of the dental officer.



PO Joseph H. Peters returned to Charlottetown in June with his ship HMCS *Fort Erie* and met his former cub pack, the First Charlottetown "A" Pack. PO Peters was leader of the pack while stationed in Charlottetown a year ago. (HS-75252)

Again at sea, the *Restigouche* and *Terra Nova* met the *Kootenay* and *Columbia*. There followed two days of anti-submarine exercises with HMS *Alcide*, Royal Navy submarine based at Halifax.

Each of the destroyers had seven cadet midshipmen undergoing 3rd phase ROTP summer training and during each day special demonstrations and exercises were held for the benefit of the cadets.

At noon on June 14 the four ships steamed into Boston to begin a four-day visit. Most of the ship's companies attended a baseball game between the Boston Red Sox and the Baltimore Orioles on the afternoon of their arrival and then went on to tour Boston.

Boston provides glimpses of history at every turn for personnel ashore. The sites of the Boston Tea Party and the Boston Massacre were among those visited by RCN sailors walking round the city.—J.K.S.

HMCS *Kootenay*

Looks of apprehension soon gave way to smiles and excited chatter as vari-

ous groups of children were guests of the men of HMCS *Kootenay*. During the Fifth Escort Squadron's visit to the Mediterranean last winter, time was taken to entertain 105 orphans from the Children's House, Leghorn, Italy and 43 children from St. Israil's School for Orphans in Lisbon, Portugal.

Men from all departments in the ship acted as guides, explaining as best they could in "sailorese" the facts of life at sea. After a tour of the ship, cookies, cake and candy were served in the main cafeteria followed by cartoon movies. Here there was no language problem!

In appreciation the children sang songs in their own tongue.

In Halifax, the *Kootenay* has been host to a group of students from Hartford, Connecticut, two high school classes from King's County, Nova Scotia, and a Cub pack from Dartmouth, N.S.

VS 880

CBC Mobile Productions were looking for a new and different location for staging "Don Messer's Jubilee".

They found it.

On May 14, mobile TV equipment, ranging from cameras to huge trucks crammed with electronic gear, was installed in the vast hangar of Anti-Submarine Squadron 880. Don Messer was putting on his best show of the season in one of the biggest barns he could find.

A wooden platform, surrounded by the Squadron's gleaming CS2F Trackers, provided the stage for Don Messer and his Islanders, Don Tremaine, who MC's the show, Marg Osborne and Charlie Chamberlain. The Buchta dancers skipped their way through a number of dances on the stage, which was emblazoned with a huge VS-880 badge.

Spectators were in abundance, giving forth with loud yahoos and other appropriate applause. Some 800 service personnel and their families saw the live production of the CBC show, which was presented over the network on June 8 by videotape.

NAVAL DIVISIONS

HMCS *Star*

Hamilton's naval division, *Star*, has a new commanding officer.

Cdr. H. C. Tilbury relieved Cdr. R. G. Wilson, who headed the division for the previous year and a half.

The change-of-command ceremony took place during *Star's* annual inspection in May by Commodore P. D. Taylor, Commanding Officer, Naval Divisions.

The new commanding officer, Cdr. Tilbury, had been executive officer of the divisions since October 1962. He joined the Royal Canadian Naval Volunteer Reserve at Hamilton in 1940 as an electrician and served throughout the Second World War as an instructor in Halifax and at sea.

Demobilized in 1945 as an acting sub-lieutenant, he rejoined the naval service at *Star* in 1949 and has served continuously with the division since.

Cdr. Wilson joined the RCNVR at Hamilton in 1942 as an electrical artificer. He was demobilized in 1945 and returned to *Star* in 1948, serving until 1960. In January 1963, he was recalled to the active naval reserve to take command of the division.

HMCS *Hunter*

There may have been a hint of the shape of things to come during the annual Royal Canadian Sea Cadet inspection at HMCS *Hunter*, the Windsor naval division, in mid-May.

The Cadet of the Year award was presented to Sea Cadet CPO Larry Peddie, of Sandwich West Township,

by Keri Lewis, of the Windsor Naval Officers' Association, representing the Navy League of Canada. The inspecting officer was Lt. V. S. Curry, Assistant Area Officer, Sea Cadets, from Toronto.

What distinguished the occasion from others of its kind was that earlier in the day Cadet Peddie had appeared in the uniform of the Essex and Kent Scottish as a member of the Army Cadet precision team of Massey high school at the school's annual cadet inspection. For appearing with the precision team, he was presented with a badge by R. B. Whetstone, principal.

SEA CADETS

RCSCC *Falkland*

The annual inspection of Royal Canadian Sea Cadet Corps *Falkland*, under the command of Lt.-Cdr. W. J. Eastwood, RCSC, took place on May 6 in the drill hall of HMCS *Carleton*, the Ottawa naval division, with a large number of relatives and friends in attendance.

The inspection was by Rear-Admiral C. J. Dillon, Naval Comptroller, who first inspected the cadets drawn up in divisional order, then took the salute as the cadets marched past.

Annual awards were presented to the cadets, after which Admiral Dillon spoke to the cadets and their friends. He thanked the Corps for the opportu-

tunity of seeing at first hand the work being done on behalf of youth training. He stressed the vital need for the cadets to continue their education, pointing out that the world of today was a specialized one in which a good education was of extreme importance.

He hoped that out of this form of cadet training, the defence forces of Canada would always have a reserve of well-educated, dedicated young men to whom they could turn for leadership when the occasion arose.

One notable feature of the inspection was that the entire proceedings were under the command of senior cadets, with the officers standing, as it were, on the side-lines. This idea was introduced by the commanding officer, Lt.-Cdr. Eastwood.

A presentation by two of the cadets on behalf of the Corps was made to Lt. Bruce Mundy and Mrs. Mundy in recognition of eight years devoted service by Lt. Mundy to the corps as executive officer. Lt. Mundy was forced to resign from active duty because of the pressure of other duties but will continue his association with the Corps through membership in the Ottawa branch of the Navy League of Canada.

Representatives of the Navy League of Canada, the Naval Officers' Association and the Falkland Chapter, IODE, attended the inspection.



Cyril Robinson, staff writer of *Weekend Magazine*, presents a \$100 cheque to the ship's fund of HMCS *Athabaskan* in appreciation of the ship's making available to the magazine photographs depicting the *Athabaskan's* rescue of 34 seamen from the tanker *Amphialos* March 1. Shown, from left, are Lt.-Cdr. Stan Dee, executive officer; Mr. Robinson; Cdr. P. R. Hinton, captain of the *Athabaskan*; CPO B. C. Stevens; PO A. J. Tremblay, and Captain J. P. T. Dawson, Commander, First Canadian Escort Squadron. (HS-7462)

LONG WAY ROUND

Part Three

AFTER A RESTFUL four-day passage across the Bay of Bengal, HMCS *St. Laurent* entered the crowded harbour of Colombo, Ceylon, on the morning of March 21. The ships secured at Queen Elizabeth Quay in downtown Colombo and the ship's company was not long in venturing to see the sights.

A pear-shaped island, 270 miles long by 140 miles wide, Ceylon offered a multitude of attractions. For the sight-seer, many tours were organized around Colombo and into the interior of the island. For the bargain hunter downtown Colombo abounded in shops and stalls of all descriptions selling everything from carved ebony elephants to famous Ceylonese tea.

Probably the most intriguing aspect of our visit to Ceylon was the presence of great gem markets in Colombo. Ceylon has been famous for her gems and semi-precious stones since early historic times. Sapphires, rubies, opal, aquamarine, garnet, topaz and moonstones all abound and, indeed, caught the eye of all.

To those who had the opportunity to tour the interior of the island, Kandy, 72 miles from Colombo, seemed to be the favourite. On the way up to this ancient hill capital you pass through the coconut palm groves which grow profusely along the coast and in the low lying lands, then through the rubber district which stretches from the foothills to the low mountain sides and, finally, as you continue to climb up the interior mountains, you enter the tea district. Here, nestled in a beautiful valley is Kandy. Famous for its restful atmosphere, the Dalada Malegawa, or temple of the Sacred Tooth of Buddha and the beautiful Botanical Gardens of Peradeniya, Kandy provided at least one pleasant afternoon for many members of the ship's company.

On March 26 our brief visit to Ceylon came to a close and we manoeuvred once again through Colombo's busy harbour, north-northwest through the Lacadive Islands to Karachi, Pakistan.

Unlike our arrival in any other harbour we had yet visited, our greeting in Karachi was slightly obscured to say the least. On the morning of March 30, we arrived off Karachi to find a rather



A snake charmer entertained men of the *St. Laurent* when the ship paid a visit to Colombo, Ceylon. Learning about the reptiles, and how they are trained, are Ord. Sea. Donald K. Spales, Ldg. Sea. Clifford Watt, and Ldg. Sea. Robert B. Orr. (E-74896-186)

short-lived dust and sand storm in progress. With the visibility reduced to just a few hundred yards, we remained outside the entrance until the storm subsided and then, with rapidly improving visibility, we entered Karachi for a five-day visit.

Sitting oasis-like on the edge of a desert, Karachi is the largest, youngest and most modern of all cities in Pakistan. It, like many cities we had previously visited, has two faces. While the city may be known for its ultra-modern buildings, fashionable housing societies, wide avenues, parks and garden, on the other hand, its fleet of donkey and camel carts, crowded bazaars, pavement quacks and palmists, snake charmers and faith healers depict a picture torn from medieval history. This contrast made our visit to Karachi most fascinating.

Although there was little in the way of sightseeing in the desert area surrounding Karachi, the city itself and the nearby beaches provided ample entertainment. Shopping again was a highlight and if one was not shopping for a camel saddle or a piece of local silk, he was shopping for some finely tooled brassware or Pakistani leather goods.

In retrospect our brief stay in Pakistan held a fascination all its own. The beautiful warm days and cool evenings, the hustle and bustle of the city streets, the friendliness of the people and the mixture of the old world and the modern made our visit memorable.

On the morning of April 4 we left Karachi behind as we set heading across the Arabian Sea to Aden. Our passage took five days and after our busy itinerary these were a welcome

relief. On the morning of April 9 we entered Aden for an overnight refueling stop.

East of the straits that broaden from the Red Sea into the Gulf of Aden lies a shallow peninsula of jagged rock formed by volcanic eruption. Tiny, 78 square miles in area and strategically important, this is the crown colony of Aden. Across the Isthmus of Khormak-sar, which joins Aden to the mainland, is the Aden Protectorate, covering an area of 112,000 square miles bordered on the north by the Yemen and Saudi Arabia, and in the east by Muscat and Oman. Sun-scorched, agriculturally barren and lapped by a sluggish warm sea, Aden is a thriving trading area between East and West. Its magnificent harbour is active and its small, crowded shops are prosperous and a delight to shoppers who are prepared to drive a hard bargain and waive any suggestion of quarter.

Although our visit was short, everyone had at least a brief opportunity to proceed ashore.

Midnight on the evening of March 10 found the *St. Laurent* through Hell's Gate—the narrow entrance to the Red Sea and for the next four days we steamed northward, arriving at Suez early on the morning of April 4. Here we waited for the second largest convoy in the history of the canal to form up before proceeding northbound through Suez.

Immediately after arriving at our anchorage off Suez, His Excellency J. Chapdelaine, the Canadian Ambassador to the United Arab Republic, came aboard to accompany us through the canal and on to Alexandria, our next port of call.

The canal is 86 miles long and is divided into two main parts, the southern part from Suez to the Great Bitter Lake to Port Said on the Mediterranean. South and northbound ships are formed into convoys which transit the canal twice daily for northbound ships and once daily for southbound ships.



When the *St. Laurent* paid a visit to Colombo, Ceylon, the Captain of the Royal Ceylon, Commodore R. Kadirgamar, paid an official call on Cdr. D. D. Lee, commander of the *St. Laurent*. (E-74896-199)

We departed Suez late in the morning of April 14 and arrived in the Mediterranean at midnight the same day.

After a leisurely passage westward in the Mediterranean we entered Alexandria on the morning of April 16 for a five-day visit. Almost immediately on arrival, our chaplain, Rev. A. J. Mowatt, made arrangements for a host of tours for the ship's company. Probably the most interesting of all was the visit to Cairo.

Here, about 70 members of the ship's company had an opportunity to spend an entire day and it will truly be one that will be long remembered. The day began at 6 am when the bus left on a 3½-hour trip to Cairo. Upon arrival we toured the old city and visited the famous Cairo Museum. Then we visited

the Citadel and the Mohammed Aly Mosque with its magnificent view overlooking Cairo, the Nile and the pyramids of Giza far in the distance.

After lunch we travelled the 15 miles out of the city to Giza, to view the Sphinx and the famous pyramids, tombs of the Royal Pharaohs of the Third and Fourth Dynasties, dating from 2780 BC. All astride camels, with cameras draped over our shoulders, we set off to have a closer look at the pyramids and Sphinx. The largest of man-made mountains is the Great Pyramid of Cheops. So exactly hewn were its 3,000,000 blocks of granite that no mortar was needed to bond them. It stands 441 feet high, and took approximately 40 years to construct. A few of the more daring ventured to the top of Cheops to view the countryside but most were content to take dozens of pictures and concentrate on controlling their loose-jointed, rather independent, ships of the desert.

Returning to Cairo we had an opportunity to walk through the Khanal-Khalili bazaar and then, just at sunset, all went sailing up the Nile. This was a perfect opportunity to rest our aching bodies and view the skyline, the smooth domes and delicate minarets of many beautiful Islamic mosques and the many beautiful modern buildings which adorn the banks of the Nile.

After dinner we set off for a brief glimpse of Cairo by night before setting out on our long trip back to Alexandria.

For those who did not travel to Cairo various tours of Alexandria and the surrounding countryside were organized. By the end of our short visit few, indeed, had not had at least a brief glimpse of Egypt and life in this ancient land.

Our visit to the United Arab Republic came to an end on the morning of April 21 and we sailed from Alexandria's busy harbour bound for our next port of call, Haifa, Israel.

(END OF PART III)



HERE AND THERE IN THE RCN



HMCS Saskatchewan, busy this spring with school relations cruises, had Mayor Peter Maffeo, of Nanaimo, B.C., as a guest during one of the cruises out of the up-Island city. His warship is shown going ashore following the voyage. (E-76220)



The Pacific Command, with enviable records for donations to blood clinics, has been honoured by the Red Cross. Special certificates for total of 90 donations were presented to three donors by C. R. Steen, president of Victoria and area Red Cross. Presentations were made during a recent visit of the mobile blood clinic to Naden. From left: Mr. Steen; PO M. J. Bernier, HMCS Mackenzie, 50 donations; Ray E. Taylor, HMCS Naden fire hall, 20 donations, and Lt. Eric Haywood, Command Photographic Officer, 20 donations. (E-76957)

MACKENZIE



Eleven-year-old Chung Wai was welcomed on board HMCS Mackenzie at Hong Kong. The youngster is the CARE plan foster son of 33 Utility Air Squadron, based at Patricia Bay, B.C. (E-75971)



Yiu Chi Ling, 11, one of nine children of a Hong Kong family, was "adopted" by the ship's company of HMCS Margaree four years ago. The sailors contribute to her welfare monthly through CARE. Little Miss Ling, and her parents, were guests of HMCS Fraser when the ship visited Hong Kong last spring. Shown with her and her new doll are AB Dennis Moore and Ldg. Sea, Ron Duffy. (CCC2-1629)



Stalwart Nipigon sailors, hand-picked for size and bearing, formed the Royal Guard for His Excellency, General the Rt. Hon. Georges P. Vanier, Governor General of Canada, who was guest of honour at the May 30 commissioning of the new destroyer escort in Sorel, Que. (Photo courtesy Marine Industries Limited)



FAMILY PORTRAIT—In the sunshine of Charlottetown, the ship's company of HMCS Fort Erie posed for their portrait. The Fort Erie was in Charlottetown to help with Prince Edward Island's Centennial Celebrations. (HS-75248)

ABOARD THE USS MONITOR

THE ENCYCLOPAEDIA BRITANICA defines a monitor as a "shallow-draft warship, usually with very low freeboard, fitted with heavy guns in one or two turrets and specially designed for coastal bombardment". It mentions that the idea probably originated with Captain Cowper Coles, RN, during the Crimean War in 1855 but that the British had used bomb ketches as early as the 17th century. Steam propulsion was needed to make the monitor practical. It also says: "The history of this type begins with the most famous vessel of the class, the *Monitor*, designed by John Ericsson in 1861".

Ericsson's *Monitor*, building for the North, and the conversion by the South of the frigate *Merrimac* to an ironclad became practically a race. The *Monitor* was no conversion job. She had hardly any freeboard, except at the middle where there was a gun turret nine feet high, housing two 11-inch Dahlgren guns. She drew only 10 feet, six inches, and other dimensions included a length of 172 and beam of 41 feet, six inches. Armour included one inch on the deck, five inches on the sides and eight on the turret. She displaced about 1,200 tons and she had a crew of 58. She came to be called "Yankee cheese-box on a raft", but she was deeply feared.

You don't have to be a Civil War buff, or even a student of naval history to enjoy *Aboard the USS Monitor: 1862*. This is a volume of letters from the acting paymaster of the ship to his wife in Illinois, edited by Prof. Robert W. Daly, U.S. Naval Academy, and

BOOKS for the SAILOR

published by the U.S. Naval Institute. It was issued on March 9, the 102nd anniversary of the battle between the *Monitor* and the *Merrimac*. It introduces the Naval Letters series of the U.S. Naval Institute.

The "paybob" was W. F. Keeler, a merchant turned naval officer. His letters are chatty and detailed. The book's format is a work of art, a delight to read and a joy to behold.

Keeler, anxious to share his life in this renowned new ship, wrote his wife prodigiously. He indicated some of the letters were for her to touch up a bit and circulate. He also wrote the odd piece for northern publications. He served in the ship from her entering the war to her foundering in a storm, and emerged unharmed from that to describe her finish in another letter back home.

The volume is the first in a new Naval Letters Series. If the successors match the first one, nautical libraries will be greatly enriched.—H.C.W.

ABOARD THE USS MONITOR: 1862, by William F. Keeler; published by U.S. Naval Institute, Annapolis, Md.; \$6.50 (3e).

CAT AND MOUSE

JAMES BENSON and C.E.T. Warren, just to reverse the order of their names for a change, have a special talent for telling of underwater exploits. They have a knack of explaining complicated environments and moods in simple understandable terms and catching the elations and depressions, beliefs and superstitions, and periods of intense activity and lethargy common to persons who conduct much of their business under water.

Their current book is *Will Not We Fear—The Story of His Majesty's Submarine Seal and of Lieutenant-Commander Rupert Lonsdale*.

The *Seal* was a large minelaying submarine commissioned in February 1939. On August 4, she sailed for the Far East. When war was declared on September 3, 1939, the *Seal* was at Aden and was assigned to local patrol. Subsequently she served in the Mediterranean and participated in convoys to and from Halifax.

Then came the fateful patrol—a minelaying mission through the Skagerrak into the Kattegat. Early on the morning of May 4, 1940, as she was nearing the area where the mines were to be laid, the *Seal* was forced to dive by an aircraft which near-missed her

SCHOOLROOM RUN LIKE SHIP

The following story appeared in the Hamilton Spectator on May 29 under the heading Dundas Class goes Navy:

ALL IS SHIP-SHAPE with the crew "aboard" HMCS *Terra Nova* these days.

Terra Nova is a classroom in Greenacres Public School, Dundas.

The crew is composed of grade six students.

Unofficial "Admiral of the Fleet" is Miss E. Duvin, a pert teacher in her first year.

"The Captain" is a student and all ship's officers got their jobs on a points-merit system based on good behaviour.

The ship-in-a-classroom is Miss Duvin's method of holding discipline among students and it has worked—there is not a mutinous spark in sight, she claims.

It started when Miss Duvin realized on her first day that it wasn't all apples for teacher. She looked for a discipline aid, then hit on the navy theme.

She wrote to two retired admirals for help and they suggested the class adopt an RCN ship.

Students wrote off to captains of four destroyers based at Halifax. Back came the replies. The crews were delighted.

So the Grade six class at Greenacres

has now 36 matelots, not students; it has four ships' crews, not sections; "prefect" is a captain and there's a first lieutenant and four petty officers to crack down on mutineers.

And you never saw a more cheerful Admiral of the Fleet.

"Many of the students are writing to the sailors and they seem to love it," she said yesterday.

"I have found a wonderful way to keep discipline and I think the idea might spread".

Ships concerned in the adoption scheme are the *Assiniboine*, *Terra Nova*, *Skeena*, and *St. Laurent*.

with a bomb that caused slight damage. From this moment the hunt was on but, despite heavy anti-submarine trawler patrols, the *Seal* managed to lay the mines in an area designated as an alternative target.

Then a game of cat and mouse developed as the *Seal* twisted and turned to evade detection by the trawlers and a second group of trawlers which appeared in the early afternoon. By 1830 the *Seal* appeared to be clear of all trawlers and caught a stop trim on a layer at about 90 feet down. As the crew relaxed and began to eat their evening meal an explosion holed the submarine aft. Only immediate shutting of watertight doors kept the submarine from flooding throughout. Heavy and out of control, the *Seal* settled to the bottom.

The tense description of the struggle to survive forms the heart of the book. Survive they did, and at 0110 on May 5, they lurched to the surface. The *Seal* was terribly wounded but there were no German units in sight. The explosion which caused their trouble appears to have been a German mine.

The Germans did not give up the chase and, before daylight, aircraft commenced a sweep of the area. Out of control and barely able to keep afloat the *Seal* fell victim to three German aircraft. The seaplanes carried off the commanding officer and second coxswain as proof of their victory. The capture of the crew by a German trawler makes intriguing reading. The *Seal* was towed to Frederikshavn and, after rapid repairs to make her seaworthy, towed on to Kiel.

Except for one man who had disappeared over the side in the Kattegat, the entire crew became prisoners of war. Two men escaped. PO Barnes got to the Russian lines but appears to have been killed. ERA Lister, who qualified for the infamous Colditz prison camp as a hardened escaper, quickly arranged to be "unqualified", because he wasn't an officer. From a prison camp at Breslau he made good an escape to England via Switzerland.

With the end of the war and the return of the *Seal's* old crew came the inevitable courts-martial to tidy up the loose ends.

Exciting the book is but it would be interesting to read the story of the *Seal* in German hands. There should be more detail of the escape and disappearance of PO Barnes and survival of his companion in the escape; more about the escapades of the apparently irrepressible ERA Lister and more of the prosecution and defence arguments at the courts-martial.

Through the book, the reader becomes aware of the close association of the *Seal* personnel and the people of Seal, a small Kentish village. The Kentish villagers, ably led by the tireless Miss Coleman, were overflowing sources of the hope and strength that can be given to prisoners of war and the families of prisoners of war by both tangible and intangible attentions—E.G.G.

WILL NOT WE FEAR, by C. E. T. Warren and James Benson; published by George G. Harrap and Co., Ltd., London; published in Canada by Clarke, Irwin and Co., Ltd., 791 St. Clair Ave., W., Toronto.

LETTERS TO THE EDITOR

Dear Sir:

After reading the announcement about the new shiplovers' organization in the February 1964 issue of *The Crow'snest*, I believe that readers would welcome information about an organization which is now well established after almost 14 years' operation, and whose 98th bulletin (running to almost 100 pages) is now in preparation.

This organization, the Belgian Nautical Research Organization, is truly international, having over 500 members throughout most countries, but whose bulletin, *The Belgian Shiplover*, is in English as the most universal naval language.

The BNRO offers eight services at present:

- The bulletin, six times a year with a total of over 500 pages annually, contains ship lists (both mercantile and naval), articles (by such outstanding members as Henri Le Masson, William H. Davis and Dr. E. Lacroix), bibliographies of books on sale around the world, current nautical information, contact with shiplovers around the world.
- Exchange and identification service for merchant ship photographs.
- Exchange and identification service for naval vessel photographs.
- 28 Periodicals (the leading ones in

the world) are circulated to those wishing them.

- Search and exchange book service, of secondhand books.
- Search and Exchange Register (*Jane's*, *Weyers*, *Les Flottes de Combat*, *Brassey*, etc.) Service.
- Basic data information service—a list of the principal sources of information held by the members, offered as an aid to other members. Model service, offering, besides the articles in the TBS, advice and information to interested members.

The BNRA has as president the internationally known Paul E. R. Scarceriaux, member of the l'Académie de Marine de Belgique, and the patron is Marcel Malderez, secretary-general of Ministère des Communications. For information, members should write to:

M. Paul E. R. Scarceriaux,
16 Avenue J. Stobbaerts,
Brussels 3, Belgium

An interesting point arises in the Naval Lore Corner #125, in the March/April 1964, issue of *The Crow'snest* about the nomenclature of naval vessels. The ship identified as the U.S.S.R. minelayer/training ship *Marti/Elizabeta* was originally the Russian Royal Yacht *Shtandart*; but, more important, although *Jane's Fighting Ships* identifies her now as *Elizabeta*, *Weyers Flotten-*

taschenbuch gives her name as *Oka*. The problem has been solved, in this case only, by the fact that this ship has been removed from the Soviet Fleet List, as reported in *Jane's* for 1963/1964.

Yours sincerely,
GERALD A. GILL

3563 Highway Drive,
Trail, B.C.

Dear Sir:

It has come to our notice that not too long ago a group of Navy boys donated the sum of \$200 to the Vincentian Home on Brunswick Street. This is a home, staffed by the Sisters of Charity, which cares for elderly Catholic gentlemen.

This donation enabled the Sisters to procure a large electric toaster which will make 150 slices of toast in 30 minutes.

May I on behalf of our members express through your columns the deep appreciation of the kindness and good will expressed by these Navy boys in their unselfish assistance to this institution.

Very sincerely,
M. D. SULLIVAN,
Faithful Scribe

Knights of Columbus,
Council 1097,
Tower Road,
Halifax, N.S.

THE NAVY PLAYS

Shearwater Swim Winner

Shearwater captured the Atlantic Command swimming and diving championships during a recent weekend with a 105-point total.

Cornwallis finished second with 80 points and *Stadacona* trailed in third spot with 75 points at the meet staged at the *Shearwater* swimming pool.

Awards were presented to individual winners by Cdr. Roger Fink and Lt.-Cdr. R. H. Coell, of *Shearwater*, following the meet.

Navy Boxer on Olympic Team

A muscular, mild-mannered sailor who only a few months ago put on the boxing gloves after a six-year lay-off is the new Canadian amateur welterweight champion and will be this country's representative in his weight at the 1964 Olympic Games in Tokyo.

Ldg. Sea. Frederick Clyne (Des) Desrosiers, 24, of HMCS *Naden*, won the Canadian title and an Olympic Games berth with a series of clear-cut victories at Vancouver in late May. Yet, not so many months earlier, boxing was the furthest thing from his mind.

"Des" was born in Nelson, B.C., but spent most of his boyhood in Princeton, B.C. It was there, at the age of 13, he was introduced to boxing. A neighbour, Fred Fouty, a former RCN chief petty officer and boxer, had a well-worn punching bag and a continuing interest in the sport. Young Desrosiers started out as a keen pupil but his interest flagged after three years and he gave up boxing.

In 1958 "Des" joined the Navy and suddenly he was fighting again.

"They asked if anyone knew anything about boxing", he said. "I stuck up my hand."

That year "Des" reached the final of the Canadian light-middleweight division but his defeat there cost him the chance to compete in the British Empire Games, and he again deserted the ring.

It was during this "retirement", lasting six years, that "Des" married Caroline Jean Williams, of Princeton, and became the father of Pamela, 4, and Laurie 2.

His thoughts were far from boxing, but he reckoned without "Dusty" Gordon.

CPO Taylor Gordon for the past two years has been attached to the Maritime Command Pacific as electronic warfare adviser to the Staff Officer Communications. His interest in boxing dates from 1948.

"I'd been after Des for a year, but couldn't get him because he was at sea," said Dusty. "Then he was drafted to Marpac as a radar plotter. We had a few bouts in Victoria, then went into the B.C. Golden Gloves."

Again "Des" reached the finals and again he was stopped, this time by Edmonton's Milt Pahl. But now there was no thought of retirement. The lure of the Olympics was too strong. "Des" took three weeks' leave and spent it training in the *Naden* gym. To build his strength, he sawed logs.

On Friday, May 29, in Vancouver, "Des" had another chance at Milt Pahl. A combination of deadly right and left crosses, straight rights and left hooks put Pahl down twice in two rounds. When he staggered to his feet after the second count the referee declared him unfit to continue and awarded the decision to "Des" on a TKO.

The next afternoon "Des" won a unanimous decision over Albert Breau, of Quebec, and had reached the final again, this time against the defending Canadian welterweight champion, John Lapadula.

In the first round Lapadula was floored twice by a series of hard right crosses to the head. In the second round he decided that discretion was the better part of valour and managed to stay out of serious trouble. But "Des" Desrosiers saw him as a roadblock on the way to Tokyo that had to be removed. A left hook sent Lapadula to the canvas again at the beginning of round three. A right cross now opened a large gash over Lapadula's eye and left him in no condition to continue.

"Des" was the new champion and Canadian welterweight representative to Tokyo.

'Bonnie' Shares Wins with U.S. Ship

During HMCS *Bonaventure's* recent visit to Norfolk, Virginia, the American

aircraft carrier USS *Randolph* was hostess to the athletes from "Bonnie" in various sports.

Four assorted games were played, with each ship winning two. Of two softball games, the *Randolph* took the first encounter 6-3, but the "Bonnie" shook off her rustiness from prolonged inactivity and came back a few days later to win the game 13-10.

The "Bonnie's" volleyballers, well-conditioned from interpart play on board, blanked the *Randolph* 3-0.

The "Bonnie's" basketball team suffered its first loss this year, but gave a creditable showing against a smooth and rangy *Randolph* outfit, losing 44-32.

Radio Station Tops in Hockey

Albro Lake Naval Radio Station, for the second successive year, captured the *Stadacona* inter-part hockey championship. The Albro Lake team won the trophy by defeating Engineering Division 6-2 in a sudden-death final at the Halifax Forum.

Six teams competed in the *Stadacona* inter-part league.

Gloucester Gives To Olympic Fund

A \$100 donation to the Canadian Olympic Fund has been voted by the Welfare Committee of HMCS *Gloucester*. The donation from the Ship's Fund of the radio station was approved at a meeting of the Welfare Committee on July 2.

"We knew that the Canadian Olympic Fund was far short of its goal and we felt that this was a very worthwhile cause to which we could give some support," said Lt. J. A. Macdonald, executive officer at *Gloucester* and chairman of the Welfare Committee.

"We also thought that if we got the ball rolling, armed forces establishments across Canada would follow our lead and contribute, from their non-public funds, some of the cash that is sorely needed to send our Olympic team to Tokyo. This could go a long way toward providing the finances required to ensure Canada is properly represented.

"We also had in mind the fact that men from the armed forces, including a boxer from the Navy, had been selected for the team."

SCIENCE AND THE NAVY

Survey Ships Bear Heavy Load

The unending task of charting the seabed at home and overseas and new additional tasks, including oceanic exploration made necessary by the development of nuclear submarines, have "stretched to the limit" the Royal Navy's fleet of survey ships, states the Hydrographer of the Navy Rear-Admiral E. G. Irving, CB, OBE, RN, in his annual report.

With the contraction of Hydrographic responsibilities in colonial waters, he states, there has been a progressive expansion of oceanographical commitment and while the boundaries of the Empire continue to shrink, the frontiers of naval and scientific interest steadily advance.

Admiral Irving makes the following points about the demands made on his organisation:

- Increasing numbers of super tankers in the world's shipping lanes now call for a much more extensive knowledge of underwater topography;
- The growing quest for untapped fuel reserves beneath the sea is stimulating urgent interest in the shape, extent and composition of the continental shelves, and
- The development and operation of fast, deep-diving "true" submarines has rendered imperative the task of oceanic exploration and the accelerated construction programme of these vessels has this year both increased and added to its magnitude.

Since the scope of the Hydrographic department's activities are limited by manpower and money, it is essential that there should be some shedding of other commitments. It was to foster working liaisons and promote increased co-operation with foreign and Commonwealth hydrographic offices—and to encourage early assumption of fuller responsibilities on their part that the Hydrographer undertook a world tour in the spring of this year.

On this Admiral Irving reports that increased efficiency in hydrography and cartography can only be fostered by the pooling of information, ideas, experience and expertise. It was to this that he applied his efforts to ensure that the

quality of Admiralty charts should not be adulterated as they become more reliant on the work of local hydrographic agencies.

A new surveying fleet is being planned for the future. Three new ships have been ordered to take over from the Dampier class vessels—the *Cook*, *Dalrymple*, *Dampier* and *Owen*—for work in the deep oceans. Although designed for deep water oceanographical and hydrographic work, they will also be capable of surveying in coastal waters

and are to carry two large launches for independent inshore and harbour surveying operations.

Of merchant ship design and similar in many respects to the Royal Research ship *Discovery*, they will have a range and endurance to fit them for their specialised work. It is anticipated that they will have an overall length of 260 feet, a beam measurement of 49 feet and a draught of 15 feet. Their complement will be 19 officers and scientists and 98 ratings.—*Naval News Summary*.

SCALE DEFIES WAVES

A scale that will give an accurate reading on board ship of the weight of fish, despite stormy seas, is described in the current issue of NRC Research News, published by the National Research Council of Canada.

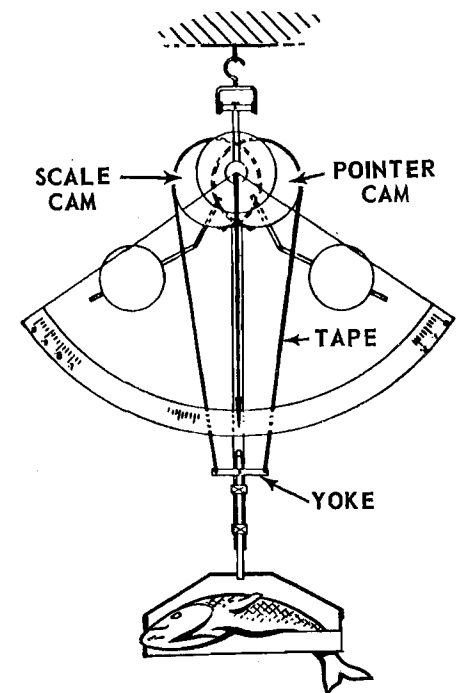
The scale, however, is not intended for the use of amateur anglers, who may prefer to have their own estimates accepted, but by fisheries scientists.

The principle of the scale's operation is outlined in NRC Research News article, which follows:

FISHERIES SCIENTISTS needed a precise method for weighing fish on the unstable platform provided by the deck of a research vessel. All existing scales were unsatisfactory when exposed to rolling, pitching and engine vibration. Eric Green of the Division of Applied Physics has evolved a relatively simple solution—a combination of two pendulum scales pivoted about a common axis to compensate for the movement of the sea.

The scale, shown here, is of the pendulum type, and uses the conventional eccentric cam and metal tape system. Both the pointer and the graduated scale itself are balanced by a pendulum, so that they both can move relative to the body of the scale and relative to each other. The system behaves, in effect, as if the weight of the object placed in the pan were divided into two portions which were weighed separately and then summed to give the total weight.

If the scale swings about its support, the two pendulum weights take up dif-



ferent positions and the yoke rotates on its pivot to adjust for the changes in tape length. Since the weight reading is relative to both pendulum system, it does not change.

In trials in a ship steaming 10 knots and pitching slightly every five seconds, this balance was able to weigh a five-pound fish to the nearest hundredth of a pound within five seconds. Even in very rough seas it weighed to the nearest 1/20 of a pound. Other ranges of sensitivity are now being explored.

RETIREMENTS

CPO DONALD ROBERT ANDREWS, CD, C1FC4; joined RCNVR June 16, 1944; transferred to RCN Sept. 18, 1945; served in *Halgonian*, *York*, *Stadacona*, *Cornwallis*, *Scotian*, *Protector*, *Uganda*, *Nootka*, *Shearwater*, *Haida*, *Huron*, *Naden*, *Quebec*, *St. Laurent*, *Donnacona*, *Hochelaga*, *Restigouche*; retired June 15, 1964.

PO JOHN EDWARD CROOKS, CD, P2FC3; joined RCNVR Feb. 18, 1943; entered RCN March 25, 1946; served in Montreal naval division, *Stadacona*, *DEMS Montreal*, *DEMS Keydon*, *Cornwallis*, *Givenchy*, *DEMS Cardena*, *DEMS Burrard*, *DEMS Nimiskam Park*, *Givenchy*, *Dems Queens Park*, *Donnacona*, *Niobe*, *HMS Excellent*, *Haida*, *Nootka*, *Huron*, *Queen Charlotte*, *D'Iberville*, *Micmac*, *Sioux*, *Columbia*, *Chaudiere*; retired June 20, 1964.

CPO DONALD MURRAY HALVERSON, CD, C1LA4; joined June 9, 1944; served in *Halgonian*, *York*, *Stadacona*, *Naden*, *Royal Roads*, *Ontario*, *Bytown*, *New Liskeard*, *Cornwallis*, *Magnificent*, *Bonaventure*; retired June 8, 1964.

PO HERBERT LEONARD HERMAN, CD, P1ET4; joined RCNVR April 14, 1943; transferred to RCN Jan. 19, 1946; served in *Non-such*, *Naden*, *Nabob*, *Peregrine*, *Cornwallis*, *Givenchy*, *Prince Robert*, *Griffon*, *Uganda*, *Stadacona*, *Ontario*, *Antigonish*, *Beacon Hill*, *Rockcliffe*, *Crusader*, *Aldergrove*, *Sioux*, *Cayuga*, *Athabaskan*, *Cedarwood*, *Porte Quebec*, *Margaree*, *New Glasgow*; retired June 1, 1964.

PO HAROLD GEORGE HINCH, CD, P1ER4; served in RCNVR July 14, 1936-July 9, 1945; joined RCN Jan. 23, 1946; served in Halifax naval division, *Stadacona*, *Acadia*, *Chambly*, *Prince David*, *Sleepy Cove*, *Moose Jaw*, *St. Laurent I*, *Niobe*, *Louisburg*, *Scotian*, *Peregrine*, *Halgonian*, *Qu'Appelle*, *Scotian*, *Diving Tdr. No. 4*, *Haida*, *Iroquois*, *Athabaskan*, *Magnificent*, *Cornwallis*, *Micmac*, *Nootka*, *Quebec*, *St. Laurent II*, *Cayuga*, *Swansea*; retired June 14, 1964.

CPO DOUGLAS DAVID HOCKLEY, CD and 1st Clasp; C2ER4; joined RCNVR Sept. 7, 1939; transferred to RCN June 3, 1940;

served in *Stadacona*, *HMS Emerald*, *HMS Dominion*, *Georgian*, *Avalon*, *Scotian*, *Peregrine*, *Port Colbourne*, *Sackville*, *Nootka*, *Iroquois*, *Portage*, *Magnificent*, *Shearwater*, *Crusader*, *Cornwallis*; retired June 2, 1964.

CPO MALCOLM ANGUS McLEOD, CD and 1st Clasp; C1ER4; joined RCNVR Oct. 26, 1938; transferred to RCNR June 1, 1940 and to RCN, August 13, 1940; served in Vancouver naval division, *Naden*, *Nootka*, *Stadacona*, *Ottawa*, *Avalon*, *Niobe*, *HMS Jamaica*, *Peregrine*, *Cornwallis*, *HMS Towy*, *Givenchy*, *Rockcliffe*, *Discovery*, *Ontario*, *New Waterford*, *Magnificent*, *Stettler*, *Jonquiere*, *James Bay*; retired June 24, 1964.

CPO WILLIAM JAMES ROBERT MURRAY, C2LT4; joined RCNVR Sept. 21, 1938; transferred to RCN Sept. 10, 1945; served in Winnipeg naval division, *Naden*, *Cancolm*, *Crusader*, *Givenchy*, *Clayoquot*, *Venture*, *St. Hyacinthe*, *Stadacona*, *Ungava*, *Owen Sound*, *Avalon*, *Protector*, *Scotian*, *Rockcliffe*, *Ontario*, *Royal Roads*, *Cornwallis*, *Athabaskan*, *Montreal Circle radio station*, *Sussexvale*,



After a major reconstruction that took nearly five years, HMS Eagle is at sea again as Britain's most up-to-date aircraft carrier. The greatest outward change is the addition to the island of the 984 radar scanner. Down below tremendous changes have been made, including the installation of an inertial navigation system, ordinarily fitted only in submarines. (Photo courtesy British Information Services)

Aldergrove, Discovery; awarded RCN (R) Long Service and Good Conduct Medal; retired June 13, 1964.

CPO ALASTAIR NEWALL, CD; C2WA4; joined March 11, 1946, after serving in RCAF; served in *Tecumseh, Naden, Ontario, Stadacona, Niobe, HMS Gosling, RCNAS Dartmouth, Shearwater (19CAG), Magnificent (19CAG), Shearwater (30CAG), Naden, (VU33)*; retired June 28, 1964.

OFFICERS RETIRE

LT.-CDR (MAD) BOLEY HUBERT BAK, CD; commenced service in the RCN on June 17, 1935, as a probationary sick berth attendant; promoted to acting warrant wardmaster on June 1, 1942; served in *Naden, HMS Victory, Skeena, St. Laurent, Fraser, Stadacona, Protector, Cornwallis, Avalon, Magnificent, Shearwater*; last appointment, HMCS *Stadacona* for Canadian Forces Hospital, Halifax, as Hospital Stores and House-keeping Officer; commenced leave June 14, 1964; retires February 6, 1965.

LT.-CDR JOSEPH BEATTIE, CD; commenced service in the RCN on March 1, 1937, as acting engine room artificer, 4th class; promoted to acting warrant engineer on Jan. 1, 1944; served in *Naden, Fraser, Ottawa, Stadacona, Saguenay, Niobe, HMS Victory, HMS Black Prince, Kootenay, Protector, Sault Ste. Marie, Gatineau, Sioux, Givenchy, Rockcliffe, Ontario, Bytown*; last appointment, HMCS *Naden* for Engineering Division; commenced leave June 25, 1964; retires on Feb. 3, 1965.

LT.-CDR. JOHN MORAN CALVER, CD; commenced service in the RCNR on Nov. 28, 1941, as a sub-lieutenant; demobilized Sept. 30, 1947; transferred to RCN as lieutenant-commander on March 15, 1951; served in *Stadacona, Eyebright, Chilliwack, New Westminster, Mayflower, Chaleur, Hochelaga, Donnacona, Bytown, Cedarwood, York, Sioux, Naden*, and in Vietnam; last appointment—HMCS *Naden* on staff of Maritime Commander Pacific as Staff Officer Shipping Control; commenced leave June 25, 1964; retires Nov. 12, 1964.

CDR. RICHARD JAMES DONNITHORNE, CD; commenced service in the RCNVR on May 5, 1938; as engine room artificer, 5th class; transferred to RCN Feb. 29, 1940; promoted to acting warrant ordnance officer on Aug. 1, 1943; served in *Stadacona, Assiniboine, Cornwallis, Chaleur, Hochelaga, Montcalm, Givenchy, Naden, Ontario, Cornwallis, Niagara, Niobe, PNO Quebec, Restigouche*; last appointment, *Hochelaga* as Superintendent Naval Armament Depot, Longueuil; commenced leave June 6, 1964; retires Jan. 1, 1965.

CAPTAIN PHILIP EDWIN HADDON, CD; commenced service in the RCN on Dec. 28, 1929, as a cadet; served in *Stadacona, HMS Erebus, HMS Valiant, HMS Victory, HMS York, HMS President, HMS Excellent, HMS Dryad, Saguenay, St. Laurent, Skeena, Ottawa, Royal Roads, Naden, Givenchy, Bytown, Avalon, Restigouche, Algonquin, Niobe, Niagara, Sioux*; last appointment HMCS *Niobe* as executive officer and as Chief Staff Officer to Naval Member Canadian Joint

CPO JOHN HENRY NICHOLLS, CD and 1st Clasp, C2ET4; served in London naval division, *Stadacona, Saguenay, Cornwallis, Georgian, Peregrine, Niobe, Warrior, Magnificent, Haida, La Hullose, Crescent, Quebec, Prestonian, Saguenay*; retired June 24, 1964.

PO ANTHONY NICHOLAS WITWICKI, CD, P1AW3; joined March 15, 1946; served in *Chippawa, Naden, Stadacona, Athabaskan, Cornwallis, Churchill, Sault Ste. Marie, Royal Roads, Sioux, Naden (VU33), Crescent, Bonaventure, Cape Scott*; retired June 22, 1964.

Staff London and as Canadian Naval Member to Military Agency for Standardization; commenced leave June 22, 1964; retires on March 2, 1965.

LT. ALBERT EDWARD HAWKINS, CD; commenced service in the RCN on Sept. 13, 1937, as a boy seaman; promoted to acting commissioned cookery officer on May 25, 1951; served in *Naden, Ottawa, Sans Peur, Stadacona, Royal Roads, Prince Robert, Chatham, Givenchy, Protector, Kings, York, Cornwallis, Bytown, Ontario, Shearwater Magnificent, Donnacona, Hochelaga*; last appointment, *Stadacona* as wardroom mess manager; commenced leave June 22, 1964; retires Feb 1, 1965.

CDR. BEVIS EBEN ELFRIC MILES, CD; commenced service in the RCNVR on Aug. 17, 1940, as acting sub-lieutenant; transferred to RCN Dec. 12, 1945, as lieutenant (L); served in *Stadacona, HMS Victory, HMS Seaborn, Venture, Bytown, St. Hyacinthe, Avalon, Niobe, HMS Puncher, Uganda, Rockcliffe, Niagara, Athabaskan, Naden, Shearwater, Algonquin, Nootka, Haida, Iroquois*;

last appointment HMCS *Bytown* on secondment to Defence Research Board for duty with Directorate of Physical Research; commenced leave June 22, 1964; retires on Jan. 10, 1965.

LT. JACK MILLER, CD; commenced service in the RCN on Jan. 31, 1931, as acting engine room artificer, 4th class; promoted to acting warrant engineer on Jan. 1, 1944; served in *Stadacona, Skeena, Champlain, Saguenay, Fundy, Venture, Pugwash, St. Laurent, Sydney, Shediac, Avalon, Niobe, Chaudiere, Ottawa, Hochelaga, Thorlock, Magnificent*; last appointment, HMCS *Stadacona* on staff of Commodore Superintendent Atlantic for Ship Repair; commenced leave June 15, 1964; retires on March 9, 1965.

LT. REGINALD GARLAND SKINNER, CD; commenced service in the RCNVR, on Oct. 3, 1940, as a probationary victualling assistant; transferred to RCN as supply assistant Oct. 13, 1943; promoted to acting commission stores officer on Nov. 1, 1954; served in *Elk, Fort Ramsay, Peregrine, Cape Breton, Uganda, Rockcliffe, RCN College, Iroquois, Stadacona, Cornwallis, Naden, Ontario, Crusader, Athabaskan, Sioux, Beacon Hill, Quebec, Bytown, Shearwater, Bonaventure*; last appointment, HMCS *Shearwater*; commenced leave June 28, 1964; retires on Jan 21, 1965.

LT. ALBERT JOHN THORNTON, CD; commenced service in the RCNVR on March 14, 1933 as an ordinary seaman; transferred to RCN on 17 Dec., 1938; promoted to acting warrant stores officer on Sept. 1, 1948; served in *Naden, Malaspina, Stadacona, Venture, Skeena, Preserver, Avalon, Non-such, Discovery, Cornwallis, Niobe, Demetrius, Warrior, Magnificent, Shearwater, Bytown, Tecumseh*; last appointment, HMCS *Tecumseh* on staff of Area Recruiting Officer, Edmonton; commenced leave, June 14, 1964; retires on Jan. 17, 1965.

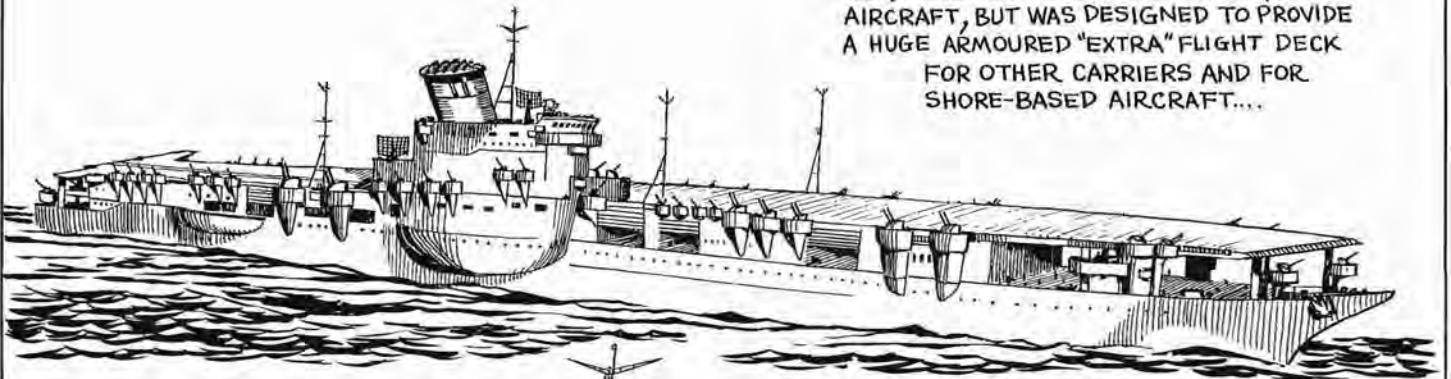


Now that summer rules the land, here is a reminder of the past—the first day of spring this year at HMCS *Stadacona*. That's "B" Block behind the drifts.

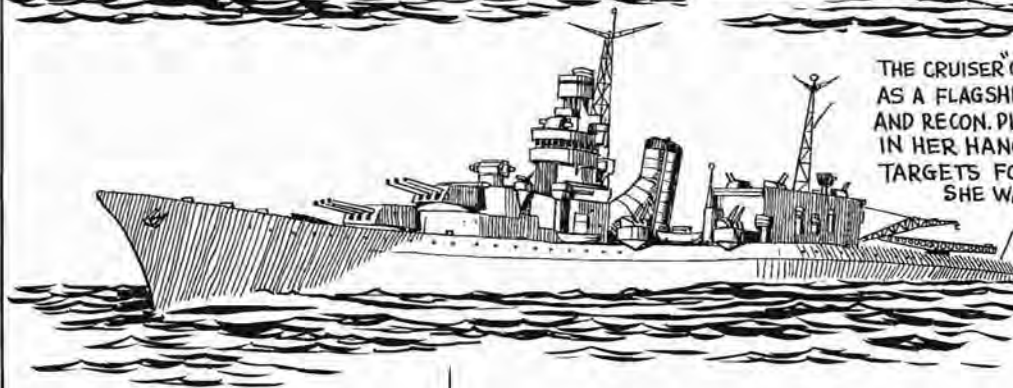
Naval Lore Corner

Number 128
JAPANESE ODDITIES

(BELOW) THE HUGE JAPANESE CARRIER "SHINANO" (71,890 TONS) WAS LAID DOWN AS A BATTLESHIP OF THE "YAMATO" CLASS AND CONVERTED INTO A CARRIER AFTER THE BATTLE OF MIDWAY. SHE COMMISSIONED ON 19 NOV. 1944 AND WAS SUNK 10 DAYS LATER BY THE U.S. SUBMARINE "ARCHERFISH". HER HUGE FUNNEL SLANTED OUTBOARD AT AN ANGLE OF 26°. SHE HAD STOWAGE FOR ONLY 47 AIRCRAFT, BUT WAS DESIGNED TO PROVIDE A HUGE ARMoured "EXTRA" FLIGHT DECK FOR OTHER CARRIERS AND FOR SHORE-BASED AIRCRAFT....



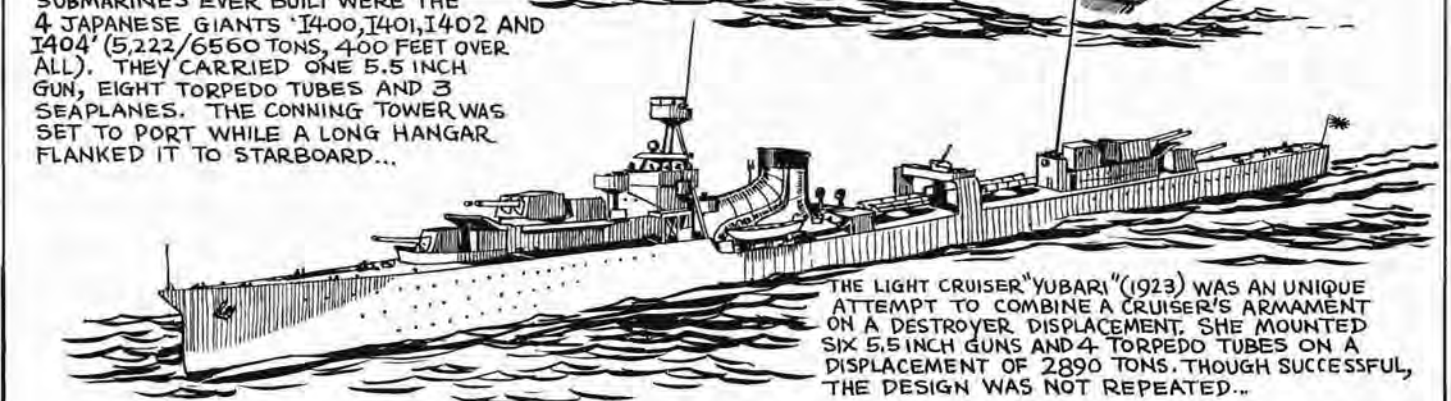
THE CRUISER "OYODO" (11,435 TONS) WAS DESIGNED AS A FLAGSHIP FOR A HUNTER FORCE OF SUBMARINES AND RECON. PLANES. THE AIRCRAFT, TO BE STOWED IN HER HANGAR (6 OF THEM) WERE TO LOCATE TARGETS FOR THE SUBMARINES AND "OYODO". SHE WAS LIGHTLY ARMoured, MOUNTED SIX 6.1 INCH GUNS WITH TOP SPEED OF 35.3 KNOTS. COMMISSIONED IN FEB. 1943, NO SUITABLE AIRCRAFT WERE AVAILABLE AND SHE NEVER SERVED IN HER DESIGNED ROLE. SHE WAS SUNK IN JULY, 1945...



THE LARGEST NON-NUCLEAR SUBMARINES EVER BUILT WERE THE 4 JAPANESE GIANTS 'I400, I401, I402 AND I404' (5,222/6560 TONS, 400 FEET OVER ALL). THEY CARRIED ONE 5.5 INCH GUN, EIGHT TORPEDO TUBES AND 3 SEAPLANES. THE CONNING TOWER WAS SET TO PORT WHILE A LONG HANGAR FLANKED IT TO STARBOARD...



THE LIGHT CRUISER "YUBARI" (1923) WAS AN UNIQUE ATTEMPT TO COMBINE A CRUISER'S ARMAMENT ON A DESTROYER DISPLACEMENT. SHE MOUNTED SIX 5.5 INCH GUNS AND 4 TORPEDO TUBES ON A DISPLACEMENT OF 2890 TONS. THOUGH SUCCESSFUL, THE DESIGN WAS NOT REPEATED...



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