

## OPENING ROUNDS: THE ROYAL CANADIAN NAVY AT WAR, SEPTEMBER 1939 – MAY 1941 (cont'd)

*Continued from Chapter 3 Part 2 .....To add to the problem, the RCN's best warships were serving in British waters and were not available to provide at least some operational experience for what was rapidly becoming a navy of raw recruits. Sixteen months after the beginning of the war, the RCN was on a disastrous course toward a crisis that was not of its own making but one it could not avoid.*

### CONVOYS

Convoys – the sailing of one or more merchant ships under the protection of a naval escort – have a long history that dates back to Roman times. Originally intended as a protection against pirates, by the time of the Napoleonic Wars convoys were so commonplace that Britain passed laws forbidding any merchant vessel to sail other than in convoy.

In the First World War the Royal Navy's reluctance to introduce the convoy system as a protection against submarines nearly reduced Britain to starvation, and as a result there was no hesitation to implement it during the Second World War, particularly on the North Atlantic. The first Atlantic convoy sailed from Britain four days after that nation declared war on 3 September 1939 and the last sailed in the middle of May 1945.

Although convoy organization changed several times during the war, generally only those vessels that could make more than 15 knots, which was almost as fast as a U-boat could travel on the surface, were allowed to proceed independently. All other vessels were required to sail in convoys, which were classed as fast or slow depending on their speed. Slow convoys included ships that could only make less than 9 knots while fast convoys included vessels that could steam between 9 and 14.8 knots.

The slow convoys were the most vulnerable as they were often composed of older ships, prone to making smoke and breaking down, and their lower speed meant that a U-boat could keep pace on the surface and manoeuvre into the best firing positions. It also took them longer to transit the "air gap," meaning that there was a greater chance that they would encounter the enemy.

#### Convoy designations and routes

Each convoy had a specific designation according to its origin and destination. In the North Atlantic, Canadian warships escorted the following types of convoys:

<i>Designation</i>	<i>Route</i>	<i>Comment</i>
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HX	Halifax to UK, later New York to Halifax to UK	Fast convoy
HXS	New York to Halifax to UK	Slow convoy
OA	Thames via English Channel	Ceased Oct 40
OB	Liverpool outward	Ceased Jul 41
ON	UK to Halifax, later to New York	Fast convoy
ONS	UK to Halifax, later to New York,	Slow convoy
SC	Sydney to UK, later Halifax to UK	Slow convoy

Between 1939 and 1945, 1,468 convoys crossed the North Atlantic. The largest was HXS 300, with 167 merchant ships carrying 1,019,829 tons of cargo, which originated in New York on 17 July 1944 and arrived at its destination without loss, escorted only by a single RCN frigate and six corvettes.

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Canadian warships were also involved in escorting the following types of convoys in North American or other waters:

<i>Designation</i>	<i>Route</i>
AH/HA	Tanker, Aruba to Halifax/Halifax to Aruba
BHX	Bermuda to Halifax
BW/WB	St. John's, Nfld, to Sydney/Sydney to St. John's, Nfld
BX/XB	Boston to Halifax/Halifax to Boston
CU/UC	Tanker, Curacao to UK/UK to Curacao
FH/HF	Saint John, NB, to Halifax/Halifax to Saint John, NB
GAT/TAG	Guantanamo to Aruba to Trinidad/Trinidad to Aruba to Guantanamo
GN/NG	Guantanamo to New York/New York to Guantanamo
GZ/ZG	Guantanamo to Panama/Panama to Guantanamo
HK/KH	Galveston to Key West/Key West to Galveston
HT/TH	Tanker, Halifax to Trinidad/Trinidad to Halifax
JH/HJ	St. John's, Nfld, to Halifax/Halifax to St. John's, Nfld
JW/WJ	UK to Murmansk/Murmansk to UK
KMF/MKF	UK to Gibraltar/Gibraltar to UK, fast convoy
KMS/MKS	UK to Gibraltar/Gibraltar to UK, slow convoy
LN/NL	Labrador to Quebec City/Quebec City to Labrador
NK/KN	New York to Key West/Key West to New York
QS/SQ	Quebec City to Sydney/Sydney to Quebec City
WHX	St. John's, Nfld, to West Ocean Meeting Point, fast
WSC	St. John's, Nfld, to West Ocean Meeting Point, slow

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### Convoy organization

The illustration opposite, based on Convoy ON 127 of September 1942, shows the organization of a typical convoy. The escorts – two destroyers and four corvettes – are stationed around the convoy, which consists of 32 merchantmen. The Senior Officer's ship, HMCS *St. Croix*, steams about 5,000 yards ahead of the convoy; the four corvettes are positioned on either side; and the second destroyer, HMCS *Ottawa*, is stationed about a thousand yards astern. Ideally, the escorts were positioned so that their radar, ASDIC and visual ranges overlapped but this was not always possible.

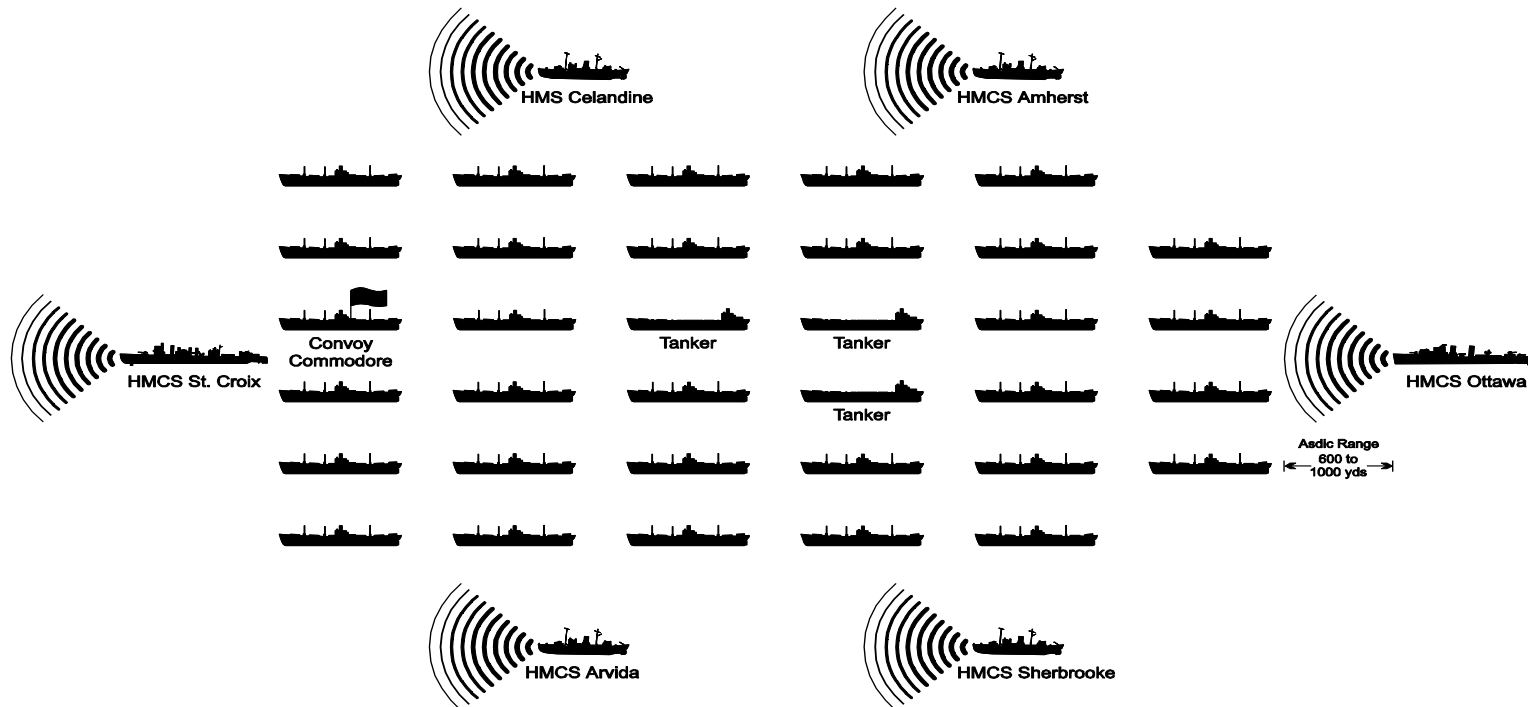
The merchantmen are steaming in six columns with three tankers, the most important and vulnerable ships, placed in the centre of the convoy for additional protection. The flagship of the convoy commodore, the naval officer who has authority over the masters of the merchant vessels, is in the leading vessel in one of the columns, the most convenient station. In large convoys, there might be one or more vice-commodores who would assist the commodore to keep the sometimes very independent merchant masters in their proper station. One or more ships in each column was usually designated a rescue ship, which would attempt to pick up survivors and for this reason usually sailed in the rear of its column. By 1942, many of the merchantmen were armed, either with AA or larger guns manned by detachments of naval or military gunners.

Despite all the precautions, Convoy ON 127 was attacked by a U-boat wolf-pack on 9 September 1942, commencing a running battle with no less than 13 U-boats that lasted almost four days until air cover from Newfoundland arrived. The six escorts struggled to protect their charges but German attacks, both surface and submerged, resulted in the loss of seven merchantmen, with four more damaged. On the night of 13 September, U-91 torpedoed the destroyer HMCS *Ottawa* as she was investigating ASDIC contacts ahead of the convoy and the vessel sank with heavy loss of life.

### The bottom line

Between 1940 and 1945, 7,357 merchant ships carrying 41,480,161 tons of cargo left Canadian ports in the St. Lawrence and the Atlantic coast bound for overseas destinations. -Almost all sailed in convoys. Despite the heavy losses suffered by some convoys, most of these ships reached their destinations.

### Typical Convoy – ON127, September 1942 (Not to scale.)



### **“We may fall by the way: ” The background of the Battle of the Atlantic**

The RCN's problems were unknown to the Admiralty, which at the end of 1940 faced its own difficulties. U-boat sinkings had tailed off in November and December as ferocious winter weather hampered operations, but the statistics compiled for the year made grim reading. During the preceding 12 months, the British Commonwealth's total shipping loss had been 3,991,641 tons. Submarines had accounted for 200 ships displacing 2,186,158 tons, and just over 90 per cent of these sinkings had occurred in the Atlantic or in waters adjacent to the British Isles – a sombre portent for the future – and, even worse, only one third of the more than 5 million tons of merchant shipping lost since the beginning of the war had been replaced. The scales were tipping against Britain and Winston Churchill had good reason to advise President Roosevelt that in the year to come the decision would lie upon the sea. It was the British prime minister's belief that, unless Britain

can establish our ability to feed this Island, to import the munitions of all kinds which we need, unless we can move our armies to the various theatres ... and maintain them there, and do all this with the assurance of being able to carry it on till the spirit of the Continental Dictators is broken, we may fall by the way.<sup>6</sup>

The man most responsible for this grim prediction was the recently-promoted Admiral Karl Dönitz. Dönitz had worked out his group attack tactics before the war but it was not until the second half of 1940 that he had enough operational boats at sea to put them into effect. Dönitz's command method depended on radio communication between submarines on operations and his headquarters at Kerneval, and although Dönitz and his staff knew this traffic might become a source of intelligence for their enemy, they were confident that the cyphers provided by the Enigma -machine could not be cracked. Fortunately for the Allied cause, this faith proved to be misplaced.

The workhorse of the German submarine fleet was the Type VIIC U-boat (see pages 38-39). Displacing 769 tons on the surface and 871 tons submerged, capable of 17.2 knots on the surface using its diesels and, for short period, up to 7.6 knots submerged using electric motors, the Type VIIC was a proven and rugged weapons platform. Its main weapon was its five torpedo tubes (four in the bow and one in the stern), for which it carried 14 torpedoes, but it was also armed with an 88mm deck gun and a varying number of small-calibre AA guns. At its most economical surface speed, the Type VIIC had a range of nearly 10,000 miles, which could be extended by refuelling and re-arming at sea from surface supply ships or Type XIV submarine “milk cows.” The other major submarine type was the Type IX, which displaced 1,120 tons on the surface and 1,232 tons submerged and had a top speed of 18.2 knots on the surface and 7.3 knots submerged. Because their larger displacement meant slower diving times, these big brothers to the Type VII boats were at a disadvantage in the North Atlantic, where a delay of seconds could mean disaster, and they were primarily used for long-range independent patrols.

### **Defence of shipping – the priority objective**

The preservation of Britain's lifeline – what Churchill dubbed “the battle of the Atlantic” in March 1941 – now became the Royal Navy's overriding concern. Fortunately, although the RN had believed before the war that the submarine was a manageable threat, it had still taken important steps to create an effective foundation for anti-submarine warfare.

First and foremost was the convoy (see pages the beginning of this episode above) organized by the Naval Control of Shipping organization established at every major port in the British Commonwealth. The NCS mustered all merchant vessels – -except those which could travel at speeds

greater than 15 knots and thus outrun U-boats travelling on the surface – into convoys that sailed under the command of a commodore, usually a retired senior naval officer. The commodore was responsible for seeing that the merchantmen got to sea on time, formed up properly and were disciplined on passage. His was an important but thankless job as he had to deal with an assemblage of merchant masters who were very independent in their outlook. The commodore usually sailed on a large merchant vessel, well equipped with radio communications both with the shore and the accompanying naval escort. Convoys were classified according to the speeds of their constituent ships. Fast convoys generally included vessels that could steam between 9 and 15 knots; slow convoys consisted of those that could travel between 7.5 and 9 knots. The fast convoys were of more



**Convoy conference**

Prior to sailing the convoy commodore (standing on the left) held a meeting with merchant captains who would be under his command to give them their sailing instructions and any last minute information. There is no date for this photograph, which was probably taken in Halifax, but the relative informality of the occasion would indicate that it probably took place early in the war as later conferences were highly organized affairs including large maps and the attendance of many naval officers. (national Archives, Canada, PA180530)

modern vessels; the slow convoys all too often consisted of older vessels, susceptible to making smoke, straggling and breakdowns.

The second important step was the establishment of a Submarine Tracking Room in the Operational Intelligence Centre (OIC) in the Admiralty headquarters in London. All information concerning the movement and operations of enemy submarines was channelled to the OIC, evaluated, and then sent to naval operational commands, escort vessels, and convoy commodores. The most important source of intelligence came from German radio traffic as Dönitz's method of command was to provide an important weapon to be used against him.

The location of U-boats at sea could sometimes be roughly ascertained by High Frequency Direction Finding (commonly called "Huff Duff"). The RN and RCN established a network of listening stations in eastern Canada and the British Isles that, if conditions were right, might intercept German radio signals and then, through cross bearings or "triangulation," establish an approximate position for the source of the transmission. These locations were fed to the OIC, which would warn convoy escorts of the number and position of enemy submarines in their area. Once it was ascertained that the DF system worked, it was a short step to mounting HF/DF apparatus on convoy escorts. Under good conditions, this equipment could provide a bearing for an intercepted radio signal and an approximation of its distance.

Two or more HF/DF-equipped ships could exchange bearing information and obtain a cross-fix that would reveal the enemy's location. Beginning in late 1941 the RN made attempts to equip at least one warship in each escort group with HF/DF and the logical next step was to attempt to read German radio traffic, to comprehend enemy intentions and movements before they took place.

This required cracking the Enigma machine, the German coding apparatus. It was fortunate for the Allied cause that the Polish intelligence service had started this monumental task in the mid-1930s and was actually successful in reading much of German Enigma traffic by 1939. When Poland fell, its code breakers fled to the west and a decoding organization was created at Bletchley Park in Britain which, with the assistance of the Poles and much hard work, was soon able to read Luftwaffe and some German army traffic coded by Enigma. The *Kriegsmarine*, however, was a much more

difficult proposition. The German navy used a different type of Enigma machine, called *Schlüssel M*, generated much less radio traffic and was very security conscious. A fortunate series of captures of German auxiliary vessels and a U-boat in 1940-1941, however, provided Bletchley Park with naval Enigma machines, codebooks and cypher pads which rendered enough information to begin unravelling *Kriegsmarine* Enigma cyphers in the early spring of 1941, using primitive computers dubbed “bombes.”\* By June, it was able to read German naval radio messages transmitted by Enigma almost simultaneously, and in effect it could listen to Dönitz as he directed his submarines at sea, and then route convoys away from the U-boats. The intelligence product of Bletchley Park’s work, dubbed “Ultra,” was a war-winning asset and was such a closely guarded secret that its existence was not completely revealed until 1978.

Dönitz, a competent officer, soon -became suspicious when, no matter how he deployed his boats, they found themselves searching empty horizons. He was certain that “coincidence alone it cannot be” but such was his faith in the Enigma machine that he refused to believe that his radio communications, the heart of his



**Seaman's Mess, HMCS Battleford**

Accommodation in corvettes was very cramped as this photograph of the seamen's mess in HMCS *Battleford* illustrates. This is almost certainly a “posed” shot taken in port as the sailors are uniformly dressed and the mess is suspiciously neat. It would have been quite different at sea. Note the small suitcases on the bulkhead and the round metal containers piled with the steel helmets above – the suitcases contained a sailor's personal effects and the container was used to store his dress cap. (Courtesy, National Archives of Canada, PA 184186)

command system, were being read by his opponents.<sup>7</sup> He suspected spies at first but later came to believe that HF/DF was the cause of his problems, and it was fortunate for the Allied

cause that he never accepted that the Enigma machine was seriously compromised, even though, in his post-war memoirs (published in 1959 before the existence of Ultra was known), he wondered whether his “enemy had some means of locating U-boat dispositions and of routing his shipping clear of them?”<sup>8\*</sup>

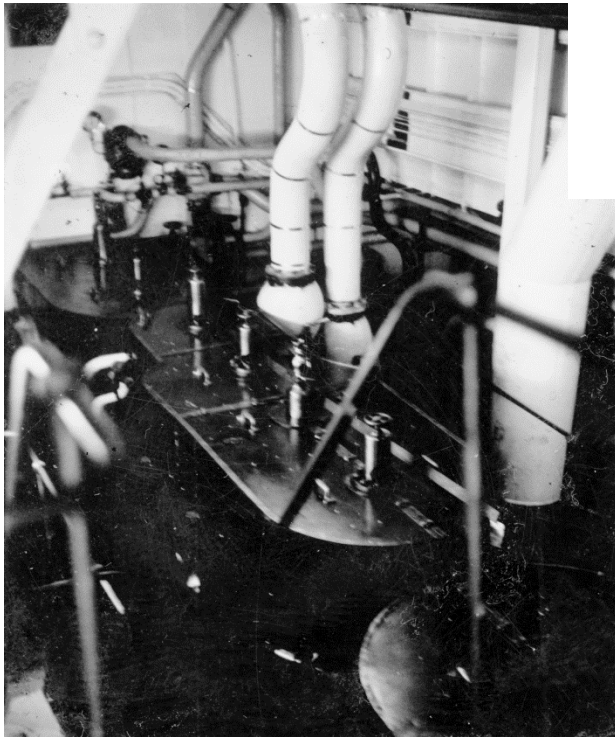


**Not a happy man**

The wounded captain of a torpedoed merchantman walks the deck of HMCS *Dauphin* after that ship rescued his crew. Understandably, he is not happy about the situation. (Canadian Naval Memorial Trust)

In 1941, however, the advantages accorded to the British and Canadian ASW vessels by HF/DF and signal intelligence were offset by the inefficiency of their equipment and armament. The type of ASDIC on British and Canadian warships at this time required a highly-trained and experienced operator to work effectively, was often inaccurate and was almost useless in rough weather, at high speed or against a surfaced submarine. Even if the escort got a reliable contact and depth-charged it, contact was often lost during the attack and all too

**Power Plant -- The Main Engine of a Corvette**  
The triple-expansion engines installed in the Flower Class corvettes were dated in design but were robust and easy to operate -- important considerations for a navy that expected to man these vessels with inexperienced crews. These engines generated 2750 horsepower, enough to move a 950-ton corvette at a top speed of 16 knots -- for short periods. (Canadian Naval Memorial Trust)  
[Disk 2, image "accept 5"]



#### **The "Fiddley deck"**

Stokers from HMCS Sorel relax aft of the corvette's funnel on a rare fine day. This sheltered area was a favourite place for off duty crew members to congregate and, not surprisingly, catch up on their sleep. Engine rooms were noisy and hot so a chance to get some fresh air and a little sunshine was always appreciated. (Canadian Memorial Trust)

often never regained. Since the U-boats' preferred tactic was to attack on the surface at night, many of the advantages of ASDIC were lost.

What was needed was a means of locating a surfaced submarine in all conditions of weather and light, and the answer, of course, was radar (see pages 112-113). At the outbreak of the war, the RN possessed a primitive radar set, the Type 286, but it was not that useful for ASW work as its range was only about one nautical mile and its antenna was fixed, meaning that it could not sweep 360 degrees but only about 60 degrees off each quarter. It was a rare occurrence for an operator using Type 286 radar to get a contact on a U-boat with only its conning tower above the surface. An improved radar, Type 271, which used a shorter centimetric wavelength that provided a more accurate return and that could locate the conning tower of a submarine, was introduced in late 1940 and the RN planned to install it on all its escort vessels used for mid-Atlantic work.

The major challenge faced by the British and Canadian navies in 1941, however, was not deficient equipment but a shortage of escorts. The RN needed its large destroyers for its main battle fleets in home waters and the Mediterranean, and



**Leading Seaman Bennet, HMCS Dauphin, 1941**

A typical RCNVR sailor on a corvette, chosen to represent in this book the 90,000 Canadian men who volunteered for service in the Canadian navy during the Second World War. Most had never been to the sea before and most ended up on the North Atlantic, which was a hard school for seamen. The penchant for wearing one's service cap on the back of the head -- one supposes to create a "halo" effect that might help to positively influence the first impressions of young ladies -- was widespread in the Commonwealth navies. It was also against regulations which stipulate that the cap must be worn level on the head, a fact which the shore patrol delighted in pointing out to miscreants as they wrote up the disciplinary charge forms. (Canadian Naval Memorial Trust) [Disk 2, Image "180 Bennet"]

it was forced to use older First World War destroyers, fleshed out by American vessels of similar vintage, in the Atlantic. Necessity meant that the Flower Class corvette, designed as a coastal escort, was pressed into service in the mid-ocean and, when the shortcomings of the class became apparent, the Admiralty began to carry out modifications and to design improved ASW vessels. For the time being, however, the shortage of ships meant that Atlantic convoys in 1941 were escorted by small numbers of corvettes and aged destroyers. In the RCN, the situation was made worse by the fact that, from the outset, the Canadian navy lagged behind its British counterpart in new equipment and modification of existing vessels, factors which combined to -affect its performance at sea.

The other British service concerned with the struggle against the U-boats was the Royal Air Force. In April 1941 the Admiralty assumed operational control of the RAF's Coastal Command, which consisted of a varying collection of aircraft with limited range and inadequate armament. Coastal Command suffered from a lack of suitable aircraft, particularly a long-range patrol aircraft, and even if its aircrews did spot a surfaced submarine by eyesight (the proverbial Mark I eyeball), they lacked an effective bomb or depth charge that could sink it. The aircraft, however, was the submarine's worst enemy and so effective in the "scarecrow" role were Coastal Command aircraft patrolling around the British Isles in the first half of 1941 that Dönitz was forced to shift his submarines west into the Atlantic.

### **The situation gets worse: January–May 1941**

In the first three months of 1941, the statistics of the war at sea continued to be grim. Total losses from submarines during this period came to 833,000 tons while the Luftwaffe's long-range bombers were responsible for another 167,000 tons. The worst month was March, when the U-boats sank half a million tons of merchant shipping, losses not entirely replaced by new construction. Another disturbing trend was that Dönitz continually moved west in an attempt to avoid the range of aircraft based in Northern Ireland and Iceland (occupied by

Britain in May 1940). Closer to Canada, the RCAF instituted aerial patrols from Newfoundland and by April 1941 only the mid-Atlantic remained without air cover.

At this time, many of the Atlantic convoys sailed either unescorted or lightly escorted in the middle reaches of the ocean and it was into this area that the German submarines moved in the spring of 1941. In response, the Admiralty created a separate naval command, Commander-in-Chief Western Approaches, with headquarters at Liverpool to co-ordinate operations in the Atlantic and also undertook to provide escorts for the trans-Atlantic convoys throughout the entire duration of their passage. To this end, they asked NSHQ whether the RCN would be willing to assist by providing mid-Atlantic escorts to be based in St. John's, Newfoundland. Ottawa's response was positive and on 20 May 1941 the Newfoundland Escort Force was created under the command of Commodore Leonard. W. Murray, RCN.

**Depth Charge Launch, HMCS Pictou, March 1942**

Until the advent of "ahead throwing" weapons, the standard ASW weapon was the depth charge, either dropped from the attacking ship's stern rails or, as shown here, launched by throwers. The major problem with this type of attack was that the attacking ship had to be as close to the target as possible, pass over the before it fired and the resulting explosions interfered with ASDIC, often causing loss of contact with the target. (Courtesy, National Archives of Canada, PA 116838)

**The Royal Canadian Navy was about to step onto centre stage in the Battle of the Atlantic.**

