This article was originally published in the Nautical Research Journal Spring 2020

The Flowers of Canada

The Royal Canadian Navy's Corvettes in World War II

Bruce LeCren

4101 45St.
Beaumont, AB, Canada
T4X1G1

P: 780 709 4431
E: Lecrenb@telus.net

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

This article was originally published in the Nautical Research Journal Spring 2020

Introduction

The Flower Class corvette was singularly responsible for the rise of the Royal Canadian Navy (RCN) from a small fleet of six destroyers and a handful of auxiliary craft in 1939, to the third largest fleet on the planet by 1945 with over 400 ships in commission. The RCN's 111 Flower corvettes were the largest class of ships in Canadian service, the largest class of warships ever built at 270 hulls, and the largest ever built in Canada; 122 Flowers coming down the ways between 1940 and 1944. Corvettes served in more navies than any other class, 19 including the USN and the Kriegsmarine, which took over four semi-constructed French corvettes in 1940.

Canadian corvettes escorted thousands of ships from the Aleutians to the Mediterranean; from the Caribbean to the Arctic. Along the way they sank fourteen submarines and shot down one aircraft. Ten were lost representing 40% of RCN casualties during the war. Corvettes rescued hundreds of torpedoed survivors and preserved the lives of thousands of sailors, with their valuable ships and cargoes, by their very presence around the convoys.

There were major problems encountered along the way. The rapid expansion of the fleet (fifty times over during the war) meant that newly minted sailors learned on the job after only a minimum amount of basic training. At the outset there were no training plans, facilities, nor staff to man them; corollaries to this were that corvettes had no time to train together as escort groups and sailors were frequently moved from ship to ship which meant a lack of cohesion and esprit on board. The RCN suffered early on from a lack of modern equipment, everything from binoculars and foul weather clothing to gyro compasses and AA weapons, and also inertia at the staff level which confused policies and delayed modernization of the corvette fleet.

By the middle of 1943 these difficulties had been largely overcome and Canada's corvette fleet was performing at a high level of efficiency with distinction. By war's end the North West Atlantic was the only theatre of war commanded by a Canadian and the RCN had primary responsibility for escorting all Atlantic convoys. Many of these accomplishments were rooted in the first 80 corvettes built in Canada in 1940 and 1941, and memorialized by First Sea Lord Admiral Sir Dudley Pound, when he said "The Canadian corvettes solved the problem of the Atlantic convoys".

The First Canadian Corvettes

Before the beginning of WW2 in 1939 the U-Boat threat was considered manageable by both the Royal Navy and RCN. It was felt that convoys would save the merchant navy from indiscriminate U-Boat attacks and would draw the enemy to the convoy's escorts, where they would be quickly sunk either by superior gunfire or underwater location by Asdic and destruction by depth charging. (Developed in Britain during the 1920s, Asdic was the first ship borne active Sonar system.) The RCN had planned a fleet expansion based on Tribal Class destroyers and Halcyon Class minesweepers, and with war coming they also requisitioned many Government and civilian vessels for inshore duties. The pace of global events in 1939/40 overtook the Naval Staff as did the realization that Canadian yards did not have the expertise to build ships to naval standards.

Canada therefore decided to build auxiliary warships to replace the requisitioned vessels and which could be bartered with the British for Tribals. Canada's National Research Council had earlier sent a delegation to Britain to discuss ways that Canada could best assist in the coming conflict. They returned with plans for a ship called 'Patrol Vessel of Whaler Type'. Designed by Smith's Dock of Middlesbrough and based on their whaler *Southern Pride,* Patrol Vessels would have good sea-keeping ability and could be built in small yards using well known mercantile construction methods. They used simple and reliable machinery that was easy to build and maintain, consisting of an open crankshaft 4 cylinder triple expansion steam engine, fed by two oil fired Scotch boilers. Planned armament was one 4" gun, one 2 pounder AA gun, Asdic, and depth charges.

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

Initial orders were placed with Canadian yards for 64 Patrol Vessels, now given the class name Corvettes, expecting to trade about half for Tribals while the rest would replace the requisitioned civilian vessels. In March the barter arrangement collapsed, 10 corvettes already under construction in Canada to RN specifications were transferred to them, and the remaining 54 were assigned to the RCN.

Despite being built from the same plans, the RN and RCN developed very different ships. Due to a chronic shortage of escort vessels British corvettes quickly assumed the deep ocean convoy escort and anti-submarine roles, and were modified early on for those duties, while Canada's requirements were for inshore auxiliary duties and harbour defence. All except the 10 being built for the RN were outfitted with Oropesa minesweeping equipment. This required removal of the galley from the aft end of the engine room casing, shortening the casing by four frames (over 7 ft.) to make space on the quarterdeck for the steam powered sweep winch. The galley moved forward over #1 boiler, creating a rise in the casing to clear the boiler itself. The stern was squared off to make room for the minesweeping equipment and the depth charges.

British corvettes placed their anti-aircraft gun tub midships on the casing forward of the main mast, giving the maximum span to the radio aerials but meaning the gun could not fire directly astern. The Canadians placed their gun tub at the after end of the casing and moved the main mast forward. Canada did not have the 2 pounder AA guns for which the tub was designed, so usually a pair of dual .50 cal. machine gun mounts were installed, but some corvettes had to make do with lighter .303 caliber weapons or no armament mounted there at all. Light caliber Lewis guns were mounted on the bridge where the British had placed their heavier machine gun armament. None of the machine guns were effective against U-Boats.

One major difference between British and Canadian corvettes was to have severe ramifications on the Canadian ships' effectiveness. British ships were equipped with gyro compasses, electronically controlled and stabilized devices that gave a true reading of the ship's course in any sea condition, and which came with repeaters fitted wherever needed; on the bridge, in the wheelhouse, and in the Asdic house. Canada lacked enough gyro compasses to equip the entire corvette fleet, so they were all commissioned with a single magnetic compass mounted in a binnacle inside the Asdic house on the bridge. Magnetic compasses were not stabilized and were not up to the modern navigation standards demanded by WW II. Their needles moved with every movement of the ship so courses had to be guessed from the needle's mean position. They were graduated in 32 'points' rather than 360 degrees. These factors greatly complicated station keeping, U-Boat hunting, and working in company with RN ships. It was not possible for a Canadian corvette captain to conn his ship from the open bridge and be inside the Asdic house watching the compass at the same time. Steering commands were passed from the bridge to the wheelhouse via voice pipe; the cox'n at the wheel had no second compass. No gyros meant the ships were not built with the low power electrical system necessary to operate them, so the first corvettes were also fitted with the type 123A Asdic, an older system already considered obsolete in the RN. The lack of the low power system would greatly hamper corvette modernization later in the war.

Other than these changes the Canadian corvettes were much like their British sisters, having an overall length of 205', breadth 33' 1", drawing 15' 6" aft, and displacing 950 tons. The engine produced 2,750 hp at 185 rpm. Pressure in the fire tube boilers was 225psi. While slow at getting up steam due to their large volume of water, they had a large steam reserve that gave quick acceleration. Corvettes carried 230 tons of fuel oil in bunkers abreast each boiler room, giving a range of 3500 nautical miles at an economical cruising speed of 12 knots. Maximum speed was 16 knots, however at sea state 6 their maximum speed was reduced to 6 knots and the Asdic became ineffective. Their whale catcher design made them very agile ships that could easily outmaneuver a U-Boat whether surfaced or submerged, although a U-Boat was marginally faster on the surface.

Manned initially by 4 officers and 48 ratings, by war's end their complement had increased to between 85 and 105 personnel due to more weapons, increasingly complex systems, and longer oceanic voyages. Crew spaces were steam heated, and Canadian corvettes had refrigeration, something the British ships lacked. Initially

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

officers berthed aft, but as the crew grew they moved to accommodations amidships and the after spaces were reconfigured for Chiefs and Petty Officers (some ships berthed the engineering crew aft). Seamen, stokers, and other trades berthed in two fo'c's'le mess decks. There was direct access from the upper mess to the main deck through an open well aft of the fo'c's'le. Seamen also took over the original Chiefs and PO space aft of the lower mess deck. Eventually there was double the crew for which the forward messes were designed, and sailors ate and slept wherever they could find room. The lucky ones slung hammocks from the overhead beams while the rest slept on lockers, benches, or the deck. The crowding was exacerbated whenever the corvette picked up survivors, crews making space wherever they could squeeze them in. Corvettes were not equipped to care for survivors and did not have a sick berth or medical staff.

By 1941 four RCN corvettes were in commission, the ten for the RN had sailed to Britain, 50 were still building and a further 16 had been ordered to meet the crisis as the Atlantic war developed. The first six of this second procurement were identical to the original 54. The remaining ten were revised based on British experience, with an extended fo'c's'le and greater sheer and flare to the bows for improved seakeeping, making them 3' longer than their short fo'c's'le sisters. The long fo'c's'le extended aft of the funnel, increasing the accommodations and enclosing the commanding officer's cabin and galley. These were known as 'Revised Patrol Vessels', or simply 'Revised' corvettes.

All 16 corvettes of the second procurement were ordered with extended bridge wings and water tube boilers. These smaller and lighter boilers could not deliver the rapid acceleration of the earlier Scotch boilers, but their steam delivery was more reliable and their higher pressures could be sustained without causing failure of the boiler. None of these 16 ships were fitted for minesweeping.

By the end of 1941 all but one of the original corvettes and six of the second procurement were in commission. The ten for the RN had sailed to Britain unarmed and with skeleton crews since they were to be fitted out over there (some made the crossing with a wooden 4"gun). The RN was reluctant to accept them because they too lacked gyro compasses, and eventually they were commissioned into the RCN, becoming the only Canadian corvettes with British pattern hulls and Flower names.

These first 80 corvettes each took about 10 months to construct at a cost around $600,000. Except for three built by St. John Shipbuilding and Drydock in New Brunswick, all were built in shipyards along the St. Lawrence River, the Great Lakes, or on the west coast. Canadian corvettes were named after towns, and for a time were classed as 'Town' corvettes until that name was taken for the fifty WW I destroyers gifted to Britain by the United States. Each community sponsored their name ship and service clubs provided warm clothing, food parcels and other niceties to the crews. Often the Mayor's wife christened the ship, and captains were encouraged to visit and thank the communities, with their ships if possible.

Early Operations

During WW II Canada had three Navies… the professional Royal Canadian Navy (RCN), whose officers joined as teenage cadets and apprenticed in the RN; the RCN Reserve (RCNR), professional mariners who were called up on the outbreak of war, many from retirement; and finally the RCN Volunteer Reserve (RCNVR), thousands of young men and women who signed up "for the duration". In time the RCNVR became the professionals of the navy and many of its' ranks rose to command, but in 1940 most had never even seen the ocean much less sailed upon it. Hal Lawrence, in his biography 'A Bloody War', said "… the RCNR are sailors trying to be gentlemen, the RCNVR are gentlemen trying to be sailors, and the RCN are neither trying to be both!"

As the war progressed Canada's Navy grew rapidly from less than 2,000 to over 100,000 personnel. The RCN inherited traditions of supremacy and leadership and eventually became as good as any navy in the world, however it took years to rise to that level of competence and efficiency, and the RCN and the convoys they

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

escorted paid dearly to learn those lessons. During the early years most of the professionals were employed aboard Canada's destroyers which sailed to Britain in 1940, or in shore establishments and the Naval Staff ashore.

The RCN was expecting the crews from the 10 RN corvettes to return to Canada after delivering their ships, but this did not happen, and Canada also accepted an RN request to commission and man six of the Town Class WW1 destroyers. Manning 16 unplanned-for vessels early in the war diluted the already small pool of professional seamen and disrupted what expanded training plans the RCN did have. Trained personnel were not available for the corvette program in anything like the required numbers, especially since without the barter scheme double the number of corvettes originally envisioned for the RCN now began flooding down the St. Lawrence River to Halifax once the ice melted in 1941. Without enough trained sailors to fill the key positions in all these new ships, they were manned largely by RCNVR officers and seamen with no more than a few weeks of basic training who learned their new jobs as they went along.

The first corvette captains were mostly RCNR, and often the only officer aboard who had been to sea and who could use a sextant to navigate the ship. There were typically less than half a dozen professional engineers and seamen on board. The few taught the many how to tend boilers, operate machinery, make and read flag and blinker signals, lower, row, and hoist boats, swing the lead, steer the ship, handle guns and ammunition, load and fire depth charges, and all the other minutiae required to serve and fight a ship of war.

Reports indicate that corvettes demonstrated "seamanlike handling" and could withstand "without material damage the heaviest gale in the North Atlantic"; during ocean voyages the men discovered their ships were also wet and uncomfortable. Too short to span the Atlantic swells, they rose up one side of a wave and buried their bows in the trough of the next, green seas flooding the well aft of the fo'c's'le and soaking the mess decks. Corvettes also rolled with abandon. Many sailors were sea sick for the duration of their voyages, and some never found their sea legs and had to be invalided ashore. At Action Stations hatches were opened and a hoist rigged to pass ammunition up to the 4" gun, giving the sea access to the lower decks. Hot food, when it could be prepared, had to be carried from the galley forward along the main deck, often arriving in the messes cold and 'salty'. The heads discharged directly overboard, so concluding one's business there became a matter of careful timing. The sailors and their possessions were wet through for most of a 2 or 3 week voyage, and the blacked out portholes and inability to bathe soon gave the overcrowded mess decks a fug of vomit, spoiled food, unwashed bodies and wet woolen clothing that could not be eradicated until the ship came into the lee of the land.

During the winter of 1940/41 corvette sailors learned their business while conducting patrols off Halifax and Sydney, or while escorting convoys east to where the ocean escort of an old battleship or armed merchant cruiser took over as protection against the mid Atlantic threat from surface raiders. As skills developed and experience was gained sailors were transferred into newly commissioned vessels; not an ideal situation, however the priority was to get escort vessels to sea as quickly as possible, and training deficiencies and lack of crew cohesion were accepted. Particularly deficient was anti-submarine warfare (ASW) training, because Canada lacked both simulators and 'tame' submarines upon which Asdic crews could practice.

In May 1941 the RCN was asked to establish the Newfoundland Escort Force (NEF) based at St. Johns, so anti-submarine escort could be provided all the way across the Atlantic. By the end of that year nearly 60 of Canada's 80 corvettes, plus her destroyers, were committed to the mid ocean convoy system instead of the inshore duties originally planned, and in an area known for freezing gales and persistent fog. The NEF was initially organized into groups consisting of three corvettes and a destroyer, and escorted convoys from east of St. Johns to a point south of Iceland. Late in May the first seven corvettes arrived from Halifax, and the NEF escorted their first convoy in the first week of June.

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

With their inexperienced crews and obsolete Asdic, Canadian corvettes posed little threat to a skilled submariner in 1941. The most effective weapon in NEF's arsenal was the British ability to use ULTRA intelligence to route convoys away from known wolf pack locations. If a corvette was lucky enough to find a U-Boat and blow it to the surface with depth charges, it was nearly impossible to hit it with the 4" gun due to the motion of the ship. It became standard practice to use the corvette's maneuverability to sink surfaced U-Boats by ramming. The trade-off of considerable damage to the bows vs. a kill was considered acceptable.

There is no question that Canadian corvettes and their crews went to war ill prepared during 1941, but their presence permitted the trans-Atlantic convoy system, upon which winning the Battle of the Atlantic depended, to be established. Further, their routines during 1941 allowed time between convoys to remedy defects and improve their efficiency, although the lack of training aids and modern equipment continued to reflect poorly on their anti-submarine performance.

In August Britain and the US (without consulting Canada), agreed to place the entire western Atlantic under the command of the USN's Support Force Four (later Task Force 24) based at Argentia. By the fall of 1941 the USN also began escorting convoys west of Iceland through what the US called the "non-war zone". Thus the RCN, at war since 1939, came under operational control of the neutral United States! The USN escorts were faster destroyers and Coast Guard cutters, so they escorted the faster convoys while the Canadian groups, built around corvettes, escorted slower ships, thereby bearing the brunt of the U-Boat assault.

The RN did enjoy successes against the U-Boats in the winter and spring of 1941, sinking about 20% of their operational fleet and three top U-Boat aces; Prien, Schepke, and Kretschmer; and proved the effectiveness of convoys which forced the U-Boats into battle against the escorts. The number of U-Boats was still increasing due to the pace of new construction, and the German response to RN efficiency was to move wolf packs further west, away from air cover and into the area of the NEF. The inexperience of the NEF was to be felt in September by the successful wolf pack attacks against convoy SC-42.

SC-42 consisted of 65 ships covering 30 square miles of ocean. Their escort was Group 24, led by the destroyer HMCS *Skeena*, with the corvettes HMCSs *Orillia*, *Alberni*, and the newly commissioned *Kenogami*. From the night of September 8 through September 11, 14 U-Boats of wolf pack *Markgraf* sank 15 ships. Mid way through the battle the corvettes *Chambly* and *Moose Jaw* joined to reinforce the escort, and together they sank U-501. After Group 24 was relieved by RN escorts near Iceland one further ship was lost from the convoy, and post war analysis determined that U-207 was also sunk by HMS destroyers.

The Canadian escorts of the NEF had not performed well during their first major convoy battle. It was obvious that an escort of four ships was inadequate to cover a large convoy against more than three times their number of U-Boats, and after SC-42 NEF escort groups were increased to six ships. The inexperienced escorts often left their stations to undertake salvage and rescue work, and extended prosecution of spurious Asdic contacts. Convoy discipline focusing on defence and the "safe and timely arrival of the convoy" would come with increased experience and training, but modern radar would be required to overcome the weather conditions that so favoured the U-Boats during SC-42.

Canada's National Research Council moved swiftly to develop a radar set called SW1C that operated on the 1.5 meter wavelength. This used a manually rotated Yagi antenna at the masthead, performed well during trials, and was fitted to all RCN corvettes by the end of the 1941/42 winter. Under operational conditions, however, it proved ineffective, and at the time it was being fitted to RCN corvettes the RN was already installing 10 centimeter type 271 radar into their ships. This very effective set would prove to be the downfall of U-Boats operating at night, but it was still many months away from most of the Canadian corvettes.

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

The increased size of the NEF escort groups, convoy routing to avoid U-Boats which increased the time at sea, and moving the mid-ocean meeting point (MOMP) further east to free up RN escorts for other duties put a great strain on NEF. Their ships were also being sent to Halifax for repairs because facilities were not yet ready in St. Johns; while there the navy manning staff stripped the experienced crews for new construction, meaning the efficiency of the NEF continued to suffer through 1942. Fortunately for the NEF and their convoys the Germans re-deployed many of their U-Boats to the Mediterranean theater during the last months of 1941.

With the US entry into the war the focus shifted further away from the North Atlantic as U-Boats moved to the unprotected American coast. The USN's refusal to immediately adopt a convoy system came as a shock to those that had been fighting since 1939, and by March 1942 90% of the shipping lost in the Atlantic was sunk off the US Eastern seaboard. In response the RCN began convoys from Boston to Halifax, the 'triangle run' between New York, Halifax, and St. Johns, and inshore convoys in the St. Lawrence, so by April the Canadian corvette contribution to the Mid Ocean Escort Force (MOEF; the new name for NEF) was down to 40 ships. By May the USN inability to defend tankers in the Caribbean and Gulf of Mexico also forced the RCN to initiate West Indies tanker convoys to protect that priority shipping, which drew a further eight corvettes away from MOEF.

Between September and November 1942, 16 Canadian corvettes were withdrawn from Atlantic escort duties to support Operation Torch, the Allied landings in North Africa. These ships sailed first to Britain where they were fitted with six 20mm Oerlikon cannons and type 271 radar. Most of the remaining "revised" corvettes were by then on loan to the USN, therefore it is significant that all but one of the best equipped RCN corvettes were serving with other Navies by the fall of 1942 when the U-Boats returned in force to the mid ocean. During the last six months of 1942 Canadian MOEF escorts faced over half of the operational U-Boats. These corvettes, most of the first short fo'c's'le builds, sailed through 1942 without new equipment, refits, repairs, or proper training. The exigencies of war made this necessary, but the price of neglect was high. During the last half of 1942 3/4 of the ships lost by MOEF were escorted by Canadian groups in slow convoys. The British blamed poor leadership and training, while the RCN argued the root causes were outdated equipment and lack of destroyers.

Stretched to the limit, the RCN further deferred corvette training and refitting and deployed their fleet of Bangor minesweepers as convoy escorts to continue meeting commitments. However, by the end of 1942 it was agreed by all the Atlantic allies that the Canadian escort groups should be re-deployed from MOEF to the eastern Atlantic. There they would undergo the intensive training that had been lacking while escorting Gibraltar convoys, and would be refitted with modern radar and other equipment.

During these early years there were corvette losses, balanced by some successes. Corvettes were not designed to withstand heavy damage, and one torpedo was enough to sink them. *Levis* had her bows blown off by a torpedo in September 1941 and sank with the loss of 17 lives. In the same month *Chambly* blew U-501 to the surface, then rammed and sank her. In December *Windflower* was sunk in collision with a freighter she was escorting. *Spikenard* was torpedoed in February 1942 near Iceland, only 8 of her crew surviving 14 hours in the water. *Wetaskiwin* shared in the sinking of U-558 in July, and *Charlottetown* was sunk off Gaspe in September. In August *Oakville* blew U-94 to the surface near Haiti, rammed her twice, and boarded her before she sank. In the same month *Sackville* damaged two U-Boats and attacked a third in one day. Had she possessed modern radar and heavy AA weapons she might well have sunk all three, but her SW radar and machine guns were not enough to give her a decisive edge at night and in the fog.

Modernization and Increased Endurance Corvettes

The Canadians had known early in the war that the British were modifying the front half of their corvettes to make them more suitable for the Atlantic. Canada saw different roles for these urgently needed ships so decided against modifying the first production program while they were still being built. The British had begun modernization of their ten Canadian Flowers, so that by late 1942 these were the best equipped corvettes in

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

Canadian service. The question Canada faced was whether or not to start modernizing 70 ships that were now considered obsolete, or to construct new types such as the Castle Class corvette and River Class frigate. The Naval Staff was unenthusiastic about modernizing the first corvettes because of the long time each ship would be out of service, the complexity of the work, lack of shipyard space, and the difficulty of obtaining equipment.

The structural work involved lengthening the fo'c's'le and enlarging the bridge, as per the Revised corvettes; this would improve accommodations, seakeeping, command and control, and provide a platform for the new Hedgehog anti-submarine mortar. The forward half of the ships needed re-wiring with the low power system necessary to operate not only new gyro compasses, but electronic plots, the latest Asdic sets, and the Hedgehog. Canada would need to acquire this high tech equipment as well as 20mm cannons for the expanded bridge and the 2pdr. AA gun for the after tub. Most of this equipment and weaponry had to come from Britain or the US, and Canada was at the far end of very long supply chains.

A complicating factor was that there were very few Canadian shipyards that could carry out the work. Once fitted out for service, corvettes could not return to the Great Lakes yards that built the majority because they could no longer clear the locks on the St. Lawrence River. West coast yards were too far away, and shipyards on the east coast were backed up with repair work and new construction.

By the end of 1942 corvettes had had their main masts and minesweeping equipment removed, and around that time the Naval Staff authorized modifications that could be carried out quickly and economically, but not a full modernization program. The authorized work included moving the foremast aft of the bridge and expanding the bridge. 20mm cannons were mounted on the extended bridge wings, and a second magnetic compass binnacle on an extended front so the Captain could remain on the open bridge during action. The 2 pdr. AA weapons were finally procured for the after gun tub and a 20" searchlight added there as well. Modern 10 centimeter radar sets, Type 271, were installed on a raised structure behind the bridge. The modifications were carried out in yards on the east coast or along the St. Lawrence below Montreal, and many corvettes laying over in Britain had the work carried out there.

About six months after the modifications were authorized the Naval Staff finally approved full modernization of the corvette fleet, however the work proceeded slowly with only 14 corvettes finding space in Canadian yards in 1943. The RN modernized the remaining 8 built for them in the US under lend-lease, but only had dockyard space for 2 RCN corvettes that year while 2 more completed modernization in US yards. During 1944, 22 corvettes were modernized in Canada and another 11 in the US or UK. Six short fo'c's'le corvettes were sunk and the remaining 5 were never modernized. Those ships received the improvements listed above, but went through the entire war with short fo'c's'les, magnetic compasses, and obsolete Asdics, their crew morale suffering accordingly.

By 1942 the solution to convoy escort was seen as the River Class frigate, known during its' design stage as the 'twin screw corvette'. By the end of the war Canada was operating 70 frigates, but in 1942 Canada ordered an additional 15 corvettes from shipyards that would otherwise have been idled, an unthinkable prospect while the fate of the free world was being decided. These were not the obsolete ships of the earlier building programs, but the first of the Increased Endurance (IE) type of the Flower Class. Their hulls incorporated all the lessons learned during three years of fighting, including a bridge built to naval standards with an open pilotage and

modern Adsic compartment at the forward end. The gun platform was directly connected to the wheelhouse, and a deck higher than earlier designs. This also elevated the bridge, making a three level superstructure. The gun was the 4" semi-automatic MK XIX with a high angle mount for engaging air as well as surface targets. Hedgehog was mounted beside the gun, integrated with and fired by the new Type 144 Asdic. IE corvettes had forced draught boiler rooms and dispensed with the characteristic large stokehold ventilators around the funnel. Their IE name came from enlarged bunkers that doubled their range to 7400 nautical miles at 10 knots.

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

A further twelve IE corvettes were ordered in 1943 as Canadian production in the smaller shipyards began switching to Algerine Class minesweepers. The British also wanted Algerines, so offered in trade four more IE corvettes being built in the UK, and twelve of a completely new corvette type, the Castle Class.

The final corvette order from Canadian yards was for 15 IE ships for the USN, commissioned as the '*Action*' Class of Patrol Gunboats (PG-86 – 100). These joined 10 corvettes provided to the USN by the RN in 1942, known as the '*Temptress'* Class (PG-62 – 71). Only 8 of the Action Class served the USN, the other 7 going directly to the RN. The Americans replaced the 2pdr. AA gun with a 3" 50cal. weapon, and the Temptresses carried a second similar gun forward instead of the older model 4". They sank no U-Boats and suffered no losses.

Late War Operations

In March 1944 the Atlantic Convoy Conference decided the four Canadian escort groups in the eastern Atlantic would be returned to MOEF. The US Navy's TF-24 would be disbanded and a new Canadian North-West Atlantic theater created, recognizing Canada's expertise in command, communications and intelligence, and her commitment of resources. The RCN and RN would be solely responsible for all convoys between North America and Britain. The United States retained strategic authority, responsibility for supplying their bases in Iceland and Greenland, developing and escorting US to Mediterranean convoys, and creating support groups for the Atlantic built around their escort aircraft carriers.

Also in March the Allies lost the use of ULTRA intelligence. At the same time the Germans had broken the British convoy code and so were informed of British dispositions against them. Losses in February and March reached 20% of convoyed shipping, against 34 U-Boats sunk. Late in March ULTRA was restored, and that intelligence combined with strong air and sea reinforcements, the closing of the 'air gap', and better weather combined to win the Battle of the Atlantic. In May 47 U-Boats were sunk and the remainder withdrawn from the North Atlantic.

By April 1944 the RCN was back in the mid ocean with modernized corvettes whose crews had taken full advantage of the training simulators, group exercises, and tame submarines available during their time based in Britain. They resumed close escort duties at a time when convoys were being routed away from the wolf packs and the support groups were keeping U-Boats away, sinking them before they could make contact, meaning the RCN corvettes saw little action.

The IE and Castle corvettes formed most of the RCN's nine mid ocean escort and support groups during the last 18 months of the war, while the corvettes of the earlier programs moved back to western ocean escort and the inshore duties they were originally designed for. This was ironic because Allied air power and support groups forced the U-Boats into quieter zones where the older corvettes were operating. Canada's east coast was one of the last areas where ships destined for the UK could be threatened, and several were sunk during the last few months of the war.

Even though Canadian corvettes withdrew from the mid Atlantic during the first half of 1943, they remained the major escort force for convoys elsewhere, and nineteen served in Operation Neptune, the naval component of Overlord. During Operation Torch *Ville de Quebec* sank U-224, *Port Arthur* sank the Italian *Tritone*, and Regina sank *Avorio. Shediac* sank U-87, and *Prescott* sank U-163 while escorting Gibraltar convoys. Against these successes the corvettes *Louisburg* and *Weyburn* were lost. Over the winter of 1943/44 RCN corvettes accounted for a further three U-Boats; *Snowberry* sharing U-536, *Camrose* sharing U-757, and *Chilliwack* and *Fennel* sharing U-744 with five other escorts after a 32 hour hunt that expended 291 depth charges. During Operation Neptune *Alberni* shot down a JU-88 but was herself sunk by U-480 a month later. *Regina* was torpedoed by U-667 in August, and *Trentonian* was lost to U-1004 in February 1945. In late November 1944 *Shawinigan* was patrolling

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

independently after escorting the regular ferry to Port-Aux-Basques in Newfoundland. Sometime during the night she was sunk by U-1228 with the loss of all hands.

Where Have All the Flowers Gone?

With the European war over in May 1945 there was no further need for Atlantic escort forces, and disposal was swift. The eight survivors of the original ten Flowers built for the RN were returned to Britain by June, where four were scrapped and the others sold for conversion into whalers. The RCN corvette fleet sailed to Sorel, Quebec, where all but one was handed over to the War Assets Corporation by April 1946.

Thirty-eight Flowers went straight to the breaker's yards; the rest, including most of the IE type and the Castles, were sold for other uses. Forty-nine were converted into merchant ships, serving under more than a dozen flags. They became coastal steamers, weather ships, salvage ships, and 13 were converted into whale catchers. Most of these vessels had gone to the breakers by the end of the '60s, some were lost, and a few sailed on into the 1970s.

Seven mercantile ex-corvettes returned to naval service; *Norsyd* and *Beauharnois* smuggled Jews into Palestine before being taken into the new Israeli Navy, and *Barrie* was converted into an Argentinian Navy survey vessel. Four of the 11 Castles that went to the Chinese were converted back to warships; *Copper Cliff*, *Orangeville*, and *Bowmanville* were taken over and re-armed by the People's Republic in 1948, while *Tillsonburg* served in the Nationalist Chinese Navy. Most were scrapped by the '60s but *Bowmanville* served until 1986 as *Kuang Chou*.

Seventeen RCN corvettes were sold to South American navies. Venezuela bought 7, Chile 3, Uruguay 1, and 6 went to the Dominican Republic. By 1979 only two, *Louisburg II* and *Lachute*, remained. Negotiations to have them repatriated to Canada were underway when they were both blown ashore and wrecked by Hurricane David.

By 1980 *Sackville* was the only ship left of Canada's corvettes…. In 1944, shortly after being modernized at Galveston, TX, her #1 boiler failed. There was no point in undertaking the enormous task of replacing her Scotch boiler at that point in the war, so she became a training ship and was later re-fitted as a loop layer. Her #1 boiler room became the cable tank, and her 4" gun was replaced by the winch and other equipment necessary for the new task. In this role *Sackville* removed the seabed cable sensor loops off Canada's east coast harbours. She was then assigned to the reserve fleet and during the cold war became an oceanographic survey ship; a naval auxiliary manned by civilians. To carry out this work a laboratory was fitted over the engine room casing, her fo'c's'le extended further aft, and her bridge replaced. She was finally retired in 1982 after 41 years of Atlantic service.

The Government of Canada dedicated *Sackville* in May 1983 as the Canadian Naval Memorial. By 1985, the 75th anniversary of the RCN, *Sackville* had been returned to her 1944 configuration following modernization, incorporating all the improvements made during the war to the first 54 Canadian corvettes. She is open to the public during the summer months, berthed next to the Maritime Museum of the Atlantic at Halifax. Her custodians are the Canadian Naval Memorial Trust, their web site is www.https//hmcssackville.ca

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

This article was originally published in the Nautical Research Journal Spring 2020

HMCS Chicoutimi

My father-in-law served for a time aboard *HMCS Chicoutimi*, so she was my obvious subject when I decided to model a corvette. *Chicoutimi* shows off the original corvette design built in Canada; short fo'c's'le ships that performed all the unglamorous duties of convoy escort on the North Atlantic and around the east coast. She was one of five corvettes never modernized, so epitomizes the corvettes that fought during the desperate early years. With untrained crews and inadequate weapons they carried the brunt of the war when no other ships were available. *Chicoutimi* was built by Canadian Vickers Ltd. in Montreal, Quebec; launched on October 16, 1940, commissioned May 12, 1941, paid off on June 16, 1945, and broken up at Hamilton, Ontario in 1946. *Chicoutimi's* evolution during her brief career is illustrated through photographs:

Photo #1 (1941): Shortly after commissioning, at Sydney, NS. She appears untidy, reflecting her untrained crew, and is painted builder's grey overall. She has her mainmast, minesweeping equipment will be on the quarterdeck and twin .50 cal. machine guns in the after tub. The inadequate size of the original bridge is apparent. Her captain was Lt. Wm. Black, RCNR.

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

Photo #2 (Early 1942): Her mainmast and minesweeping gear has been removed and she is painted in the 'Western Approaches' pastel camouflage. The machine guns show in the after AA tub, with no visible weapons on the bridge, and only 2 depth charge throwers. The foremast is still forward of the bridge, which has not been expanded. The antenna atop the mast is the Canadian SW radar.

Photo #3 (Later 1942): After refitting at Liverpool, NS, during April and May. Her foremast has been moved aft and the bridge expanded. She has 20mm cannons on the bridge and a 2pdr in the aft tub. A 20" searchlight has been mounted forward of the gun tub. There are now 4 depth charge throwers. The galley stack rises up the funnel instead of the back side of the bridge. The structure between the mast and bridge is the British Type 271 radar. The SW radar was retained but its' older Yagi antenna has been replaced at the masthead by 4 dipoles configured in an 'X'. Gun shield art has been added: Bugs Bunny chewing on a U-Boat superimposed on an Indian head, saying "What's Up Doc?". The camouflage is an RN pattern. Her captain at this time was Lt. Howard Dupont, RCNR.

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

Photo #4 (October 1943): *Chicoutimi's* silhouette has not changed, but the 20" searchlight has been removed for some reason, and her Western Approaches camouflage restored. Her captain was Lt. Cdr. John Stairs, RCNVR. VR personnel are now rising to senior and command positions.

Photo #5 (Late 1944): From September 1944 to March 1945 *Chicoutimi* was assigned to the training school *HMCS Kings* at Halifax, presumably because she was not modernized and crew morale was suffering. The searchlight is back. Her 16' dinghies have been replaced with extra rafts port side and a

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity's Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.

27’ motor whaleboat to starboard, the new standard corvette arrangement. She had various captains during this time, all RCNVR Lieutenants.

Photo #6 (June 1945): Decommissioning at Halifax, NS. The 4” gun is gone, as are the mess deck vent cowls and one of the 20mm gun shields. Her last captain was Lt. Ronald Wyllie, front row center in the picture. Note his joggled rank stripes, signifying the RCNVR. Shortly after, *Chicoutimi* would be towed to Quebec City and turned over to the War Assets Corporation for disposal.

Bibliography

John McKay and John Harland, The Flower Class Corvette Agassiz, Vanwell Publishing, St. Catherines, ON, 1993
Ken Macpherson and Marc Milner, Corvettes of the Royal Canadian Navy 1939-1945, Vanwell Publishing, St. Catherines, ON, 1993
Hal Lawrence, A Bloody War, Gage Educational Publishing, Agincourt, ON, 1979
Alan Easton, 50 North, An Atlantic Battleground, Eyre & Spottiswood, London, UK, 1963
Marc Milner, North Atlantic Run, The RCN and the Battle for the Convoys, US Naval Institute Press, Annapolis, MD, 1985
James Lamb, Corvette Navy, Stoddart Publishing, Toronto, ON, 1977
Joseph Schull, The Far Distant Ships, Stoddart Publishing, Toronto, ON, 1987
Herbert A. Werner, Iron Coffins, Da Capo Press, 1998

Credits

All photographs are from the collection of the Naval Museum of Alberta in Calgary, AB, used with permission.

© The Nautical Research Guild and all original copyright holders. Re-published on For Posterity’s Sake with permission of the Nautical Research Guild and the author, Bruce LeCren.