



NEWS

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An Insider's Look Back at the DDH-280 Destroyer Program*

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My relationship with the DDH-280 Tribal-class destroyer program runs from ship's conception until the present time. I recall historical events related to the design, construction and contract activities that took place, and the effects this program had on Canada's defence industry. Of the four ships built for the DDH-280 destroyer program – *Iroquois*, *Huron*, *Athabaskan* and *Algonquin* – only *Athabaskan* remains in service.

When I was in Director General Ships (Preliminary Design) in naval headquarters in 1964, I was the marine engineer on a team of about six people responsible for designing ships to satisfy the various staff requirements. I had just arrived back from the Advanced Marine Engineering (Dagger) Course at the Royal Naval College, Greenwich, England, and the Preliminary Design section was given the task of designing a new destroyer to replace the General Purpose (GP) Frigate design that was cancelled in 1963.

In order to give the new ship enough deck space for missiles it was decided to lengthen the *Annapolis* design by 25 feet, but this meant that the power of the 30,000-s.h.p. [shaft horsepower] propulsion system could no longer meet the ship's speed requirements. The Royal Navy (RN) had no steam plants over 30,000 s.h.p., and the only proven steam plant we could find that was powerful enough was a U.S. Navy propulsion system of about 75,000 s.h.p. Unfortunately, this design had very high operating temperatures and pressures, with their inherent problems, and the shaft horsepower was too high. So we thought, "Why not go for a gas-turbine propulsion system of about 50,000 s.h.p. that the naval architects wanted?" The Directorate of Marine and Electrical Engineering in Ottawa, the Naval Engineering Design Investigation Team in Montreal and others looked at the various arrangements of



combined diesel, steam, and gas turbines. It appeared the most logical choice was an all-gas-turbine arrangement with two main gas turbines of 25,000 s.h.p. each, and two smaller gas turbines of about 3,700 s.h.p. each for cruise power.

We eventually came up with a suitable design to satisfy the staff requirements, which was sent to the Naval Board for approval. The board made the final decision to build four DDH-280 destroyers. I remember one of VAdm R.P. Welland's major considerations (as vice chief of the naval staff) was whether the ships should have gas-turbine or diesel alternators. After some deliberating it was decided to go all-gas-turbine alternators with one diesel alternator for emergency and harbour use. Once Naval Board approval had been obtained, the DDH-280 project moved to DGMEM Contract Design, and I went on to participate in other studies such as the replacement of HMCS *Bonaventure*.

I left the navy in 1969 and joined the Industrial and Marine Division of United Aircraft Ltd. to market gas-turbine propulsion systems to other navies and the Canadian Coast Guard. Two years later, I went to German & Milne, Naval Architects & Marine Engineering consultants in Montreal. In 1972 German & Milne received a contract from United Aircraft to supply members to the Machinery Operating Team for the DDH-280s, and I thus became the first chief engineer responsible for set-to-work and trials of HMCS *Iroquois* and HMCS *Huron* in Sorel, Quebec. Once the ships were successfully trialed and



commissioned, I turned over to the new engineering officer, and my assistant, the late Jack Phillips, turned over to the new chief ERA. Jack had been my C1ER in HMCS *Provider*. My experience with the DDH-280s actually landed me a contract as a consultant to Bath Iron Works in Bath, Maine on the *Perry*-class destroyer program.

The next time I became involved with the DDH-280s was in 1978 when I became resident naval overseer for the Machinery Design & Drawing Office at Canadian Vickers. Vickers had the contract to do the working drawings, shipalts, and so forth for the DDH-280s. Around 1981, the MDDO was moved to Ottawa and there was no more need for an RNO in Montreal, but in 1989 I received a contract from Litton in Toronto to be the resident overseer for their contract with Pratt & Whitney for the Tribal-class Update and Modernization Project (TRUMP).

The cruise engines, machinery control systems, and other machinery items were changed during this successful program.

Many years have passed since I last worked on the DDH-280s, but on May 1, 2015 I was honoured to be among the hundreds of people who shared in the decommissioning ceremony for HMCS *Iroquois*, a great ship that gave the Navy great service for more than 40 years. *Athabaskan* will soon be retired, and with her will pass the end of an era.

(*This was an edited excerpt from a CNTHA Oral History Interview conducted on Feb. 27, 2006. To read Gord Smith's full interview, go to http://www.cntha.ca/images/oral_histories/g.smith-2.pdf.)



Photo by Brian McCullough (Courtesy HMCS *Scotian*)

CNTHA online – insight through hindsight

Since going live in 2004 the CNTHA website (www.cntha.ca) has gone through a number of updates to improve how we inform and serve our visitors online. We are always keen to hear from anyone who might have ideas for added features, or content that will help us in our primary mission of preserving Canada's naval technical heritage for future generations.

Much of what you see has been developed by retired members of the naval technical support community who were once actively involved in Canada's various naval ship and equipment development

programs. For young professionals in active career mode today, there is much to be learned from their insights.

We encourage all of you, young and old alike, to take an active role in contributing to the discussion through the CNTHA's oral and written history program, and through your letters to the publication you are reading now. We look forward to hearing from you at info@cntha.ca.

