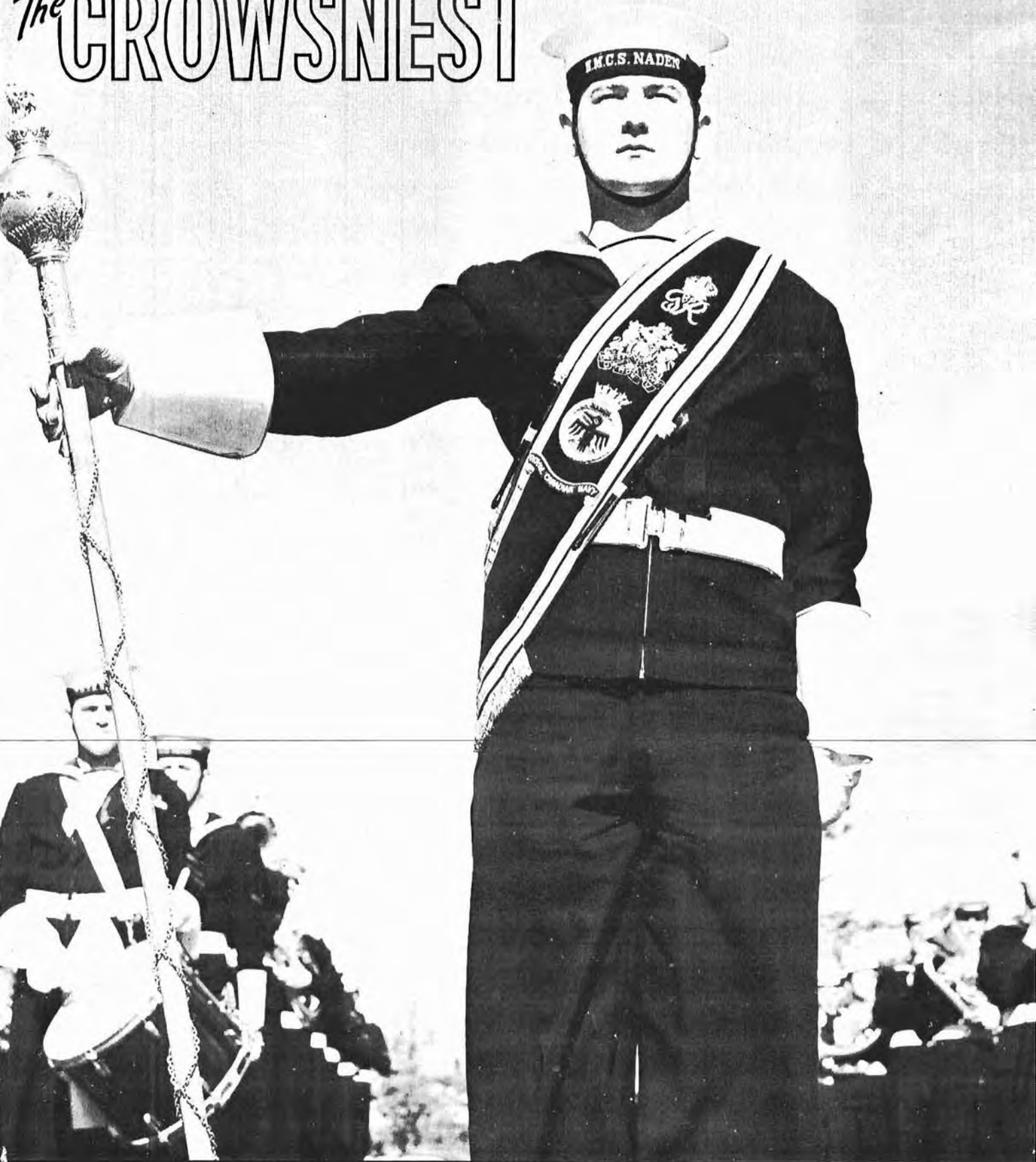
The CROWSNEST



Special

Vol. 11 No. 8 "OUR NAVY" June, 1959

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4. REFRIGERATION MACHINERY COMPARTMENT COLD AND COOL ROOM
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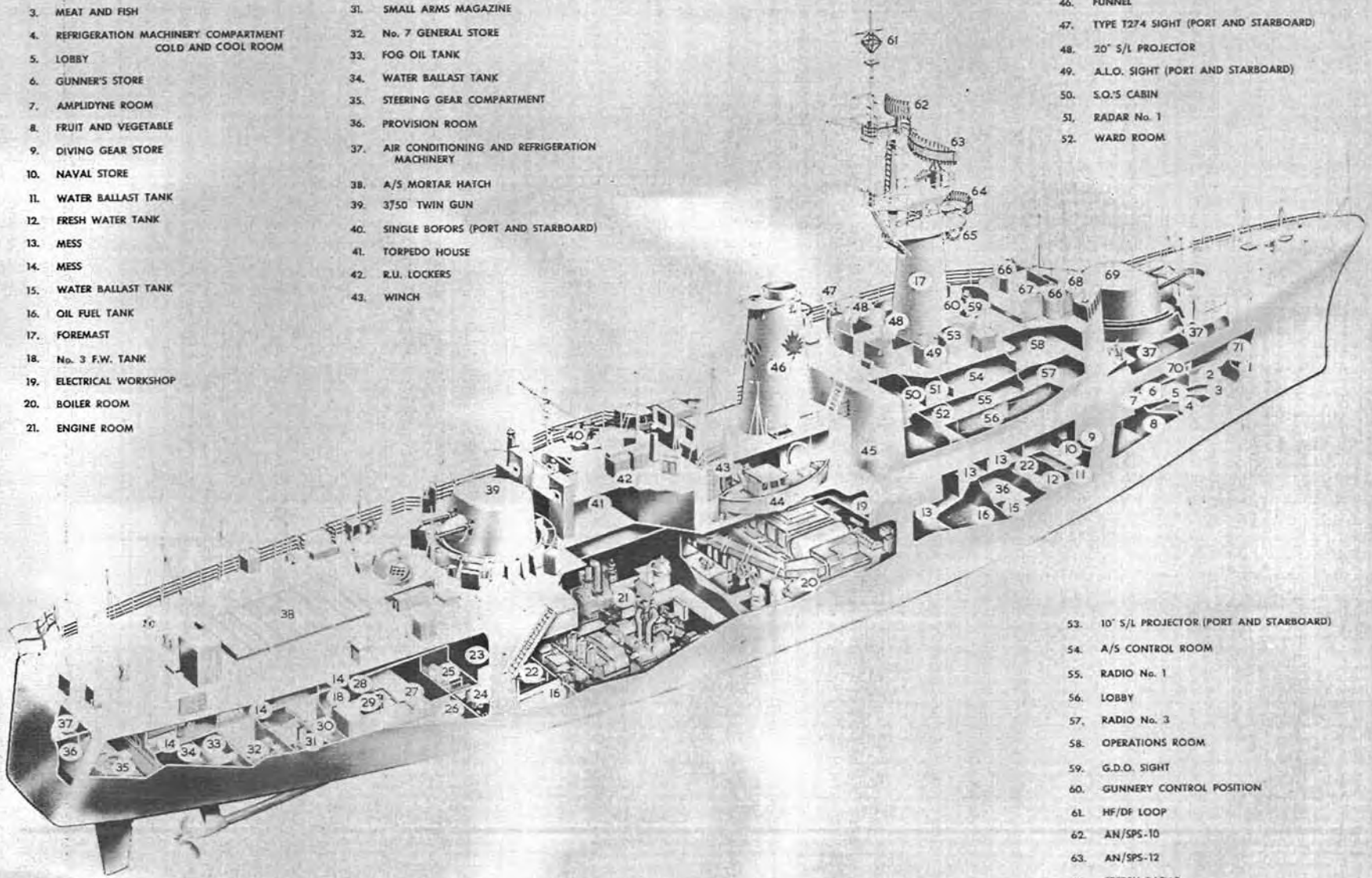

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SECTIONAL VIEW OF SHIP
ST. LAURENT CLASS

The CROWSNEST

Vol. 11 No. 8 THE ROYAL CANADIAN NAVY'S MAGAZINE JUNE, 1959

CONTENTS

The Cover — The RCN began training early for the many colourful naval ceremonies planned in conjunction with the Royal Tour and the opening of the St. Lawrence Seaway. Here Drum Major PO Gordon Brown leads the *Naden* band through a rehearsal of the Sunset Ceremony at Victoria. (E-50349)

"OUR NAVY"

Every year since 1952, *Canadian Shipping and Marine Engineering News*, Toronto, has published a special Royal Canadian Navy issue, reporting on the progress of the Navy. Each year (with the exception of 1953) the RCN has republished the material from the special naval issue in booklet form, under the title *'Our Navy"*, for general distribution.

This year, because it is considered many of the articles hold as much interest for those in the Navy as for persons outside, *Our Navy* is being printed as a special issue of *The Crowsnest*.

It is regretted that it has not been possible to include all the regular *Crowsnest* features in this issue, but there is satisfaction in knowing that *Our Navy* will reach a much wider audience than in previous years—and at a considerable saving to the taxpayer.—*The editor.*

On the Opposite Page: A cutaway drawing giving some idea of the complexity of Canada's modern anti-submarine escorts of the St. Laurent class.

Negative numbers of RCN photographs reproduced in The Crowsnest are included with the caption for the benefit of persons wishing to obtain prints of the photos.

This they may do by sending an order to the Naval Secretary, Naval Headquarters, Ottawa, attention Directorate of Naval Photography, quoting the negative number of the photograph, giving the size and finish required, and enclosing a money order for the full amount, payable to the Receiver General of Canada.

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THE RCN TODAY

Frigates of the Fourth Canadian Escort Squadron sail under grey skies for the South Pacific on a training cruise for officer cadets from HMCS Venture. (CCC4-6)

IF THERE CAN be such a thing as good fortune in the development of weapons of war, then it was good fortune that attended the Royal Canadian Navy when the decision was made, 11-odd years ago, to produce a peace-time force that would be primarily anti-submarine in its composition and capability.

There were several reasons for the decision. For one thing, the RCN possessed a solid foundation of anti-submarine experience, tested and proven in the crucible of the Battle of the Atlantic. Money and manpower were other factors, inasmuch as strict limitations on both prohibited the creation of a large fleet composed of many classes of ships. Finally, there was the absolutely firm conviction that the submarine, which had nearly tipped the scales in two world wars, was well on its way to becoming an even more formidable beast, and there could be no sounder naval policy than to concentrate on anti-submarine warfare.

Concurrent with this decision was another—to design an exclusively anti-submarine warship and build it in Canada.

So it was that, when Canada became a member nation of NATO in April, 1949, it was in a good position to commit the RCN to an anti-submarine role within the NATO military structure.

In the intervening years, the RCN has developed a highly efficient fleet, modest in size but possessing some of the finest anti-submarine ships and aircraft in the world today.

The Naval Technical School, opened at Esquimalt only a few months ago, offers naval apprentices extensive training in technical trades. (E-46952)

It was in this development that the RCN's good fortune lay—for the submarine, during the same period, has grown into a world-encompassing threat with the development of nuclear power for its propulsion and guided missiles for its weapons.

What constitutes this specialized, compact naval force that Canada has created?

At the end of 1958, the Navy had 47 warships in commission, two Royal Navy submarines under its operational control and a further six warships in refit. To man its ships, aircraft and shore facilities, it had a regular force of nearly 20,000 officers, men and wrens. In addition, it had under training 361 officer cadets and 185 technical apprentices.

Largest unit of the anti-submarine fleet is HMCS *Bonaventure,* a modern light fleet carrier commissioned in January, 1957. Of the anti-submarine ships conceived in 1948, nine were in commission at the end of last year. Seven belonged to the St. Laurent class and two to the newer Restigouche class. Five more of the latter are scheduled to enter service during 1959. In exercises with submarines and in general performance, these Canadian-designed and built ships have more than lived up to expectations.

In addition, the RCN has 11 other destroyer escorts and 18 frigates which have been extensively modernized and fitted with the latest anti-submarine weapons and detection equipment.

Other units of the fleet include coastal escorts, coastal minesweepers, gate vessels and patrol craft.

To increase the mobility of the fleet and its independence of shore repair facilities, the RCN during 1959 is bringing two escort repair ships into service. The main function of these ships will be to provide repair maintenance facilities for escort vessels away from their home base. They will be capable of meeting all maintenance requirements apart from those of a major refit. In addition, they will provide limited logistic support for the fleet.

Naval aircraft operating from the *Bonaventure* are Canadian-built anti-submarine Trackers, all-weather Banshee jet fighters and helicopters. With these, the carrier is an integral part of the RCN's anti-submarine team, whose operations in the first phase of any future war would be devoted to submarine search and destruction.

Like other modern carriers, the *Bonaventure* is equipped with the angled flight deck, steam catapult and stabilized deck-landing mirror aids. Her radar facilities provide for the fullest coverage of fighting requirements as well as those of navigation.

Main task of the carrier's fighters is to provide air protection for the fleet, either against direct attack or hostile reconnaissance. Especially designed for carrier operations, the Banshee carries radar equipment which permits taking off under minimum weather conditions, making an interception and returning to the carrier without ever having actually sighted the enemy.

This aircraft's already heavy firepower was increased during 1958 by the addition of the Sidewinder, first guided missile to be put into operational service in the Canadian armed forces. The missile is guided by an infra-red or heat-seeking device and seeks the target by homing on the heat emitted by the enemy aircraft. Measuring nine feet in length and weighing about 155 lbs., Sidewinder is designed to destroy high-performance enemy fighters and bombers from sea level to altitudes over 50,000 feet.

It is basically a defensive weapon to augment protection of men and ships at sea from attacks by enemy aircraft and it enables defending fighters to knock down the fastest enemy aircraft even when miles away.

The RCN's anti-submarine aircraft—the Trackers and helicopters — extend the fleet's search and strike capability by hundreds of miles.

The Tracker, originally of U.S. design, is being produced in Canada in a modified version especially for the RCN. Forty-three of 100 aircraft on order have been delivered and a further modified version will enter service this year with improved anti-submarine capabilities.

The Tracker is both hunter and killer, designed and equipped to find, attack and destroy enemy submarines, on the surface or submerged. It has extensive equipment for the detection of submarines and carries homing torpedoes and depth charges for their destruction.

Although its anti-submarine potential has long been recognized, the helicopter only lately has begun to establish its effectiveness in this role.

Surface ships and aircraft working together spell trouble for the enemy submarine. This is HMCS Ottawa and a sonar-equipped helicopter during Mediterranean exercises in the autumn of 1958. (BN-2553)

Anti-submarine helicopters have been operated successfully from the *Bonaventure* and encouraging experiments have been carried out in operating them from destroyer escorts and frigates. Previously limited to detection, they joined the hunter-killer class in 1958 when they were fitted to carry homing torpedoes.

Proudest RCN achievement of all is the new destroyer escort, conceived on the drawing boards of Canadian naval architects and brought into being in Canadian shipyards.

Recognized as among the finest of their kind in the world today, these ships have consistently proven their worth in anti-submarine exercises since coming into operational service.

Their principal armament consists of anti-submarine weapons, including electronically-controlled mortars, which fire high explosive projectiles with great accuracy in any direction, and modern homing torpedoes which pursue and destroy an enemy target on or below the surface of the sea.

Although these ships are Canadian-designed and Canadian-built they owe much to the United Kingdom and the United States. They are, in fact, a fine and fortunate blending of experience and development in all three countries. Their anti-submarine mortars, for example, were originated in Britain. The type of homing torpedo they carry was developed in the U.S. Their three-inch 50 calibre anti-aircraft guns are manufactured in Canada from U.S. Navy blueprints, while the British designed their three-inch 70 calibre guns.

The vast array of electronic equipment which finds and holds its quarry is the best that Canada, the United Kingdom and the U.S. can offer. Much of it has been developed and adapted to RCN use by skilled Canadian electronic scientists and technicians.

Similarly, the modernizing and re-equipping of the RCN's older anti-submarine destroyer escorts and frigates has been the result of the ready accessibility of experience and equipment from the U.S. and Britain, combined with those of Canada.

In fact, while representing a true Canadian force, brought into being and manned by Canadians, the RCN is an outstanding example of the NATO aim for combat readiness which requires that:

"To be efficient, the forces of NATO which may be called upon to stop aggression cannot be a mere collection of national units. They must be welded into a smoothly working, co-ordinated fighting unit."

This the Royal Canadian Navy has achieved — within its own framework through the postwar years of careful and capable development — and within the framework of the NATO military organization of which it is a vital part.

EDUCATION IN A MODERN NAVY

A BROAD REVISION of educational services has been adopted by the Royal Canadian Navy in a further step toward meeting the challenge presented by current and future developments in naval ships, aircraft, weapons and equipment.

The effect of the new educational services will be not only to enhance the career opportunities of individual officers and men, but to strengthen and enlarge the over-all educational foundation and professional capability of the Navy's personnel.

The most important innovation will be the concentrated RCN Junior Matriculation Course. Selected young men who are prospective officer candidates but have less than junior matriculation standing will be enrolled in the course. Examinations will be set and marked by the B.C. Department of Education. Successful students may qualify for HMCS *Venture*, College Militaire Royal de Saint-Jean and university.

Another academic course will prepare candidates to write the Grade XIII examinations set and marked by the B.C. Department of Education. On successful completion of this course, the candidate may be selected for university or Canadian Services College training.

Both courses are limited to men under 24 years of age on January 1 of the year a particular course begins.

Correspondence courses will not be dropped. Available to all who wish to take them will be Naval Junior Matriculation Correspondence Courses and Examinations in five subjects—mathematics, physics, chemistry, French and English.

These courses and examinations will be of particular benefit to officer candidates, giving them the opportunity to acquire credits qualifying them for the Junior Matriculation Course and the Branch Officer Candidate's Educational Course.

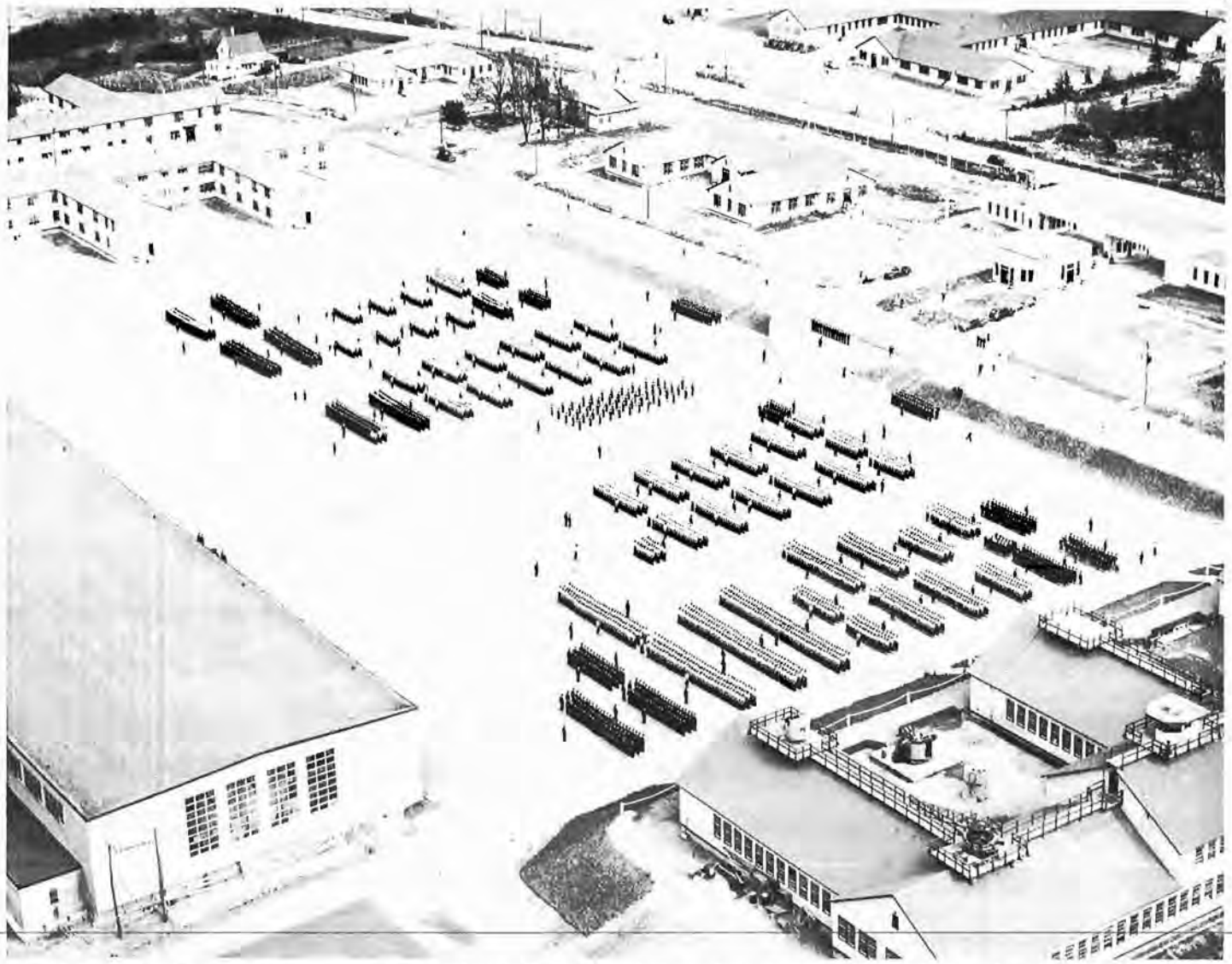
The Branch Officer course is for older men who, by reason of age, are not eligible for the junior or senior matriculation courses but whose records of service have earned them recommendation as officer candidates. The course is seven months long and is comparable to senior matriculation.

With the co-operation of provincial departments of education and universities, a Naval Adult Education Program will offer correspondence and evening courses in a wide variety of academic, technical and vocational subjects. The program will be available to all personnel on a voluntary basis. Its main purpose is to enable serving officers and men to add to their background and qualifications, and thereby further their career prospects, through spare-time study.

Individuals will be required to pay the nominal fees charged for the adult education courses, but the Navy will set up the machinery to handle enrolments, publish a catalogue listing the courses available, and provide assistance and coaching by instructor officers.

Despite the very appreciable increase in educational opportunities offered, the new naval educational services will not require any increase in either facilities or instructor officers.

Because of their inaccessability, except by air or from the sea, the western shores of Vancouver Island are little known to most Canadians. West Coast sailors are an exception. Here the ship's company of the frigate New Glasgow saw the mountains and forests mirrored in the tranquil waters of Tlupana Inlet, off Nootka Sound. (E-50169)



HMCS Cornwallis, the new entry training establishment near Digby, N.S., where naval recruits receive their first taste of service life. (DE-0162-28)

THE SAILOR'S WELL-CHARTED CAREER

TO WHAT SORT of a career might a young man now look forward if he were to enrol on the "lower deck" of the Royal Canadian Navy?

It is hardly necessary to say that all men are different, and what happens to one does not, perforce, happen to another. Further beclouding the crystal ball is the fact that the sections comprising the Navy's new personnel structure are being fitted into place in progressive stages, and it will be a while yet before the "new look" is fully effective.

However, enough has been done already, and the pattern of future action is sufficiently clear, to enable a young man, joining in 1959 and thereafter, fully to gauge the prospects and possibilities of a naval career.

Let us select a hypothetical sailor-to-be. This young man has had a reasonable amount of education (grade 10-11) and has done reasonably well. He is of good character, he is physically sound—and he wants to join the Navy.

First come the recruiting processes—information and advice; application and processing; acceptance, and, finally, enlistment as an ordinary seaman.

His term of engagement is three years—and this is a change. Before, it was five, but the view now is that it need not take that long to determine whether service and sailor are compatible. Better a quick separation, if they are not; for even for those with the very best of intentions, the Navy is not always the life, and it is to the advantage of both sides if the association is not prolonged.

Economy is also a factor. Not only will there be a two-year saving in pay, clothing, food, accommodation and medical and dental care, in cases where separation occurs at the end of the first engagement, but there will also be an appreciable economy in training costs and benefits. Expensive trades training formerly given during the first engagement will now not be given until a man signs for a second five-year term of service.

Anyhow, once he is enrolled, our young sailor goes to HMCS *Cornwallis* for his new entry training course. It lasts about 15 weeks, and gives him a basic grounding in naval knowledge and terminology, discipline and seamanship. He is also taught the responsibilities of citizenship and esprit de corps.

At the recruiting office, when he first enquired about the Navy, he read and was told about the various naval trades. At *Cornwallis*, he is made much more familiar with these and, at a stage in his course, is interviewed and given tests to determine his desires and capabilities.

Our ordinary seaman has a flair for electronics and is also intrigued by sonar—submarine detection. His aptitude tests point favourably in this direction, so he is classified as a sonarman.

On graduating from *Cornwallis*, he probably will be drafted straight to a ship, and in her he will remain for the rest of his term of engagement (approximately 2½ years).

For him, as for his shipmates, there will be general daily duties to perform; but most of his time will be spent in the sonar department, taking "on-the-job" training in his chosen specialty. It will be an apprenticeship, really, for he will carry out various elementary tasks under the supervision and instruction of skilled senior sonarmen. This practical training will be supplemented by further instruction and study; and, if he chooses, he may further his knowledge by taking correspondence courses in his spare time.

As he gains in experience, so does he gain in responsibility. Before long he is taking his turn as a sonar operator and carrying out minor maintenance routines on the equipment.

Tangible evidence of the progress he has made comes somewhere toward the end of his first year at sea, when, having qualified on the job, he is granted trade group I classification and then promoted to Able Seaman. This means both higher rank and more pay.

His ship, meanwhile, has not been standing still. A destroyer escort, she and the rest of her squadron have been spending long stretches at sea, mostly on exercises, interspersed with visits to ports on both sides of the Atlantic. Already our young man has put foot ashore in St. John's, Newfoundland; Plymouth, England; Gibraltar, and Key West, Florida, an he will see many more ports of call before his first commission ends.

Three years pass quickly, and soon comes the time for decision. Our able seaman doesn't hesitate: It's the Navy for him, and he signs on for another engagement for five years.

Now begins the serious business of fashioning his career. The first step is to learn more about his trade. To do this, he goes ashore lor a Trade

Today's sailor must be able to deal with intricate technical problems. (DNS-15189)

Plotting the positions of "enemy" aircraft in the operations room of a modern destroyer escort calls for intelligence and alertness. (O-9600)

Teamwork, as exemplified in this picture of the launching of a Tracker anti-submarine aircraft, is ever increasingly important in the Navy. (BN-1191)

Group 2 sonarman's course. This is an extensive course designed to give a firm understanding of the theory and practice associated with both the operation and maintenance of the equipment of his trade.

Our sailor is also ambitious to hoist his "hook", so he writes, and passes, the rank examination for leading seaman.

Next it's back to sea, to put into practice his newly acquired knowledge and to assume the responsibilities of his new rank.

His duties are going to take all his attention for a while but as he becomes more accustomed to them, he will gradually find more spare time on his hands. No man can be expected to work all the time, but the one who sets aside a portion of his idle hours for self-improvement, through voluntary studies, enhances his chances of promotion, in addition to increasing his knowledge and capabilities.

Our leading seaman puts his name down for correspondence courses in mathematics and electronics — two of many available under the Naval Adult Education Program lately introduced in the RCN. This program, arranged with the co-operation of provincial departments of education, universities and vocational schools, provides adult courses similar to those conducted ashore.

At the same time, our man pursues his studies of naval subjects, and their practical application, to prepare himself for future responsibility.

On successful completion of his correspondence courses, the achievement is duly noted on his record and he becomes eligible to write examinations for a higher trade group, without having to take a formal course ashore.

Later, after having satisfactorily completed a specified period as a leading seaman, he sits for an examination that will qualify him for petty officer second class.

So there he is, at about 24 years of age, already well established in his career. And so he continues, steadily acquiring more knowledge and skill, assuming greater responsibility and improving his position both as to trade group and rank. His career will last 25 years, and when he retires—around the age of 43—he will be a Petty Officer or Chief Petty Officer, possessing a high degree of professional training and executive ability.

It may be that our man, soon after entering the Navy, showed qualities that marked him as officer material. In that case, he would be encouraged and assisted in working toward a commission. Most likely he would be enrolled in the Naval Junior Matriculation Course. This is a new course, introduced in 1959, whose purpose is to enable young men who are prospective officer candidates, but who have less than junior matriculation station, to clear that academic hurdle.

Once they have done so, they may become eligible for HMCS *Venture*, College Militaire Royal de Saint-Jean, or the Naval Senior Matriculation Course. Through the senior matriculation course, officer candidates may qualify for the College Training Plan, which provides a fully subsidized education at a Canadian Services College or university on the same basis as the Regular Officer Training Plan.

Perhaps our man doesn't become an officer candidate until later in his career. By then he is too old for the College Training or *Venture* plans, but there is still an academic course that will enable men in his category to obtain commissions.

With these various academic training schemes, the RCN is determined to realize the full officer potential among its men, early or later in their careers. Standards, if anything, will be higher, but the red tape and road-blocks, real or imaginary, that existed before have been removed.

This intensified search for strength from within itself is but one of a number of features to the Royal Canadian Navy's personnel planning. Others have been mentioned, others indicated. They include:

1. *Initial three-year engagement.*
2. *Common entry as a seaman recruit. In other words, there is no trade selection on entry. This comes when a man has become better acquainted with the Navy, and its trades, and is given thorough classification tests.*
3. *On-the-job training at lower trade levels. This means trade training at sea, with practical observation and experience combined with formal instruction.*
4. *Revision of the trade structure to fuse operational and maintenance duties; the weapon-man of the future, for example, will be equally capable of operating and maintaining the weapon for which he is responsible.*
5. *Most reward for the most deserving.*

First of the four St. Laurent class destroyer escorts transferred to the West Coast, the Ottawa is shown at the moment she first steamed through the entrance of Esquimalt harbour, her future home. She was to be joined by the Assiniboine, St. Laurent and Saguenay to bring the number of her class in the Pacific Command to seven. (E-48839)

THE NAVY'S PLACE IN THE COMMUNITY

Sailors Afloat and Ashore Happy to Lend Helping Hand

APPROXIMATELY four-fifths of the Royal Canadian Navy's 20,000 officers and men are stationed in two of Canada's ten provinces: Nova Scotia and British Columbia—a logical distribution of manpower considering the Navy is charged with the defence of Canada from attack by sea.

This necessary distribution of manpower means that while most Canadians seldom have personal associations with the Navy, Nova Scotians and British Columbians have the sailor with them always.

In many ways, the Navy and its personnel are taken for granted by the people of these two provinces—a fact not surprising at all when one considers that the Navy, in one form or another, has been at Halifax for 200 years and at Esquimalt for 100 years.

And yet, while the RCN would not want to be taken for granted *entirely*, its sailors are quite happy to be accepted as part of these communities.

Underprivileged children can always count on the friendship of Canadian sailors. Here two men from the destroyer escort Micmac chat with three tots in a Halifax orphanage following presentation of a television set and $300 from the ship's company. (HS-53187)

The Navy forms a healthy segment of two Nova Scotian areas in particular. There are approximately 10,000 officers and men, not including the families of most, located in the Halifax-Dartmouth area. Another 2,000 are stationed at HMCS *Cornwallis*, the new entry training establishment in the Annapolis Valley. In British Columbia, about 5,000 live in ships, homes, or barracks in the Victoria-Esquimalt area.

The Navy "way of life", on the face of it, tends to set the sailor apart from his civilian neighbour. Most sailors live in barracks, on board a ship or in Service housing set apart from the rest of the community, and their work is in no way similar to that of civilians.

Yet, individually, the sailor at Esquimalt and at Halifax is much like his civilian neighbour, with the same pastimes and habits.

How much do the Navy and its individual officers and men contribute to the life of these communities?

Many of the contributions are insignificant by themselves, but added up they form a sizeable picture of service to fellow citizens.

In the offices of the personnel staff of HMC Dockyard, Esquimalt, there stands a toy China bull. Around its neck hangs a sign reading "cerebral palsy".

On the day after each pay day, one of the young ladies of the typing pool carries "Ferdinand" to the naval and civilian personnel in the building, who are happy to donate all the pennies that they have on hand at the time. Since the collection began, a short time ago, the China bull has produced about $75 to help crippled children of the Cerebral Palsy Association of Lower Vancouver Island.

This is one of the small projects. There are many of them.

There are also many big ones of a fund-raising nature. Each year naval personnel contribute to such worthwhile money-raising drives as those of the Red Cross, Cancer Fund, Salvation Army and Community Chest.

The Atlantic Command during the fall of 1958 conducted its own campaign on behalf of the Halifax-Dartmouth United Appeal and raised approximately $23,000. HMC Dockyard's major charitable campaign in 1958 realized

about $10,000, most of it collected from the Navy's civilian employees.

The RCN Air Station at *Shearwater*, N.S., has been operating its own central charities fund for the past two years, during which time approximately $15,000 has been collected from both naval and civilian personnel at the station and distributed to various charities.

The RCN Halifax Central Charities Fund, which has been established for about 20 years, has distributed nearly $100,000 to charitable agencies and worthy institutions.

In addition to these combined campaigns, HMC ships paying off make generous charitable donations from accumulated canteen funds. These take the form of gifts of money and equipment to hospitals and other institutions.

When the aircraft carrier *Magnificent* paid off early in 1957 and returned to the Royal Navy, the ship's officers and men contributed $5,000 to ten charities in the Halifax-Dartmouth area. During her nine years on loan to the RCN, the carrier donated $16,000 from her welfare fund to institutions and charities in the area.

Throughout her time in the RCN's Pacific Command, the cruiser *Ontario*, which paid off in October 1958 for the last time, established an enviable record as a benevolent ship. Her gifts to charity in Victoria alone amounted to over $25,000. Over the years, her officers and men conducted a contiinuing program of community service, and they literally adopted the Queen Alexandra Solarium for crippled children, near Victoria. Money from the ship's fund provided the Solarium with a number of much needed items, including a completely equipped ambulance.

Such donations are not confined to the larger ships and establishments. All participate. HMCS *Micmac*, when she paid off in July, 1958, disbursed $2,500 to charities in the Halifax-Dartmouth district.

All of these contributions by ships are profits from the operation of ship canteens, and are "nonpublic funds".

The most spontaneous response in 1958 by naval and civilian personnel of the Atlantic Command was directed to the Springhill Disaster Relief Fund. The Command raised the sum of $13,000. This included $1,000 from the 247 officers and men of the destroyer escort *Ottawa*, engaged at the time in exercises in the Mediterranean. HMCS *Cornwallis* gave $2,400 and the RCN Air Station *Shearwater* $1,000, in addition to 500 Christmas gifts to bereaved children at Springhill.

The RCN helped to introduce and popularize Canadian football in the Maritimes. The team from the naval air station, Shearwater, won the Canadian intermediate championship in 1957. (HS-45214)

The role played by the Navy in community projects is not confined to the donation of monies.

Naval divers are much in demand by civilian authorities. Most of their work for the public is done at the request of police and government agencies, although there are exceptions and many of the jobs undertaken are not pleasant. The Operational Diving Unit at Dartmouth is called upon to recover several drowning victims each year, and to search for missing weapons. On the West Coast last year naval divers spent a great deal of their off-duty time in clearing underwtaer obstructions from lakes in the Victoria area which are popular recreational spots for citizens.

The diving decompression facilities on both coasts are available at all times to civilian divers suffering from the "bends". Last year two Quebec divers were treated successfully at Dartmouth and a third was aided by telephone advice to a firm which had a decompression chamber but was uncertain how best to use it. One of the most interesting jobs undertaken last year by the East Coast divers was a study of the habits of lobsters for the Department of Fisheries.

The mercy missions and rescue operations undertaken by naval helicopters of HU 21 Squadron at *Shearwater* are known to many Maritimers. Search and rescue operations in that area are co-ordinated by the RCAF and helicopters are useful workhorses in this field.

During 1958 the helicopters of HU 21 flew more than 90 hours on non-naval operations. These included the evacuation of lighthousekeepers, transport of forest fire fighters, stocking of lakes for the Department of Fisheries, flying injured persons to hospitals, aiding police in searching for suspected criminals and tracking down lost fishermen and hunters. A naval helicopter flew Santa Claus to the Nova Scotia school for retarded children at Truro for a special pre-Christmas visit.

Buildings and boats, ships and forests and towns and hamlets on both the Atlantic and Pacific Coasts have the active protection of naval firemen. Naval fire tugs at Halifax and St. John's are the only water-borne fire apparatus at either port. Ashore, particularly in the smaller communities near naval establishments, extensive assistance is given to civilian firemen.

Each year, the RCN is asked to provide ships, aircraft and personnel for a variety of celebrations by communities of the Atlantic provinces and British Columbia. Whenever possible, these requests are met, sometimes with elaborate preparations, by the Atlantic and Pacific Commands.

When Halifax celebrated its bicentennial in 1959, the Navy co-operated with a week of demonstrations, displays and a stage spectacular atop Citadel Hill each night, and last year, the service played a big part in the B.C. Centennial celebrations.

There are ten celebrations throughout the Maritimes in which the Navy is regularly involved. During the past eight years HMCS *Cornwallis* has provided bands, guards and bunting for the big Annapolis Valley Apple Blossom Festival and ships and air displays for the Lunenburg Fisheries Exhibition and the Summerside Lobster Festival.

The Navy also helps to enliven the proceedings at the Bridgewater Water Carnival, the Pugwash Gathering of the Clans, the Shediac Lobster Festival, the Antigonish Highland Games and other events.

Naval personnel in both commands are big contributors to the Red Cross blood donor clinics. In Nova Scotia last year, well over five thousand officers and men donated as many pints of blood to the Red Cross at special clinics set up in naval ships and establishments. Blood donors from the Pacific Command numbered well over a thousand and in addition hundreds of sailors responded to emergency blood donor calls during the past year.

In Halifax, one of the most worthwhile community services provided by the Navy is the facilities of the huge gymnasium at HMCS *Stadacona*, the RCN Barracks. Applications for its use by civilian organizations this year already have taxed its facilities until September.

After the needs of the service are met, consideration is given to the needs of various community service clubs, institutions for underprivileged children and naval and civil service children. Each week, facilities are programmed for various civilian groups, with emphasis on the swimming pool. On occasion it is used for hydrotherapy of paraplegics, but chiefly for teaching children how to swim. Both naval and Red Cross swimming instructors conduct the classes. Other civilian regulars who use the *Stadacona* gym are patients from the DVA hospital, sea scouts and Halifax school children.

At *Shearwater*, the new gumnasium serves a naval community of about 6,500 including civilian employees and their children. Most live in the area of the station, which is comparatively distant from Dartmorth's recreational facilities, and so the gym staff has its work cut out to meet the resultant demand on facilities. Time has been made available, however, to the Dartmouth YMCA and YWCA and the town's RCMP detachment.

Naval teams are active in all levels of baseball, basketball and hockey, having entered senior competition in the latter game this year for the first time. In curling, on the other hand, the civilians have a commanding lead and help to nurture the game among the sailors. Naval teams are made to feel at home in civilian rinks, where they play until the day they will be able to have their own ice surfaces.

But of all of their associations with the community life of Nova Scotia and British Columbia, the sailors' happiest is with children, particularlc those who are handicapped physically or socially. Last Christmas, HMCS *Shearwater* did not have its usual Christmas parties because the gifts for this occasion were sent instead to the children of Springhill. There were, however, parties for retarded children and for those at the Nova Scotia Home for Coloured Children. Sailors at *Stadacona* were hosts to 150 orphans and crippled children at a mammoth Christmas party in the gymnasium, and Santa, with his bag of gifts, visited those children who could not attend.

Many ships play Santa Claus to needy families at Christmas. Last Christmas, for instance, the petty officers on board the frigate *Antigonish* sent two men to the Victoria welfare offices. They asked for, and obtained, the name of a needy Victoria family—a family not already on any assistance list.

It was a happy Christmas for that family, especially the children. The sailors of *Antigonish*, with purchases from their mess fund totalling about $80, delivered groceries, clothes and gifts to the family on Christmas Eve.

It was hard to tell who was the happier group—the family or the sailors.

The association between the Navy and the people of Nova Scotia and British Columbia has been a long and for the most part, happy one. As he has been accepted into the community, the sailor also has shown that he is a responsible citizen, with just the same ideals as his civilian neighbour.

Mercy missions by RCN helicopters are a familiar story on the East Coast. Medical supplies and mail are loaded into a Sikorsky helicopter for residents of isolated Pictou Island. (DNS-15305)

The growing importance of science and technology in modern warfare is reflected in the academic training of today's officer cadet. (E-29321)

THE GENERAL LIST OFFICER

Personnel structure revisions presage profound changes in naval careers

UNUSUAL ATTENTION and interest are focussed on 30 young graduates of the Royal Military College and other Canadian universities.

For these 30 are, in effect, the pioneers of a system of education and training designed to produce naval officers equally proficient in the operation, maintenance and administration of ships, and possessing the broad knowledge and experience considered essential in those who will command and administer the Navy of the future.

On graduation, these pioneers received their commissions as sub-lieutenants and, coincidentally became the first officers listed under a new classification, known as the "General List". And however unexciting the term itself may sound, the establishment of the General List presages the most significant and profound of all the changes that are to be made in the Navy's personnel structure in the coming years.

At the present time, almost all officers of the RCN belong to branches — Executive, Engineering, Electrical, Constructor, Supply, Ordnance, and so on — and pursue their careers, within those branches.

Under the new structure, the branches in time will disappear. In place of them will be three lists—the General List, the Special List and the Limited Duty List.

The Limited Duty List will be composed of officers promoted from the lower deck, other than through *Venture*, Services College or university training plans.

The Special List will consist of doctors, chaplains, instructors and others with special skills.

The great majority of officers—about 70 per cent—will be borne on the General List. It will be some years before transition to the General List is complete, but the first step in this direction

has been taken with the designation as General List officers of all cadets and junior officers who have entered the RCN since 1955.

Where most of his predecessors trained and stayed in their specialties, tomorrow's officer, at a fairly early stage in his career, will become equally capable of standing a watch on the bridge and in the engine room; of supervising maintenance of the hull and fittings of his ship, and of commanding armed parties ashore; of controlling the ship's weapons and handling accounts. He will know how to navigate and deal with correspondence. His training will embrace communications, damage control and still other subjects. In short, he will know his ship, and what makes her tick, from truck to keel and from stem to gudgeon.

He will be trained, too, to lead; and in this respect, at least, tomorrow's officer will be on common ground with today's and yesterday's. Whatever changes they may have caused elsewhere, science and technology have not altered the requirements of leadership, and the development of those qualities of spirit and character, and sense of responsibility, that are among the prerequisites of the naval officer.

It has been calculated that the training of a General List officer to where he possesses the qualifications listed above will take about six-and-a-half years. How he will spend those six-and-a-half years is laid down in a junior officer training program which became effective at the same time as the "pioneers" referred to earlier became General List officer candidates.

It now starts the moment a young man enters the RCN as a cadet.

Apart from the short service entry through HMCS *Venture*, officer candidates are enrolled in the RCN under two related plans, the Regular Officer Training Plan (ROTP) and the College Training Plan (CTP). The latter applies only to men selected from the lower deck for officer training and is essentially the same as ROTP, the only difference being in the terms of service.

The general science course at the Royal Military College is the minimum standard for ROTP and CTP cadets. University courses have been equated to the RMC standard on the basis that any degree course is acceptable, providing it includes two years' physics and mathematics, and is approved by Naval Headquarters. The emphasis is on science and engineering, but there is insistence, too, on a firm grasp of the humanities.

The province of Ontario has given a degree-granting charter to RMC, which means that eventually all cadets completing the Services College course will obtain a degree without having to spend a further year at universtiy.

While he is at college, the cadet is made familiar with and trained in the ways of the Navy. During the academic year, he spends a small number of periods in integrated and single service studies, and for 12 weeks of the summer he trains full-time with the Navy afloat and ashore.

To improve the standard of sea training, a cadet training squadron, composed of frigates, has been formed, replacing in function the cruiser *Ontario*. Where the *Ontario* was restricted to a training role, the frigates are capable of shifting immediately to operational anti-submarine duties, if required. They possess the further advantage of being much more comparable in size and equipment to the destroyer escorts that form the bulk of the fleet and in which the cadets will serve on obtaining their commissions.

All first- and second-year cadets will receive their summer sea training in the squadron. The number of cadets in each frigate will be kept low and this, combined with first-class instructors, will ensure a high level of training.

During the third summer training period, each of the operational destroyer escorts will carry a small number of cadets for practical engineering, weapons training and electronic experience. Commencing with the third summer, cadets will be given the title of "cadet midshipman", will wear midshipman's patches and will be messed with the ship's officers in the wardroom.

On completion of his college course, the graduate will attend a "pre-fleet" course of about six months' duration. He will then go to sea for two years as a sub-lieutenant.

The pre-fleet course will include instruction in operational, divisional, weapons, electronics, air, engineering, damage control and supply duties. This will complete the professional background needed to obtain full advantage from the sea training period to follow.

During the first two-year sea phase of his career, the junior officer will obtain upper deck and engineering watchkeeping certificates and experience in all the other departments in the ship, such as weapons, supply, etc.

The following table shows the duties it is expected an officer will be able to carry out in a destroyer escort at the *end* of the first sea phase:

(a) *Watchkeeping Duties*

(1) Officer of the Watch at Sea (Bridge and Operations Room) and in harbour.

(2) Engineer Officer of the Watch (including supervision of electrical power generation and distribution).

(b) *Divisional Duties*

(1) Divisional Officer of any division in the ship.

Officer cadets are introduced to seamanship early in their training. (E-47563)

(c) *General Duties*
- (1) Supervise normal routine work and evolutions.
- (2) Supervise maintenance of hull and fittings as required in self-maintenance.
- (3) Command armed parties for ceremonial and operational purposes.

(d) *Administration and Supply*
- (1) Administer the Supply department.
- (2) Assume responsibility for cash.
- (3) Act as correspondence officer.
- (4) Act as Explosives Account Officer.

(e) *Weapons Duties*
- (1) Weapon Control Officer (all systems).
- (2) Officer of the Quarters (all systems).
- (3) Gun Direction Officer.

(f) *Navigation Duties*
- (1) Navigating Officer.

(g) *Communication Duties*
- (1) Administer the communication department.
- (2) Supervise maintenance of communication equipment.
- (3) Act as custodian of crypto and confidential publications.

(h) *Damage Control Duties*
- (1) Section Officer.
- (2) Ship's Monitoring Officer.

After the first sea-time phase comes promotion to lieutenant and a second tour at sea, also of two years. During this period, the officer will serve as part complement in a destroyer escort and will be given added responsibilities. As a general rule, he will spend the two years in *two* main areas of the ship and begin to sub-specialize in an area to which his talents are most suited.

On completion of this second sea-time phase, a small number of officers will be diverted each year to the restricted duty section of the general list. These will be officers with a particular aptitude and interest in certain specialties. They will be given further education up to and even beyond the Masters level and will specialize in highly technical or administrative fields for the balance of their careers.

Officers remaining in the general duty section spend the next three years ashore. For about one year of this period they will attend a Junior Staff and Technical Course and take sub-specialist courses qualifying them to serve as heads of particular departments in destroyer escorts, e.g., engineer officer, weapons officer, etc. The remaining time (about two years) will be spent in shore appointments.

The RCN's new personnel structure is intended to ensure that Canada's modern ships will have officers and men with the highest attainable levels of training, efficiency and enthusiasm. Pictured is HMCS Skeena. (OT-3358)

Then it is back to sea, either in command of a frigate or as head of a department in a destroyer escort.

It is at and after this stage that individual ability will begin more fully to demonstrate itself, and be recognized in the promotion and appointment lists. To predict how officers will progress hereafter is impossible, but, generally speaking, they will receive appointments and training that will fit them for middle and top command.

Taking 23 as the average age of graduation from RMC or university, an officer will be the following ages if promoted from one rank to the next in the *minimum* time.

To Lieutenant	25
Lieutenant-Commander ...	30
Commander	34
Captain	38
Commodore	42
Rear Admiral	46

To the General List concept there are three main parts:

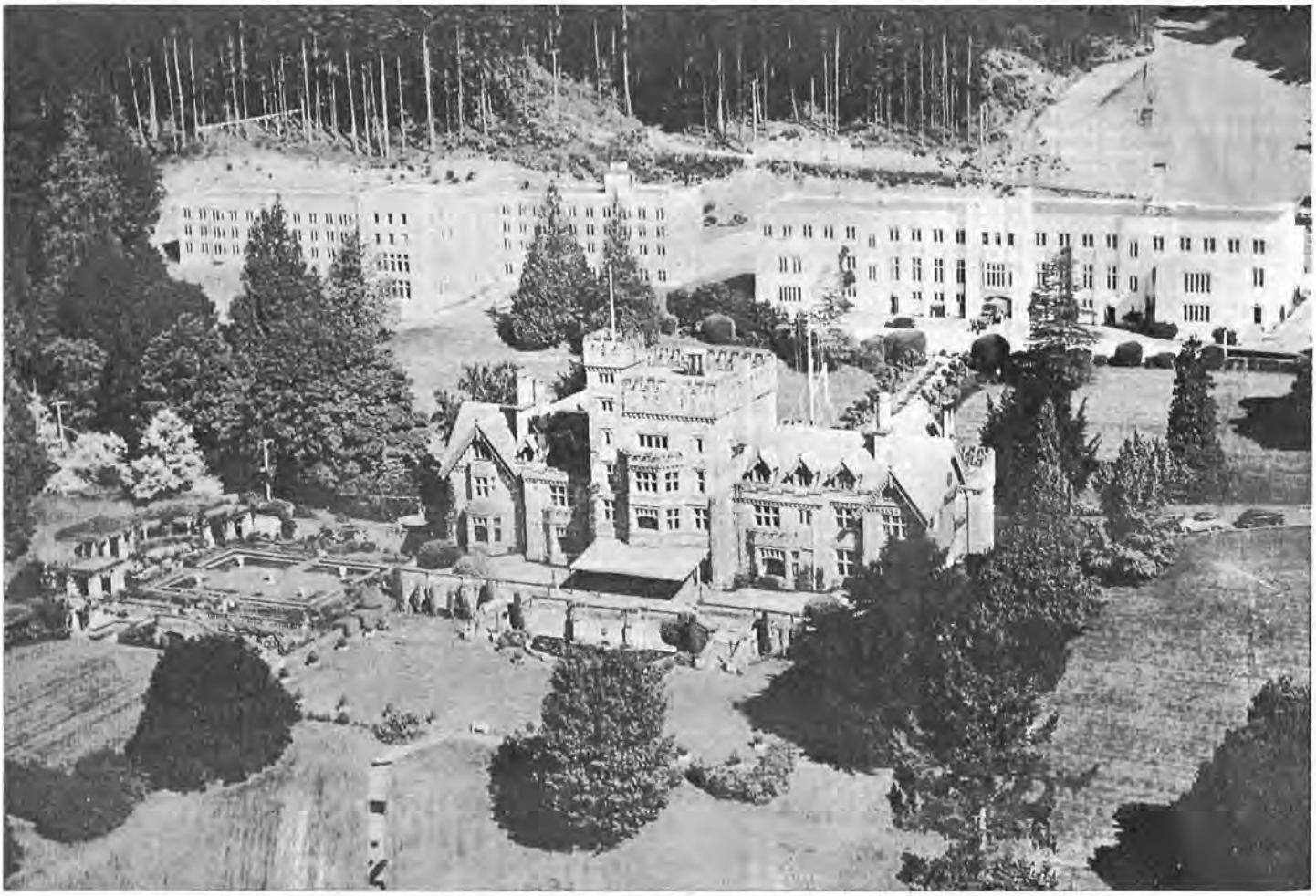
1. In the ranks of cadet and sub-lieutenant, common training for all, ashore and afloat, based on a technical education to the degree level;
2. In the ranks of lieutenant, lieutenant-commander and commander, sub-specialized training and employment;
3. In the ranks of captain and above, employment of a more general nature consistent with each officer's capabilities and background.

A significant feature of the new officer structure will be its provision of specialists, in fields such as engineering, electronics and supply, without restricting officers in wholesale numbers to specialization for their entire careers.

There will be a small core of super-experts, given the very best training obtainable and the opportunity to achieve high rank. But otherwise the need will be met, efficiently and economically, by the sub-specialization of General List officers to where they are completely capable of serving as heads of departments in ships and in key staff, technical and training appointments ashore. By virtue of their broad training and experience, however, these officers will continue to be candidates for command and for senior appointments of a general nature, in the ranks of captain and above.

There are a number of evident advantages, both to the individual and to the Navy, in the new officer structure. With the raising of over-all professional standards, officers will acquire a broader capability and the Navy will enjoy much greater flexibility in the employment of officer personnel.

The Navy will have, too, a much larger field from which to select its senior officers of the future and, conversely, positions of high command will become open to a much larger group of officers.



The Canadian Services College, Royal Roads, near Victoria. (E-45653)

Royal Roads

By
COLONEL P. S. COOPER
Commandant, Royal Roads

IF YOU WERE to attend a graduation ceremony at the Royal Military College of Canada in Kingston, Ontario, you would see among the officer cadets about to take up their duties as officers of the RCN, the Canadian Army or the RCAF, a number who began their training four years previously at the Canadian Services College, Royal Roads.

Royal Roads, formerly HMCS *Royal Roads,* and named for the anchorage which lies just off shore from the college, began its service career in 1941 as a RCNVR officer training establishment and then as the home of the Royal Canadian Naval College, which was re-established on Trafalgar Day, 1942. The Royal Naval College of Canada had formerly operated at Halifax from 1911 until the great explosion of 1917 deprived the college of its home. It was moved, temporarily to Royal Military College, Kingston, and then to HMC Dockyard, Esquimalt, where it remained until closed in 1922.

Like the Royal Military College and College Militaire Royal Saint - Jean, Royal Roads trains officer cadets for the three services, under the Canadian Services Colleges program. This program entails four years' education from senior matriculation standing and in the case of College Militaire Royal de Saint-Jean, five years from junior matriculation. In those four years the officer cadet receives the education and service training necessary to fit him to become an officer in the service he has chosen to enter. Education and service training in that period will equip the officer cadet to take his place as a junior officer in his service (sub-lieutenant in the case of the RCN) and begin the process of professional development and training which will continue throughout one of the best careers open to young men of spirit in Canada today.

The program at Royal Roads covers only two years, and all graduates go to Royal Military College to complete their third and fourth years' training. I shall deal with the two years' training at Royal Roads and describe the training from the standpoint of an officer cadet of the RCN.

Royal Roads inherits from its naval origins something of the Nelson spirit and one of the sayings of that great trainer and leader of men is permanently fixed above the main entrance of the Grant Block which is the main building of the college. There we are

reminded that "duty is the great business of a sea officer; all private considerations must give way to it, however painful it is". As one of the Canadian Services Colleges, we have also inherited the traditions and motto of the original Royal Military College of Canada, and every officer cadet wears a perpetual reminder of this in the college badge which carries the words "Truth, Duty, Valour". In the training undertaken we are mindful of the advice given to his midshipmen by Lord Nelson that they should "recollect that you must be a seaman to be an officer; and also that you cannot be a good officer without being a gentleman".

The candidate for Royal Roads must have senior matriculation standing of his province in mathematics, physics, and chemistry, as well as English, and French or history. The two years' academic course includes all these subjects, as well as engineering drawing and descriptive geometry. The naval officer cadet will continue in his third and fourth years either in an engineering course, or in a general science course leading to B.Sc. The emphasis in the academic training at Royal Roads is upon the sciences, for which, including mathematics, a total of 22 hours of lecture and laboratory time is provided in the week, while eight hours are taken for English, French and history.

During the academic year, which begins in the first week of September and ends on the 21st of May, two hours a week are devoted to military studies. This represents theoretical training in the organization, functions, history, traditions and customs of each service and a more detailed knowledge by each officer cadet of his own service. Thus the naval cadet learns about the parts of a ship and the fundamentals of navigation and chartwork, in preparation for his practical training at sea during the summer.

The business of a naval cadet is chiefly learned during the practical phase training periods each summer. The naval officer cadets of the three colleges and those attending universities under the Regular Officer Training Plan are brought together each summer for this practical training, which includes a period of "school work" ashore, but consists, in the first two years, principally of training and experience at sea. Thus from early September to May 20 the officer cadet is preoccupied with a university academic program and from May 21 to mid-August with learning to be a "seaman".

While the officer cadet is preoccupied during the fall and winter with an academic program, he also receives during this period some of the most important training of his life in physical and character development. Physical training consists of gymnastics, taught as part of a graduated four-year course, and games. All officer cadets play soccer and rugby, as well as basketball and volleyball; and all take part in cross country running and track and field events. Swimming is compulsory, as is boxing. In addition, other activities such as hockey, badminton, squash, tennis and dinghy sailing are encouraged and well supported.

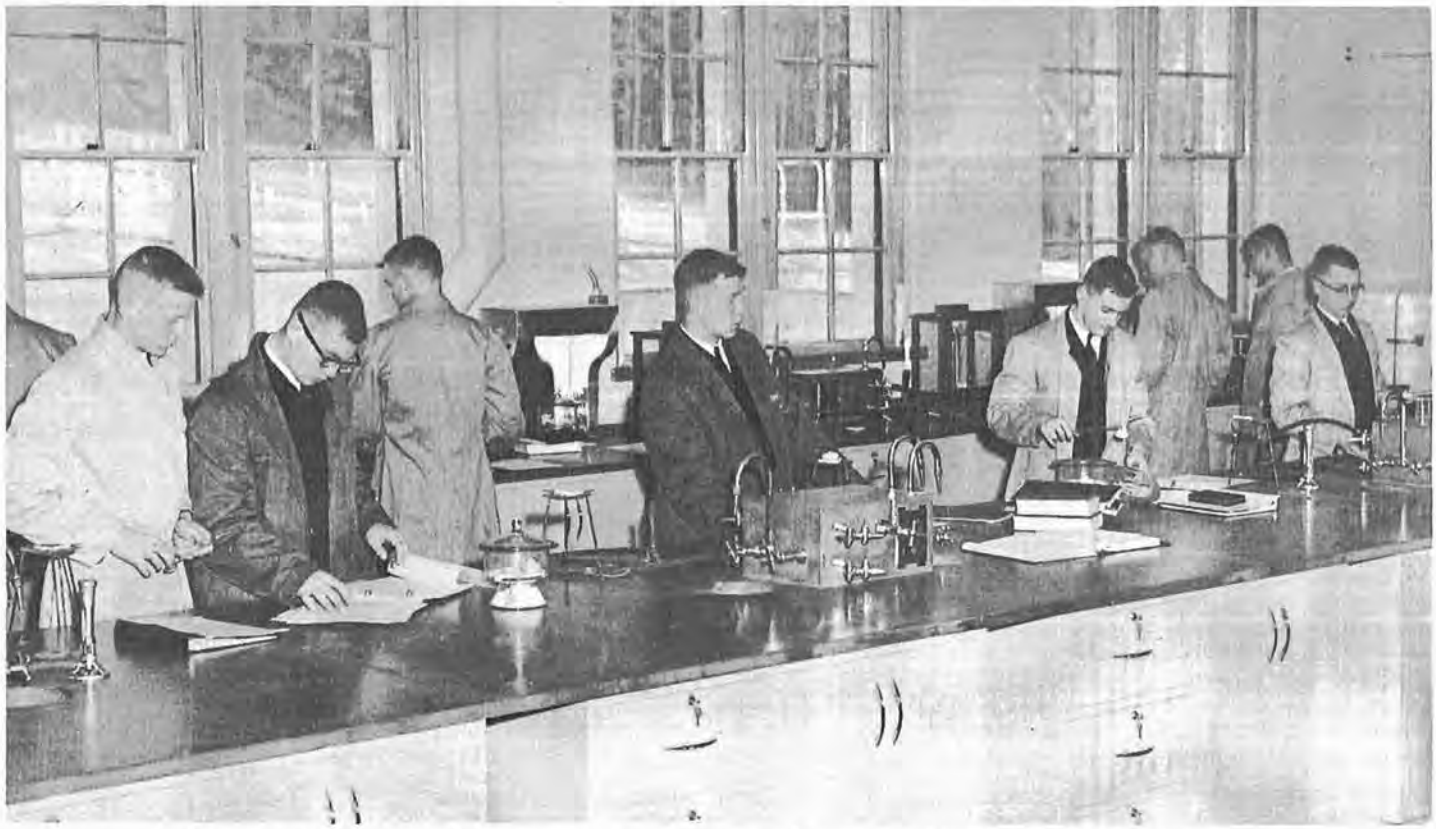
Col. P. S. Cooper, commandant of Royal Roads at the wheel of HMCS Oriole during a training exercise for officer cadets from the college. (E-50140)

Drill forms a part of the college program and is the principal means of developing good erect carriage and smart appearance in keeping with the proud traditions of the college and its uniform. In this matter of drill, the naval officer cadet becomes "bilingual". That is to say, he drills as he dresses, in army fashion, during the academic year, but as soon as the graduation parade is over he switches without any apparent difficulty to drilling and saluting in proper naval fashion—and *never* stamping feet for reasons which, no doubt, have a practical as well as a traditional basis!

During the academic year, the officer cadets are organized without regard to the service in which they have been enrolled, in flights of about 20 cadets each. Two or more of these flights make up a squadron and two or more squadrons, according to the total strength enrolled, form the cadet wing. The officer cadets are distinguished, according to their year, as Senior and Junior Cadets. Cadet officers are appointed from the Senior term to lead the flights and squadrons and a cadet wing commander is also appointed, with some additional cadet officers, to assist in administrative duties. Each cadet squadron is commanded by a regular officer of the rank of lieutenant (RCN) or the equivalent in the Army and RCAF, and the cadet wing is under the command of an "Officer Commanding the Cadet Wing", who is of the rank of Commander. This officer is responsible to the Commandant for the discipline and training, other than academic training, of the officer cadets. Responsibility for the academic training rests, under the Commandant, upon the Director of Studies, who, himself a Professor, directs a carefully selected and well qualified academic staff.

Successful candidates for training at Royal Roads, having been selected by the Services they sought to enter, are despatched from their homes so as to arrive in Vancouver on an appointed day in the first week of September. They are met at the railway station and transported to the jetty at which one of the HMC ships is waiting to receive them on board and transport them to Esquimalt. Thus they embark upon two years' work and play under the White Ensign (which is still flown at Royal Roads).

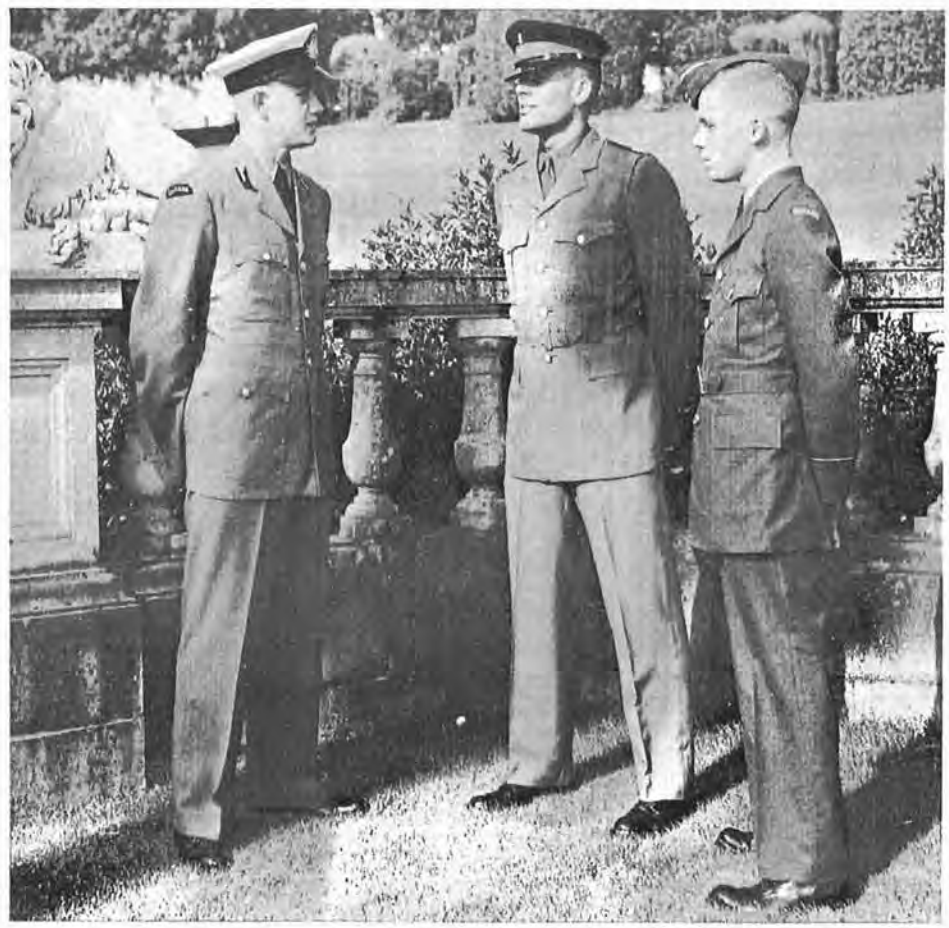
For the first six weeks after his arrival, the new cadet is known as "Recruit". He is met, on arrival at the college, by the cadet officers and embarks at once upon a busy program of drawing equipment, being assigned to a "cabin" and being attested in his own service. Then begins a three-week period of concentrated physical conditioning and drill, with some preliminary academic instruction in English and mathematics. At the end of this period, the senior term officer cadets arrive and begin their studies, while the recruits spend one more week working up to the full academic program which they then continue, the drill and physical training being scaled down to the level at which it is to remain for the rest of the year. By this time the recruit is ready to be "passed off the square" for his standard of drill, deportment and dress and he is then



Much emphasis is put on the sciences in academic training at Royal Roads. The "chem lab" is a busy place. (E-47671)

equipped with his walking-out uniform and allowed "liberty" for the first time since his arrival. This great occasion follows the running of the obstacle course from which he emerges wet, muddy, tired, but triumphant, and no longer "Recruit", but "Junior Cadet".

The daily routine begins each morning from Monday to Saturday, inclusive, with reveille at 6.20 a.m. and breakfast at 7 o'clock. Each morning except Saturday sees the cadet wing drawn up for Colours and Prayers at 7.45 a.m. after which rifles are returned to lockers, and the sword having been laid aside for the pen, cadets collect their books and go to lectures. The first lecture is at 8.05 a.m. and the program continues for 7 periods, with a break of an hour for lunch and 15 minutes stand easy in the morning, until 3.15 p.m. Cadets have a short break for tea and change into games kit. Games continue until 5 p.m. when the cadets shower and change for supper at 5.30 p.m. Compulsory study begins at 7 p.m. and ends at 9.30 p.m. when coffee or cocoa is available. Cadets may study from then until "lights out" at midnight if they wish to, but silence must be maintained for those who wish to sleep. On Saturday mornings from 8 o'clock to 10 o'clock, as well as during the evening study periods, members of the academic staff are available to assist cadets in their studies,



Canada's three armed forces are represented at Royal Roads. Officer cadets take their first two years here and then go on to the Royal Military College at Kingston for their final years. (E47455)

tutorial classes being held on Saturdays for those in need of extra coaching. From 10 a.m. to 12 noon cadets have time to make use of various hobbies facilities, or to swim, or play games, as they may be inclined. On Friday nights and after lunch on Saturday, leave "ashore" is granted until midnight for Junior cadets. Senior cadets are given additional leave privileges on a monthly basis. Each Sunday morning the cadet wing parades for the commandant's inspection which is followed by church service on the "Quarterdeck", a very fine hall in the Grant Block, the design of which is suggestive of a ship of war in the days of wooden ships and sail. Sunday afternoons are free, but "liberty" ends at 6 p.m. and compulsory study routine applies from 7 p.m. Thus a new week is begun. The recurring routine is saved from monotony by the sport fixtures and tournaments, which mark off the all too quickly passing year; and formal occasions such as the Christmas dance add to the variety.

In May of each year, in a setting of great natural beauty and usually blessed

by good weather, the graduation ceremonies for the Senior term take place. The cadet wing in full dress, and trained to the greatest degree of steadiness and smartness that the tireless drill staff can impart, presents an inspiring sight as it performs the ceremonial of the graduation parade on a square bordered on three sides by sloping lawns and fine trees and on the fourth showing a magnificent backdrop of snow-covered mountain peaks rising high in the sky above the blue of the Strait of Juan de Fuca, in which will be seen at least one of HMC ships "showing the flag" in honour of the occasion. Thus ends two years of a young man's training toward commissioned rank, and so he goes to finish his studies at Royal Military College and finally to begin his career, equipped with the education and service training necessary for him to make a beginning in an honourable profession and a career in which he will find wide experience, loyal friends and the satisfaction of work well worth his best efforts.

Hon. G. R. Pearkes, VC, Minister of National Defence and president of Canadian Services Colleges, takes the salute during the march past of officer cadets at Royal Roads graduation exercises on May 19, 1959. With Mr. Pearkes is Col. P. S. Cooper, commandant of Royal Roads. (E-50219)

THE RCN(R) LOOKS AHEAD

A NEW AND interesting year is being experienced by the men and women who serve in the 21 naval divisions of the Royal Canadian Navy (Reserve).

The year holds promise of being one in which a plan to re-align the structure of the naval reserve will start to bear fruit . . . and to carry the metaphor a step further, the quality of the apples should be better for the pruning of the tree.

The naval reserve has long been part of Canada's naval tradition. Through the lean years between the two world wars the reserves struggled with slim budgets and little public support, but always holding their heads high and maintaining their purely naval atmosphere in places far from the sea.

In the Second World War the RCNVR and RCNR came into their own, and their magnificent achievements are the fabric of much of Canada's naval contribution during the years of conflict.

After the Second World War, the Royal Canadian Navy (Reserve)—as they were renamed—found itself becoming increasingly out of phase with the changing needs of the regular Navy. The hard facts of the atomic age were directing the RCN toward new tactics and new weapons, all governed by an unbrella of fresh and imaginative thinking. It became essential that the RCN (R) re-examine its position, and reshape its plans, if it was to continue to remain an integral component of our naval strength.

In 1958 a decision was taken to decrease the over-all complement of the reserve — particularly in the officer structure — and to streamline and concentrate its activities to specific RCN requirements in the event of an emergency. This balancing of forces meant a six per cent reduction in personnel, which, in translation, resulted in the officer complement being reduced from 1,500 to just under 1,000, and the number of men being increased from 3,000 to approximately 3,300.

To meet the foreseeable requirements of the RCN in the event of national need, selected branches are being chosen for reserve employment and the training program is being redesigned to provide a reservoir of men trained for specific jobs. Emphasis is being placed on torpedo anti-submarine, radar plot and gunnery, and recruiting within the reserve is directed to those branches. Similarly, the recruiting and training of reserve wrens is being allied to actual jobs the girls will do if full mobilization of our fighting strength is needed.

Two members of the RCN(R) from HMCS Cabot, the naval division in St. John's Nfld., receive instruction in anchor and cable work on board the Sault Ste. Marie during their summer training period on the Great Lakes. (COND-4831)

Change can be unsettling before its wisdom and worth becomes apparent, and to the civilian-sailors who populate the RCN(R) there were feelings of unrest when the new plans were announced. However, the successful completion of the 1958 summer Great Lakes training program, and the resumption of the annual commanding officers' conference with the Commanding Officer Naval Divisions and his staff in Hamilton, after a lapse of a year, did much to allay such feelings. Over the conference table the commanding officers of the naval divisions were able to thoroughly appraise the reorganization plans for the RCN(R). As one commanding officer put it . . . "the conference came as a fresh wind to blow the dust from old corners".

With the 21 naval divisions located in major cities from St. John's, Nfld., to Victoria, B.C., the administration and operation of the RCN(R) embraces, geographically every province in Canada. Controlling this large "family" is Commodore E. W. Finch-Noyes, Commanding Officer Naval Divisions, and his staff of permanent force officers and civil servants.

At COND, training syllabi for the various branches, are prepared for use at the divisions and arrangements are made for reserves to take more advanced courses in the Navy's training schools at Halifax, Esquimalt or *Cornwallis*. During the summer, the Great Lakes Training Centre in Hamilton is put into operation for training new entries in the reserve and other courses are given to more experienced personnel. At the Great Lakes Training Centre the new entries spend two weeks afloat in RCN ships which are brought into the lakes for the summer months.

Sea cadet training for the Royal Canadian Sea Cadet Corps across the country is also organized, and close liaison is kept with the Navy League of Canada, parent organization to the Corps.

The Mobile Anti-Submarine Training Unit (MASTU) is based at Hamilton. This unit, which consists of two motor-trailers fitted out with sonar equipment and plotting tables linked electronically so that "attacks" may be simulated, travels from city to city giving instruction in anti-submarine tactics to local personnel at the divisions. Last year, for instance, MASTU visited naval

divisions in Ontario, Manitoba, Saskatchewan and Alberta, and early in the new year the unit toured naval divisions in the eastern provinces.

At the divisions, training of reserves is done one night each week throughout the year. In divisions with larger ships' companies, more than one training night is held each week, with instruction of new entries one night, the main body of reserves another and a separate evening for University Naval Training Divisions cadets. In many instances local sea cadet corps use the facilities of the division for their training nights, and a special evening is allotted to them.

Divisional training is chiefly devoted to theoretical and practical branch instruction using actual naval equipment and weapons installed in the "dry land ships". Many of the divisions border on lakes or rivers, and there the local sailors get practical boatwork and sailing in naval whalers and dinghies.

The naval reserves are also active in community events, and to the citizens of inland areas the officers, men and wrens of the RCN(R) are the only "live" navy they know. Civic ceremonies, local parades, fairs and exhibitions usually see the naval reserves out in force putting the usual "pepper" into the event.

Summer training for wrens of the RCN(R) is provided at the Great Lakes Training Centre, Hamilton; Wren Marjorie Dodge operates communications equipment. (CON-4841)

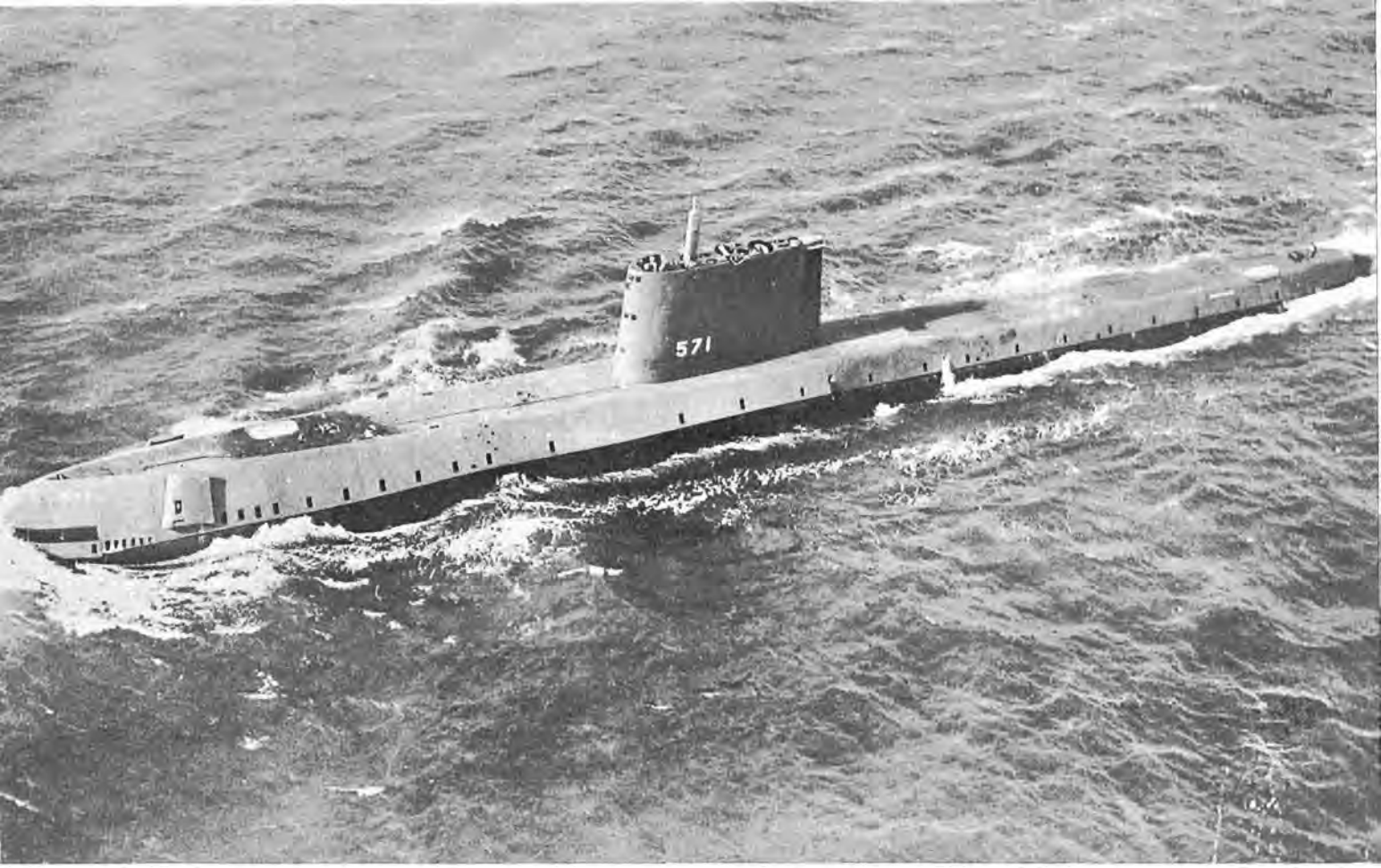
Until 1959, Algerine class coastal escorts, such as HMCS Portage, shown here, passing through the Welland Ship Canal, were the largest warships available for training on the Great Lakes. This year the frigate Buckingham, with twice the tonnage of an Algerine, is providing sea training for reservists. (COND-4851)

Summer training, divisional training and extra-curricular activities require sacrifice of the reservist's spare time, but in return he finds the dividends of comradeship, travel and interesting and vigorous training along with naval rates of pay for the time he spends in uniform.

This year's opening of the St. Lawrence Seaway is providing further opportunity for the reserves who travel to Hamilton's Great Lakes Training Centre in the summer. In previous years, the largest type of naval vessel able to steam through the St. Lawrence waterways were small coastal escorts—ships originally built for fleet minesweeping duty in the Second World War. While these coastal escorts were suitable for training new entries in seamanship and life on board, they lacked modern equipment and weapons. Now new entry summer training is taking place aboard larger, modernized frigates which are able to steam into the Lakes through the new seaway.

Aboard ships of this calibre, the reserve sailors will receive their initial sea training in up-to-date naval surroundings.

Streamlined and harder hitting, the Royal Canadian Navy (Reserve) looks ahead, and when its men and women report to the naval bases for their annual two-week summer training, they will feel, more than ever, that they are part of the fleet in which they serve.



USS Nautilus, the world's first nuclear-powered submarine proved in the summer of 1958 that the Arctic Ocean could no longer be regarded as an impassable barrier between the Old World and the New. (Official U.S. Navy photo.)

THREAT FROM BELOW

The nuclear submarine makes finding the undersea enemy immeasurably more difficult

IMAGINE YOURSELF the captain of a modern anti-submarine destroyer escort. A merchant vessel has just radioed the position of a submarine, which has dived on sighting. The submarine's position is an hour's steaming distance away from your destroyer escort. Your job is to find him. But where?

If the submarine is atomic-powered, with an underwater cruising speed of 20 knots (and that is a speed well within the capabilities of the A-powered boats in service today), you will have to assume that the submarine can be anywhere within an area of 1,250 square miles. If, as is likely, the submarine has not been located by the end of two hours, the search area will have grown to 5,000 square miles, in three hours to 11,300 square miles.

And how deep will he be? The submarine, limited only by the surface of the ocean and the depth which his pressure hull will withstand, operates in three dimensions. How far a submarine can dive with safety is a secret not lightly divulged, ever since leakage of such information brought disastrous results during the Second World War. However, with the introduction of new high high tensile steels and streamlined construction, it may be guessed that the modern submarine can operate at depths of hundreds of feet in mid-ocean.

There, in brief, is the one big problem of anti-submarine warfare—finding your enemy. This is precisely the reason submarines were built in the first place, to hide beneath the grey cloak of the seas. The problem, only solved with the development of the nuclear and hydrogen peroxide submarines, was how to stay underwater long enough to avoid detection by a determined hunter. Their coming actually solved two important problems —how to remain underwater for long periods and how to operate at high speed during submersion. Submarines, until the snorkel was developed, could not operate their main engines unless they were surfaced. Their progress on battery power was limited and slow.

Until very recent years, the submarine was essentially a surface vessel, capable of submerging for a limited length of time. The boat's lines were designed for surface travel, with high bows and commodious conning tower. Disregarding the problems of power, it was possible to make better speed on the surface than below.

All this has been changed of late. The hull has been given a whale-like shape, the conning tower has been reduced to a fin-like structure. The result is a submarine which can travel much faster beneath the sean than on it.

Some startling examples of the capabilities of the modern submarine have been brought to the attention of the world within the past few months. The nuclear submarines *Nautilus* and *Skate* both submerged beneath the Arctic ice pack and visited the North Pole; the *Seawolf* stayed beneath the surface of the ocean for 60 days, without emerging during that period for one whiff of fresh air.

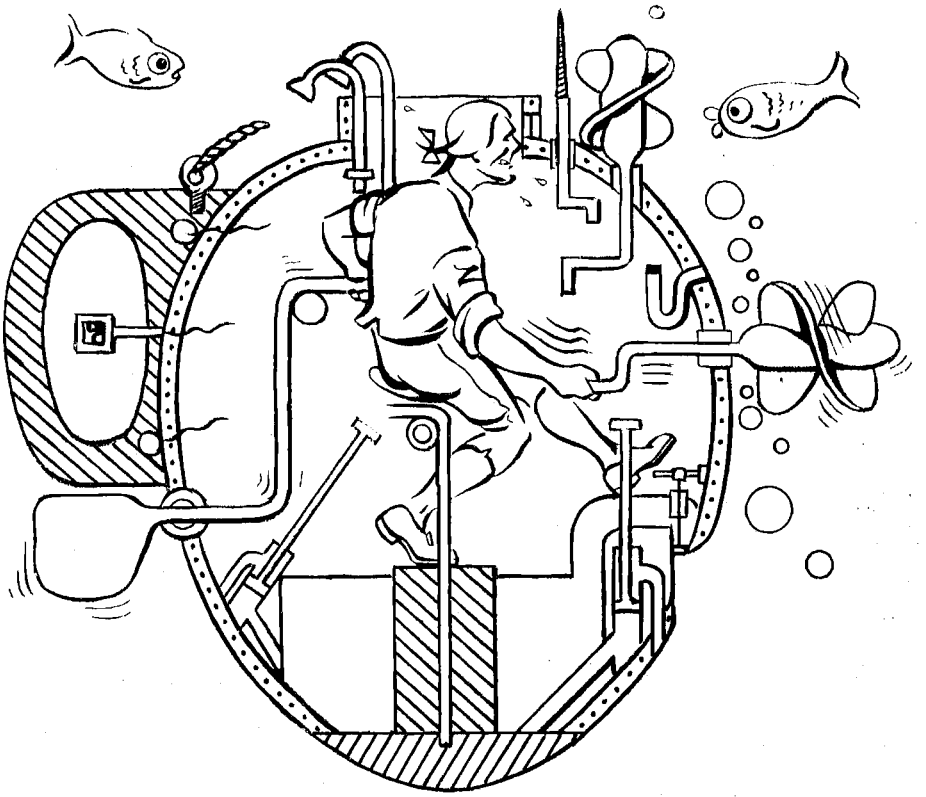
These were accomplishments on a grand scale. They dramatized the potentialities of the nuclear submarine in peace or war. The polar excursions of the two submarines suddenly cut the distance between the western coast of North America and northeastern Europe by nearly three thousand miles. Schemes for transporting oil, grain and other bulk cargoes beneath the seas in gigantic submarines can no longer be called "visionary". Similarly, coastlines once regarded as immune from attack have come within relatively easy range of the missile-carrying submarine.

One of the more frightening accomplishments of recent months was the successful test-firing to a distance of 800 miles by the United States Navy of the Polaris missile. It is intended that it will ultimately have a range of from 1,500 to 1,600 miles, will carry a nuclear warhead and will be capable of being fired from beneath the surface of the ocean by submarines. Five nuclear submarines capable of launching the Polaris are under construction. The first of them is expected to be in operation in 1960 as a member of the world's *second* largest submarine fleet.

A submarine armed with 1,500-mile-range missiles could attack any industrial centre or capital city in the world —including the capital of Outer Mongolia or Sinkiang — and would often have the choice of attacking from any of two or three oceans or seas. Washington, D.C., or Vancouver, B.C., would be within the hitting range of a submarine in Hudson Bay, and Kansas City, New Orleans or Miami could be bombarded by submarines operating hundreds of miles from shore in the Pacific Ocean.

This fantastic weapon of terror has arisen from the marriage of the rocket and the submarine. The origins of the rocket are so ancient that they are lost in the mists of time. Chinese, Persians and Greeks long before the Christian era possessed "fire" - propelled arrows and signal rockets. The high-trajectory rocket was introduced to warfare by the Chinese more than 700 years ago.

The development of the submarine progressed at a slower pace, although curious minds had been seeking for more than two thousand years for some means of living beneath the water. It is related that Alexander the Great descended beneath the waves in a diving bell in the fourth century B.C. The wide-ranging intellect of Leonardo da Vinci studied the problem of submerged existence, but it is not until the 17th century that we find a submarine that actually worked.



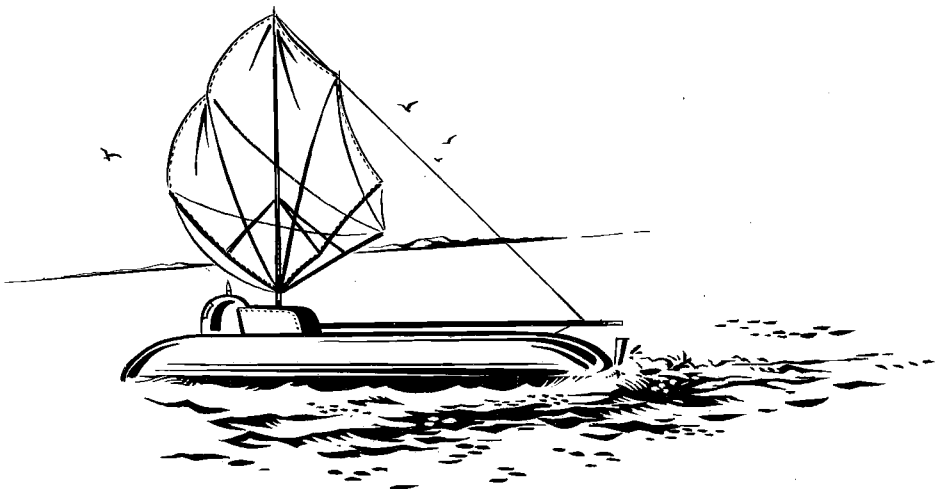
The first attack—an unsuccessful one—by a submarine on an enemy warship was made by David Bushnell's one-man undersea craft, the Turtle, during the American Revolution.

This was the "Ark", built in England by the Dutch physician Cornelius van Drebel in the early 1600s. There appears to be considerable myth in the account of the "Ark" and its activities left to us by John Wilkins, brother-in-law of Oliver Cromwell, but it is probably true that van Drebel did construct a craft of wood and leather, propelled by oars sticking out through leather-surrounded holes, and capable of navigating under water for several hours at a time. Perhaps it is even true that King James I cruised in it under the Thames but it is unlikely, as was claimed, that van Drebel was able to restore the purity of the air by sprinkling about a liquid he called "quintessence of air".

Van Drebel's ballast tanks were unique —goatskins nailed to the inside of the boat, which acted as an inner hull. They filled with water to allow the boat to submerge and when pressed against the sides of the craft, expelled the water-ballast and allowed the little submarine to surface. Van Drebel is also credited with attaching tubes to the boat to admit fresh air while it was submerged — the first snorkel. He built three such submarines in all and it may be that King James cruised in the largest of them.

This Dutch physician was undoubtedly a man of rare ingenuity, but no matter how clever he was, he could not have created a truly successful submarine in his day and age. He needed tough metals for the hull and these were simply not available; he needed a compact source of power not dependent on air, and the invention of the electric motor was still more than 200 years in the future. Above all he needed to know the difference between "good" air and "bad". Oxygen was not known to exist until Joseph Priestly performed his famous experiments in 1774.

These were handicaps under which submarine inventors were to labour for many years. The situation had improved little, in fact, by the time of the American Revolution, when an ingenious Connecticut Yankee, named David Bushnell, built a one-man undersea craft, which he called the *Turtle*. His purpose was to navigate under the British warships which were blockading New York harbour and blow them up



Fulton's Nautilus, built in 1800, was propelled by manpower when submerged and by sail on the surface. He found no buyers.

one by one with power charges fixed to their hulls.

On board this little, odd-shaped craft the operator was busier than a one-man band. The boat had two propellers, one for forward movement, worked with the right hand, one for vertical movement, worked with the left hand, a tiller, tucked under the left armpit. The ballast tanks were filled and emptied by a hand pump or by foot, if no hand was free at the moment. There were certain other little details to attend to, also, such as the main flooding valve and the mechanism by which the "torpedo"—an oak keg containing 150 pounds of gunpowder and equipped with a time fuse—was to be attached to the target ship.

The only attack attempted with Bushnell's submarine failed when the operator, Sergeant Ezra Lee, was unable to drive the torpedo's screw into the copper-sheathed hull of the chosen British warship. He did, however, cause considerable consternation, and evaded capture by turning the torpedo loose and letting it explode under water.

The next attempt to produce a submarine capable of waging war at sea was also directed against the British. The inventor was Robert Fulton, of steamboat fame, who was living in France in 1800 and who built a submarine, the *Nautilus* (the first to bear that famous name) to aid the cause of Napoleon. His two-man craft destroyed a sloop during a demonstration attack. The French rejected the submarine on grounds of inhumanity and Fulton then tried, with equal lack of success, to sell it to the British and the United States. His fame rests on the steamboat, which he designed about a decade later.

Fulton's submarine was powered, like Bushnell's, by a hand-operated propeller, but it showed considerable advance over earlier efforts in its steel construction and streamlined shape. It may well have been the only submarine ever equipped with sails for surface navigation.

Hand propulsion was still the only means of navigating under water when the Confederate submersible *Hunley* sank a warship for the first time in history that a submarine had accomplished such a feat. The victim was the Federal corvette *Housatonic*. The *Hunley* rammed her with an explosive charge suspended ahead of the submarine's bows.

In the years that followed, various methods of propelling submarines were tried. Steam was the first, in 1880, and a short-range all-electric submarine was built by two Englishmen in 1886. By 1895, J. P. Holland, New Jersey inventor, who had been experimenting with submarines since 1875, produced the *Plunger*, propelled by steam on the surface and electricity while submerged. By 1900, with an internal combustion engine replacing steam, Holland had produced a submarine design that was to be drastically unchanged until the coming of nuclear power. He introduced the principles of submerging by varying the water ballast and diving by means of horizontal rudders.

An oddity among submarines was the *Argonaut*, built by Simon Lake in 1897. It had retractable wheels, which could be lowered to permit the craft to run along the sea bottom.

Until the coming of nuclear power, the submarine was almost invariably driven by internal combustion engines (the early gasoline engines were soon replaced by diesels, for reasons of safety) on the surface and by electric motors when submerged. The batteries which supplied the power to the motors had to be frequently recharged, the submarine thus being required to spend a considerable part of her time on the surface. For this reason, it was usual to construct the submarine with a high forecastle, commodious conning tower and flat upper deck. Deck guns were mounted to fight surface actions.

A relatively simple invention, the snorkel, was introduced during the Second World War. This permitted the submarine to cruise just below the surface and to charge the batteries for deep diving. The snorkel lessened the danger of detection to a great extent, but not completely. Sometimes a wisp of smoke could be seen or the wake detected, radar became sensitive enough to spot the protruding portion of the snorkel and, in one recorded instance, the sound of the submarine's motor exhaust was heard. That particular U-boat did not survive discovery.

The high-speed, hydrogen peroxide submarine came on the scene after the Second World War. Its engines, like those of the nuclear submarine, are independent of atmospheric oxygen. Two, the *Explorer* and the *Excalibur*, have been constructed for the Royal Navy but, despite their fantastic underwater speed of more than 25 knots, it has been intimated there will be no additions to the class.

The power of the atom offered the "breakthrough" in submarine design that the navies of the world had long sought. At last the "true" submarine, independent of outside air for long periods was possible.

This independence of the atmosphere was demonstrated last summer by USS *Seawolf*, the second and largest of the U.S. Navy's atomic submarines in commission at the time.

On August 7, 1958, the *Seawolf*, with a crew of 106 officers and men, submerged in the North Atlantic and did not surface again for two months. During that 60 days beneath the surface of the ocean the crew used over and over again the same air that was in the hull when they submerged, replenished from time to time from high-pressure oxygen cylinders. The carbon dioxide, breathed into the air by the men and poisonous in high concentrations, was removed chemically. An atmosphere analyzer, based on the principle that different gases absorb and are heated by different wavelengths of infra-red rays, gave assurance that the atmosphere was remaining pure.

The *Seawolf's* experiment was significant in two other respects—it removed the fear of death by gas poisoning in the event of the submarine meeting

disaster and it had space age significance in that it showed it would be possible to maintain air in breathable condition during flights of weeks or months through outer space. From the military viewpoint, the experiment made it clear that the old tactic of hunting a submarine to exhaustion is obsolete and that it will take more than a surface inspection of the oceans to determine the presence of submarines.

It has also meant that naval architects can design submarines with hulls that are truly suited to underwater operations. In surface ships much of the loss of power is due to the formation of the bow wave. Now designers have come forward with a whale-shaped hull and fin-like conning tower, both of which permit the smooth flow of water around the submarine and make possible much higher speeds below water than on the surface.

It is a toss-up which of the great submarine exploits of 1958 has the greater significance — the submergence of the *Seawolf* for 60 days or the voyages of the *Nautilus* and the *Skate* under the North Pole.

While the Arctic exploits might well arouse concern due to the sudden shortening of distances between northern Europe and Asia and the west coast of North America, they also produced a powerful argument for the future construction of huge nuclear-powered tankers and bulk cargo vessels, capable of moving under the seas, undeterred by ice or storms.

The distance from Honolulu to London, England, by way of the Panama Canal is 9,500 miles; by polar route, it is 6,700 miles—a saving of 2,800 miles in the sea journey. From Vancouver, B.C., to Oslo, Norway, the present sea route is 12,200 miles; under the polar ice the route is 2,900 miles shorter.

It has also been claimed that the sea routes from the eastern seaboard are considerably shortened by the new polar route, Quebec City being 2,000 miles closer to Tokyo (10,700 miles the old way; 8,700 the new), according to one estimate. The undersea routes around and through the Canadian Archipelago must be explored much more thoroughly than they have been up to now before safe submarine routes can be charted.

The successful voyage of the *Nautilus* was the result of long years of preparation in which both United States and Canadian scientists shared. The preparatory work began as long ago as 1931 when the late Sir Hubert Wilkins probed the edges of the ice pack near Spitzbergen with a First World War submarine.

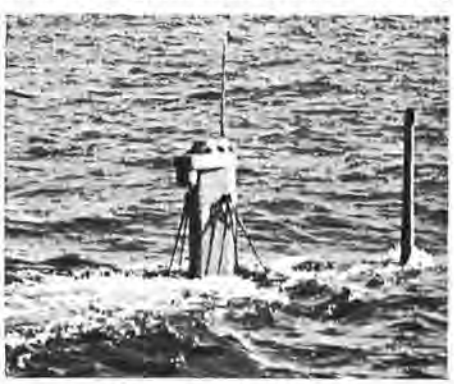
Two ships of the Royal Canadian Navy, HMCS *Cedarwood* and HMCS *Labrador*, made important contributions to the Arctic research in the years preceding the voyage of the *Nautilus*. The chief scientist of the *Nautilus* cruise, Dr. Waldo K. Lyon, served for a time on board the *Labrador*.

Late in 1958, Dr. Lyon visited Ottawa and told of the close co-operation between scientists of the United States and Canada which had preceded the journey. U.S. scientists had served in Canadian ships and Canadian scientists in Canadian ships, with the single purpose of unlocking the secrets of the north.

So thorough was the advance work that when the voyage was actually made, it met with no surprises and was completed without any emergency, unexpected or otherwise, arising.

What they did find was that, because of the uniform temperature and salinity, sonar operated with greater efficiency than in other oceans of the world. Serious navigational problems must still be met in an area where both magnetic and gyro compasses are unreliable, where fixes cannot be obtained from sun, moon or stars and where no landmarks exist. However, the success of the voyages of the *Nautilus* and the *Skate* was adequate proof that the navigation problem is not insurmountable.

There remains the question of the efficiency of the submarine as a weapon of war. Even in terms of "conventional" warfare, i.e., as an instrument for attacking merchant shipping, it is much more elusive, much more threatening, with its guided missiles and homing torpedoes, than its counterpart in the Second World War. A single atomic warhead, whether mounted in torpedo or missile, could wipe out most of a convoy sailing in the close formation of Second World War days. The use of missile-carrying submarines against targets on shore and more than a thousand miles inland is something with which defence forces have never before been faced. It is a threat which could be even more serious than that from inter-continental ballistic missiles, fired from fixed bases on land, which, presumably could be pinpointed by the enemy and destroyed.



The snorkel — Second World War menace. (DB-O369-33)

Nothing has yet been disclosed to indicate that any nation at the present moment is capable of launching an attack from the sea of the magnitude described above. The United States Navy, however, has embarked on a program of construction of Polaris-firing nuclear-powered submarines. The prototype, to cost $105,000,000, has already been launched and funds have been authorized for three more. This, it seems likely, is just a beginning. The missile-carrying submarine belongs to the future — but not very distant future.

Most of the submarines in existence today are of a kind that could be most effectively employed in attacks against seaborne commerce. A very few of them are specifically designed as "killers" or anti-submarine submarines. Such submarines can hunt the enemy in their own element but must operate under the handicap of having only the probing sound waves of sonar to guide them to their prey. Another duty which has been assigned to a small number of modern submarines is that of radar picket, chiefly of value in areas where surface ships might be subject to frequent air attack.

The magnitude of the defence problem, regardless of to what use submarines are put during war, might be expressed in terms of the areas of ocean which would have to be kept under surveillance. The area of the Pacific Ocean is about 64,000,000 square miles, of the Atlantic 31,500,000 square miles, of the Arctic Ocean plus Hudson Bay 6,000,000 square miles. Even assuming that the operational area is only one third of the total, more than 30,000,000 square miles would have to be guarded.

Most greatly to be feared would be a "Pearl Harbour" attack, with missile-firing submarines taking up position off the coasts outside of territorial waters and loosing their nuclear weapons before war was declared. Retaliation would be the only answer to that kind of situation. It took more than moral disapproval to win the war against Japan.

The submarine has indeed come a long way since van Drebel's voyages under the Thames. It has reached the stage when it can become an important vehicle of trade, bearing cargoes swiftly through the silent depths of the ocean. It has also reached the point where it can be employed as what is often called the "ultimate weapon"—a threat which must be combatted with the utmost vigilance and ingenuity.

Packed with electronic equipment and armed with powerful weapons, the destroyer escorts of the RCN are among the finest anti-submarine vessels afloat. One of the most recent additions to the fleet, HMCS Kootenay is pictured here. (E147945)

NEW NAVY - - NEW CAREERS

IN THE ROYAL Canadian Navy, the fleet of the future is fast taking shape.

It is a fleet fashioned to find and destroy submarines—in particular submarines armed with guided missiles and capable of attacking targets far from the sea.

Since 1955, the Royal Canadian Navy has commissioned eleven anti-submarine destroyer escorts, rated among the most advanced ships of their type in the world, and an aircraft carrier whose planes, also new, provide the aerial element essential in anti-submarine warfare.

More ships are being built, more aircraft are on the production line, and naval planners, designers and scientists are constantly seeking ways to sharpen still further the Navy's fighting efficiency. On the basis of what has been achieved in the past ten years, there seems little doubt but that they will succeed.

To future planning there are two main facets: One has to do with the material side—ships, aircraft, weapons and equipment; the other with personnel—the procurement and training of officers and men who will make the very best use of the material entrusted to their hands.

Thus, in planning the fleet of the future, the RCN not only concerns itself with how best to build and equip its ships, but also with how best to man them.

At the present time, there is under way in the Royal Canadian Navy a program to provide a personnel structure that will fit, as closely as it is possible to conceive, the foreseeable future requirements of the fleet.

The program involves a considerable number of changes and innovations. These will not be put into effect all at once, but will be introduced progressively over a period of years. It has been estimated that the full effect is unlikely to be felt for about five years in the case of men, and possibly not for 10 years or more in the case of officers.

Many of the changes would have occurred in the normal course of events. As new ships, weapons and equipment replaced the old, so would there be alterations in the duties and responsibilities of personnel. Three years ago, however, the Naval Board of Canada took a long, hard look at the situation. Technical changes were coming at an ever-increasing rate, and it might well be that the evolutionary processes that were acceptable in the past would serve so longer.

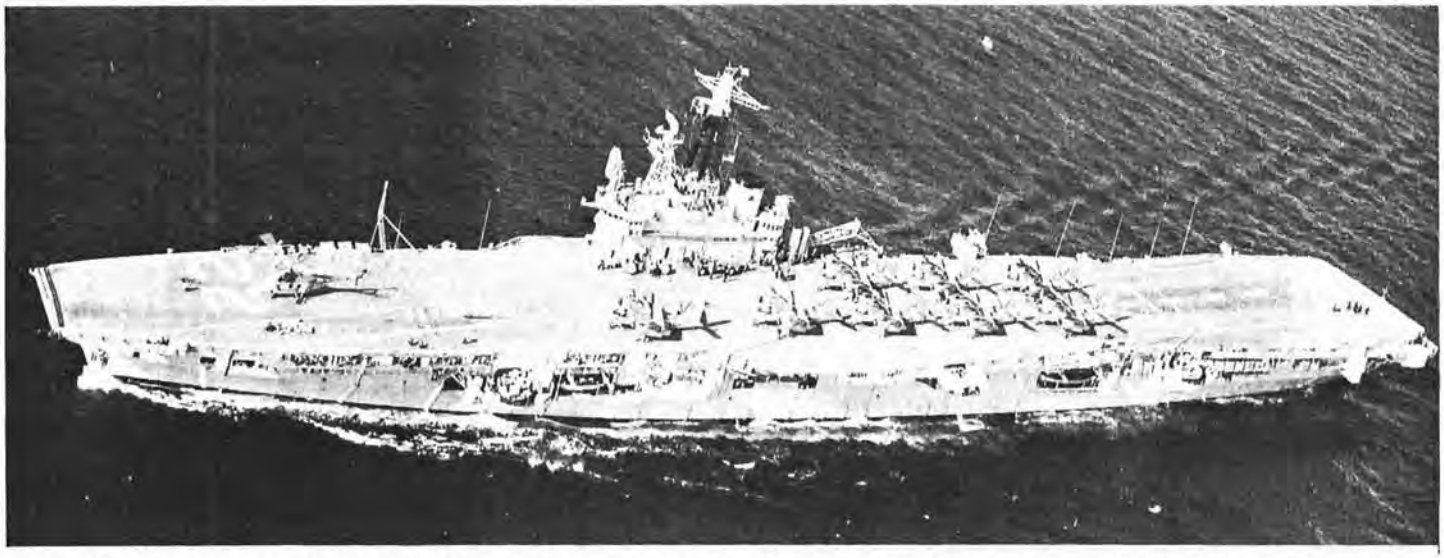
The time had come to look into the future, from the personnel point of view; to anticipate requirements, and to plan and act accordingly.

To this end, a committee was established "to examine the present personnel structure of the RCN, and to make recommendations as to the most suitable officer and man structure which would be in the best interest of the service and the nation, with emphasis on economy, efficiency and simplicity".

Officers and men were invited to place their wives before the committee, and the invitation brought a response from personnel ranging from able seamen to admirals. The committee also studied the personnel structures of the Canadian Army and RCAF, the Royal Navy, the U.S. Navy and U.S. Coast Guard.

In the fall of 1957, the committee compiled its report and, in the form of a document nearly an inch thick, presented it to the Naval Board. On November 5, in a message to the fleet, the Chief of the Naval Staff announced that the report had been reviewed by the board, and that nearly all of the changes recommended had been approved or accepted in principle.

At the very outset the committee had established certain principles which



Naval aviation is an integral part of the RCN's anti-submarine capability. More than 1,000 officers and men, including those who fly and service her aircraft, serve in HMCS Bonaventure. (DNS-21954)

were to guide its discussions and deliberations. These principles, or conditions, laid down that a personnel structure must:

1. Permit the maximum number of ships and aircraft to be manned and kept in the highest degree of readiness;
2. Be economical;
3. Be flexible;
4. Make the best use of all the talents available;
5. Build upon factors that all officers and men have in common;
6. Provide the best opportunity for the most deserving.

That the committee kept these principles clearly in view is evident throughout the report, and especially in the recommendations.

To go overboard for a plan that has yet to be put to the test would be unwise. Only after it has undergone the stresses and strains of practical application over a considerable period of time—and time in this case means quite a few years—will it be possible properly to measure its success.

However, there most definitely is a wealth of promise to the personnel structure envisaged for the Royal Canadian Navy; and many are those now serving who, while by no means dissatisfied with their lot, might be tempted to say they were "born 20 years too soon".

There is the promise of providing the Navy (and the country) with a personnel component possessing the highest attainable levels of training, efficiency and morale.

There is the promise to the officer and man of career opportunities as rewarding as they are challenging.

The Sidewinder guided air-to-air missile is carried by RCN Banshee jet fighter aircraft. (DNS-21041)

The homing torpedo, which seeks out its target beneath the sea. (HS-54287)

Polynesian dancers entertain officer cadets and sailors from Canadian frigates during the second Venture cruise to the South Seas this spring. (CCC-4285)

VENTURE IN THE SOUTH SEAS

THIS SPRING a group of 46 sun-tanned officer cadets returned to HMCS *Venture*, the Junior Officers' Training Establishment in Esquimalt after a busy ten-week cruise in ships of the Fourth Canadian Escort Squadron, the *Sussexvale, Beacon Hill, Ste. Therese* and *Antigonish*.

On leaving Esquimalt February 23, the cruise took the ships to Pearl Harbour and the pleasant shores of Hawaii, and from there to the tropical paradise of Samoa, where the ships split into two groups to visit Pago Pago in American Samoa and Apia in Western Samoa. After leaving this lotus land, the ships visited the busy port of Suva in the tropical islands of Fiji. The journey home included another visit to Pearl Harbour, a voyage across the empty expanse of the Pacific Ocean to North America and a visit to the bustling naval port of San Diego.

A total of 12,500 miles was steamed during the cruise, which was packed with training exercises designed to teach the officer cadets navigation, engineering, seamanship, weapons, communications, action information organization and, in fact, the details of every department of a frigate; and, at the same time, to maintain the operational efficiency of the ships themselves. Of a total of 67 days away, only 18 were spent in harbour and seven of these were at Suva where boilers were cleaned and the hull and machinery maintained during a five-day self-maintenance period.

The eight-day passage from Esquimalt to Pearl Harbour from February 23 to March 3 was used to settle the cadets into the ships and begin instruction in astronomical navigation, engineering and, in fact, all phases of the syllabus they would take during the cruise.

The period in Pearl Harbour in early March was used mainly to refuel the ships and stock up with fresh provisions for the long haul across the Equator which was to follow. However, the cadets were taken on a conducted tour of the island of Oahu on which they saw sugar cane and pineapple plantations and the famous Dole pineapple factory. The cadets also were the guests of the U.S. Navy on a tour of the U.S. Naval Air Station at Barber's Point.

The passage from Pearl Harbour to Samoa did not begin auspiciously. The weather was not entirely co-operative

and the ships were very uncomfortable as they rolled to the swell stirred up by brisk northwest trade winds on the port quarter. However, the sky was usually clear enough for morning and evening stars and for sun sights during the day. On March 9 the ships passed through the tropical convergence zone where the air masses from south of the Equator collide with those from the north, an area of low cloud and torrential rain, into light winds, calm seas and tropical heat—the doldrums.

On March 10, each ship was honoured by the presence of King Neptune, his daughter, and his court who miraculously managed to be in four ships at once. The resulting traditional nautical ceremony of "crossing the line" was greatly enjoyed by all.

Now that the ships were in calm tropical waters training went ahead very quickly. The ships towed one another, jackstay transfers, competitive boatwork with ships competing against each other, plotting and communication exercises between the operations rooms of the ships, and cadet-of-the-watch manœuvres all took place.

Early on Saturday, March 14, the *Beacon Hill* and *Antigonish* detached to proceed to Apia in Western Samoa and the other two, the *Sussexvale* and *Ste. Therese*, stood on enter Pago Pago (pronounced Pango Pango) in American Samoa. The ships spent three days in these relatively unspoiled tropical paradises. The Samoans are Polynesians and, as such, are a gentle, easy-going, friendly and hospitable people.

On St. Patrick's Day the training exercises were continued and the next day a convoy defence exercise with the Royal New Zealand Air Force began. The RNZAF squadron of Sunderland flying boats, with whom the ships exercised, is stationed at Lauthala Bay just outside the city of Suva on the island of Viti Levu, Fiji. The exercise was a good one, and demonstrated the fact that Commonwealth Maritime forces can co-operate with one another successfully at short notice.

The visit to Suva from March 21 to March 28 was the longest of the cruise.

On March 18 the force crossed the International Date Line. This effectively eliminated March 19 for the year 1959 and so, although the ships entered harbour on March 21, it was still March 20 at home.

The hospitality of Suva was overwhelming and on leaving this friendly tropical city all were loud in their praise of the virtues of Suva as a leave port.

In addition, the opportunity was taken to hold a cruise regatta. This consisted of a number of sailing races and a pulling regatta. The regatta was hotly contested and the competition fierce. The *Beacon Hill* was the victor in the combined regatta events by a narrow margin.

It took ten days to steam from Suva to Pearl. The ships again cross the International Date Line, this time the day after leaving Suva, and gave them two Easter Sundays.

The time at Pearl Harbour from April 6 to 9 was spent in refuelling and provisioning.

On sailing from Pearl Harbour an interesting and very valuable six hours was spent exercising with a USN submarine. This was the first time the cadets had seen a submarine at sea surfacing and diving and they heard for the first time the ping of sonar echoes bouncing from the hull of an undersea vessel.

Since leaving Suva, the *Antigonish* had been having difficulty with the brickwork in one boiler. Reluctantly, she transferred her cadets to the other ships and bade goodbye, as she shaped course for Esquimalt instead of San Diego.

The visit to San Diego from April 17 to 20, was an interesting one for the cadets—particularly the air cadets. A tour was arranged through an aircraft carrier, around the large and busy naval

air station at North Island, and a demonstration of jet aircraft taking off was carried out.

After leaving San Diego one of the most interesting periods of the cruise from the point of view of the cadets took place. The ships operated in the vicinity of the islands which lie about 30 miles from Santa Barbara. Each cadet had the responsibility of navigating his ship for about 20 miles along the coast and anchoring in a pre-selected anchorage on completion. After three days of this, the ships anchored in Becher Bay, Santa Rosa Island, an isolated but very pleasant anchorage. A three-day period at anchor was used to complete the cadets' syllabus of harbour evolutions and give them experience in handling power boats. In addition a period of organized chaos known in the Navy as general drills was carried out.

On Sunday April 26 the ships joyfully began the last leg of the cruise, the journey home to Esquimalt. Again a busy period of exercises was scheduled. Inevitably, too, the cadets had examinations to write.

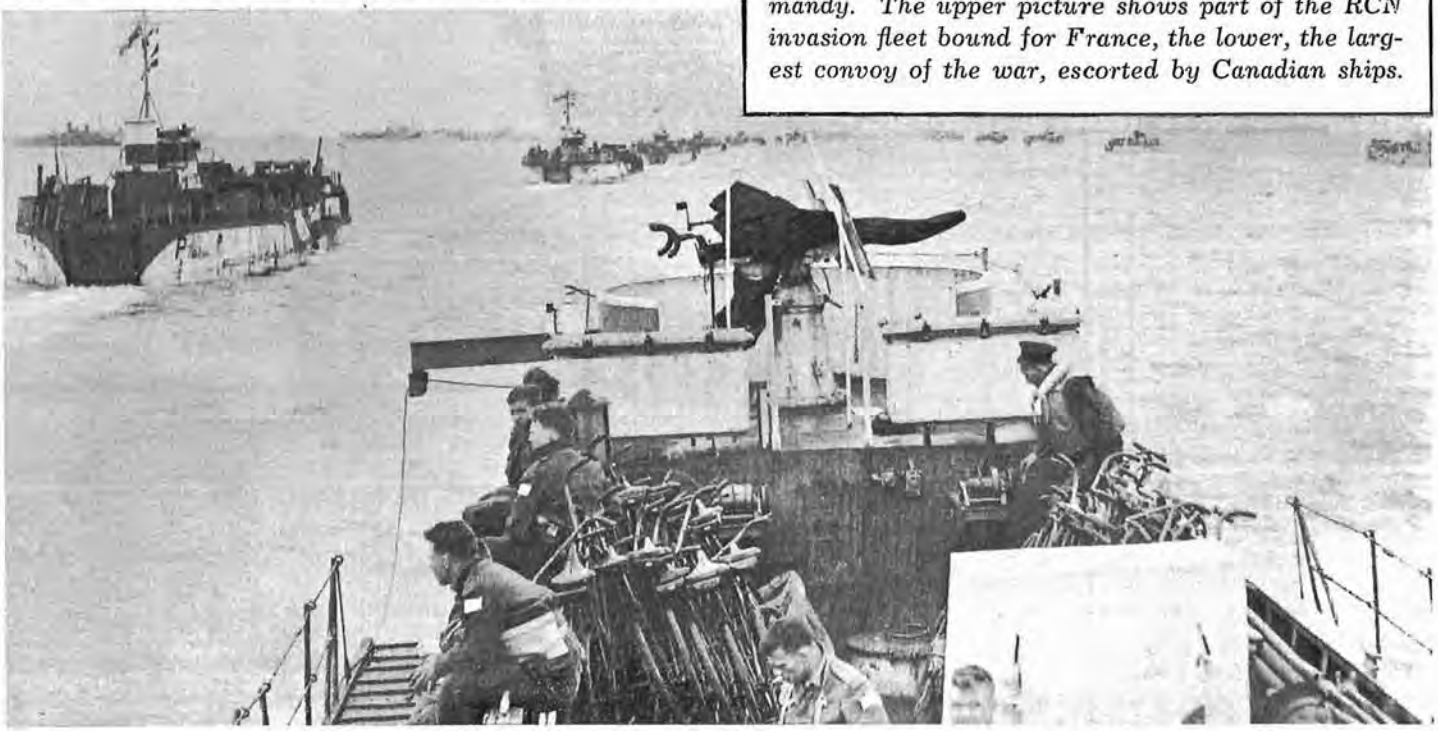
After the last session of competitive boatwork, the *Sussexvale* had won the cruise award and was declared "Cock of the Fleet" and became entitled to the emblem of the crowing rooster.

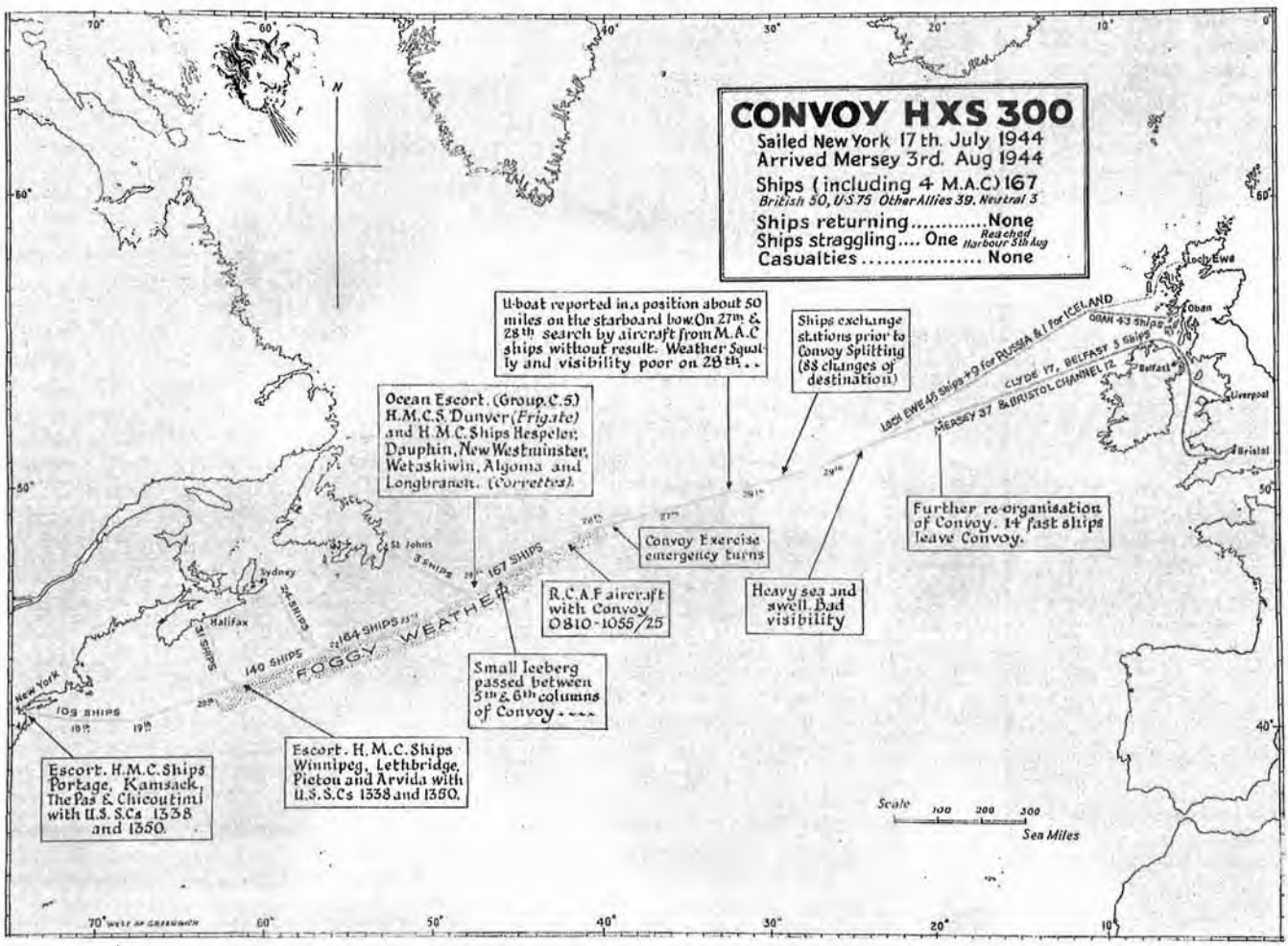
On May 1, the three ships arrived alongside in Esquimalt, reluctantly said goodbye to the cadets who returned to HMCS *Venture* and who during their 10 weeks at sea had become very much a part of the team in each of the ships.

It was a successful cruise. The weather on the whole was co-operative and this is important in small ships because it is difficult to teach when the ship is uncomfortable and lively. The cadets were enthusiastic, were eager to learn, and worked hard. The ships' companies liked the cadets from the start, and enjoyed teaching them and helping them to learn all about the complicated machinery and equipment that is found in a warship of today. The liberty ports were pleasant and the ships' companies enjoyed themselves and, in doing so, impressed the local people by their fine behaviour.

15 YEARS AGO

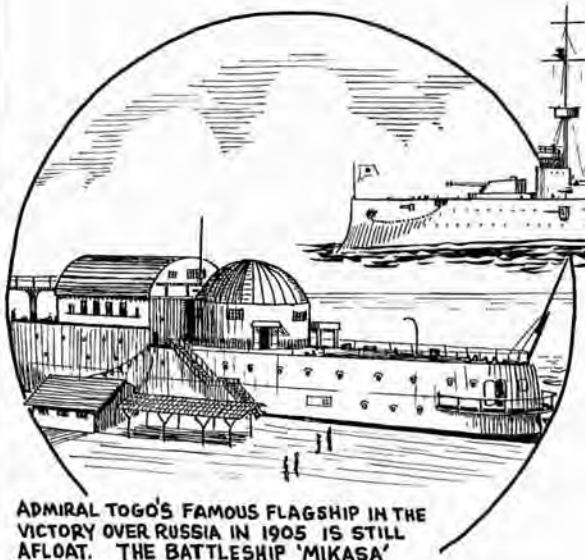
The RCN, which entered the Second World War with six fighting ships, by the summer of 1944 had grown to a force able to undertake the entire task of providing close escort for North Atlantic mid-ocean convoys and at the same time throw 110 ships and 10,000 officers and men into the invasion of Normandy. The upper picture shows part of the RCN invasion fleet bound for France, the lower, the largest convoy of the war, escorted by Canadian ships.



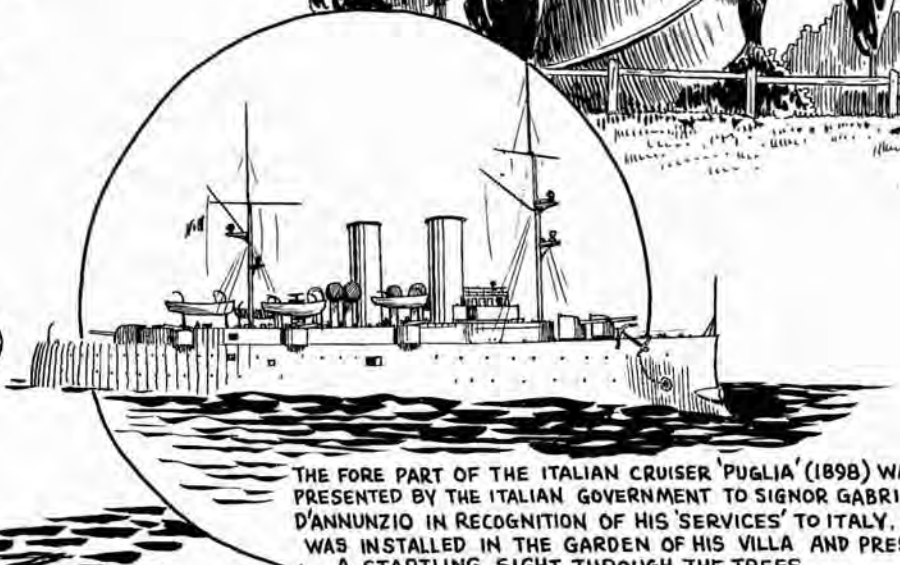


Naval Lore Corner

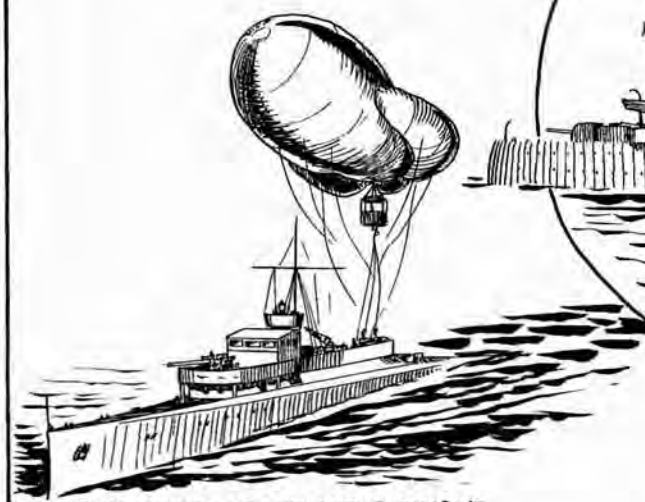
Number 72
Odds and Ends...



ADMIRAL TOGO'S FAMOUS FLAGSHIP IN THE VICTORY OVER RUSSIA IN 1905 IS STILL AFLOAT. THE BATTLESHIP 'MIKASA' (BUILT IN ENGLAND), ONCE A NATIONAL JAPANESE MEMORIAL, HAS SINCE 1949 BEEN PART OF AN AMUSEMENT CENTRE NEAR THE YOKOSUKA NAVAL BASE IN JAPAN. A MOVEMENT IS NOW AFOOT TO RESTORE HER AS A NATIONAL SHRINE.



THE FORE PART OF THE ITALIAN CRUISER 'PUGLIA' (1898) WAS PRESENTED BY THE ITALIAN GOVERNMENT TO SIGNOR GABRIELE D'ANNUNZIO IN RECOGNITION OF HIS 'SERVICES' TO ITALY. IT WAS INSTALLED IN THE GARDEN OF HIS VILLA AND PRESENTED A STARTLING SIGHT THROUGH THE TREES.



FORE-RUNNER OF THE ANTI-SUBMARINE HELICOPTER: BRITISH WORLD WAR I PATROL BOAT WITH KITE BALLOON.

HALF TANK, HALF SHIP IS THIS FRENCH NAVY MONITOR-BARGE EMPLOYED ON THE RHINE FLOTILLA. A SHERMAN TANK BODY, MOUNTED AMIDSHIPS, SUPPLIES THE FIRE-POWER AS WELL AS THE PROPULSION-POWER...

J.M. THORNTON

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