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Burrard Dry Dock and the Construction of Destroyer Escorts on the West Coast

By Dr. Chris Madsen

D uring the 1950s, Burrard Dry Dock emerged as the dominant shipbuilder working for the Royal Canadian Navy (RCN) on Canada's west coast. Leveraging an impressive record of building and converting ships for war purposes during the Second World War, Burrard Dry Dock's management team made several strategic moves to improve its business position, beginning with the 1946 purchase of Yarrows in Esquimalt. Its proximity to the government-operated Esquimalt Graving Dock, built in 1926, and the adjacent RCN dockyard afforded privileged access.

In 1951, Burrard Dry Dock bought out Pacific Dry Dock, its next-door competitor in North Vancouver, which added valuable equipment and even more skilled workers. This left Harold Husband's Victoria Machinery Depot as the only other principal operating shipvard in the province. which was subsequently purchased by Burrard Dry Dock in 1967. The president of the consolidated Burrard Dry Dock company was Clarence Wallace, a man known for his financial and corporate acumen. When he was appointed Lieutenant-Governor of British Columbia in October 1950, and until he returned to active management of Burrard Dry Dock in September 1955, each of the Burrard shipyards was run by a separate manager.

Combined with the subsidiary Yarrows shipyard in Esquimalt, Burrard Dry Dock became the single largest shipyard employer in British Columbia. With extensively modernized and expanded facilities, the company joined the ranks of nationally recognized and top-tiered shipyards in Montreal and Lévis, Quebec, and Halifax, Nova Scotia, all of whom were bidding on government contracts. After the United Nations action in Korea (1950-1953), the federal government committed to maintaining a workforce of 7,000 in Canada's shipbuilding industry to meet national security interests. Though some commercial work continued, Burrard Dry Dock duly became a privileged supplier to the federal government. For the better part of the next 15 years, Burrard's North



Cover of the official commissioning booklet for HMCS *Columbia* on November 7, 1959.

Vancouver and Esquimalt shipyards focused almost exclusively on high-value public procurement contracts on behalf of the RCN and the Department of Transport's Marine Service.

At the time, the Navy was procuring steam-driven destroyer escorts (DDEs) — mid-range warships specialized for anti-submarine warfare (ASW) as part of Canada's alliance contributions during the Cold War. The DDEs came in several variants, including the initial St. Laurent (205) class, the slightly larger Restigouche (257) class with better anti-aircraft arrangements and sensors, and the budget-friendlier modified repeat Mackenzie (261) class. The naval headquarters in Ottawa prepared drawings and offered technical advice to the selected shipyards, with Burrard Dry Dock constructing ships for each of the three classes. All of Canada's DDEs were named after major rivers. Several years passed between launch and commissioning due to the extensive fitting-out done in North Vancouver and Esquimalt (see table). Resident naval staff headed by

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Table 1.					
Destroyer	escorts	built and	commissioned	at Burrard	Dry Dock.

	Ship	Launched	Commissioned			
St Laurent class						
DDE-207	HMCS Skeena	19 August 1952	30 March 1957			
DDE-233	HMCS Fraser	19 February 1953	28 June 1957			
Restigouche class						
DDE-258	HMCS Kootenay	15 June 1954	7 March 1959			
DDE-260	HMCS Columbia	1 November 1956	7 November 1959			
Mackenzie class						
DDE-263	HMCS Yukon	27 July 1961	25 May 1963			

a technical commander and overseers for hull, engineering, electrical, ordnance and supply acted on behalf of the Department of Defence Production (Shipbuilding) in execution of the contracts, and made sure the RCN's specifications were fully met.

The destroyer escort was a Canadian design with British influences that incorporated dual-shaft English Electric steam turbines and Babcock & Wilcox boilers for propulsion, distinctive "rounded-down" weather decks for prevention of ice-buildup in cold weather, closed ventilation and contamination clearing systems for nuclear warfighting, and by the standards of the day, comparatively deluxe crew accommodation. Novel production techniques beyond the normal commercial work seen at Burrard Dry Dock had included pickling steel plates in acid baths, and a greater use of aluminum in the superstructure to save on weight. Additionally, in the plate shop, bonderizing of aluminum shapes and forms was done using a three-part process of dipping items in solutions for cleaning, then etching to remove the normal bright condition prior to spray painting with a protective zinc chromate primer. The "as fitted" machinery space installations for piping, electrical conduits, and ventilation trunking often depended upon which shipyard trade had performed the initial work.

Once completed, the Burrard Dry Dock-built destroyer escorts received weaponry and special equipment at a naval armament depot beside Lynn Creek in North Vancouver. HMCS *Skeena* and HMCS *Fraser* had twin 3-inch 50-calibre dual-purpose guns forward and aft, and two single-mount 40-mm Boffin guns. HMCS *Kootenay* and HMCS *Columbia* substituted a twin-mount 3-inch 70 forward, retained the 3-inch 50 twin mount aft, and dispensed entirely with the Boffins. Each destroyer escort employed the quarterdeck-mounted Limbo Mk 10 mortar as the main ASW offensive armament, an effective weapon

with a 1,000-yd range that could be controlled in both direction and range, and fired, by sonar operators from their compartment off the ship's operations room. HMCS *Yukon* added the American designed Mk 43 lightweight anti-submarine torpedo, launched "over the side" using a modified depth-charge thrower. A planned "*Vancouver* class" geared toward rapid construction in the event of war, being less capable and five knots slower than the destroyer escort, was shelved due to advances in naval warfare and the capabilities of the Soviet forces.

The destroyer escorts were slower at top speed than newer Soviet nuclear submarines, but they typically operated in groups of two or more to locate and engage a target with their high-explosive mortars. The RCN also pioneered the employment of shipborne helicopters as ASW sensor and weapon platforms, made possible by a new Canadian invention for deck landings, the bear trap, added later in conversions from DDE to DDH, and to the DDH-constructed *Annapolis* (265) class.

The production of destroyer escorts was a significant achievement for Burrard Dry Dock and a boon to Canada's domestic shipbuilding industry. The company and its workers progressively improved technical skills, quality of work, productivity, and cost estimations across their contracts and individual warships. Naval authorities also relearned how to manage and supervise major National Defence projects. While the Canadian-designed and -constructed DDEs were technologically obsolete in the face of changing naval warfare even before completion, they provided useful service in the Royal Canadian Navy for many decades, and far beyond their original intended ASW role as both operational and training platforms. Following on the destroyer escorts, Burrard Dry Dock received contracts for icebreakers from the Department of Transport's Marine Service, subsequently known in 1962 as the Canadian Coast Guard, to ensure continuity of government work and to maintain steady employment in the shipbuilding industry.

The construction of destroyer escorts reflected a relatively golden time for Burrard Dry Dock, Canadian shipbuilding in general, and the Royal Canadian Navy when policy coalesced to have a made-in-Canada solution to meet naval requirements, with both possibilities and limitations. It therefore remains an important and salient chapter in the Royal Canadian Navy's technical history.

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Source:

HMCS *Kootenay* leaving Vancouver harbour after commissioning at Burrard Dry Dock in March 1959. This destroyer escort was one of five constructed at the company's North Vancouver Shipyard.

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