

CANADIAN GEOGRAPHICAL JOURNAL

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1944

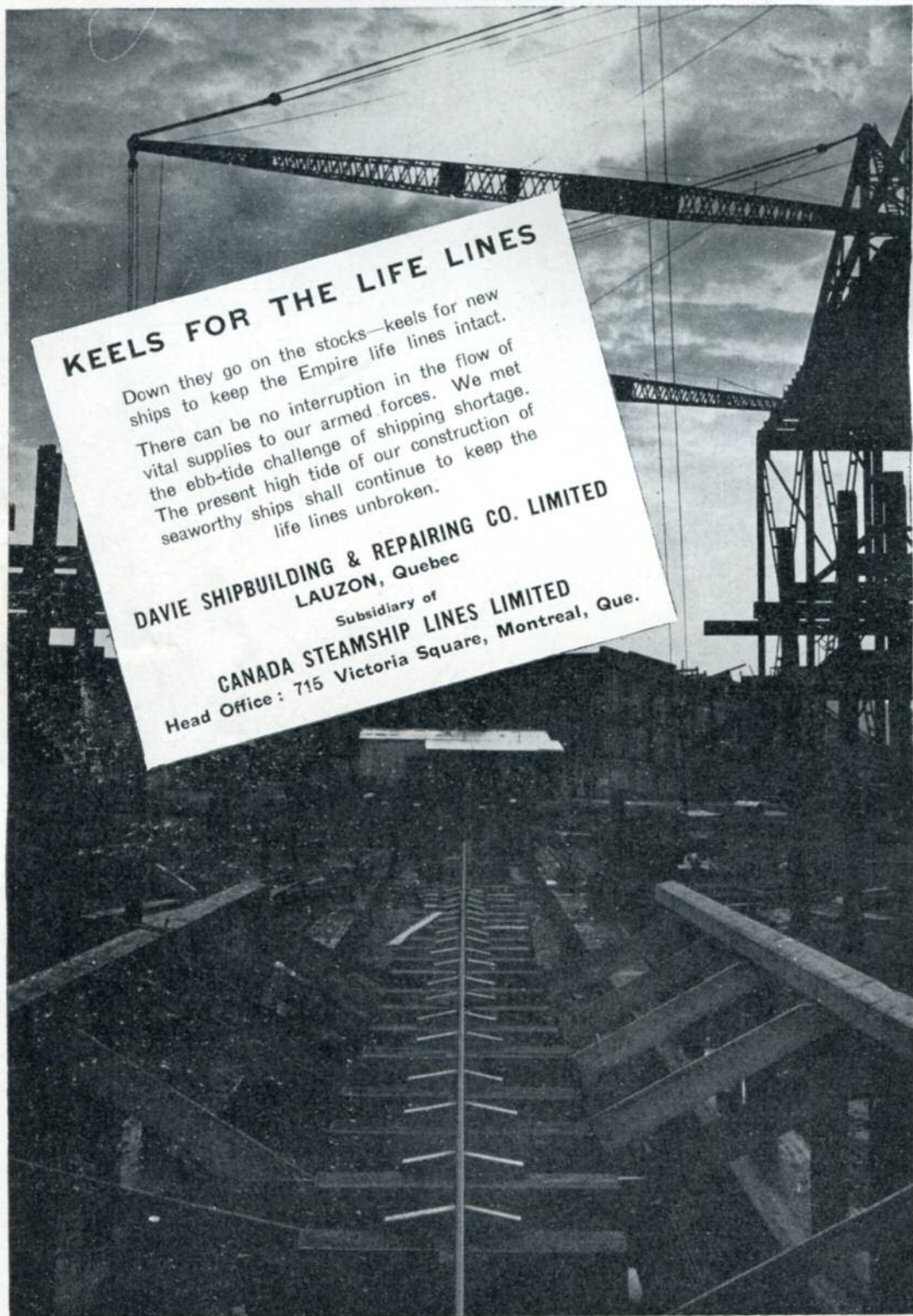
VOL. XXIX
No. 5



THE WONDERFUL YEAR — *Royal Canadian Navy 1943-44*
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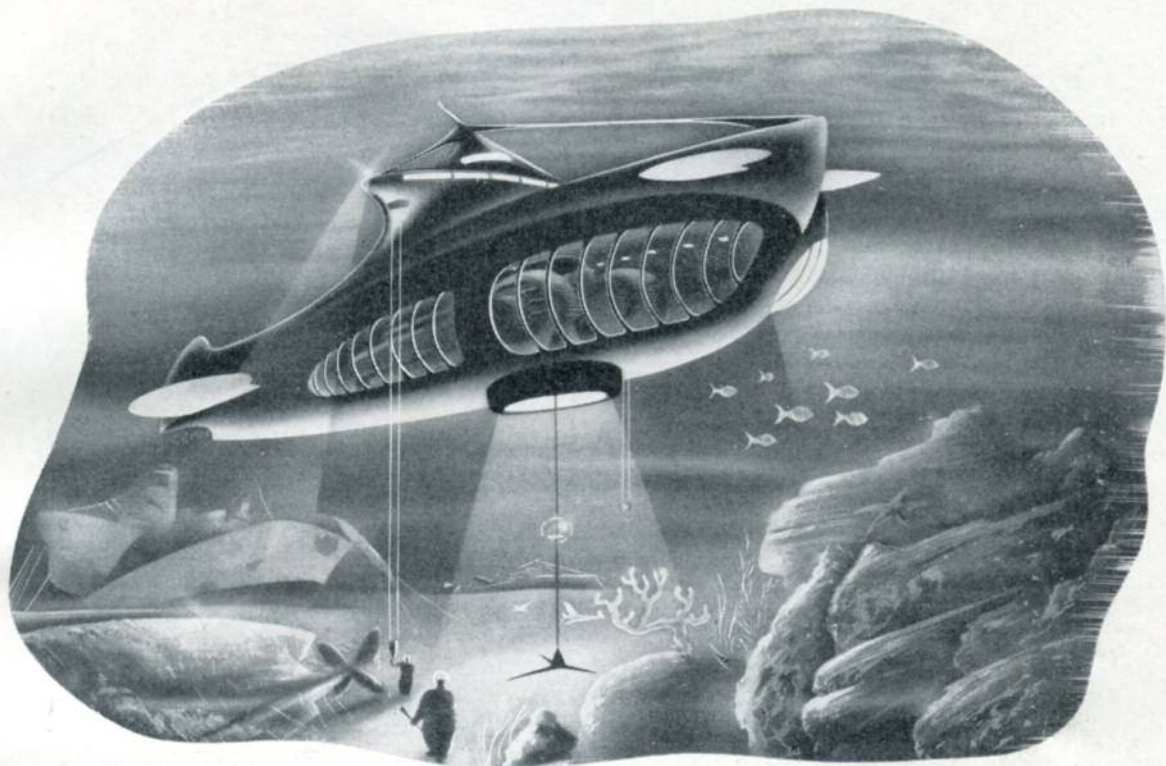
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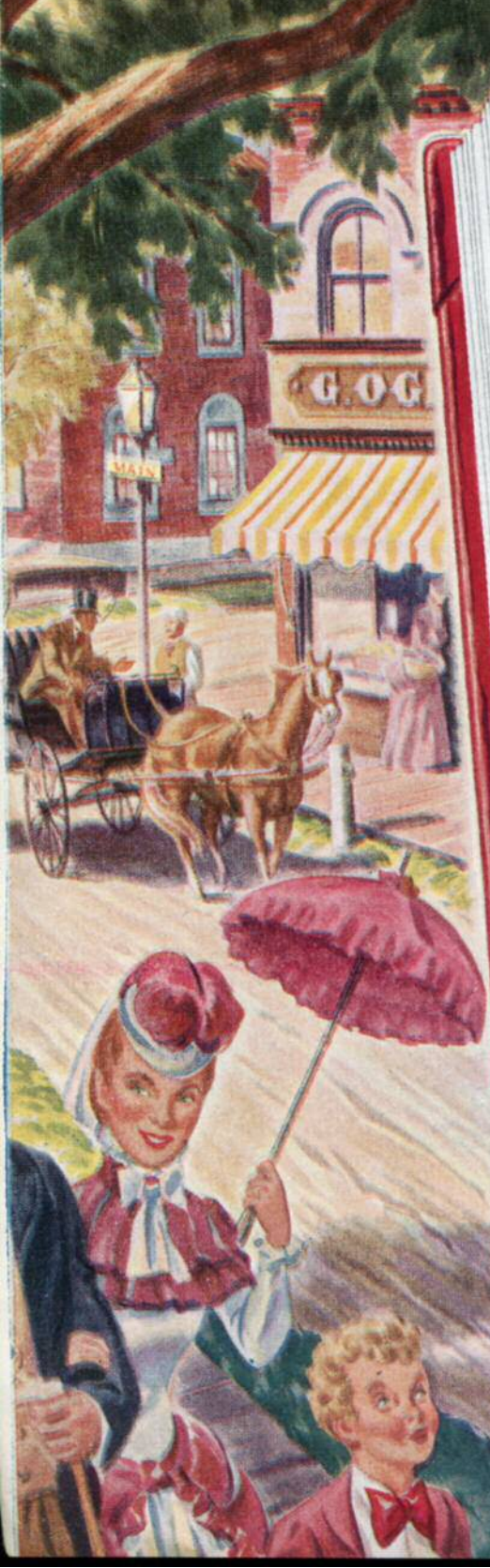
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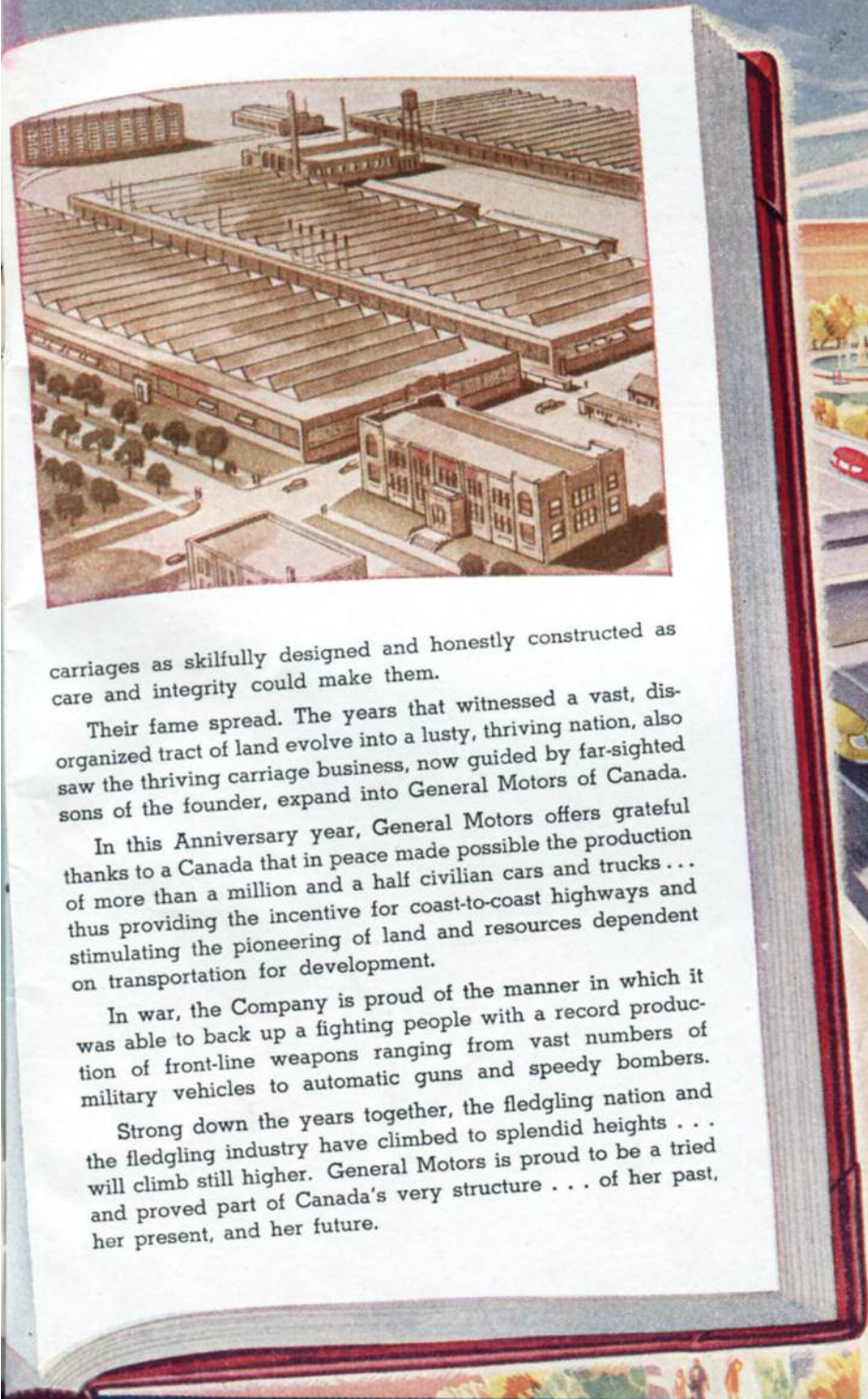
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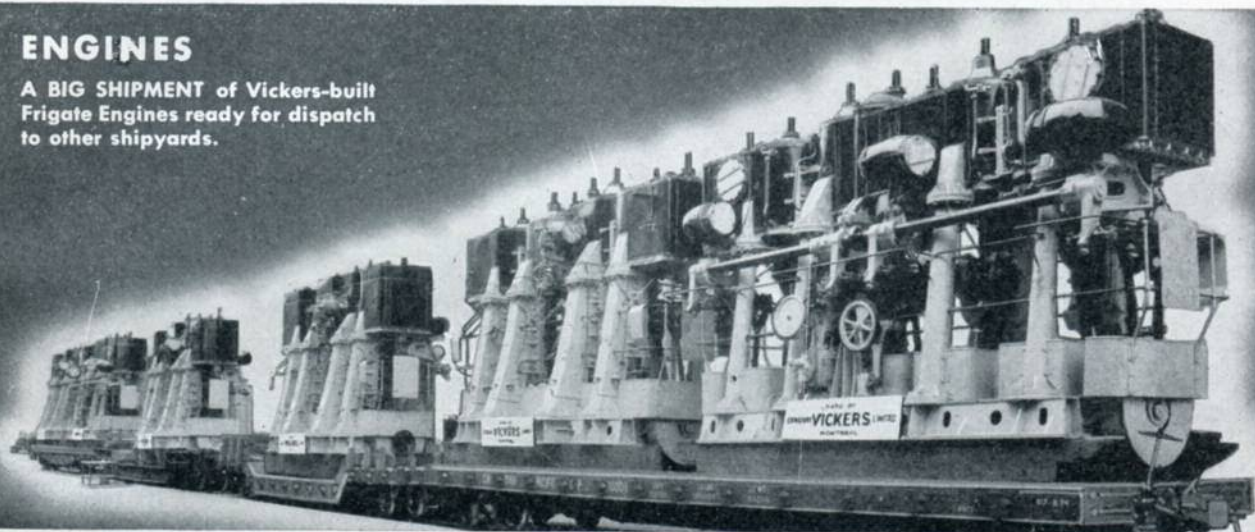
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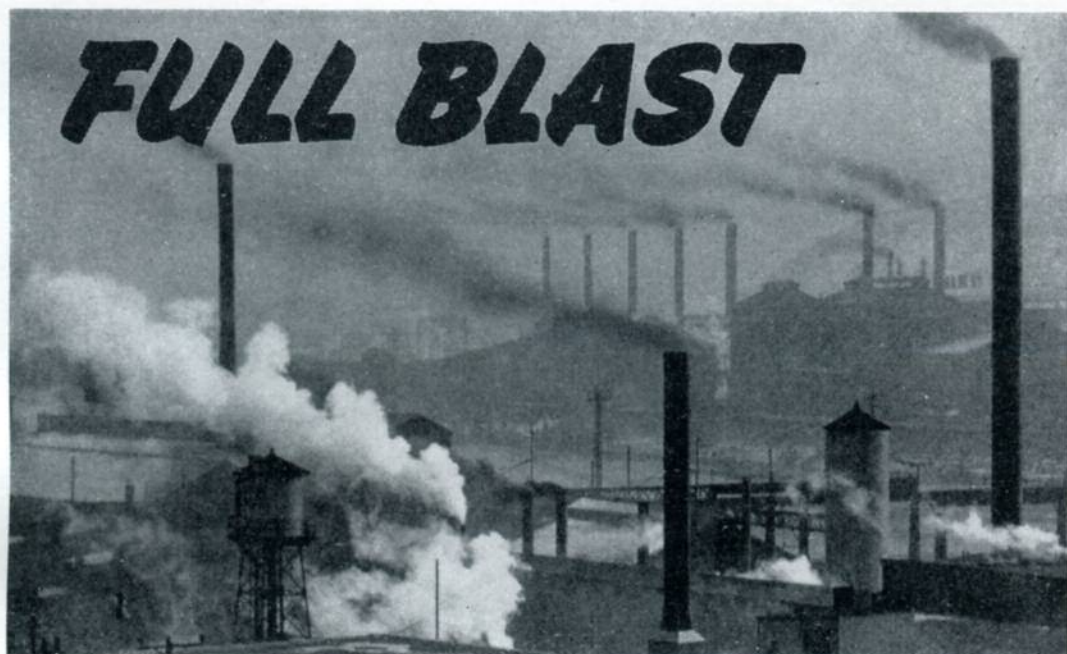


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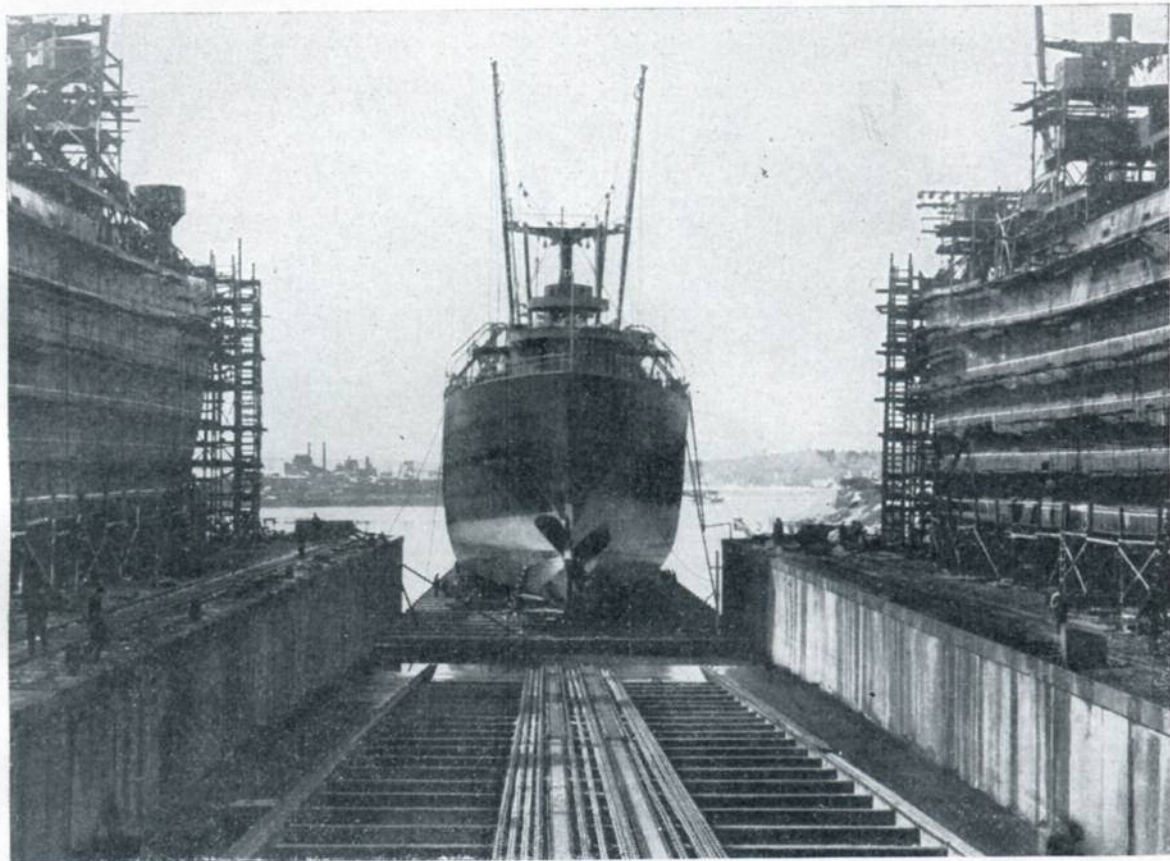
"... *good-night then.* Sleep to gather strength for the morning, for the morning will come. Brightly it will shine on the brave and true; kindly upon all who suffer for the cause; glorious upon the tombs of heroes — thus will shine the dawn . . . Long live the forward march of the common people in all the lands, toward their just and true inheritance and toward the broader and fuller age."

Rt-Hon. Winston Churchill's prophetic broadcast, October 21st, 1940.

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This magazine is dedicated to the interpretation, in authentic and popular form, with extensive illustrations, of geography in its widest sense, first of Canada, then of the rest of the British Commonwealth and other parts of the world in which Canada has special interest.

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NOVEMBER 1944

VOLUME XXIX No. 5

COVER SUBJECT:— The Canadian "Tribal" class destroyer, *Iroquois*, with two R. N. warships, damaged or destroyed eight enemy ships in a single action off St. Nazaire. The Captain, Commander James C. Hibbard, D.S.C., R.C.N., of Victoria and Halifax (right), and the First Lieutenant, Lieutenant-Commander C. R. "Tony" Coughlin, D.S.C., R.C.N.V.R., Ottawa, (since died of injuries), are seen here having a cup of tea immediately after the action.

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The articles in this Journal are indexed in the *Reader's Guide to Periodical Literature* and the *Canadian Periodical Index* which may be found in any public library.

The British standard of spelling is adopted substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1936.

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H.M.S. *Mauritius* lays down smoke screen during Bay of Biscay sweep.

THE WONDERFUL YEAR

*"Come, cheer up my lads, 'tis to glory we steer,
To add something new to this wonderful year."
"Heart of Oak" — the official Naval march*

Royal Canadian Navy 1943-44

by Commander (SB) WILLIAM STRANGE, R.C.N.V.R.

NOTHING is more important than that, at this stage of the war when victory by land is in sight and predominance in the air has been established, the true and fundamental functions of our Navy should be properly understood.

What makes the "news" in the day-to-day newspaper sense is, of course, the daring exploit, the success against odds, the major or minor epic of battle against the enemy or the elements. These are what may be termed the popular "highlights"; and it is certainly true that the Royal Canadian Navy has contributed its full share in this direction. The intelligent

war-winning endurance of our considerable anti-submarine forces; the dash and brilliance of our destroyer and light coastal forces in the English Channel; the irresistible recklessness of our landing craft, the steadfast efficiency of our minesweepers, the precise gunnery of our destroyers in bombarding enemy-held positions; all these have produced noble and enduring chapters in our Navy's story. They have added lustre to its name, and solid material to its tradition.

But it has to be remembered that the "highlights" in naval warfare are often also the incidentals. They may be the



H.M.C.S. *Iroquois* was in this action which cost Germany eight ships.

colourful patches in the major pattern, but it is the pattern itself that is the vital and important thing.

Quite simply, the Navy's job in the past twelve months has been the same as usual, — transportation. It has been shepherding the convoys, and delivering the goods: from North America, across the rolling and often furious Atlantic, to Britain; from Britain, across the choppy and heavily mined Channel to Normandy; from Britain, across the Bay of Biscay and through Gibraltar's Strait, to Southern France...

The routes have varied, the types of "goods" to be delivered and of ships required for the job have varied, but the job itself has *not* varied.

It is true that there have been times when its aspect has changed. It has been definitely more offensive than in previous years, and has involved a number of actions not immediately concerned with the protection of convoys. Nevertheless, the fundamental purpose of the Navy — that of ensuring the arrival of men and

material in the right place at the right time — has remained constant.

It has remained constant for the simple reason that the whole strategy of the allied reply to the Axis' bid for world-domination has been determined, in the final analysis, by the inexorable facts of geography, which have made the retention of command of the sea the first condition of ultimate allied success.

It must never be forgotten that it was victory in the Atlantic that made D-Day possible.

This, then, is the background against which another year of Canadian naval achievement must be considered. The achievement has been even greater than in the years before.

Published successes against U-Boats now number fourteen — more than twice the measure of the first four years of war. No doubt still more successes will be announced in months to come. The work of convoy escort in the Atlantic, unremitting and vital as ever, has provided a measure of protection which is to-day



almost complete. For the crucial period during the colossal "D-Day" activities in United Kingdom waters, the Royal Canadian Navy successfully provided the *entire* close escort of the great trade-convoys of the North Atlantic, as well as a high proportion of the anti-submarine striking forces in the same area.

D-Day itself gave our Naval forces yet another opportunity which they grasped firmly, and exploited to the full. The wise decision, taken many months ago, to acquire hard-hitting destroyers of the famous 'Tribal' class, has paid dividends to an extent which can only be described as sensational. The M.T.B.'s (motor torpedo boats) of Canada's light coastal flotillas have struck again and again to the enemy's great discomfort.

The long uphill struggle inseparable from building a Navy whilst fighting a war has borne fruit beyond the expectations of many involved therein.

The growing tale of those rewarded for outstanding service had, by October 1944, risen to some eight hundred names. Almost one in every hundred men of the Naval Service! When the dependence of the Navy upon teamwork is considered, and the consequent limitation of opportunity for individual distinction is realized, it becomes clear how magnificent is this record.

As ever, there has been a price to pay. The total fatal casualties in action of the Royal Canadian Navy to October 1st, 1944, numbered one thousand, one hundred and forty-one. Terrible though this price must surely be for those who mourn the men who will not sail the seas again, it is nevertheless a fact that, when weighed against the gains, the cost is low. The lives given may most certainly be reckoned in the gallant company of those who did not die in vain.

This year of 1944 has witnessed many wonders. Not the least of these has been the definite and unmistakable defeat of the U-Boat which has been brought about in many ways, not the least effective of which has been the steady increase in the number, and improvement in the quality, of the escort vessels of the R.C.N.

To assume, prior to the final collapse of Germany, that the U-boat menace is liquidated would be a serious mistake. It has *not* been liquidated, for the sea-wolves

will remain on the prowl even when reduced to using bases in Norway and elsewhere; but it *has* been brought under thoroughly effective control. It will continue to be controlled so long as alert and vigorously hunting escort craft are kept at sea.

The figure of submarines destroyed is not the yard-stick by which the extent of this control can be measured, but more Canadian ships have now received full or shared credit in such successes. They are:—*St. Croix, Snowberry, Calgary, Waskesiu, St. Laurent, Swansea, Owen Sound, Prince Rupert, Haida, Ottawa, Kootenay**. This is in addition to the ships mentioned in the following story of a remarkable 'teamwork' sinking wherein *Chilliwack* had the luck to take the lead in the final kill.

Sinking U-Boats is not an easy job. It calls for an alertness and a patience demanded by scarcely any other task, for, in addition to being hidden by the waters, the submerged U-Boat is also protected by them. The sea is, so to speak, his armour as well as his shield. This fact is sharply pointed up by what is possibly the R.C.N.'s most interesting anti-submarine action of the war to date — that in which H.M.C.S. *Chilliwack* in company with destroyers *Gatineau, Chaudiere, Icarus* (of the Royal Navy), the corvette *Fennel*, and the frigate *St. Catharines* held contact with a submerged U-Boat, depth-charging him again and again, until he was eventually forced to the surface where he was destroyed by a hail of gunfire described by one of the officers concerned in the action as "terrific".

The entire group was commanded by Commander P. W. Burnett, R.N., who was in *St. Catharines*.

The story is significant, as well as interesting, as it most effectively illustrates the great value of the possession of an adequate number of anti-submarine craft.

In the earlier days of the war, when our poverty in escort craft was serious, there were many occasions when a destroyer or corvette would obtain a promising "Asdic contact" with a submerged U-Boat, but would be unable to carry out sustained pursuit owing to the danger to merchant shipping attendant on reducing the convoy's escort for any length of time by even one corvette! But here was a case where six ships were free to hunt, apparently indefinitely, despite the fact that a large convoy was

*Previously credited with kills are: H. M. C. Ships *Chambly* and *Moose Jaw* (jointly), *Assiniboine, Oakville, Regina, Port Arthur, and Ville de Quebec*.

Above, left:—This is an actual scene on the eve of D-Day as Canadian troops carried supplies aboard a Royal Canadian infantry landing craft.

Below, left:—Lieutenant-Commander D. W. Piers, D.S.C., R.C.N., Halifax, briefs crew of H.M.C.S. *Algonquin* while en route to invasion coast.

on its way nearby. There were ships to protect the convoy and hunt the U-Boat, too.

The doomed submarine was picked up by *Gatineau* just as she was about to leave the convoy due to a distiller defect. Although *Gatineau* had the privilege of carrying out a depth-charge attack, her distiller defect made it impossible for her to stay until the end.

The weather was by no means ideal for anti-submarine work, and the U-Boat was ably handled by its Commander. "He was a wily bird", according to *Gatineau's* Commanding Officer, and from all accounts this must—certainly have been true.

Over a prolonged period the U-Boat twisted and turned, altering course, speed and depth, using every possible trick in the hopes of shaking off its relentless pursuers. Again and again the depth-charges went down, and the morale of the U-Boat crew must have received increasing blows with each successive pattern.

The duration of this hunt has not been officially disclosed, but it is known to have been of some hours. The Senior Officer of the Group, Commander Burnett, according to Lieutenant-Commander Coughlin, *Chilliwack's* Captain, "manoeuvred the ships as if they were mechanical soldiers, and had the U-Boat in the middle all the way".

Eventually *Chilliwack's* big moment came. Exhausted, or determined to fight it out on the surface (or perhaps both) the U-Boat came up at last. *Chilliwack* was the nearest ship, and acted appropriately, opening fire vigorously and with no loss of time. The first salvo from her 4" gun wiped a twin gun mounting off the conning tower, and killed the U-Boat's Captain as he emerged from the hatch.

The other ships joined in, and soon the Germans began to abandon ship. It was not long before the end came, and another unit had to be added to the mounting losses of Germany's under-water fleet.

It cannot be said that this action was typical of our Navy's anti-submarine successes, for it is seldom that so many ships have been involved. A significant point is not that so many ships were needed to finish the job, but that so many ships were *available*. The most significant feature, however, in all the recent story of anti-submarine escort work is the clock-work regularity of the passage of our convoys and the poor results attained by the still considerable "U-waffe" which formerly constituted so grave a threat to our command of the sea.

This has been brought about not only by the skill of the hunters and the great help of increased air cover, but—and more consistently—by the perpetual vigilance of the men in the destroyers, frigates and corvettes assigned to the dreary, necessary task of continuously crossing and re-crossing the North Atlantic on protective escort duty. Many a U-Boat attack has been broken up before it got under way. Many a U-Boat, avid for destruction, has been utterly discouraged by the mere presence of the sharp-eyed, sharp-eared escorts, and the covering aircraft.

Thus the great convoys have passed over the waters on their lawful occasions, doing much toward the steady building up of that stupendous allied power which was, on the sixth day of June, to descend with paralysing effect upon the coast of Normandy.

"D-Day" found the R.C.N. in what was probably the most thrilling state it had known throughout the war.

With that silent precision which is a habit, as well as a tradition, of the Navy, it had not only placed over one hundred ships of various kinds in their allotted positions in the colossal D-Day plan, but out upon the broad Atlantic it had quietly taken over the entire job of close escort for the convoys.

Whether our Navy was stretched to its limits or not at this time is a matter, perhaps, upon which the enemy (who once described it as "a few amateur yachtsmen") might care to speculate. If it was, nobody realized it. The situation came about so gradually as not to be remarked.

There were four main jobs tackled on and around D-Day by ships of the R.C.N.: minesweeping, bombardment, the landing of troops, and protection of the waters on the flanks of the route chosen for the crossing.

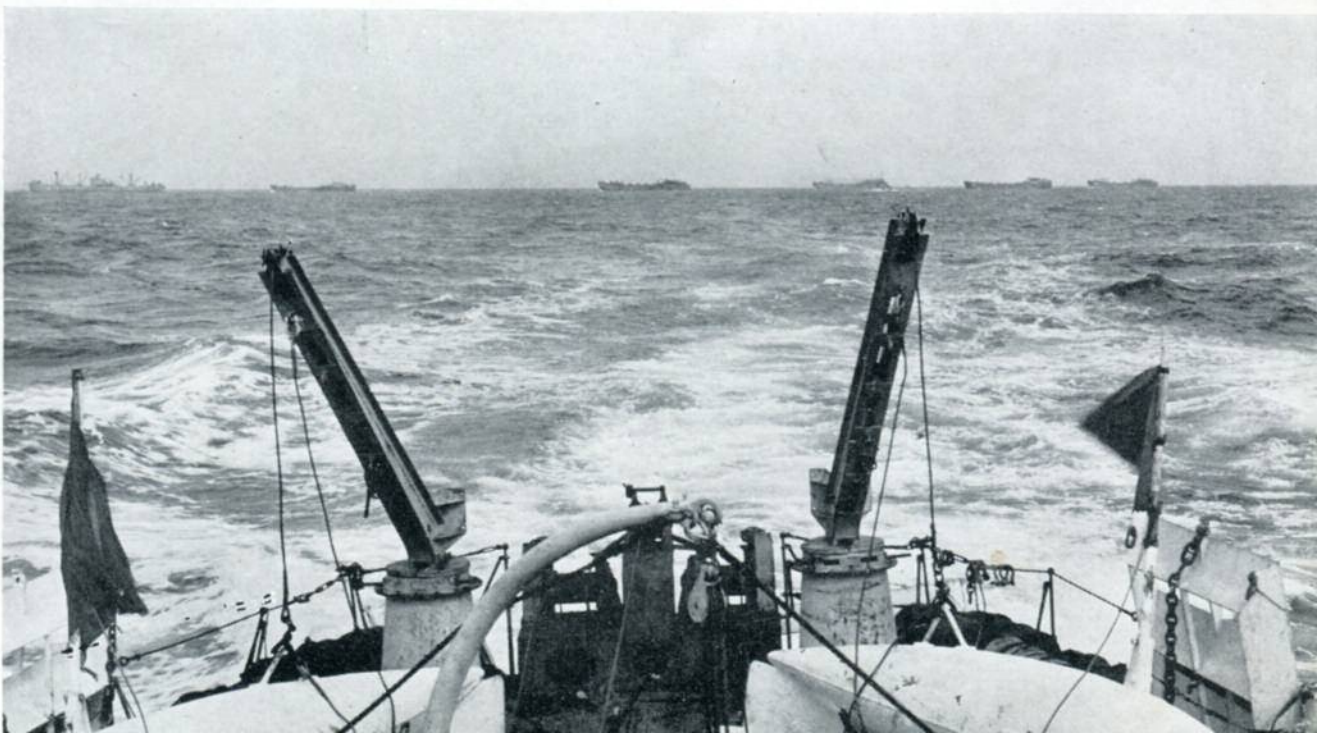
The job of the minesweepers was, as ever, fraught with danger. Their task was—like those of every branch of all the fighting arms—most carefully and precisely laid down in its proper section of the huge master plan. Of the great number of minesweepers employed on that day by the Allies, one flotilla was entirely Canadian, whilst our ships supplied a good proportion of a second British and Canadian flotilla. Still other Canadian sweepers were in mixed allied flotillas.

Heavily escorted by powerful ships—amongst them our own new destroyers of the Fleet 'V' class—*Sioux* and *Algonquin*—the minesweepers had a tough job ahead of them. They had to steam straight into



Oerlikon Gunner S. M. Oliver, R.C.N.V.R., Toronto, watches from the deck of H.M.C.S. *Algonquin* as landing craft pass off French coast.

A Royal Canadian Navy minesweeper, H.M.C.S. *Malpeque*, turns back for England after helping to clear a channel for the convoy astern.







the German mine-fields, each flotilla on the exact course prescribed in the master plan, so that a safe channel to the beaches would be made in the most direct way possible. The prescribed course had to be strictly adhered to if the troops to follow in the landing craft were to land at the right places on the other side. The accuracy of the navigation had to be just about complete. The orders demanded that the operation be carried out "regardless of loss or difficulty".

The criterion of success in the business is the fact that the lightness of the damage done to our shipping by mines has been one of the pleasant surprises of the war. The Canadian part of the job was done — if not on equal scale — certainly with efficiency equal to that obtained by the other navies concerned.

The two Canadian ships most prominent in the bombardments were the destroyers *Sioux* and *Algonquin*. Farther out to sea the battleships and cruisers — with their heavier guns — threw in the heavy metal. Our destroyers, armed with lighter four-point-sevens, went in almost to point-blank range. In very short order the assigned targets were reduced to rubble.

Top left:—In this D-Day scene, Canadian troops swarm ashore from Royal Canadian Navy LCI (L) on French beachhead.

Bottom left:—Canadian infantry landing craft unload troops at temporary jetty.

Bottom centre:—Wounded Canadian soldier is visited by home-town friends in destroyer.

Below:—Wounded Canadian soldiers and German prisoners reach England.







When the Royal Canadian Navy's Beach Commandos go ashore they carry their equipment in many-pocketed jackets, and some of them are provided with these wicked-looking machine guns. This member of the commando group is Able Seaman Armand Therien, of Montreal. On the opposite page are Canadian ratings who served in invasion waters.

There is one story which effectively highlights the excellence of Canadian gunnery during the early stages of the great invasion. The incident took place after the initial landings had been made, and whilst the troops were beginning that series of penetrations which developed finally into the victorious Battle of Normandy.

Troops of the Regiment de la Chaudiere were being seriously worried by a strong German battery which lay in the path of their advance. Fortunately, the battery was within range of H.M.C.S. *Algonquin's* guns, and their assistance was requested. It was very rapidly forthcoming. Two ranging shots were fired, and then thirteen salvos. Every salvo found its mark, and the obstacle was effectively liquidated. The Regiment de la Chaudiere marched on.

In an operation of such magnitude wherein almost every ship appears to have carried out its allotted tasks with proper thoroughness, it is invidious to single out particular ships for mention. *Algonquin's* job is cited merely as an instance of the general effectiveness and precision of the Canadian naval contribution.

There are many fine stories of the heroic jobs done by Canadian landing craft. One of these concerns a group of these small vessels which found, on reaching their designated beach that the obstacles placed there by the enemy had not been cleared away as well as had been hoped.

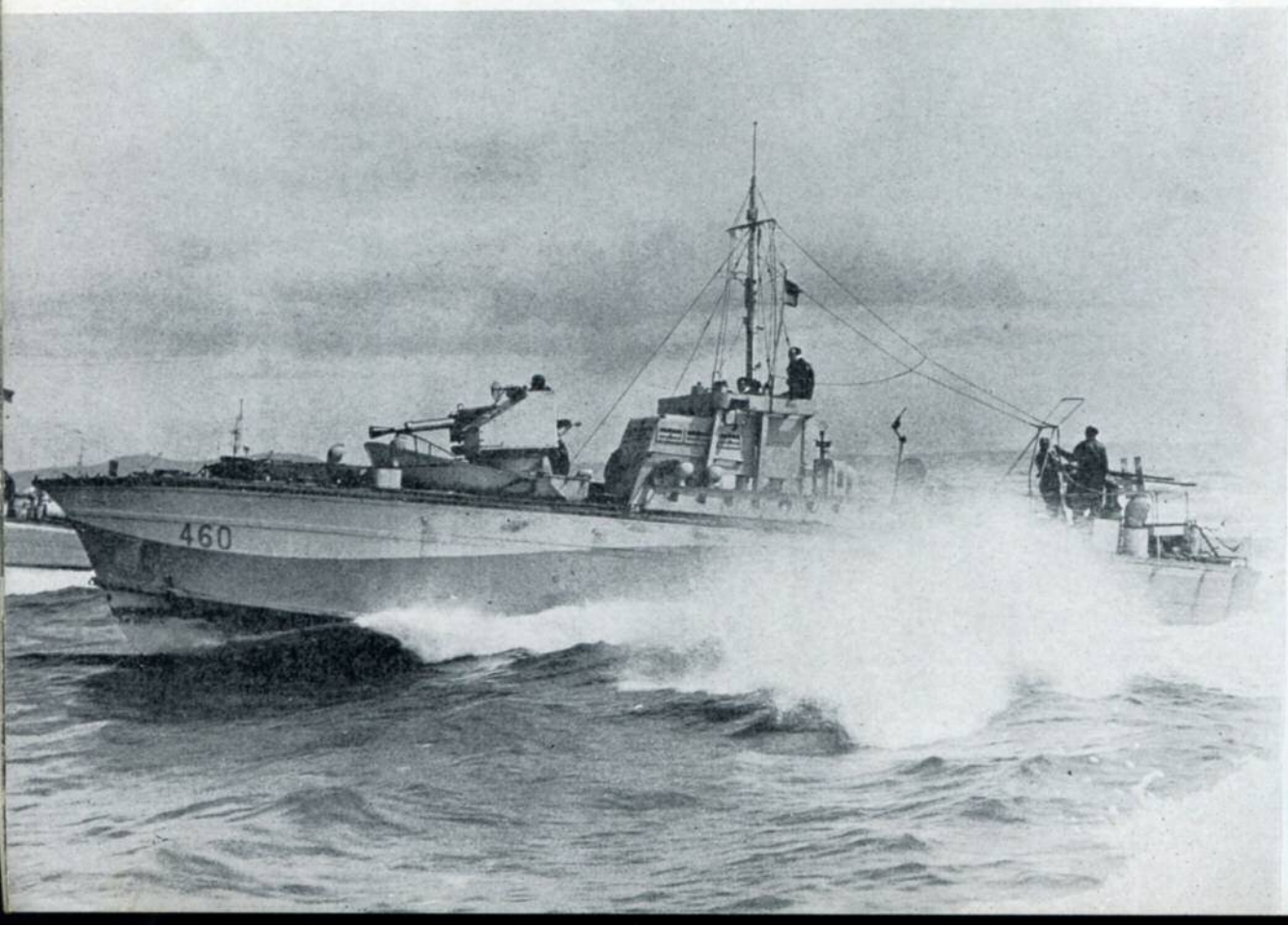
This might have been cause for hesitation, but the job was to land the troops at all costs, and the determined men of the landing craft meant to see it through.

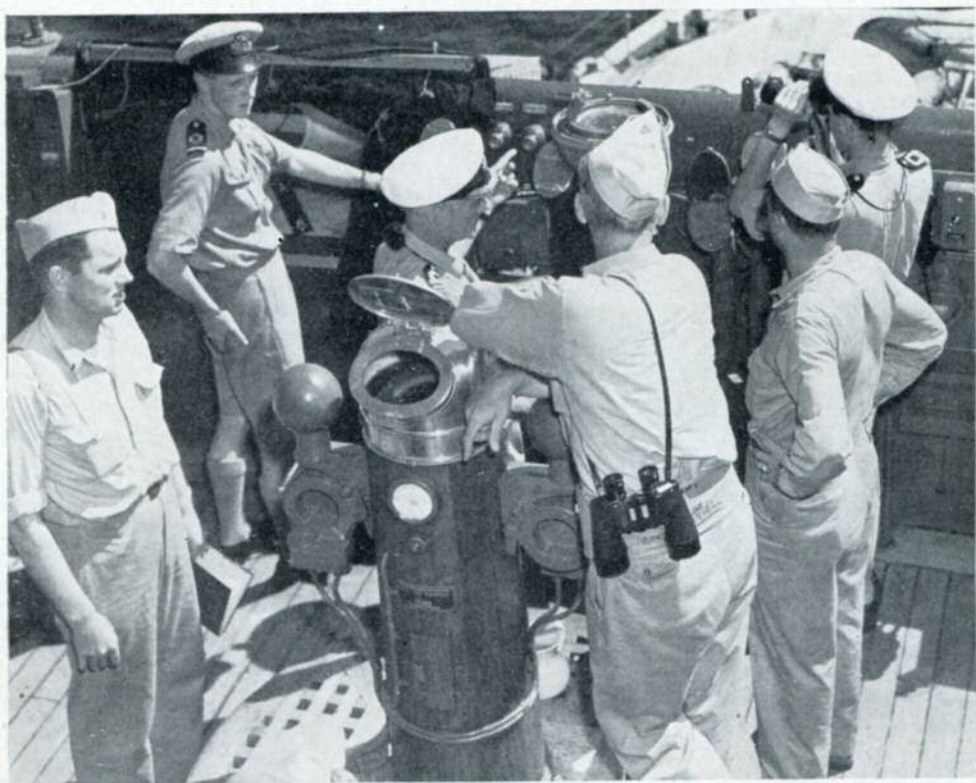
The throttles were opened wide. The little ships gained speed and tore, "hell for leather", for the beach. They crashed, skidded and battered their way through the barbed wire, over the traps and mines, and roared up on to the beach with the full momentum of their sixteen-knot charge!

Bottoms were ripped out, engine rooms, hulls and fore-peaks were damaged. Light mines exploded right and left. The craft were expendable, though, and their crews both knew and accepted the implications of this fact. Their orders were to land the troops, and they were carried out. Every man was landed according to the scheduled plan, and by some combination of miracles, there was not one casualty in the lot!

It may be that when this whole immense

Canadians man two flotillas of the Royal Navy's motor torpedo boats and have taken part in many daring attacks on enemy shipping.





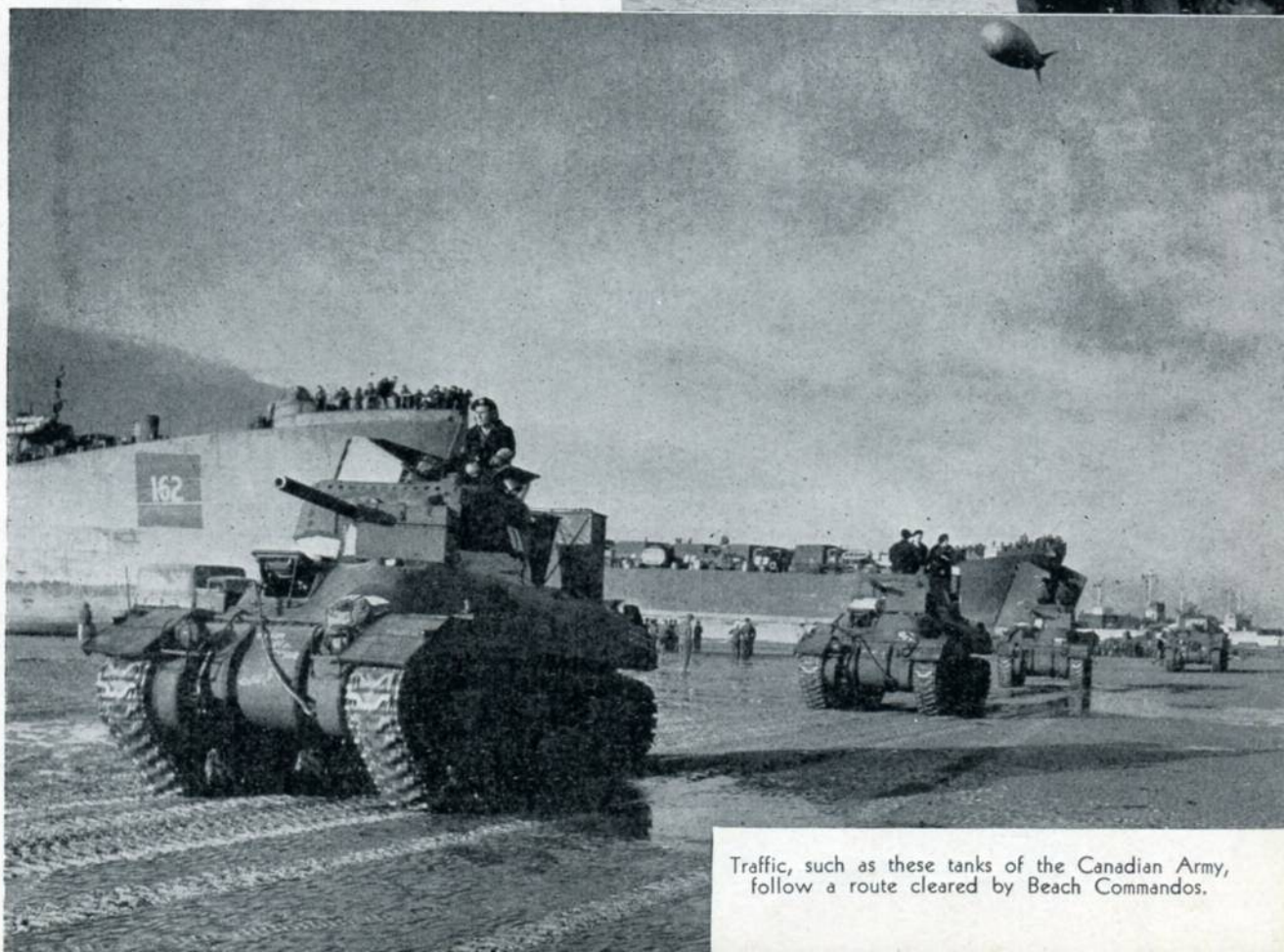
Infantry landing ships of R.C.N. took part in invasion of Southern France. Scenes on board *Prince David* and *Prince Henry*



Right:—Canadian assault craft put troops ashore on rocky French islands. Captive Germans are seen helping unload supplies.



Beach Commandos of the Royal Canadian Navy
summon aid for landing craft in difficulties.



Traffic, such as these tanks of the Canadian Army,
follow a route cleared by Beach Commandos.

operation comes to be viewed in the even perspective of time, it will turn out that the most valuable contribution made by the Royal Canadian Navy in the crucial days will have been in its protection — in conjunction with ships of the Royal Navy — of the seaward flanks of the cross-channel convoy routes against attack by enemy surface craft.

This task — which is closely related to the offensive sweeps off the German-held French coast in which our ships have had distinguished success — produced a number of sharp actions, most of which have taken place at night.

Once again, the singling out of any particular ship is somewhat invidious. Nevertheless, it has to be mentioned that H.M.C.S. *Haida* (Captain H. G. DeWolf, D.S.O., D.S.C., R.C.N.), has, with her hard-hitting guns, literally blazed her way into the history of our Navy. With *Athabaskan* (Lieut.-Cdr. J. H. Stubbs, D.S.O., D.S.C., R.C.N.), *Huron* (Cdr. H. S. Rayner, D.S.C. and Bar, R.C.N.), and *Iroquois* (Cdr. J. C. Hibbard, D.S.C., R.C.N.), and operating with 'Tribal' class destroyers of the Royal Navy and the Polish Navy, *Haida* again and again won laurels in the swift-moving night actions against German surface craft in and near the English Channel.

It is a matter for real sorrow that of this gallant little fleet, *Athabaskan* has been lost. But, if it is any consolation to those who mourn those lost with her, the toll of revenge taken by her Canadian sister-ships has been terrible.

The saga of the 'Tribals' is, indeed, one of the finest chapters in our Navy's story. It first became clear that they were on the war-path when, following the night of April 26th, announcement was made that *Haida* and *Athabaskan*, in company with the British cruiser *Black Prince* and the destroyer *Ashanti* of the Royal Navy, had encountered German 'Elbing' class destroyers, sinking one and seriously damaging two others.

Three nights later, *Haida* and *Athabaskan* were out again. This time they were less fortunate, and were dangerously outweighed by their adversaries. Soon after action was joined *Athabaskan* suffered damaging hits, and caught fire. Before she could recover from this, she was struck by a torpedo, and sank rapidly. *Haida*, exacting swift revenge, drove an enemy destroyer on to the rocks in flames, and then returned to look for survivors.

Nothing could have been more squarely in keeping with the magnificent traditions of the Naval Service than some of the

scenes recorded that night. *Haida* lowered her motor-cutter, and the little craft, with half a dozen survivors, made her way to the English coast under her own power. Risking her life in the business, *Haida* stopped for some minutes taking oil-soaked men from the sea and the life-rafts. Beyond doubt, however, the finest act of all was that of Lieut.-Cdr. Stubbs, *Athabaskan's* Captain, who from a life-raft urged *Haida* to be on her way to safety, shouting "Get away! Get clear!" It is told that the last heard of him was that he was sitting on a raft, keeping up the spirits of his men by leading them in singing the song of the "Wavy Navy".

A complete account of all the actions fought during this phase of the war would occupy far more space than is available here. Neither would it be complete if confined to the exploits of the 'Tribals', for they were by no means the only ships engaged in the business of deliberately seeking out the enemy with a view to encompassing his destruction.

The fast moving M.T.B.'s, also specializing in night action, have fought many breath-taking high-speed minor battles on the sea, and have produced results of considerable value.

Their job has, for the most part, been done in the dark hours, and it has always (like the hunting of the 'Tribals') been definitely *offensive* — attack upon German convoys of one kind or another, or else an out-and-out blazing battle against light coastal forces of the enemy — E-Boats, R-Boats and heavily armed trawlers — with the bright glare of star-shell and the flashing of the guns providing the only relief to a darkness in which friend and foe alike are often nothing but blurred and indistinct shapes tearing through the night-black waters.

Still other Canadian ships — certain of the older 'River' class destroyers, notably — have also had their fling at surface action against the enemy, though with less frequency than the ships more specifically designed for the job.

It is an interesting fact that there have been only two brief periods of the war when Canadian ships have had any real opportunity of proving their mettle against enemy surface craft. In the earlier phases, when German merchant shipping still used the seas, in a strictly limited and somewhat fugitive manner, the former cruise ships (H.M.C. Ships *Prince Robert* and *Prince Henry*, then in use as armed merchant cruisers) had some success in the rounding-up process which was then under way. The merchant ship *Weser* was



Torpedo from H.M.C.S. *Iroquois* bursts against hull of flak ship.



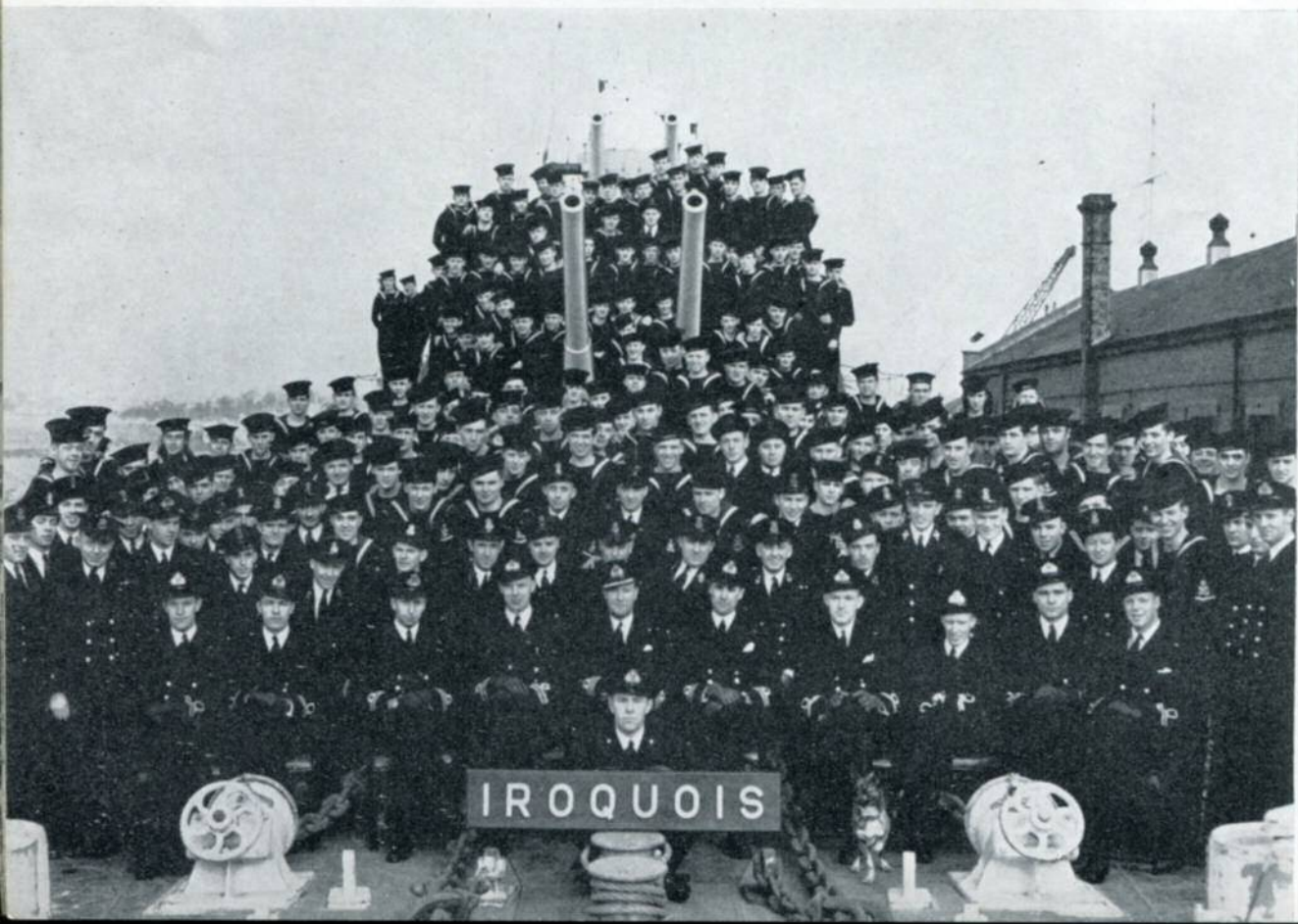
captured by *Prince Robert*, in September, 1940, whilst two others scuttled themselves in May of 1941 to avoid capture by *Prince Henry*.

From that time until the weeks preceding the Normandy invasion, Canadian ships were concentrated almost completely on resisting, and assisting to control, the problem created by the U-Boats in the North Atlantic and elsewhere.

The invasion preparations, however, involved a series of offensive activities in the English Channel. This was, to a great extent, made possible by the fact that the weakening of the Luftwaffe drove the Germans to the use of surface craft as a means of harassing allied communications.

The extent to which the men and ships of the Royal Canadian Navy took advantage of this interesting development is perhaps best shown by the table on page 228 which gives a summary of the losses in surface craft inflicted upon the enemy by Canadian ships, or by forces of which our ships were a part.

The Canadian 'Tribal' class destroyer, *Iroquois*, with two R.N. warships, damaged or destroyed eight enemy ships in a single action off St. Nazaire. Above, the Captain, Commander James C. Hibbard, D.S.C., R.C.N., of Victoria and Halifax (right), and the First Lieutenant, Lieutenant-Commander C. R. "Tony" Coughlin, D.S.C., R.C.N.V.R., Ottawa, since died of injuries, have a cup of tea immediately after the action. Below is the ship's company of the *Iroquois*.



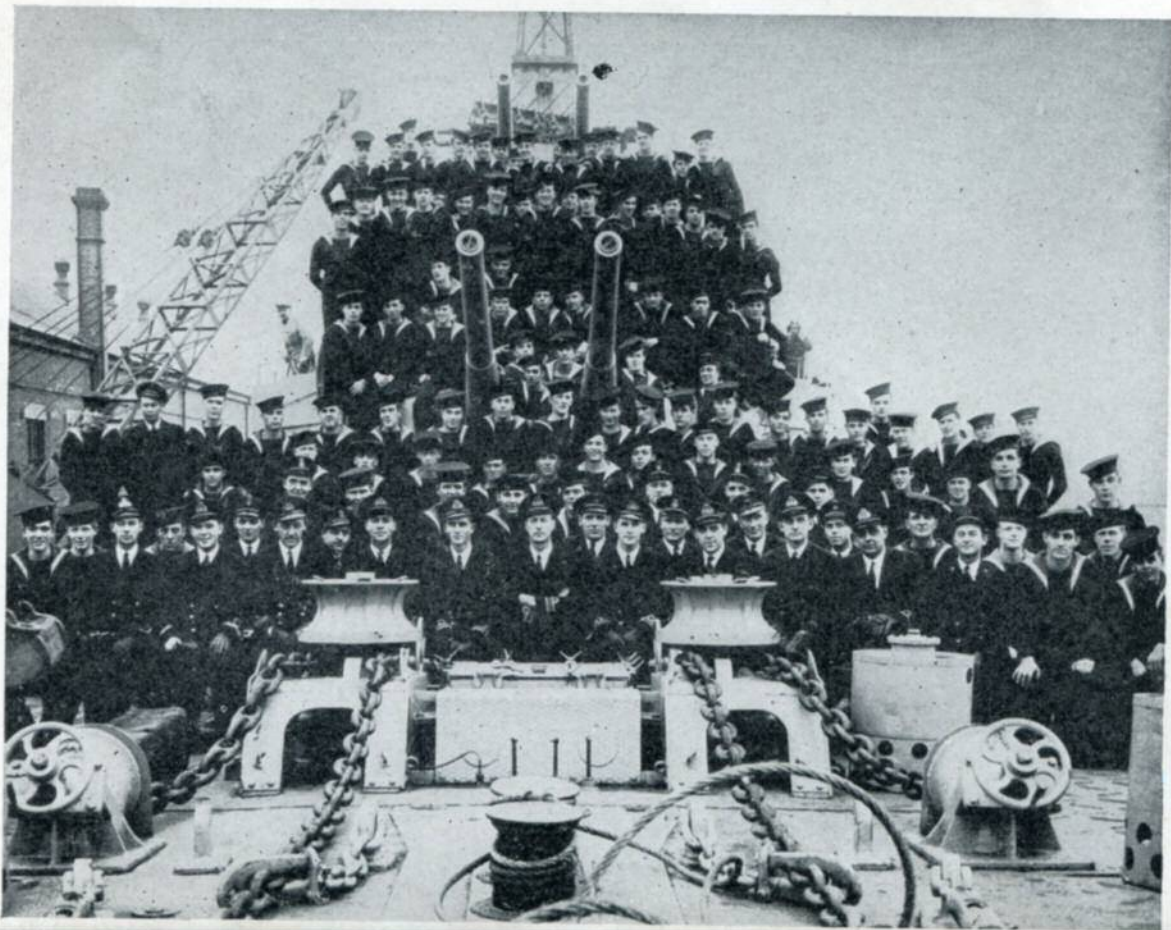


Two Canadian 'Tribal' class destroyers which have been in frequent stirring actions off the coast of France are H.M.C.S. *Haida* and H.M.C.S. *Huron*. Above are the officers and ratings who man the *Huron*, while the picture below shows Lieutenant-Commander (now Commander) H. S. Rayner, D.S.C., R.C.N. (left), Commanding Officer of *Huron*, Commander (now Captain) H. G. DeWolf, D.S.O., R.C.N., Captain of *Haida*, and Rear-Admiral H. E. Reid, C.B., R.C.N., looking over the plot of an action in which the two destroyers helped to force a German 'Narvik' class destroyer aground off the coast of France.





The names of the Canadian destroyers, *Haida* and *Athabaskan*, were united in a story of heroism and disaster when the latter ship was sunk during a pre-invasion sweep of the English Channel and the *Haida* effected the daring rescue of many of the crew. Above is seen the ship's company of the *Haida* and below is the ship's company of the *Athabaskan*.





A heavy sea breaks over the depth-charge rails at stern of frigate.

Thundering waves pour onto the quarterdeck of the corvette *Lindsay*.

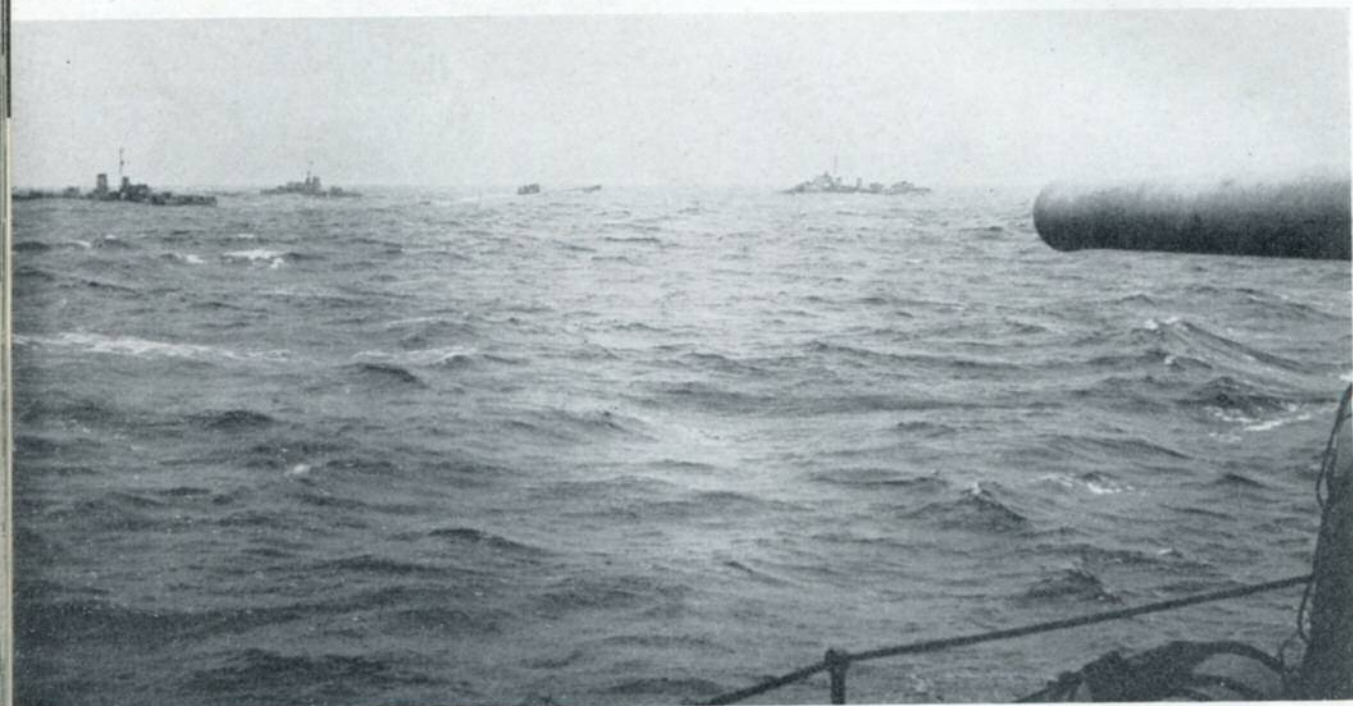


Enemy Ships Sunk or Otherwise Destroyed.

Destroyers:	
By H.M.C. Ships.....	2
By forces including H.M.C. Ships.....	2
Armed trawlers and other escort craft:	
By H.M.C. Ships.....	3
By forces including H.M.C. Ships.....	7
E-Boat and other light craft:	
By H.M.C. Ships.....	1
By forces including H.M.C. Ships.....	3
Merchant Ships:	
(a) Prior to 1944.	
1 captured, 2 scuttled to avoid capture.	
(b) Invasion period.	
By H.M.C. Ships.....	4
By forces including H.M.C. Ships.....	11
Total sunk or captured:	
By H.M.C. Ships.....	13
By forces including H.M.C. Ships.....	23

Enemy Ships Damaged

Destroyers:	
By H.M.C. Ships.....	1
By forces including H.M.C. Ships.....	4
Minesweepers, trawlers and other escort craft:	
By H.M.C. Ships.....	3 or 4
By forces including H.M.C. Ships.....	1
E-Boats and other light coastal craft:	
By H.M.C. Ships.....	8
Merchant vessels:	
By H.M.C. Ships.....	4 or more
By forces including H.M.C. Ships.....	4 or more
Total damaged:	
By H.M.C. Ships.....	16 or 17
By forces including H.M.C. Ships.....	9



The corvette, H.M.C.S. *Chilliwack* came so close to this German submarine after she had battered it into submission with gunfire that the expressions of terror could be seen on the faces of the U-Boat crew as they abandoned ship. The upper picture is a view of the U-Boat surrounded by warships in at the kill.



The captains of seven Canadian ships that fought successful battles against submarines are pictured here. Left to right, top row:—Commander George H. Stephen, O.B.E., D.S.C., R.C.N.R., of *St. Laurent*; Commander C. A. King, D.S.O., D.S.C., Legion of Merit, R.C.N.R., of *Swansea*; Lieutenant-Commander J. P. Fraser, R.C.N.R., of *Wasquesiu*, as he was congratulated by Vice-Admiral P. W. Nelles, C.B., R.C.N.

A dazed, terrified German submarine crew member is seen on the decks of the Frigate, H.M.C.S. *Swansea*, after the Canadian ship had made her second submarine kill of this war.



Left to right, bottom row:—Lieutenant-Commander C. R. (Tony) Coughlin, R.C.N.V.R., of *Chilliwack*; Lieutenant-Commander W. P. Moffat, R.C.N.V.R., of *Fennel*; Lieutenant-Commander Patrick Nixon, R.C.N., of *Chaudiere*; Lieutenant-Commander R. W. Draney, R.C.N.R., of *Prince Rupert*





Wren Elizabeth Robinson, Toronto, takes pleasure in riding during hours away from duty as a coder at H.M.C.S. *Stadacona* at Halifax.

Right:—Wrens assist in the procedure carried out in the Action Room at Halifax where mock sea battles are staged to train officers and ratings of escort ships. Left to right are Wren Margaret Ham, Toronto; Lieutenant E. G. Aust, R.C.N.V.R., London, Ontario; Wren Shirley Shoebottom, Toronto, and Wren Camilla Balcombe, Ottawa.



Wren Supply Assistant Irene Weidmark, Ottawa, is seen checking the deficiency sheet of a new construction ship at Halifax, as Ordinary Seaman Thomas Harman, Montreal, prepares to take a scramble net on board.



Wren officers and Wrens plot ship positions as imaginary sea battles are waged on the tactical table at Halifax to train sea-going officers. Pictured are, left to right, Wren Audrey White, Montreal; Lieutenant Olive Saunders, London, Ontario; and Lieutenant Carol Hendry, Toronto.



Two Ontario Wrens who are serving on an Air Force station on loan to the Royal Navy in Canada are taken on a flight in a Swordfish by a Fleet Air Arm pilot. The girls are Wren Betty Fulton, Timmins, Ontario, and Wren Nancye Lane, New Toronto.



At the entrance of the Royal Canadian Navy's rest camp in Newfoundland, seven Canadian Wrens pause before starting out on a cycling jaunt.

Wrens Peggy Marshall, of Vancouver; Audrey Butler, of Vancouver, and Audrey Nurse, of Chatham, Ontario, leave the Canadian Naval Mission Overseas in London after their watch is completed. They are signallers.





In assessing the true value of those figures, certain facts have to be borne in mind. The first of these is the intensely conservative manner in which official naval assessments are invariably made. It is possible that some of the ships listed as "damaged" may never have returned to port. It is certain that those listed as "damaged" will have been so severely mauled that their repair would take months — if, indeed, it could be effected at all in the chaotic conditions that must have prevailed at the time in many of the German-held bases.

In presenting these figures, the Navy has stated officially that "many doubtful cases have been omitted" and that the number shown as damaged may be taken to be "severely damaged".

Even on this most conservative estimate it may be taken that the Royal Canadian Navy during the invasion period accounted for no fewer than twenty-six enemy ships.

In the light of these facts, in the knowledge of how our war-expanded fleet (the form of whose expansion was for long dictated almost entirely by the submarine activities of our enemies) has borne a steadily increasing part in the holding of command of the seas in the Western Hemisphere, there is a great deal of food



At top:—Commander Adelaide Sinclair, Toronto, Director of the Women's Royal Canadian Naval Service, is congratulated by Vice-Admiral G. C. Jones, C.B., R.C.N., Chief of Naval Staff, on the occasion of the second anniversary of the Wrens.

Left:—Commodore C. R. H. Taylor, R.C.N., takes the salute during the march past at H.M.C.S. *Avalon*, Canadian base in Newfoundland.

Below:—

Lieutenant-General Kenneth Stuart, Chief of Staff, Canadian Military Headquarters Overseas, and Captain F. L. Houghton, R.C.N., Deputy Head of Canadian Head Mission Overseas, are shown conversing during trip to France in H.M.C.S. *Algonquin*.



for thought in the whole question of Canada's future naval responsibilities.

These responsibilities have always existed, but they only became unanimously clear to Canadians when, subsequent to the onset of the U-Boat campaign, our situation in the matter of sea-communications became desperate.

Up to that time much of the possible thinking with regard to our naval defence had been dissipated by our implicit reliance upon the fleets of the United Kingdom and (though in a secondary way) the United States of America. The collapse of France and the holocaust of Pearl Harbour revealed the danger of this shirking of responsibilities.

Coupled with a legitimate pride in the accomplishment of our wartime Navy, there may well go a sober measure of reproach that our peacetime fleet (if such it can be called) had been precariously maintained upon a basis which was hopelessly inadequate to the tasks which it was so rapidly, and so desperately, called upon to face.

It is reasonable to rejoice in the eventual almost complete control of the long Atlantic convoy routes which our ships have helped

At top:—Hon. Angus L. Macdonald responds as the "salute" is played on his arrival for the commissioning ceremony of H.M.C.S. *Antigonish*, new frigate, at H.M.C. dockyard, Esquimalt, B.C. At the right is Rear-Admiral V. G. Brodeur, C.B.E., R.C.N., Commanding Officer, Pacific Coast, and behind the Minister is Captain P. B. German, R.C.N., Naval Officer-in-Charge, Esquimalt.

Right:—Hon. Angus L. Macdonald presenting Reserve Medal to Commodore E. R. Brock, Commanding Officer, Naval Divisions, Toronto.

Below:—Commander-in-Chief of the United States Atlantic Fleet, Admiral Royal Eason Ingersoll, U.S.N., inspects guard of honour during visit to Halifax. He is accompanied by Rear-Admiral L. W. Murray, C.B., C.B.E., R.C.N., Commander-in-Chief, Canadian Northwest Atlantic.

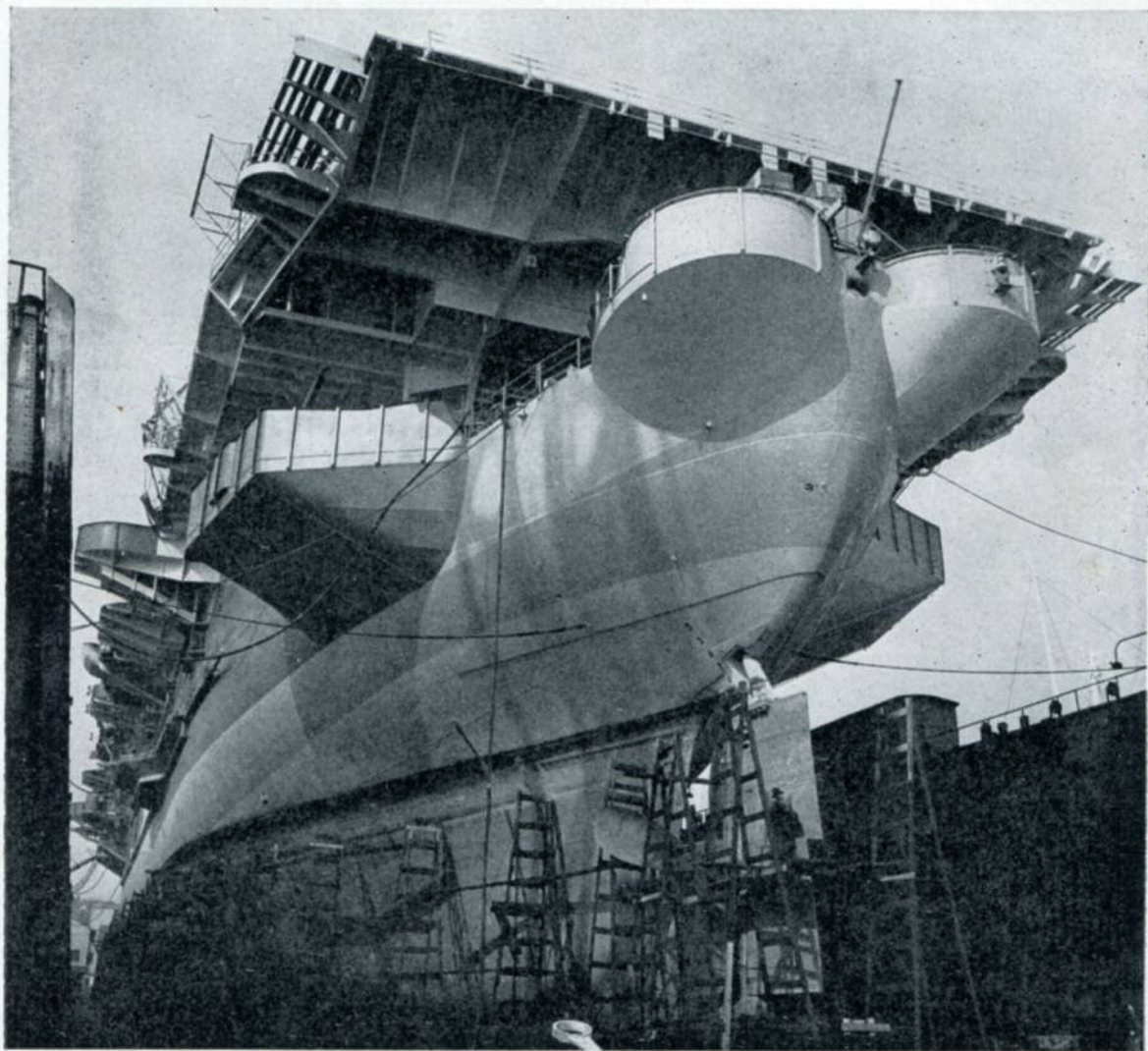




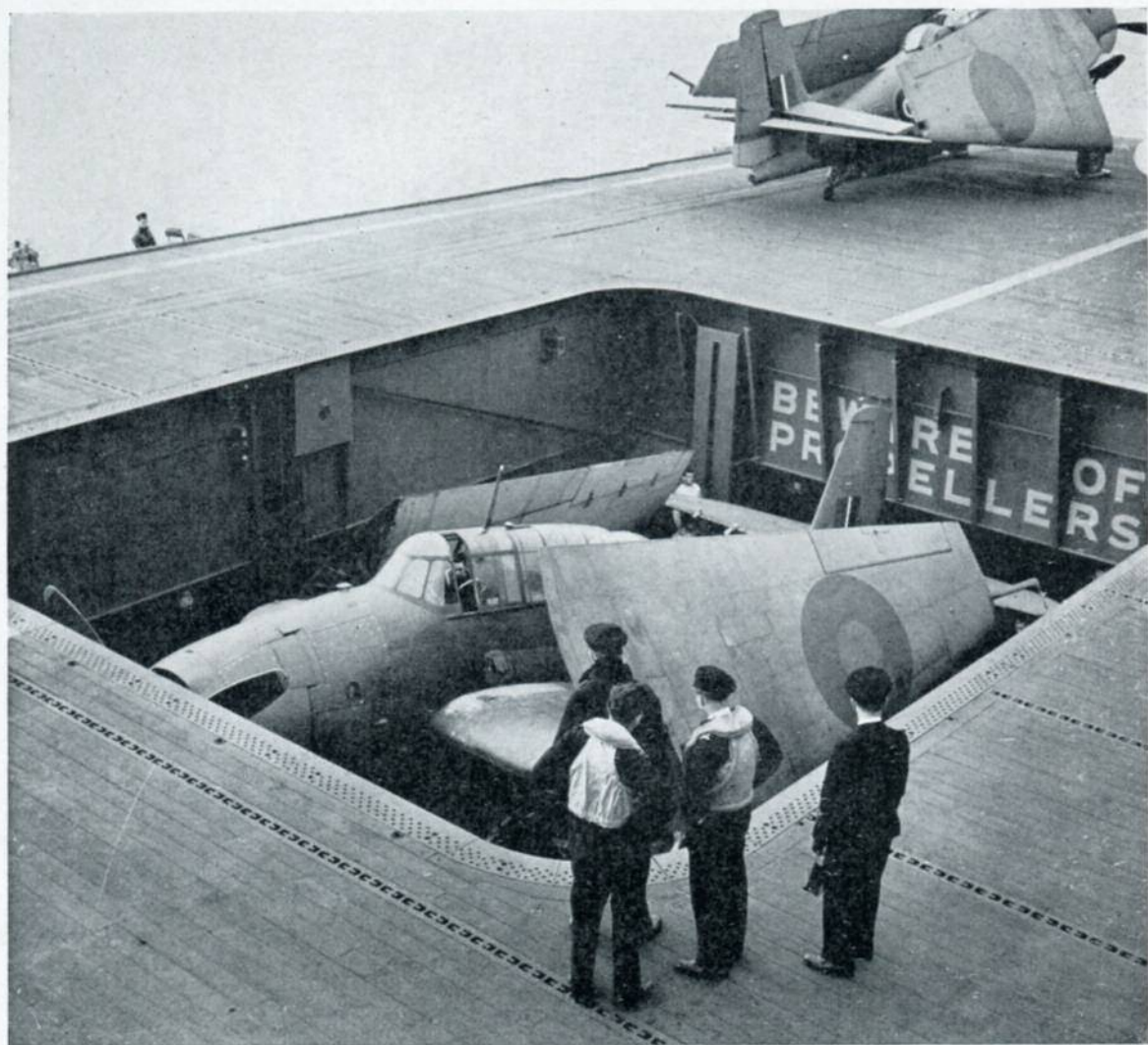
A Fleet Air Arm pilot of the Royal Navy prepares to take off from aircraft carrier.



A rating in H.M.S. *Nabob* is helped out of the heavy asbestos suit worn by fire fighters in the carrier.



This view of the stern of a convoy escort carrier in drydock at the Pacific Coast provides some idea of the size of these ships, two of which have been manned by the Royal Canadian Navy.



A Grumman Avenger is "struck down" onto the hangar deck from the flight deck of a convoy escort carrier, of the type manned by the Royal Canadian Navy in the North Atlantic during the past months.



Captain R. E. S. Bidwell, R.C.N., of Kingston, Commanding Officer of the convoy escort carrier, H.M.S. *Puncher*



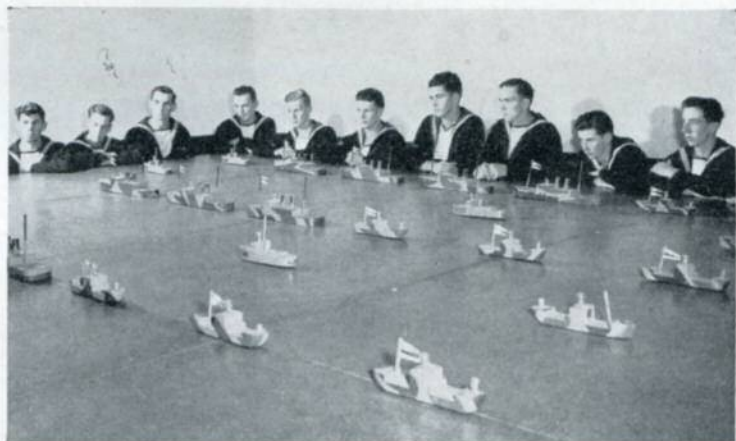
Captain Horatio Nelson Lay, O.B.E., R.C.N., Victoria, Commanding Officer of the aircraft carrier, H.M.S. *Nabob*



H.M.C.S. *St. Hyacinthe* at St. Hyacinthe, Quebec, is one of the largest signal training schools in existence. Here the order to fall in for divisions has been given and the ratings pour onto the parade ground with a spectacular rush.



Captain A. P. Musgrave, R.C.N., is Commanding Officer, *St. Hyacinthe*.



Visual signals ratings learn how to route messages at sea by means of model merchant and war vessels.



Ratings training for wireless telegraphy must first spend weeks learning Morse code.



This device, known as the "rolling bridge" prepares signalmen for sea duties.



Wrens in training for visual signals at *St. Hyacinthe* claim as much agility and courage as the signalmen when it comes to clambering up the mast. The wearing of sailors' bell-bottomed trousers is a concession made to Wrens studying visual signals.

so manfully to establish; but it would be imprudent to permit that rejoicing to becloud the memory of the days when the weekly toll taken by the enemy quickly attained, and for far too long maintained, proportions which can only be described as dismaying.

On September 6th of this year, Hon. Angus L. Macdonald, Minister of National Defence for Naval Services, gave it as his opinion in a press conference at Ottawa that Canada should, in the post-war years, maintain a Navy of some 15,000 personnel. This would indicate the maintenance of 35 or 40 warships, including cruisers and aircraft carriers, as well as destroyers and smaller craft.

Compared to our present Navy, this is sufficiently modest.

There are many matters in regard to the training and upkeep of a Navy which, quite naturally, are scarcely understood by the average Canadian.

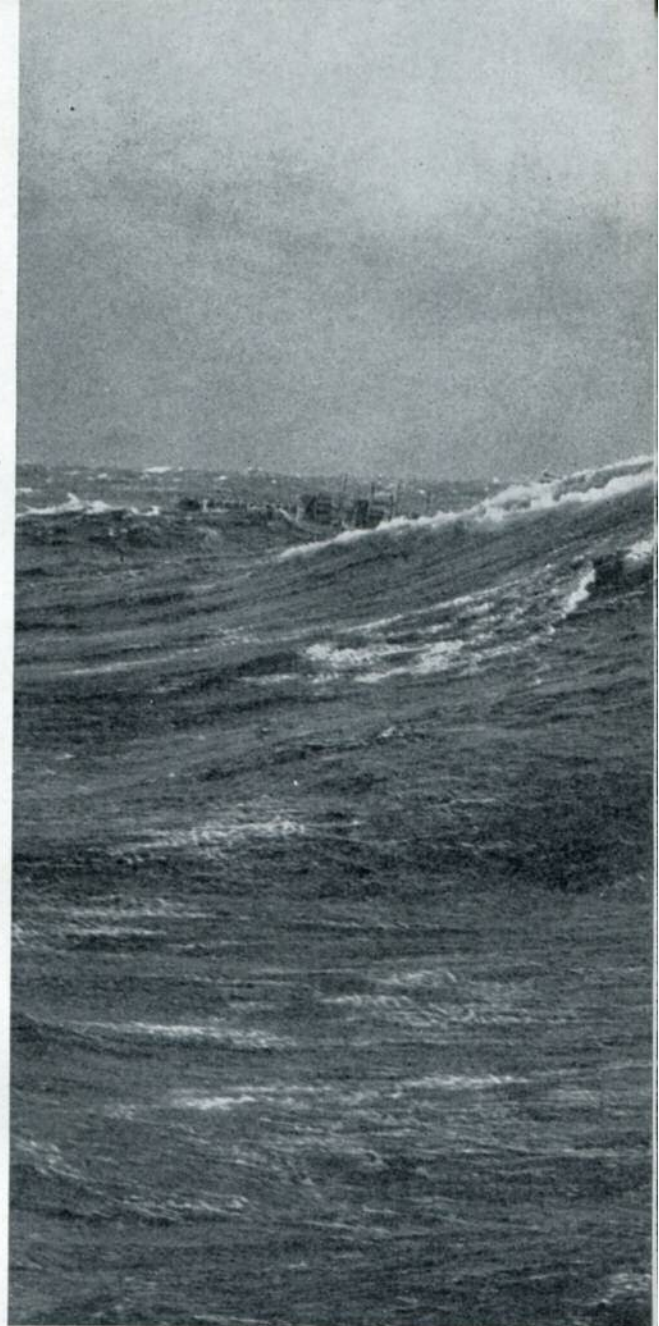
Rapid expansion of a Naval Service is a far more difficult undertaking than that of an Army or Air Force. Whilst, in the present war, it was possible to provide a part of the answer to the menace to our sea-lines with rapidly-built corvettes with reciprocating engines, it is certain that similar success would not attend a repetition of this unavoidably make-shift measure in the future. Technical developments will rule the corvette, as we know that ship to-day, out of the picture.

It seems, indeed, certain that the expansion and success of the R.C.N. in World War II must be the last occasion on which a feat such as that carried out by the Navy could be performed.

The feat has been great in many ways. Beyond question, it has been greatest in its least spectacular aspect, that of simply slogging back and forth across the seas, and, by the very presence of the armed and highly alert escort craft, making sure of the delivery of the goods.

But the losses have also been great — not in Naval ships, for since October, 1943, no more than six Canadian warships (excluding smaller craft) have paid "the price of Admiralty"*. The losses have come in the ships of the Merchant Navy. Literally hundreds of these lie to-day at the bottom of the sea. Many men have gone with them, much material, and millions of hours' work in factory, in shipyard, on farms, at the drafting boards and in the workshops.

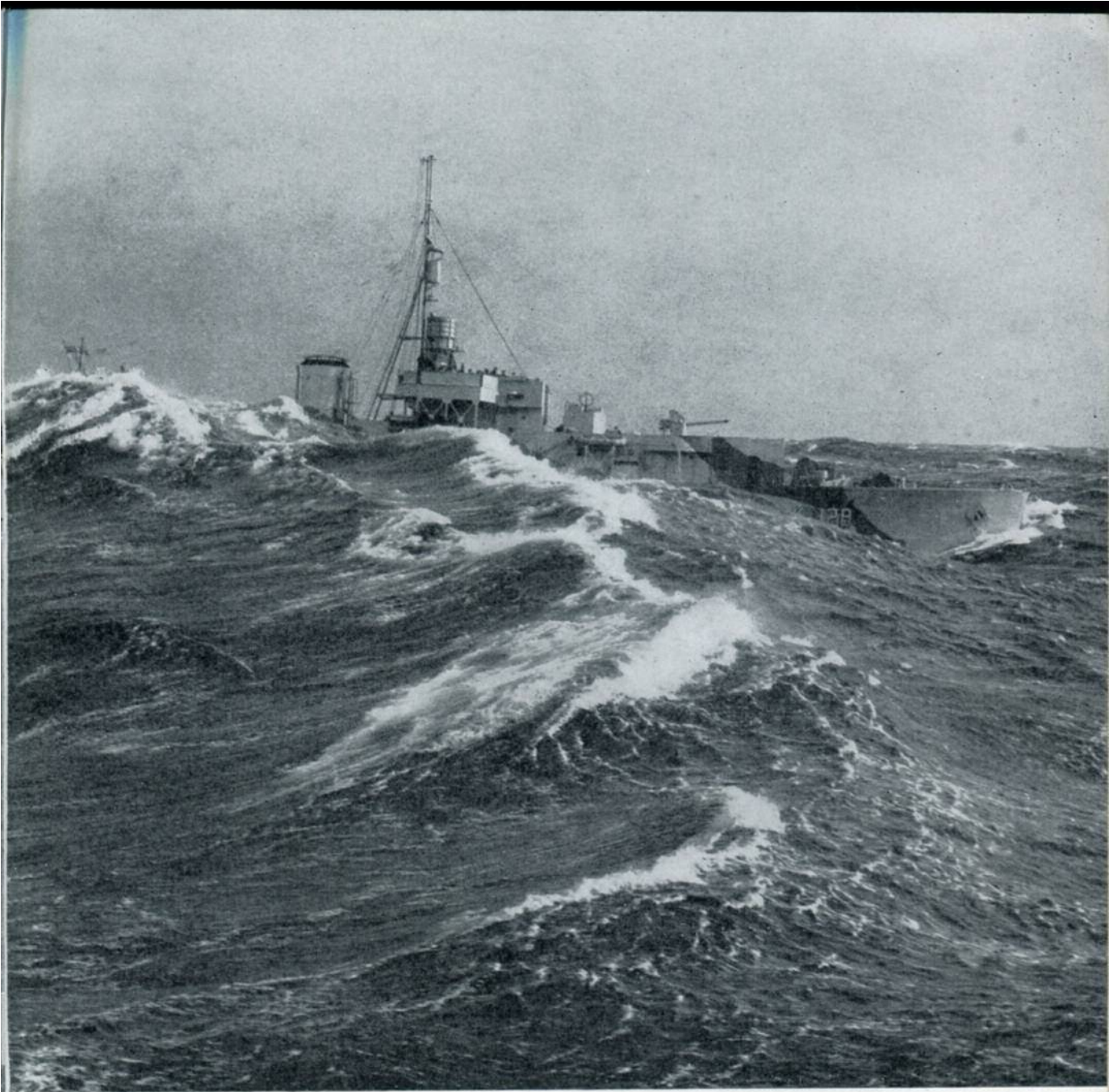
The losses were incurred at the time when we could least afford them. Their further consequences disturbed the ordering of our



resistance to the Axis in a thousand incalculable ways, as the hurling of high explosive missiles into a little lake would disturb the water's surface with great waves and countless smaller ripples.

If we had had in 1941 but half the fleet we have to-day, so greatly would this loss have been reduced that there is no slightest doubt the course of the war would have been drastically altered, many

*The total number of Canadian Naval vessels announced as lost to October 1944, was eighteen



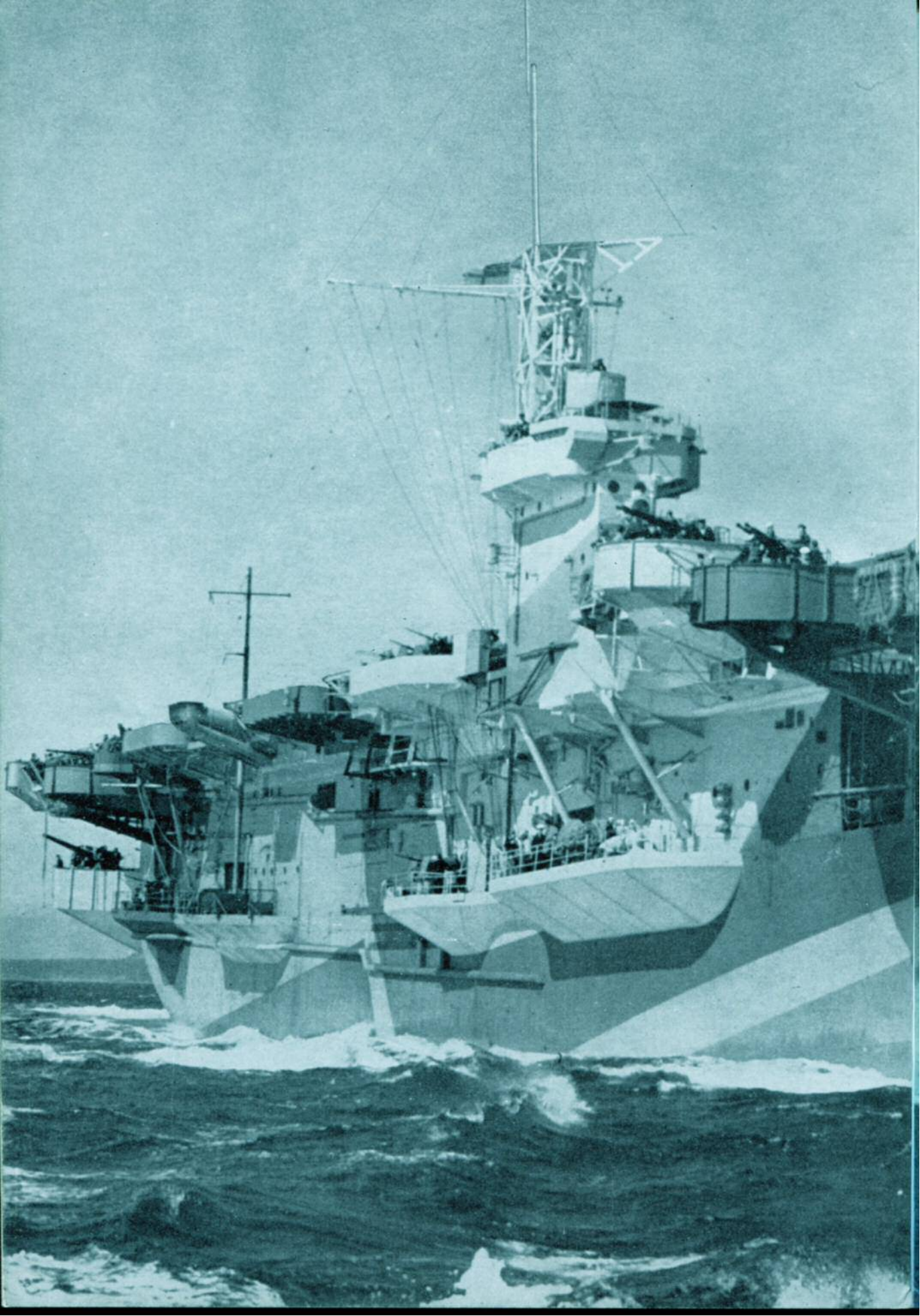
Large, heavily-armed and fast, the frigate, increasing numbers of which are being added to the Royal Canadian Navy, stands midway between the corvette and the destroyer as an escort vessel. Here a frigate almost disappears from view as she plunges through the long swells raised by a North Atlantic gale.

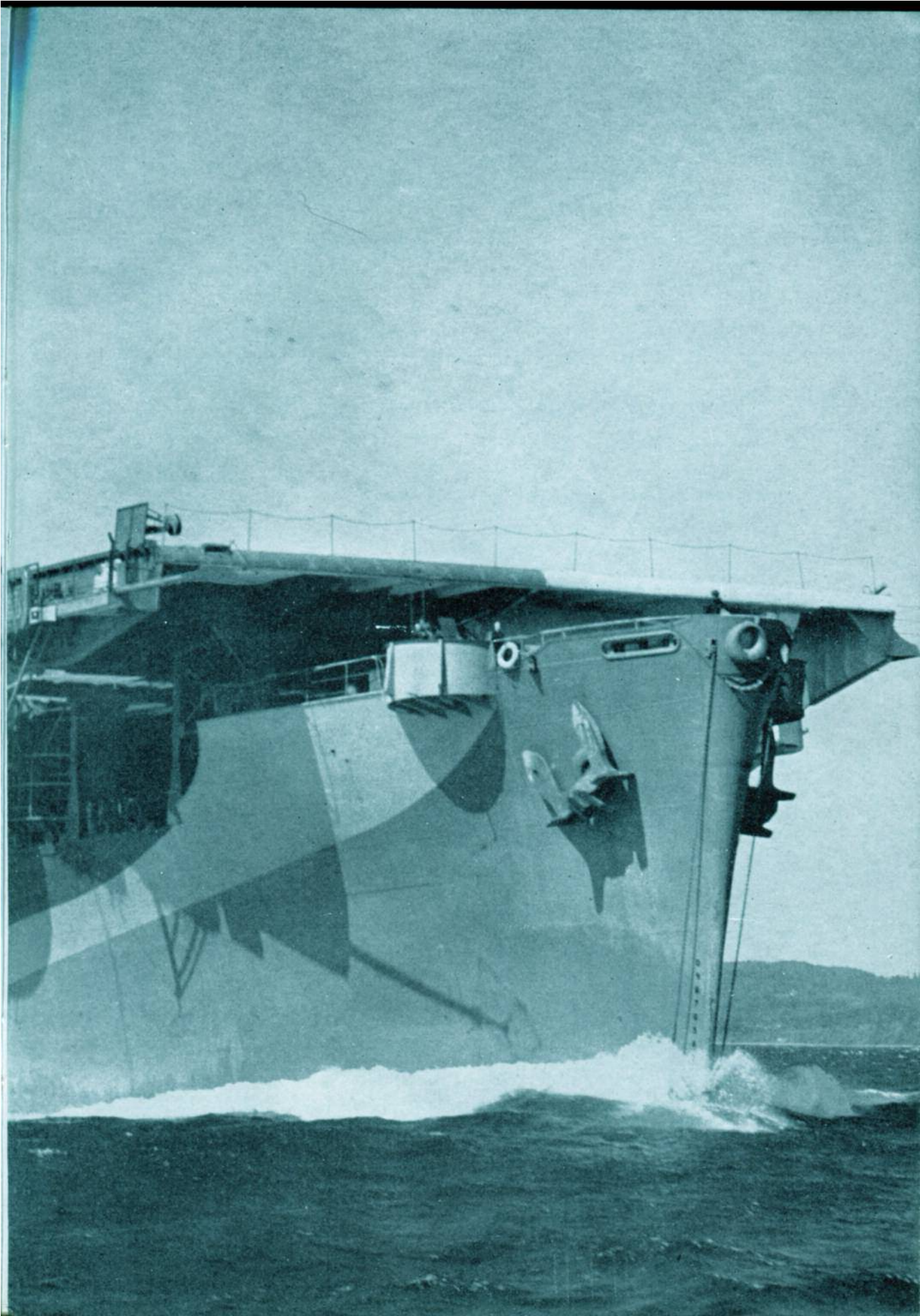
now fighting in distant lands might well be home to-day, and many who will be forfeit in the struggle would have lived out the lives of which they have been cheated.

This is a matter for the most solemn consideration of every Canadian interested in his country's future, in her self-respect, in the respect in which she is held by her neighbours, and in her capacity to stand, as surely she must, upon her own feet.

A Navy cannot be built and manned

in months. It cannot be brought of a sudden into being at the stroke of a pen, or upon the utterance of a sounding phrase. It is, however, the first-line of defence of our own coasts, and the surest means of protecting the sea-lines whose maintenance can hold the ravages of war far from those coasts. To starve it is to invite disaster. That disaster has been avoided only by a narrow margin in the past is surely the strongest of all reasons why it should not again be courted in the future.







Canadian Geographical Journal map

OCEAN-TO-AMAZON HIGHWAY

by Major-General JULIAN L. SCHLEY

AN outstanding wartime accomplishment of the Republic of Peru and an important contribution to the Allied war effort is the completion of the strategic ocean-to-Amazon highway which now connects Peru's Pacific Coast ports with the upper Amazon Valley. This valley is today the western hemisphere's source of natural rubber, barbasco, and other strategic materials.

"The completion of the Lima-Pucallpa Highway uniting Lima, the capital of Peru, with Iquitos, the capital of our great eastern frontier region, thereby closing the final link in the chain of land and water communication between the Atlantic and the Pacific Oceans, marks an historic epoch in the economic development of our nation and of the entire Amazon Valley", said Manuel Prado, President of Peru, at the recent official opening of this highway.

The trip from Lima to Iquitos now takes only five days—two by motor-car on this highway and three by river steamer—and costs about \$17. Previous to the completion of this 522-mile highway, the 30-day overland trip by mule and by canoes between these two cities was so arduous that many travellers preferred to go the long way round by steamer—up to the Panama Canal, around northern South America to the mouth of the Amazon and up the Amazon to Iquitos, a total distance of over 5,000 miles.

The first section of the Lima-Pucallpa Highway, that from Lima to the central plateau, is known as the Central Highway and has been completed for several years. It is asphalted for 116 miles, or as far as Oroya.

This Central Highway is one of the most daring pieces of highway engineering in the world, for, in the first 87 miles of its length, it climbs through a series of canyons, unbelievably narrow and steep, and crosses the Anticona Pass at 4,843 metres or almost 16,000 feet above sea-level. At one point the road climbs in a spiral, crossing itself twice by bridge in a great figure-8 loop, the only loop of this kind in America.

At the top of the pass the road is over a thousand feet higher than Mont Blanc, the highest mountain in Europe, higher even than Mount Whitney, the highest peak in the United States Rockies. Here it is cold, and the air is very thin. The highway then continues at an average elevation of over 13,000 feet until Cerro de Pasco is passed. It then dips into and out of a series of lower valleys.

An overnight stop is usually made at the picturesque town of Huanuco, 260 miles from Lima and 6,600 feet above sea-level. Here the Government has built a modern hotel with accommodations for 62 guests.

Continuing eastward from Huanuco the highway crosses some of the lesser ranges of the eastern Andes and drops down into the tropical valley of the Huallaga River and to the frontier town of Tingo Maria. A few years ago this was only a collection of thatched huts marking the end of the trail. To-day it is on its way to becoming an important town.

Tingo Maria now has a new hotel with accommodations for 48 guests; a new and up-to-date tropical hospital with 40 beds; a government agricultural experiment station, with buildings costing \$160,000;

quarters for various government officials and administrative officers; a modern school, two sawmills, warehouses and stores, and an active traffic on the Huallaga River.

United States technicians have joined with Peruvian experts in establishing an agricultural experiment station at Tingo Maria. Among other products, this station is interesting itself in the production of quinine, kapok, quinoa, and barbasco, all of which are native to the region, as well as tea, jute, and abaca from which is obtained manila fibre.

Beyond Tingo Maria the highway almost loses itself in the heavily forested ridges of the Blue Mountains. Here enters one of the most romantic episodes in its construction.

The problem was how to get out of a valley 2,200 feet above sea-level, over a range 7,000 feet high, and down to the River Ucayali. No pass through the mountains could be found.

Some one then remembered that, in past centuries, the Franciscan missionaries had explored much of this country in their efforts to convert the Indians. How did they get through? The engineers dashed back to the dusty church archives in Lima where they studied old diaries and musty, faded field notes of those hardy men of the brown robes who were explorers as well as missionaries.

Then, in the spring of 1937, engineer Federico Basadre found the long-forgotten records of the Franciscan missionary Fray Alonso Abad, which covered twelve closely written manuscript volumes. Here was a record of a long and exhausting search through the dark and uninhabited jungle for a break in the Blue Range and a way through to the Amazon—but let the record speak for itself:

"In the spring of 1757", says this old diary, "we organized a new expedition, leaving the Indian village of Cuchero on May 4 with 17 Indians and arriving on May 15 at Tulumay, and, following the directions of a previous expedition, we discovered, on the 25th day of May, the 'Paraja' where a passage seemed to open in the broken country which led to a gorge or canyon leading in the direction of the forest-covered Pampas of Sacramento (or Amazon low-lands)." The reader must remember that this little band was groping its way through an almost impenetrable tropical jungle.

On July 22, 1937, engineer Basadre, following the exact directions written nearly 200 years before, found the same canyon which the Yuracyacu River had cut in an easterly direction through the Blue Range. No other person had been through this gorge in nearly two centuries, for this part of Peru is uninhabited. This Boqueron, or canyon, which has been named after Padre Abad, is a deep, narrow transverse crack through the range, brought about by some gigantic seismic disturbance of the past. This crack is a little less than three miles long, not over 300 feet wide in places, and 6,000 feet deep. The bed of the gorge is 1,400 feet above sea-level. Three tunnels and three bridges were required to get the road through beside the river.

Leaving the Boqueron, the road crosses the River Aguaytia where a bridge 2,560 feet long is yet to be installed. The crossing is now effected by a ferry, and the road continues across the forested lowlands to Pucallpa on the River Ucayali, a tributary of the Amazon.

Pucallpa, only a frontier village five years ago, now bids fair to become the metropolis of eastern Peru. It already has an airport, a hospital, a school, and other modern buildings. River steamers towing barges now ply between Pucallpa and Iquitos, a distance of some 650 miles—the trip takes three days—and ocean steamers up to 6,000 tons come up the Amazon as far as Iquitos, 2,300 miles from the Atlantic.

The opening of this new route is of great strategic importance, apart from its economic value. It is already described as a vital auxiliary of the Pan American Highway system.

A regular overland mail and parcel-post service between Lima and Iquitos has been established. The first mail truck left Lima on the morning of September 8, 1943, and, according to newspaper reports, made the 522-mile run to Pucallpa in 14 hours and 20 minutes, or an average of better than 37 miles an hour.

At Pucallpa the mail is placed on board a river steamer for the three-day, 650-mile run to Iquitos. Passenger busses make the run between Lima and Pucallpa in two days with an overnight stop at Huanuco. A transportation company has been organized to handle shipments of merchandise between Lima and Iquitos.

The wartime completion of this highway, which was begun several years ago, is credited to the driving force of Don Carlos Moreyra y Paz Soldano, Peru's dynamic Minister of Public Works and Development, who has made this task a primary objective of his administration.

This Amazon Valley region is rich in rubber. With the aid of United States credits there has been established a Peruvian Amazon Corporation, which will develop other tropical products of strategic importance, such as barbasco and jute.

A most significant phase in the development of this new region, and one which has been largely overlooked in the press of world affairs, was the discovery of oil, some six years ago, at a point about 50 miles upstream from Pucallpa on the Pachitea River and only about 20 miles from the line of the present new highway. So far as is known, this is the only dependable supply of petroleum in the Amazon Valley.

A small topping plant has been installed here at the Blue Goose wells and is now supplying gasoline and oil at the rate of 2,000 barrels a month for the river transport from the upper Amazon Valley to the city of Iquitos and to nearby Brazil. Shipment is being made in drums.

While Peru's Amazon Valley area—equal to two-thirds the total area of the nation—is short on highways, it is abundantly supplied with waterways. There are said to be no less than 22,000 miles of navigable river channels in its nine great rivers and their tributaries. For this reason eastern Peru needs motor-boats more than motor-cars. At least 5,000 motor-powered vessels of various types and sizes will be required, it is estimated, to serve this region where scarcely a hundred motor-powered vessels are operating to-day.

The "highways of penetration", aimed to connect Peru's coastal and plateau regions with the Oriente, or the Amazonian Basin, are (1) the Pucallpa Highway just described, (2) the Olmos-Maranon Highway in the north, now well under way, (3) the Urcos-Marcopata-Madre de Dios Highway, and (4) the Huambutio-Paucartambo-Madre de Dios Highway. The last two are in the Department of Madre de Dios and branch off to the east from the two named stations on the Cuzco-Puno railroad. Other highways of penetration are being considered, but work on them has not yet begun.

The Olmos-Porculla-Rio Marañon route, Peru's northern highway of penetration, named "Ruta Mesones Moro" after its explorer and discoverer, starts from the city of Olmos on the Pan American Highway in the Department of Cajamarca, 536 miles north of Lima.

It crosses the main range of the Andes at the Porculla Pass, 7,072 feet above sea-level—the lowest pass across the main Andes in all Peru. This road follows the Quegrada de Tierras Negras and Huallapampas as far as the River Huanabamba, 49 miles from Olmos. From this point it follows the left bank of the Huanabamba as far as its outlet in the Marañon River, terminating at the town of Bellavista, 143 miles from Olmos, and opening up magnificent agricultural territory between Jaon and Bellavista at elevations averaging 2,000 feet above sea-level.

This highway, a later extension of which will be carried 65 miles to the Pongo de Manseriche, the famous gorge in the upper Marañon, is now open for normal traffic for a distance of more than 60 miles from Olmos, and preliminary engineering work has been carried much farther.

It is hoped that by the end of the present year traffic will be opened as far as Bellavista, when work will be immediately inaugurated on the 65-mile extension to the Pongo de Manseriche. An aerial photographic survey of this extension has been made.

The Marañon is navigable both above and below the seven-mile gorge or "Pongo" which is full of rapids. From Iquitos to the Pongo, some 450 miles, it is navigable by steamers drawing up to six feet of water, and above the rapids by smaller craft drawing two feet of water.

The Urcos Highway drops down rapidly from the plateau, near Cuzco, 12,000 feet above sea-level. Then it traverses the valley of the Marcapato River through Quince Mil, a community with an airport and supply base for the hundreds of gold miners of that region, past Palcamayo to the Nusiniscato River, 190 miles from Urcos. Plans call for it to be extended 30 miles farther to the Inambari, an affluent of the Madre de Dios River. Rubber is now being brought out from the

Madre de Dios by pack train, to the end of this new highway.

The Huambutio Highway branches off from the railroad station of that name a little to the north of Urcos, leads down into the valley of the upper Madre de Dios via Paucartambo, through the 15-mile canyon of the Yanamayo River, then down the River Pilcopata and eventually to the River Carbon near Itahuania, a total of 162 miles, more than half of which is now constructed.

Exploration parties have reported large coal deposits, oil seeps, sulphur hot springs, signs of gold, and numerous rubber trees in the region beyond the end of this highway.

Other highways, not yet begun but scheduled for future construction, include the route from Satipo to the Perene Valley and eventually to the River Ucayali; from Tambo to the Apurimac River; from Cuyu-cuyu to Sandia, and the rich gold region thereabout; and from San Luis de Shauaro, via Oxapampa to the Pozuzu and Pachitea Rivers.

In 1927 Peru had only 7,500 miles of good highways; to-day the mileage of good roads exceeds 15,700.

The Pan American Highway runs for 1,761 miles through the length of Peru; nearly all of this is completed, and nearly 90 per cent is either hard-surfaced or asphalted.

There has been virtually no railway progress in Peru during the last 15 years because of the late depression, the high cost of building railroads, and the idea that they would gradually be displaced by motor transportation.

This last idea has been dispelled by the events of the war, and it is recognized that roads and railroads are complementary. The possibility of electrification of railroads has been considered. In February of this year the Peruvian Government appointed a commission of engineers to develop an integrated plan for extension and improvement of the railroads. Cable railways also are of importance in Peru for the transportation of minerals.

The total maritime coastwise traffic of Peru ran to about 2,250,000 tons per year between 1937 and 1941 and has not grown since, in consequence of wartime

shipping scarcities. At the completion of the four great interior highways, river shipping will undoubtedly become of great importance from the navigable harbours of the Marañon, the Ucayali, and the Madre de Dios Rivers.





Left:—The junction falls, Little Mecatina River

Below:—This waterfall, which runs dry early in July, forms the regular portage track past the second falls on the Little Mecatina River, in the coastal hills area.

Photos by G. F. Hanson



Left:—The Little Mecatina River on the northern border of the coastal hills, showing the usual barren peaks, absent farther inland.



Right:—A typical small rapid where a rock bar interrupts the flat country beyond the coastal hills. "Les rapides aux eaux paisibles", Little Mecatina River

Bottom right:—A portage in the coastal hills, Little Mecatina River

Below:—The Little Mecatina River immediately below the Grands Rapids, where the river drops from the height of land through upwards of thirty miles of canyon, with a brief interval of good water.



THE ST. LAWRENCE-HAMILTON WATERSHED

by JOHN STAINER*

BETWEEN the Gulf of St. Lawrence and Hamilton River and Inlet on the Coast of Labrador there lies a range of hills, of which over three thousand square miles still remain unexplored. They are a continuation of the southern border of the Laurentian Hills, a range of Cambrian and Precambrian formations, very similar to the hill country north of Lake Superior, but more rugged, and rising to a greater height. That part which lies east of the Natashquan River, in what is locally called the Canadian Labrador, is the least known. The majority of settlements lie on the fringe of islands along the coast, and there are no permanent settlements inland at all; a few trappers have their lines as much as seventy miles inland, but fur is so plentiful, and competition so slight, there is seldom need to travel as far as that, and the only people who know the height of land at all are the Montagnais Indians. Even they keep so strictly to their regular routes that there are large areas with which they are unfamiliar.

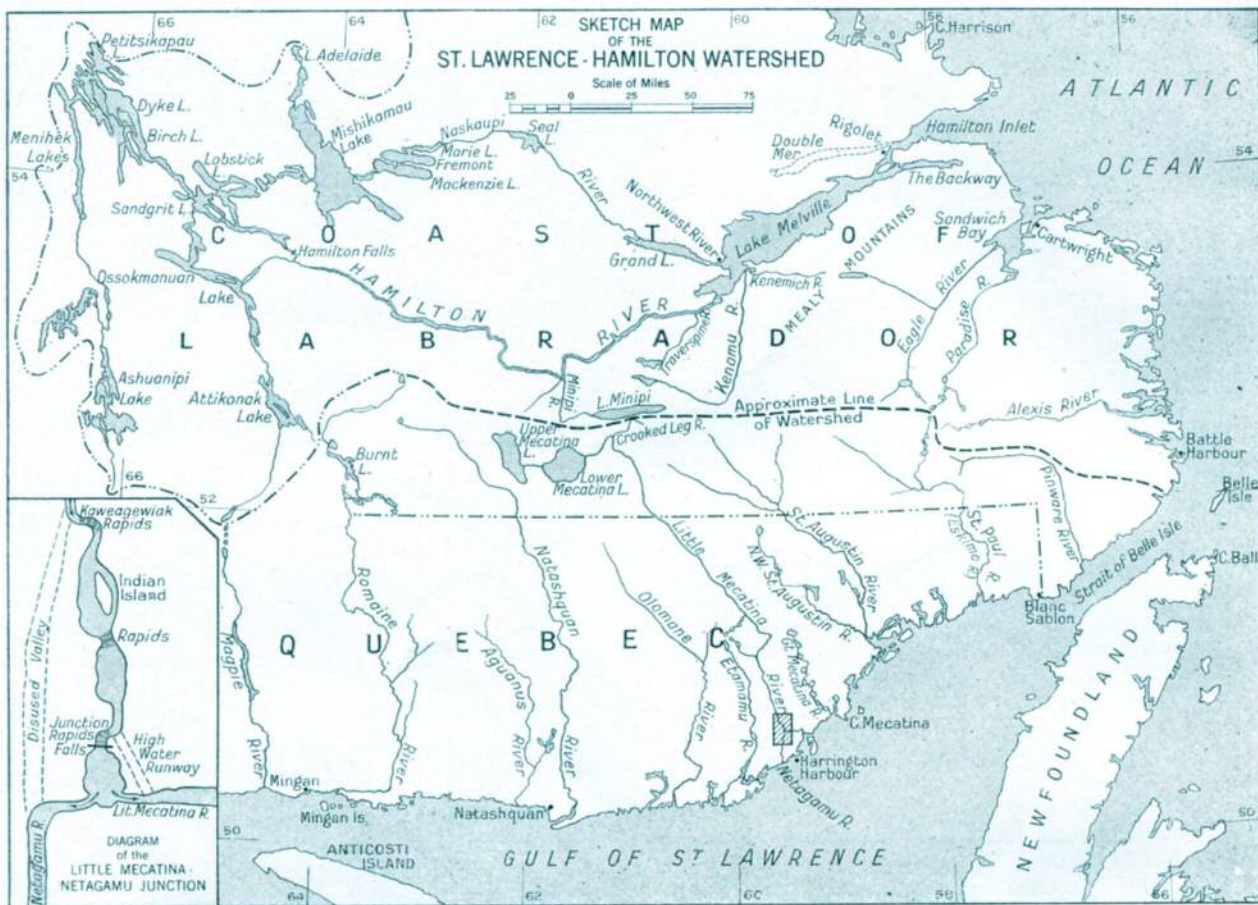
There have been very few attempts to reach the height of land east of the Natashquan. Before the first Great War, Mr. H. G. Bryant explored up the Northeast St. Augustin, but, though he reached high land, he was obliged to turn back after an accident and trouble with his Indian guides. Then, some time afterwards, the late Mr. H. G. Watkins, of Greenland fame, travelling from Northwest River on Hamilton Inlet, explored the headwaters of the Kenamou and Traverspine Rivers on the north side of the range. And, finally, my own party explored some way up the western tributaries of the Little Mecatina River; but, apart from the Indians, no man has yet spent more than a day or so in the high hills or found a route across the height of land. There is no doubt that airmen have flown over parts of the range, only this has been in the course of routine flights, and there has not been a geographer amongst them to record their observations. Some of my information on the height of land was obtained from an airman who was turned back owing to bad weather when

attempting to fly overland from Northwest River to the Gulf.

A party travelling inland from the north shore of the Gulf must first approach between a fringe of rocky islets. The cold Labrador current, part of which passes through the Straits of Belle Isle, gives this part of the coast a climate which is sub-arctic despite its low latitude; the islands are bare of trees, and the fierce winter winds have blown away the soil from all except the most sheltered spots. The coast itself is formed by a range of rocky hills, a few hundred feet high, barren on the tops, but with thick spruce forest in the valleys. In most parts this range seems to be between fifteen and twenty miles wide, and it forms so effective a barrier to the coastal winds that, inland, the climate is distinctly warmer in summer, and the forests climb to the highest summits. It also forms an effective barrier to the traveller; the rivers wind through the hills in a series of rapids and falls, round each of which portages must be made, so that on the Little Mecatina River it took us a fortnight to cover twenty-five miles. The only real break in this range is by way of the Northwest and Northeast St. Augustin Rivers, the former of which is said to be navigable by motor-boat for forty miles from the coast.

An interesting feature in this coastal range is the splitting of the rivers: the Little Mecatina River, for instance, when about twenty miles from the coast, comes over a fall of about forty feet into a foaming whirlpool surrounded by pink cliffs; trapped in this basin, it then splits, the two branches of the river reaching the coast many miles apart as the Netagamiou River and the Little Mecatina River proper. According to an Indian sketch map in my possession, the Coacoachou and Etamamiou Rivers are likewise two mouths of the same river. It is possible that both these divisions are cases of incipient river capture. The Little Mecatina-Netagamiou junction is complicated by a high-water runway which short-circuits the main fall and leads direct into the lower Little Mecatina. There is

*Where not otherwise credited, photos by author.



Canadian Geographical Journal map

also an obvious glaciated valley, now occupied only by marsh land, which runs from the Kaweagewiak rapids, eight miles above the falls, direct to the valley of the Netagamiou. It would appear that the original consequent stream ran down the Upper Little Mecatina valley as far as the Kaweagewiak bend, thence down this dried valley, and the main valley of the Netagamiou to the coast. This was then captured by the consequent upper waters of the Little Mecatina River proper,

which, at that time, was a small subsequent stream in the coastal hills. Finally, a subsequent tributary of the now-much-reduced Netagamiou has worked back to tap the Little Mecatina River once again at the present junction. The position, however, has been complicated by glacial action, and by the occurrence of annual ice-jams near the present junction, and further investigation is needed to confirm this theory.

There are few striking plants through this coastal country. Around the edges of

Sixty-five-foot falls on the Wabosogoma, a tributary of the Little Mecatina River, in the foothill country. Our compasses were disturbed here by magnetic iron ore.

The lowest falls on Minehaha Brook, a tributary of the Little Mecatina River, in the foothill country

Photo by G. F. Hanson





Rapids on the Little Mecatina River at the beginning of the foothills

the many lakes and ponds you may find Labrador iris and many yellow violets; on the marshes there are bakeapple, blueberry, and the Newfoundland pitcher plant; while on the barrens grow Labrador tea, one or two saxifrages, and many stunted juniper. The spruce forest of the valleys and the tangled alder which lines the river banks allow few other plants to grow. Inside this first range of hills there are even fewer flowers: a few clumps of Michaelmas daisy, an occasional patch of fireweed, and little else. The country is flat, covered with a thick forest of black spruce, and dotted with lakes and muskeg. An occasional rocky bar turns the rivers into foaming rapids, but the land rises extremely slowly until the foothills are reached, some fifty miles inland.

Once these foothills have been reached, however, the rivers become impossible for navigation. They lie in deep canyons, making portaging difficult, and rapids and waterfalls are almost continuous; but, fortunately, it is usually possible to climb out of the valleys and find a chain of hill lakes leading in the correct direction. These hills are sometimes over two thousand

feet above sea-level at a distance of sixty miles from the coast, and rise continuously toward the height of land. It appears that the height of land must consist of a plateau (about four thousand feet above sea-level, if the reports of airmen are correct) on which occur the lakes and muskeg from which the main rivers take their source. These main rivers all flow to the south, owing to the prevailing tilt of the plateau, and are spaced approximately sixty miles apart from each other, with spurs of hill land in between. Along these hill spurs, chains of lakes are connected by small rapids and waterfalls; for many miles they give excellent travelling, but close to the coast they fall from the hills in continuous rapids and waterfalls, so that they do not form an easy route inland. Because of this it is the best policy to travel inland by the main rivers, until they become impassable, and then to choose a suitable tributary for the shorter climb on to the hills; but, at best, there will be frequent portages and plenty of clearing needed.

The northern edge of the height of land, according to the reports of Indians and the few airmen who have passed near-



A hill lake, typical of the hill spur country leading to the height of land.

by, consists of a short escarpment leading to a lake-covered shelf of land from which the north-flowing rivers (such as the Minapi, Kenamou, and Traversspine) flow down to the Hamilton River and Inlet. I believe that H. G. Watkins' party must have mistaken this shelf for the true height of land, for their reports seem to show that they had not climbed sufficiently high to be on the main plateau, and they make no mention of such an escarpment; also they did not meet south-flowing water. Possibly, though, this escarpment becomes less marked east of the Minapi Lake region, from which most of my information comes.

The Indians who cross the height of land appear to have two main routes. The first of these, which I am informed was at one time used by the officers of the Hudson's Bay Company, runs up the Romaine River to Burnt Lake—thence across the divide to Attikonak Lake, Ossokmanuan Lake, Lake Mishikamau, and by way of the Naskaupi River to Northwest River. To this day the river flowing from Attikonak Lake to Ossokmanuan Lake is frequently called the Seven Isles River, because it lies on the route to Seven Isles Bay on the Gulf. The second route, which is reported to be a difficult one in summer, runs up the Olanoshibo River, and by chains of lakes to the headwaters of the Etamamiou River; thence by further lakes to the main Little Mecatina, up the latter stream to a tributary, which the Indians call Crooked Legs River, and by a short portage to Minapi Lake. From Minapi Lake many small streams are reported to flow north, one of which is used to reach the Hamilton River. Probably it was this route which the Indians who deserted Bryant on the St. Augustin hoped to join. Earlier Indian reports show that the water system on this part of the height of land is very complicated. The Little Mecatina River is said to rise in two great lakes (which for convenience I have called Upper and Lower Mecatina Lakes), each comparable in size with the lakes at the head of the Hamilton system; but the Indians who use the Little Mecatina-Minapi route to-day are not familiar with them, though they admit

that where Crooked Legs River joins the Little Mecatina, the latter is already a formidable stream.

The possible sources of power on the main rivers alone must be enormous, though many of the biggest falls are difficult to reach. On the Little Mecatina there are four falls of between 20 and 40 feet in the coastal hills alone, and the Indian map in my possession marks a "Great Fall" some ninety miles inland, though the latter is said to lie in a deep and inaccessible canyon. A fall of 120 feet lies on the tributary which we called Minehaha Brook in 1937, and falls of 65 feet lie on the Wabosagoma, which forms the Indian route from the Etamamiou to the Little Mecatina. The official Quebec Government map of 1913 shows two falls of over 200 feet on a tributary of the St. Augustin River, and numerous smaller falls on the Olanoshibo, Great Mecatina, and Eskimo Rivers. These falls could well be used in the development of the timber resources of the area, which are of an excellent quality for paper-pulp, but, for the present, there are so many available sources closer to city markets that it is unlikely that such development would pay. For many years yet trapping may well be the only industry.

Animal life inland is plentiful, but the trappers from Harrington Harbour and Whalehead find it most profitable to concentrate on marten and muskrat. The marten from the St. Augustin Rivers have long been famous for their thick fur, and command a high price. Beaver occur around some of the lakes, but there is not sufficient birch or poplar to provide for a large population. Mink, lynx, and wolverine are also present. The trappers from the gulf go inland to their trapping grounds in late October or early November, for those who have not far to go can usually rely on open water well into the latter month. Most of the men return to their homes for Christmas, and go back for the caribou hunting in February or March, though this is, of course, impossible for those who have their lines far inland. According to the men from Harrington Harbour, the caribou



Looking from the Netagamiou River across the junction to the Little Mecatina outlet underneath the cliff opposite. This may well be a case of threatened river capture.



The Netagamiou River, as seen from the barrens by the junction with the Little Mecatina River.

have become more plentiful lately, but whether this reflects an actual increase in numbers or merely a southward extension of their migrations, it is impossible to say. Moose are apparently unknown, despite the Newfoundland tale that they are a recent addition to that island's fauna, having come over the ice across the Straits of Belle Isle.

No man entering the Canadian Labrador, either in summer or in winter, should ever rely on living off the land. Even if he could afford to give his whole time to hunting, he would be taking a grave risk, for the Indians, who are expert at this work, are often on the edge of starvation; and it may be taken as a rule that the man who hopes to travel far will have no time for hunting. Provided he is not travelling along a route much frequented by Indians, he may expect to meet a few porcupine, duck, and geese in season, and the odd fool-hen, while the side streams will usually contain trout; but otherwise he will have to carry his own supplies. Food, indeed, will be the great problem in any attempt to cross the height of land. It is my own estimate that a party, surveying along the route chosen, would require between three and four months for the journey. On the south side of the hills the rivers would be too high for profitable travelling before the last week in June, and ice might be expected on the

slower portions of the rivers in the north in October. Speed, therefore, would be essential. It would be foolish to take a canoe longer than eighteen feet, or wider than three feet, for the extra clearing involved on portages would seriously delay the party. This would mean that, reducing all equipment to a minimum, a scientific ration of not more than 27 ounces per man per day would be required. That such a ration is feasible has been shown by the experiences of John Rymill's party in Antarctica, where they used a 26-ounce ration on all sledging parties over a period of four years with perfect success. Even with such a ration, the canoes would be loaded to maximum capacity at the beginning of the journey, when, whether the party were to start from the north or the south, the first few weeks would involve crossing many rapids and portages. It might be possible to arrange that one of the trappers would leave a dump of supplies at some easily recognizable spot inland, but there would be a distinct risk that the dump might be missed by a party which had not travelled that way before. When a successful party does reach the height of land, however, they will find, according to Indian reports, great lakes, great waterfalls, and a multiplicity of waterways, so that travel in any direction will be simple; but they will be fortunate if they have a fortnight in which to explore them.

Thirty-five miles from the gulf, where the flat lands are interrupted by the first signs of the foothills.

The falls and whirlpool at the junction of the Little Mecatina and Netagamiou Rivers—a possible site for power if the river's timber resources were exploited.



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Commander William Strange, R.C.N.V.R.,
—See C. G. J. for November, 1943.

Major-General Julian L. Schley (Director, Transportation Division, Office of Inter-American Affairs) is a graduate of the United States Military Academy and of the Engineer School of the Army. He was Commander of the 307th Regiment of Engineers in the First World War, Commandant of the Engineer School of the United States Army at Fort Belvoir, Virginia, Engineer of Maintenance of the Panama Canal from 1928 to 1932, Governor of the Panama Canal Zone from 1932 to 1936, and Chief of Engineers of the United States Army from 1937 to 1941. He is a member of the American Society of Civil Engineers and of the Society of American Military Engineers. General Schley has travelled extensively by land and by air throughout Mexico, Central America and the Caribbean, and in parts of South America; he is considered an authority on the problems of transportation and communication within the American Republics.

John Stainer, whose article on "The St. Lawrence-Hamilton Watershed" appears in this month's issue of the Journal, is an experienced traveller; he has journeyed through Lapland and Newfoundland with The Public Schools Exploring Society, and, in 1937, at which time he was treasurer of The Oxford University Exploration Club, he led an expedition up the Little Mecatina River into the country described in his article.

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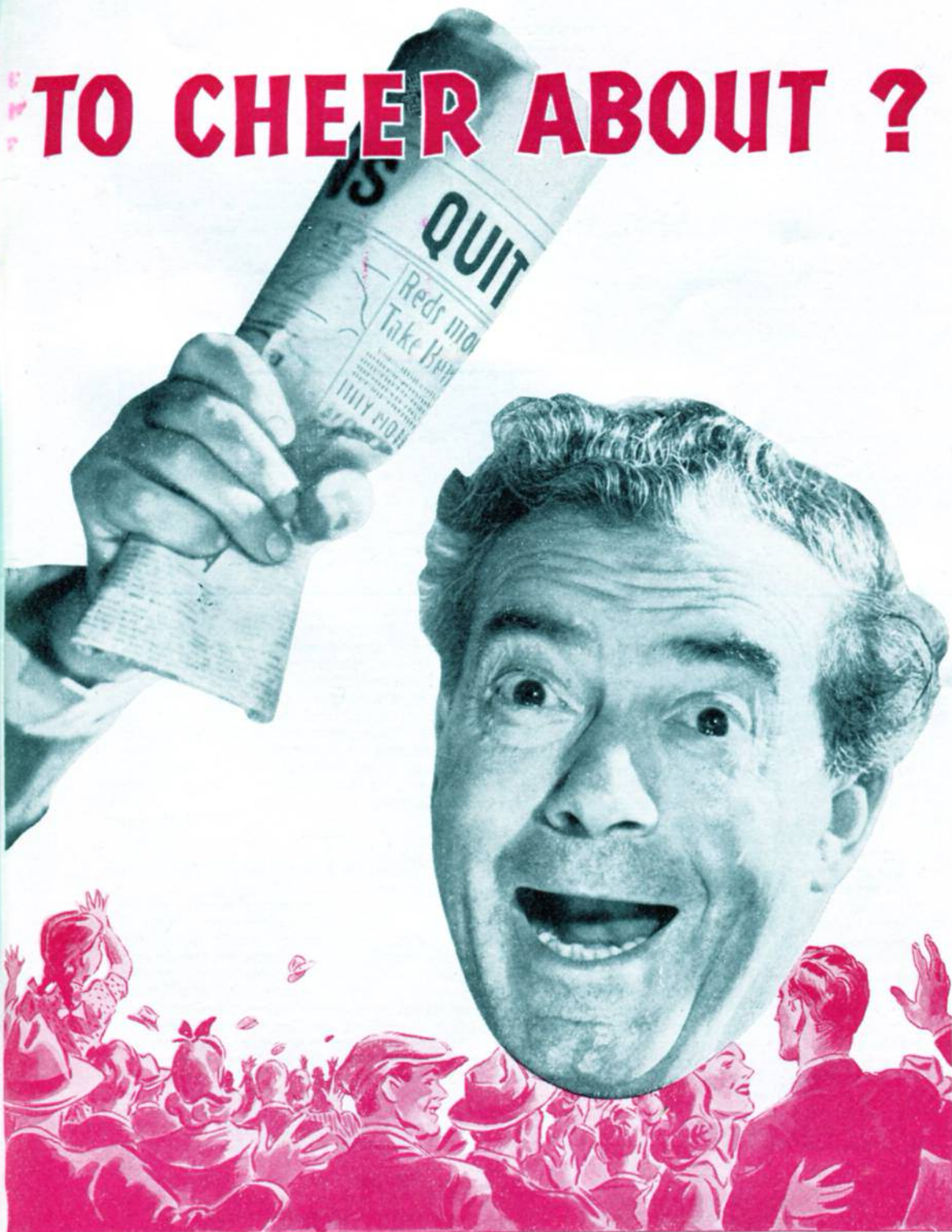
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AMONGST THE NEW BOOKS

The Ganaraska Watershed by A. H. RICHARDSON (Published for Dominion & Ontario Governments by T. E. BOWMAN, King's Printer, Toronto, Ontario.)

In April of this year the Journal published an article by A. H. Richardson entitled "Ganaraska Watershed Survey". The complete report on this project by the same author and published by T. E. Bowman, King's Printer, Toronto, has now come to hand. Mr. Richardson's article represents what might be considered a very adequate summary of the report, but, possibly from modesty, he fails to point out its importance as a notable contribution to Canadian geography and as a detailed examination of the causes of the economic ills that afflict so many sections of the country.

The story of this little area of only about one hundred square miles follows the pattern of many similar districts throughout Canada: the initial pioneering stage; the rapid expansion of settlement over the more fertile areas; the exploitation of the wooded hinterland, coupled with the establishment of flourishing local industries largely based on forest products, and the occupation of marginal lands by settlers whose chief cash revenue came from work in the forests; the depletion of the forests with consequent curtailment of subsidiary industries and abandonment of marginal farms and the ensuing cycle of floods and erosion, depletion of resources in fish and game and eventual loss of population. The report covers every phase of the subject: the economic history of the district; its soils, their characteristics and uses together with the general condition of the rural population; its forest resources and the sad remnants of wildlife that still survive; and the problems of flood control,

erosion, and a lowering watertable. It recommends as a post-war measure the reforestation of marginal lands, flood control reservoirs and the control of erosion. The book is illustrated with excellent photographs, each of which tells its own story, and the arrangement, printing, and general makeup are admirable. Mr. Richardson and his associates are to be congratulated on a very thorough and complete geographical and economic study which, it is to be hoped, will be the prototype of many others throughout Canada.

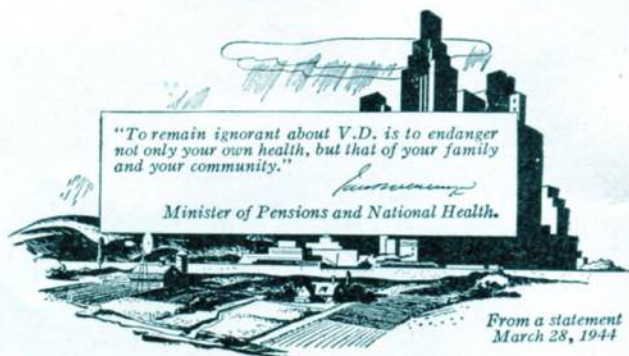
P.E.P.

India in Outline, by LADY HARTOG (The Macmillan Co., Toronto . . . \$2.00.)

This little book, in plan and contents, might well serve as a model in condensation which is admitted to be one of the most difficult techniques in the writer's art. It has, in no instance, the defects of a summary which too often leaves the reader with the impression that the story is only half told, but rather indicates a careful selection of material to provide a generalized outline of the geography, history, politics and peoples of India. Lady Hartog has been eminently successful in giving, in the brief space of ninety-nine pages, a highly intelligent study of that ancient land that will enable the reader to arrive at some understanding of conditions in that part of the Empire, its aspirations, and the problems of race and religion which add complexity to its politics.

There is a useful map, an index, and an appendix with statistical information. The book is illustrated with excellent and well selected photographs. Highly recommended.

P.E.P.



LET'S be quite frank.

When you read—as you probably did during the past few months—that more than 300,000 people in Canada have syphilis, what was your reaction? Did you say, "That's too bad; something should be done about it", and then turn to the comic page? Chances are you did.

But if that article had told you that Tommy Jones, the lad who used to mow your lawn after school, had syphilis—how would you have felt about it? Or that the young couple who built that cute house in the next block, had just lost a baby through syphilis . . . would that have made you stop and think?

Or, if you suddenly discovered that *your* Mar . . . No? That couldn't happen? But it can. And it does . . . to hundreds of Tommies and Marys every year, right here in Canada. Right in your community. You'll never read articles like that, of course, for these are the personal tragedies that people bear in silence.

So, when you pick up the paper sometime and read, ". . . there were 5,000 new **VENEREAL DISEASE** cases reported in this province last year . . .", remember! These are not cold figures. They represent 5,000 heart-breaking . . . heart-aching situations.

Yes, **VENEREAL DISEASE** is a serious problem. It's a problem for parents; for taxpayers; for young people on the threshold of life; for everyone.

VENEREAL DISEASE need never strike if we all do our part. If we know the facts. If we use these facts to advantage. If we don't shrug our shoulders and say, "This couldn't happen to anyone in my family." You have a duty to your family and the community.

LEARN THE FACTS!

FIGHT VD ON THE 4 SECTOR FRONT



For all the facts about VD write your Provincial Department of Health for the new, free booklet "VICTORY OVER DISEASE".

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For further information apply to your nearest Recruiting Office. This does not in any way obligate you to enlist.

In the meantime, write at once, for your free, interesting copy of the new booklet, "50 Questions and Answers about C.W.A.C." to LT. DORA SWEET, Aylmer Annex, Ottawa.



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