



# CANADIAN NAVAL REVIEW

VOLUME 14, NUMBER 1 (2018)

**Naval Tactical Operations Group**

**Future Canadian Surface  
Combatant: The Best Option**

**An East Coast Air Station:  
Shearwater 1918-2018**

**The Importance of Naval Education  
for Flag Officer Development**

**Canadian Naval Ship Design**



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# CANADIAN NAVAL REVIEW

VOLUME 14, NO. 1 (2018)

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Credit: Timothy Choi



*Canadian Kingston-class Maritime Coastal Defence Vessel HMCS Moncton sails past the Statue of Liberty during the New York City Fleet Week 2018 ship parade.*

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# Editorial

## Canada, the National Security Threat?

As I write this in June 2018, the G-7 Summit hosted by Canada has just wrapped up. To say that this was not the most successful of summits would be an understatement; German Chancellor Angela Merkel referred to the summit as a “depressing” experience.<sup>1</sup> One participant was barely out the door before launching a barrage of Tweets – and US officials made tv appearances to stress the point – targeting the Canadian Prime Minister for lying about trade deficits, being weak, not standing up for Canadians and a number of other things. No prizes for guessing who that participant was. This illustrates the surreal relations between Canada and the United States in recent months. Tariffs have been imposed on aluminum and steel, and perhaps autos, in the name of national security. These tariffs affect the friends and allies of the United States.



Credit: Mass Communication Specialist  
1st Class Jason Abrams, US Navy

Is it an invasion? *Halifax*-class frigate HMCS *Vancouver* arrives in Pearl Harbor on 25 June 2018 for RIMPAC 2018.

So Canada is now considered a national security threat to the United States? The US President was right to point out that Canada (actually, the British) torched the White House in 1814. (I suspect that a few Canadians would like to do it again right about now!) But as he may not have noticed, Canada has been a close friend and ally of the United States for the 204 years following that.<sup>2</sup> Canada was a key participant in the talks to establish the North Atlantic Treaty Organization (NATO) in 1949, and has participated in NATO deterrence, exercises and operations since then. (Canada has not, however, as rightly pointed out by the United States, met the target for spending on defence set by NATO.)

As well as NATO, Canada has also been involved with the United States in NORAD since it was formed in 1958. NORAD was responsible for securing North America in the coldest of Cold Wars, and continues as a bilateral organization dedicated to the defence of the continent. The second in command at NORAD is a Canadian, and Canadians have served at NORAD headquarters since the beginning. I’m sure both NATO and NORAD officials are surprised to find that Canada is a national security threat.

As this is a maritime-focused journal, let’s discuss naval relations between Canada and the United States. The Royal Canadian Navy (RCN) has worked closely with the US Navy for years. (And civilians in the fields of security and defence have also enjoyed good relations with the USN. As an illustration, last year I was invited to celebrate the 4<sup>th</sup> of July on board a USN aircraft carrier that was in Halifax Harbour.) The two navies are perhaps the most interoperable of any two navies in the world. They exercise together regularly – the RCN right now is participating in RIMPAC 2018 with the USN and other Pacific Ocean navies. The RCN and USN exchange personnel, they have compatible command and control suites and weapons technology. It’s a surprise therefore to find that Canada is a national security threat to the United States. Perhaps the RCN should have been dis-invited from RIMPAC like China was.

Let’s talk about China. While the President has been trashing US allies, China has been perfecting the strategy



Credit: Cpl Blaine  
Sewell, Formation  
Imaging Services

HMCS *Charlottetown* (foreground), Turkish frigate TCG *Gelibolu* and USS *Carney* participate in NATO Exercise Mavi Balina in the Mediterranean Sea, 26 November 2016.



of ‘advancing without attacking.’ The White House has talked a lot about unfair trade practices, and yet the tariffs that have been imposed based on national security provisions are not focused on China. Just for interest’s sake, let me note three events *in the last week* that illustrate who the national security threat might be. First, the FBI is investigating a hack attributed to China of the computers of a USN contractor which managed to access plans for a new supersonic anti-ship missile.<sup>3</sup> Second, China has just begun sea trials of a newly constructed dredger, *Tiankun*. This dredger is the largest in Asia, and is apparently designed to be used for island building.<sup>4</sup> Does anyone wonder where those islands might be built? Third, the Chinese navy (PLAN) has been conducting bilateral exercises with the Ghanaian Navy.<sup>5</sup> This is in addition to donating four vessels to it in 2017 and building a barracks for the army. These interactions with Ghana are indicative of vastly increased relations between China and African states and their militaries.

These are just three naval events *in the past week*. There is also the fact that China has established a naval base in Djibouti, has been collecting ports around the Pacific and Indian Oceans – including for example in Sri Lanka, Pakistan and Maldives. In addition, it is building (and militarizing) islands in the disputed South China Sea, a process which will be helped by the new dredger. Indeed, a few days ago the Chinese stated that the South China Sea is *not* disputed, that it is indisputably Chinese territory. Now that’s a national security threat to a few countries.

It used to be that one of the US strengths was its network of allies. While the United States could count on friends/allies around the world, China had few friends and fewer allies. But as the United States casts off friends like a snake sheds its skin, China is aggressively making (buying?) friends. Germany has said what everyone else in NATO is thinking, i.e., it is possible that the United States cannot be relied upon and that it’s time to think of making arrangements for defence that don’t include the United States. If this trend continues, ‘Make America Great’ is becoming ‘Make America Alone.’ If that’s the plan, then it’s working beautifully.

Canadians can take the soured relations with the United States in two ways. First they can be horrified that their closest friend and ally now considers them a national security threat and a lying, cheating state that takes advantage of the United States. Or they can laugh at the idea, enjoy not being described as polite and nice, and revel in the thought of being just slightly bad ass for once.

It may seem like a joke, but obviously it’s not. I have two final thoughts. One is that friends and allies will only take



Dark clouds loom ahead of the aircraft carrier USS **Ronald Reagan** in the Philippine Sea on 26 June 2018, but not coming from Canada.

so much. Political wounds take a while to heal – the next US President will have to rebuild relations with allies. As all Canadians know, an American President insulting a Canadian Prime Minister only makes the Prime Minister more popular. There is a deep well of anti-American feeling in Canada that comes to the surface on rare occasions like this. The same goes for Mexico, and the Mexican presidential election will likely result in a President who is less friendly to the United States. My second thought is that this political dysfunction is probably ameliorated by the professional relationships that have been built over many years between, for example, the RCN and the USN. I’m sure that the close relations have not changed with the winds of Washington. But they may if the winds continue in this direction for long enough.

If I were in the market for threats to the national security of the United States, Canada would be far down the list. But such is life in tumultuous times. 🍷

Dr. Ann Griffiths

#### Notes

1. “G7 Summit with Donald Trump a ‘Depressing’ Experience: Angela Merkel,” *Global News*, 10 June 2018.
2. To be scrupulously honest, Canada apparently did concoct a plan to invade the United States. In April 1921, Lieutenant-Colonel James ‘Buster’ Sutherland Brown, Canada’s director of military operations and intelligence, on instructions from the government, drafted a Canadian plan to invade the United States, known as Defence Scheme No. 1. Needless to say, it wasn’t implemented. See Kevin Lippert, *War Plan Red: The United States’ Secret Plan to Invade Canada and Canada’s Secret Plan to Invade the United States*, New York: Princeton Architectural Press, 2015.
3. Ellen Nakashima and Paul Sonne, “FBI Investigate Claims Chinese Hackers Stole Plans for US ‘Supersonic Anti-ship Missile’ from Navy Contractor,” *The Independent*, 9 June 2018.
4. Zhao Yusha, “Asia’s Largest Dredger Tiankun Begins Sea Trials. Tiankun to Boost China’s Capability in Island Building,” *Global Times*, 7 June 2018.
5. “Ghana Engages China in Joint Military Exercise,” *Ghana News*, 5 June 2018.

# Naval Tactical Operations Group

**Lieutenant-Commander Wil Lund  
and Lieutenant (N) Jacob Killawee**



Credit: Cpl Tony Chand

*A member of Naval Tactical Operations Group (NTOG) Tiger Team carries out pistol training with a member of HMCS St John's boarding party off the Norwegian coast on 21 February 2018.*

Security challenges found in the maritime environment are constantly evolving. This means that the Royal Canadian Navy's (RCN's) ongoing effort to keep pace with the challenges at home and abroad requires constant attention, flexibility and agility in order to maintain the training, capability and technology essential for success in such a dynamic battlespace. The RCN's development of the Naval Tactical Operations Group (NTOG)<sup>1</sup> is proof positive of the RCN's determination to be on the forefront of leading change in maritime security concepts. While the NTOG's primary role within the RCN is to enhance the maritime interdiction operation (MIO) capability of the navy, the multifaceted nature of the capability NTOG provides lends itself to assisting RCN ships with force protection in high-threat environments, supporting RCN-led operations that have a security nexus, training existing naval boarding parties (comprised of sailors who perform this function as a secondary duty), and representing the RCN as part of partnership-building opportunities with maritime forces of foreign states.

Conducting maritime interdiction operations, or boardings at sea, is not new for the RCN or maritime warfare in general. In fact there are documented occurrences of the

navies of Athens and Sparta using these tactics more than 2,000 years ago and, since these early times, maintaining a boarding capability has been a mainstay of all navies in the world. In modern times, precision-guided weapons and joint warfare seemed to have superseded this most basic capability but the dynamic security climate has again



Credit: John Augustus Atkinson, via National Maritime Museum

*"British Sailors Boarding a Man of War" by John Augustus Atkinson depicts the recapture of HMS *Hermione* by the crew of HMS *Surprise* on 25 October 1799. Although the end purpose may be different, the tactic of boarding remains a valuable tool in today's world.*



brought back into focus the need to board, inspect and, where necessary, seize vessels of interest. With the development of the NTOG, the RCN is taking substantial steps to making MIO and force protection a major warfare consideration in the same manner that RCN ships prepare for anti-submarine warfare or surface warfare especially in the asymmetric threat environment in which the ships are required to work around the globe.

In August 2011, then Chief of Defence Staff (CDS) General W.J. Natynczyk identified the need for the Canadian Armed Forces (CAF) to enhance its MIO capability. He outlined in a planning directive that “[p]ast maritime operations point to the necessity to board vessels of interest in expeditionary operations. Currently, there is a capability gap which must be bridged between the boarding of obstructed or compliant vessels of interest and the opposed boarding of vessels of interest.”<sup>22</sup> This observation identified the requirement for the RCN and Royal Canadian Air Force to work with Canada’s Special Operations Forces Command (CANSOFCOM) to deliver a joint, robust and global MIO capability. Upon receipt of General Natyncsyk’s directive to rectify this capability gap, the RCN began taking steps by developing a proof of concept Expeditionary Opposed Boarding (EOB) team.

In 2012 the RCN identified 20 sailors from the Pacific Fleet who had taken the basic Naval Boarding Party (NBP) course to begin training and selection under the oversight of CANSOFCOM instructors. After six months of rigorous physical preparations, shooting, tactical training, working with rotary-wing assets and learning to plan and communicate, eight RCN sailors, who had demonstrated that they possessed the skills and suitability to an acceptable standard, continued to make progress on this proof of concept. Ultimately both the team and this joint CAF endeavour were successful and, upon completion of the EOB proof of concept, Vice-Admiral Paul Maddison, Commander of the RCN at the time, stated “[this] capability has the potential to be an important component of a deployable force package in support of the Government of Canada.”<sup>23</sup> Despite the desirability of the capability for the RCN, it was not until 10 June 2014 that a follow-on directive to stand up NTOG was issued by Vice-Admiral Mark Norman (who replaced Vice-Admiral Maddison as Commander of the RCN). This exceptionally concise five-page tasking directive was very clear in stating that the NTOG was to remain an RCN initiative, drawing exclusively from RCN personnel. With this new directive, a leadership team was identified out of the RCN’s Pacific Fleet and the first steps to identifying and recruiting NTOG’s first team of sailors began in November of 2014. The team was assessed as operationally ready in March 2015.



*The NTOG team embarked upon HMCS St John's and members of the Danish frigate HDMS Niels Juel's boarding party carry out a boarding exercise on 31 January 2018 during Operation Reassurance.*

All of NTOG’s operators are sailors first, coming from the officers and enlisted personnel of the RCN’s Reservist and Regular force units. Applicants come from all trades within the RCN ranging from operations, marine engineering technicians, weapons engineering technicians to logistical trades. Ultimately, as long as applicants are wearing a navy blue uniform and have already met their respective specific trade occupation requirements, they are able to submit their application to join the unit. In order to join NTOG, RCN sailors are required to go through a very stringent physically and psychologically demanding application and selection process that challenges individuals to demonstrate they possess the required knowledge, skills, attributes and other characteristics essential to a maritime tactical operator in order to conduct MIO.

This process is conducted in two parts. The first part confirms that the applicant meets the administrative criteria. Second, if found suitable to continue, applicants are invited to attend the NTOG Assessment Centre. This Assessment Centre, designed by Personnel Selection Officers from the Directorate of Naval Personnel and Training, is

where applicants are pushed to their limits for five days (with an additional two days for officer candidates) to ascertain whether the applicant possesses the desired characteristics and attributes. Those who complete this grueling process will have their file submitted to a board that reviews and rates the applicants' performance over the entire period, assigning each an overall evaluation. Ultimately, the applicants who rate high enough are invited to attend the Maritime Tactical Operators course where students are trained for five months in a variety of skills ranging from close quarter battle, tactical combat casualty care (combat medical training), hand-to-hand combat, advanced tactical shooting, MIO mission planning and battle procedure, and insertion and extraction techniques. Once students complete the course they join the unit and begin preparing to join one of NTOG's four teams that rotate through deployed RCN ships.

It is important to note that the NTOG has not replaced the existing (organic) naval boarding parties that have been in service for decades. The NTOG is a supplemental but different approach to MIO that complements the existing boarding parties to provide an enhanced capability with synergy and economy. Simply put, the RCN's basic naval boarding party is comprised of sailors who perform this function as a secondary duty, attend a 23-day course that covers the basics of tactical movement, personnel handling and detainee management, and shooting. The end state provides the RCN with a capability to conduct up to day-time uncooperative boarding operations – i.e.,

where a vessel of interest demonstrates an uncooperative attitude and is slow to comply with direction. When navy ships embark an NTOG team they do not replace a ship's basic boarding party, an NTOG team and the basic boarding party work together. The NTOG team is used as the primary MIO force and the ship's boarding party supports the NTOG team as a follow-on force as required based on the size of the vessel of interest and the tactical conditions. NTOG enables and enhances a ship's ability to conduct MIO that might have a higher than usual risk and to provide force protection during high threat transits or port visits. It also provides the ship with additional security and planning capability when supporting non-combatant evacuations, humanitarian assistance or disaster relief.

A role that NTOG continues to embrace is that of global partnership building with Canada's international security partners. Over the last two years NTOG has assisted in capacity building with various different countries, making visits to and working at sea with states including Jamaica, Cote d'Ivoire, Liberia, Trinidad and Tobago, Sierra Leone, Tunisia, Morocco, Fiji and Egypt. According to Lieutenant-Commander Wil Lund, Commanding Officer of NTOG:

The purpose of these combined training events is not so much as to show countries how to do a job that, in some cases, they have been doing for years in combat or real-world operational situations.



Members of HMCS *Summerside*'s embarked NTOG team perform a counter-narcotics exercise with the Liberian Coast Guard during Obangame Express, 25 March 2018.

Credit: Able Seaman John Iglesias, Formation Imaging Services





Credit: Cpl Carbe Orellana, MARPAC Imaging Services

*The NTOG and boarding party of HMCS **Winnipeg** escort crew members from HMCS **Ottawa** who were acting as part of an exercise, 19 June 2017.*

Our task is to develop trust and partnership between our naval forces and our countries and provide assistance where we can. Our operators return from these missions with invaluable operational, professional and personal experience making these missions truly the most rewarding for both NTOG and its members.<sup>4</sup>

The exchange of ideas, training methodology and even military culture that occurs during these training visits truly makes a difference in how these countries train, plan and prepare to execute MIO missions safely and securely. In some of these visits the combined training on the range could help a team identify a coaching method that improves their basic shooting, other visits may be more tailored to assisting a team develop a medical plan that can be practically applied while conducting MIO. In addition to working with the above-mentioned countries as they develop their own MIO capacity, NTOG has conducted multiple combined training exercises in conjunction with the United States, Greece, Portugal, Spain, Australia, New Zealand, South Korea, Japan and Sweden. Often these joint training visits are an avenue to share best practices and learn to look at challenges and problems through a different lens, compare equipment, tactics and planning considerations that are employed in the conduct of a mission. In many instances NTOG takes on the role of exercise control in which it prepares and develops challenging training scenarios that are as realistic as possible to an actual boarding. NTOG's ability to work with Canada's international security partners and emerging states around

the globe directly supports the development of collective MIO capabilities and effectiveness.

Ultimately, NTOG is an example of the adaptability of the RCN to the maritime environment and provides an innovative response to the changing nature of threats associated with interdicting vessels at sea domestically and abroad. It also enables the RCN to establish and build relationships with emerging democratic states around the world. In the coming years the capabilities of NTOG will evolve to support the RCN's commitment to domestic, North American and global security, partnership and stability. Ready for the Storm. 🇨🇦

#### Notes

1. In spring 2018 the group was renamed from Maritime Tactical Operations Group (MTOG) to Naval Tactical Operations Group (NTOG) to better reflect RCN ties.
2. "CDS Planning Directive for the Development of an Expeditionary Opposed Boarding," 11 August 2011.
3. "Recommendations on the Future of Expeditionary Opposed Boarding (EOB)," 27 March 2013.
4. Interview with Lieutenant-Commander Wil Lund, Commanding Officer NTOG, 18 January 2018.

*Lieutenant-Commander Wil Lund is a serving RCN officer and has been the Commanding Officer of the Naval Tactical Operations Group since its inception on 10 June 2014.*

*Lieutenant (N) Jacob Killawee is the Officer in Charge of the NTOG's East Coast Detachment established in early 2018.*

# Future Canadian Surface Combatant: The Best Option

David Dunlop



Credit: Cpl Ronnie Kimmie, Formation Imaging Services, Halifax

HMCS *Charlottetown* (right) sails in formation with the Spanish frigate ESPS *Alvaro de Bazan* and Dutch frigate HNLMS *De Ruyter* during **Operation Active Endeavour** in the Mediterranean. The designs for the Spanish and Dutch ships are two of the three submissions for the Canadian Surface Combatant competition.

*Note 1: A shorter version of this piece was published on BroadSides and has generated a lot of discussion and debate. We hope for discussion and debate on this version as well.*

*Note 2: This is the opinion of the author and not the opinion of Canadian Naval Review.*

Canadians need to be clear-eyed. If we want to have a modern equipped and capable navy, our geostrategic position practically dictates that we pay more for equipment to meet the Royal Canadian Navy's (RCN) unique operational requirements. This is why purchasing off-the-shelf (OTS) military equipment is so problematic. OTS refers to equipment that is already in production or in use. The expression implies that because equipment is in production and in use, it is operationally proven, theoretically cheaper to purchase and quicker to acquire than if it were still in development. The problem is that OTS is rarely faster to acquire or cheaper to buy, as its advocates claim. Canada's geography is partially to blame for this. Canada is a large country with a small population that happens to border its major ally, the United States, a world superpower. Such unique geostrategic circumstances have left Canada with relatively small armed forces. Consequently, the Canadian Navy is faced with having to depend on few platforms that have to be capable of operating over long distances, thousands of kilometres from shore. They also have to be able to operate with the US Navy, with which Canada jointly defends the continent and fights alongside overseas. However, Canada's relatively small defence

budget leaves it relying on a single platform to do the same jobs as multiple USN platforms. The end result is cost increases and delays as warship manufacturers modify their existing designs to meet Canadian needs.

Now that the Canadian government has entered the decision phase for bids for the right to build 15 Canadian Surface Combatant (CSC) ships, it is time to give an opinion as to which of the three bids entered will be the best fit for Canada's future naval fleet. The CSC will be the backbone of the Canadian naval combat fleet. There are several new designs of warships being presented to Canada and there are pros and cons with all of them. Spanish, Dutch and British companies have all answered the Request for Proposals within the allotted timeframe. Spain is offering its anti-air warfare (AAW) F-100 *Christopher Columbus*-class, and the Dutch, the AAW *De Zeven Provinciën*-class. An Italian/French consortium bid has been disqualified as it did not submit its proposal in time. Canada expects to make a decision on the winning bid before the end of 2018.

It was recommended by the House of Commons Defence Review Committee in 2017 that Canada ensures the CSC program restores an effective AAW defence and command and control capability to the RCN's surface fleet. It also recommended that an AEGIS-style platform be incorporated into the CSC design as a priority capability. An AEGIS-style combat system has evolved into a network encompassing more than 100 ships among eight classes in six countries – Australia, Japan, Norway,





*The Italian FREMM frigate **Alpino** moored on the Hudson River, New York City, 3 June 2018. The FREMM design was proposed but rejected because the bid did not follow the CSC competition procedure.*

Republic of Korea, Spain and the United States. Some members of the committee noted that Canada should not dismiss this option for the RCN.<sup>1</sup> Other capabilities the committee strongly recommended for the CSC were an ability to conduct precision strikes ashore and a ballistic missile defence (BMD) capability. In their view, these two capabilities were not only desirable but necessary for the effectiveness of the RCN in the long term.

All the bidding companies have multi-purpose frigates either in service, under construction or planned that can do the job, but there is only one design for Canada that offers a balanced plug-and-play approach, and that design is, without question, the Lockheed-Martin (LM)/BAE consortium Type 26 anti-submarine warfare (ASW) frigate.

### **CSC Type 26: The Best Option**

The BAE Type 26 ASW frigate is a cutting-edge warship that is simply the best fit for Canada's future navy. It is a modern warship with all the capabilities Canada requires in a CSC. The Type 26 is infinitely adaptable, can easily be reconfigured and the RCN can tweak the design to cater to its own development requirements, which is where the Type 26 has the potential to excel. The MK 41 Vertical Launch System (VLS) could be reconfigured to 48 or 64 cells to accommodate a precision strike and BMD capability.

Some have suggested that Canada cannot afford the Type 26 frigate at approximately \$2.5/3 billion CAD per ship in 2018 dollars. The \$61 billion CAD allocated for the build will ensure the RCN gets the 'best bang for the buck'

enabling a more robust AAW MK 41 VLS with a BMD capability along with an AEGIS-style platform. The first three or four Type 26 frigates could very easily have this extra capability incorporated into their design. A reconfigurable mission bay can accept containerized loads to allow the rapid reloading of the vessel. Such loads might include aid/rescue packages, underwater vehicles, boats or naval drones. This ship exceeds Canada's high requirements, would be deployable worldwide for extended periods and would be more than capable of replacing both the RCN's anti-air and anti-submarine capabilities with one single class of ship.

The ship is 149.9 metres (492 ft) in length and has a maximum beam of 20.8 metres (69 ft) and a displacement of 7,000+ tons. A Combined Diesel Electric or Gas Turbine-MT 30 (CODELOG) configuration is deployed in the ship, giving it a top speed in excess of 28 knots with four 20V 4000 M53 diesel generators. It has a MK 41 VLS system that can eventually accommodate surface, air, land attack missiles and BMD. It has a medium-range 5-inch 62 calibre Mk 45 main gun along with two 30-mm Mk 2 guns, two close-in weapon systems and two mini-gun systems, and can be fitted with Canadian torpedos and counter-measures. It will accommodate Canadian hull-mounted towed array and variable depth sonar systems vital to long/medium-range submarine detection. Its large flight deck can easily handle the CH 148 Cyclone helicopter and has the ability to land heavy-lift Chinook helicopters. It has hangar facilities large enough for maritime unmanned aerial vehicles (UAVs) now being considered by the navy, along with a connectable and flexible mission bay. It can undertake a wide range of roles from high-intensity conflicts including ASW, area-air defence and humanitarian assistance.

The Type 26 is flexible, versatile and highly survivable with an extremely low acoustic signature. It exceeds all Canadian naval requirements, and will accommodate Canada-specific modular design sub-systems with open systems architecture. These same features will minimize ownership costs and facilitate Canadian industry playing a major role in through-life support and upgrades, delivering long-term economic benefits to Canada. Its low acoustic signature, crucial to evading detection from submarines, will translate into safety and survivability of the crew, and the ability of the ship to complete its missions. Accommodation is included for 208 crew, with a core complement of 118 sailors.

A major part of the design will be the updated Lockheed Martin (LM) CCM 330 combat system, which will meet all of Canada's future naval command, control, communications, computers, intelligence, surveillance and



Credit: BAE Systems

*A rendering of a Canadianized Type 26 by BAE Systems.*

reconnaissance (C4ISR) requirements. It may only have one drawback – ice capability for the Arctic. If it had a more strengthened hull, however, that would certainly go a long way to meet the strategic needs for a truly blue three-ocean RCN. It also works well within Canada's timeframe as BAE has already started construction in July 2017, about three years ahead of Canada's future CSC requirements.

The LM/BAE Type 26 is the most advanced anti-submarine surface combatant design available anywhere in the world today. Its critics will say that it represents a risk because it will be several years before the first vessels are at sea and the design is unproven. The Royal Navy's Type 26 frigate program is the most modern design and will be able to assimilate rapid technological developments happening now and even during the construction program. Although the Type 26 is very sophisticated, it cannot be described as radical and is an evolution of the well-proven Type 23 frigate. Much of the technology is being de-risked aboard the Type 23 or before construction using land-based test rigs for the propulsion, electrical and transmission system. The Rolls Royce MT30 gas turbine is already at sea on HMS *Queen Elizabeth* and is designed to work in hot conditions. It is actually 15-20% more efficient operating in an ambient air temperature of 40° than the LM 2500 GT used in both of the other competing designs. The entire LM/BAE Type 26 design has been rendered using a cutting-edge virtual reality platform. This networked virtual reality system allows naval personnel, suppliers and engineers at dispersed locations to understand the vessel and refine internal ergonomics before manufacture. BAE is a world leader in utilising this approach to warship design.

The LM/BAE Type 26 is an anti-submarine thoroughbred, designed from the keel up to be as quiet as possible. Building on past experience, every effort has been made to reduce self-radiated noise which might interfere with sensitive sonars or alert submarines to the ship's presence. Primary acoustic hygiene measures include placing the

diesel generators above the waterline, raft-mounting machinery, hull shaping and precise propellor design. Every potential source of noise has been considered such as avoiding right-angle bends in pipework and using acoustic enclosures for auxiliary machinery. These measures increase the size of the vessel, adding to initial costs but cannot be effectively retrofitted into an old ship. All three competitors will have similar bow-mounted sonar and effective towed array sonars. Besides the sensor hardware in the water, what determines their effectiveness in detecting submarines is the quietness of the platform, the processing technology on board and the skill of the operators.

The LM/BAE Type 26 is the largest of the three designs with ample space for future growth, in particular generating capacity to support directed-energy weapons and high-power sensors. A defining feature of the Type 26, lacking in the other proposals, is the large multi-mission bay. This flexible space can be utilised for a variety of roles, especially to deploy and recover unmanned systems which are rapidly evolving and are likely to be central to naval warfare in the future. Unmanned underwater vehicles (UUVs) and unmanned surface vehicles (USVs) offer the potential to further expand ASW reach and presence. UAVs can also provide long-range surveillance or targeting information for naval gunfire support using the 5-inch, Mk 45 Mod 4 gun. Alternatively, the space can be quickly reconfigured with mine-hunting systems, medical facilities or aid supplies in support of humanitarian missions.

The reference Canadian CSC version of the Type 26 frigate may have a slightly different weapon and sensor fit than the RN's Type 26. The Artisan radar would be replaced by the American SPY-1D active phased-array radar. The European Sea Ceptor SAM would not be fitted, instead, the number of MK 41 VLS cells would be increased from 24 to 48 or 64 in order to carry US-made missiles with the latest versions of US Harpoon anti-ship missiles. Potentially the most challenging technical requirement would be the decision to fit the Lockheed Martin AEGIS system



to fit with the updated CCMS 330 combat system instead of the UK BAE combat management system.

The plan is for first steel to be cut in Canada by 2020/2021 for the prototype phase, designed to prove the processes and Irving Shipyard's new production facilities in Halifax. Full production would commence in 2022 with the first ship due to be delivered around 2027. The schedule will mean that BAE's Type 26 ships – HMS *Glasgow*, *Cardiff* and *Belfast* – will be in production ahead of the first Canadian ship, making the lead CSC Type 26 the fourth of class, with the Royal Navy taking the lead in understanding the design, developing its capabilities and addressing any snags.

Should the LM/BAE consortium Type 26 CSC be successful, there would be considerable benefits for the Canadian and British shipbuilding industry. On a strategic level, Britain and Canada have similar history, culture and interests and both are part of the 'Five-Eyes' agreement for the sharing of classified intelligence. An exchange of highly sensitive ASW tactical information and experiences would flow naturally from joint CSC collaboration. The RCN has conducted personnel exchanges with the RN going back to the founding of the Canadian Navy and this mutually beneficial joint experience would only increase. Although the armament, sensors and combat system fitted to the CSC will differ in some respects, there would still be a significant commonality of components that will come from the UK, especially the propulsion system. Economies of scale across the supply chain will help

reduce both construction and through-life costs for both countries. The Canadian government will fund the cost of refining the Type 26 into the detailed LM/BAE Type 26 proposal with more Canadian personnel being employed in the pre-project teams, in both Glasgow, Scotland, and Canada. There would be further work for these valuable specialists, with an emphasis on a transfer of engineering and project management skills to Canada. Success would vindicate the CSC design and should both Canada and Australia<sup>2</sup> adopt the BAE Type 26 program, these three close allies would operate a total fleet of 32 sister ships.

Spain's F-100 *Christopher Columbus* and the Dutch *De Zeven Provinciën*-class present the most readily accessible options to those without more than a cursory knowledge of global naval platforms. The problem, however, is that the main ASW war-fighting capability planned for the CSC will be nowhere in sight if either the Navantia option or Dutch design is selected. The hulls and internal systems are far too noisy to satisfy the requirements of true ASW warships. Fortunately, in the case of the LM/BAE Type 26 frigate, the ASW capability demands put down by the UK government for that platform are strikingly similar to those of Canada's CSC requirements. The CSC frigate capability calls first and foremost for an ASW capability along with incorporating leading edge phased-array radar technology (think AEGIS combat system) with a 'pumped-up' AAW/BMD capability including a larger MK 41 VLS cell component. Both *Christopher Columbus* and *De Zeven Provinciën*-classes are largely everything that you don't want to conduct ASW.



One of the Type 26's most distinctive feature is a dedicated reconfigurable mission bay. Rolls-Royce will be producing the handling system shown in this illustration.



*USS John Paul Jones fires a SM-3 Block IIA missile to intercept a ballistic missile test target off Hawaii in 2017. Although the CSC is expected to have a ballistic missile defence capability, the author argues that anti-submarine warfare should be the most significant criterion for CSC design selection.*

If Canada is to gain the most value for money, in a project the effects of which are planned to span more than 40 years from construction to disposal, the Type 26 Global Combat Ship is the most common-sense decision. While embryonic in terms of shipbuilding (if selected, the RCN build timeline will commence three years after that of the UK's Type 26 frigates), to deride the platform as an 'unproven ship' is to sell the project short. BAE is no slouch in ship design, and the UK has taken many steps to ensure a robustness and surety in the design of the platform and its systems before building, most notably by conducting trials of its technologies on existing platforms and large-scale test beds. Sufficient confidence can be had in this approach to dismiss the 'immature, paper design' argument. The Type 26 then, provides the RCN with not only the most effective ASW hull (specifically designed for the role, considering noise signatures and sensor and weapon use) but also the clearest winner in regard to 'future-proofing.' Provided with greater margins for future growth in the systems and sensors on board, the Type 26 will support the RCN's need to remain at the forefront of technological advantage. This in itself will bolster its efficiency and overall value-for-money above its competitors.



*The Right Honourable Gavin Williamson, UK Secretary of State for Defence, visited BAE Systems' Clyde shipyards 19 April 2018 to view progress on the first Type 26, **Glasgow**. Behind him is one of the hull units. The first two completed hull units have since been joined.*

## Conclusion

The final three contenders are all suitable platforms given their main strengths. So which ship is the best fit for Canada's navy? The BAE Type 26 CSC is simply the right solution for Canada's future naval fleet and at a final cost of approximately \$61 billion CAD, it is still well worth the investment and of course would be built here in Canada. But regardless of the merits of the ships, the final result of the process will be weighed up between two decisions, one military and one political – what's the best CSC ASW/AAW warship for Canada, and which bid would best result in an enduring national industry. Regardless of the selection outcome this year, the opportunity exists for the government to demonstrate vision and understanding of its military capability needs through the selection of the LM/BAE Type 26 frigate. If Canada is to be serious about its naval influence and contribution to NATO in the coming decades, now is the time for the Trudeau government to show some real courage and foresight in the final decision. When we look, however, at all three final contenders, there is a real possibility that the 'right' war-fighting capability selection may be hijacked by a choice which presents greater political gain rather than advantage over a future combatant. 🇨🇦

## Notes

1. House of Commons, Standing Committee on National Defence, 6<sup>th</sup> Report, "The Readiness of Canada's Naval Forces," June 2017, p. 63, paragraph 3, Developing New Naval Capabilities.
2. At the end of June 2018, Australia selected the Type 26 design to replace its aging frigates.

*David Dunlop, NATO/QGJM/CD2, is a retired RCN Petty Officer 1<sup>st</sup> Class Naval Combat Information Officer with over 41 years experience as a Tactical Data Coordinator for Command. He is not now, and has never been, an employee of LM or BAE.*



# An East Coast Air Station: Shearwater 1918-2018

Colonel (Ret'd) John L. Orr\*

In many ways, Shearwater,<sup>1</sup> in its various incarnations is a unique Canadian military institution. While its influence has never equaled that of the army at the Halifax Garrison or the navy at HMC Dockyard, it has played and continues to play a significant role in the defence of Canada's maritime interests. Celebrating 100 years since its establishment in August 1918 as United States Naval Air Station Halifax, its rich and varied history<sup>2</sup> is illustrative of the ebbs and flows of the development of Canadian military aviation, especially during the inter-war period from 1919-1939 and the era after Unification in 1968.

## First World War

A requirement to establish air stations in Nova Scotia was first proposed in 1917 as a result of the arrival of long-range German submarines in neutral American ports in late 1916. It was recognized that if the German submarines ever re-appeared in the western Atlantic, the fledgling Canadian Naval Service lacked the necessary offensive power to counter them and the only recourse was to use airplanes and balloons to redress the balance. Unfortunately, this proposal was rejected by Cabinet in the interests of economy.

In January 1918, the British Admiralty issued a warning that German submarines were likely to arrive in the western Atlantic for the upcoming shipping season. At a coordination meeting convened in Washington in April 1918 by the British Commander-in-Chief North America and West Indies, representatives of the Royal Navy (RN), US Navy (USN) and Canadian Naval Service met to discuss the Allied response. It was decided that air stations should be established at Cape Race, Sydney, Halifax and Cape Sable. With the exception of Cape Race, these air stations were to support dirigibles and kite balloons as well as seaplanes. Ultimately, only the air stations at Sydney and Halifax were built prior to the Armistice signed in November 1918.

Because Canada had neither the equipment nor personnel to carry out aerial patrols in 1918, the USN agreed to fill the gap in Nova Scotia pending the training of the Royal Canadian Naval Air Service (RCNAS) later that year. As its part of the arrangement, the government of Canada agreed to construct suitable facilities at both Sydney and Halifax.

The site selected for the Halifax seaplane and kite balloon installation was Baker Point near Eastern Passage, a location that was served by both road and rail and had a



Credit: DND Photo via  
Shearwater Aviation  
Museum

*An American Curtiss HS-2L flying boat being launched from Baker Point, 1919. Baker Point would later become known as Shearwater, Canada's East Coast naval air station.*

protected anchorage for seaplanes. While USN personnel immediately erected a temporary steel hangar<sup>3</sup> and established a camp under canvas, the Department of Public Works undertook the construction of permanent facilities with the objective to have all personnel under hard shelter by 15 October.

Lieutenant-Commander Richard E. Byrd, who a few years later achieved great fame as an aviator and polar explorer, arrived in mid-August to take command of US Naval Air Station Halifax and to act as Officer-in-Charge of US Naval Air Forces in Canada. On 25 August, two of his Curtiss HS-2L flying boats made their first flight over Halifax to the consternation of the commander of the Halifax garrison who pointedly noted that "the fortress is equipped with anti-aircraft defences."<sup>4</sup> The aircraft were ready for operations on 26 August and continued operational flying until the Armistice.

It is interesting to note that Byrd regarded his appointment to Halifax as a setback to his ambition of piloting the first aircraft across the Atlantic. He had been actively campaigning to be assigned to the USN's Trans-Atlantic Flight Section when he received his orders to Halifax.



Credit: DND Photo via Shearwater Aviation Museum

*Shearwater in the 1940s, known at the time as RCAF Station Dartmouth. Photo shows the dramatic runway expansion to enable landplane operations so crucial to the war effort.*

Despite his disappointment at this turn of events, Byrd carried out the operational duties of his command in an effective manner and devoted much effort to addressing the difficulties of long distance over-water navigation. This was to prove useful when he eventually returned to Halifax en route to Newfoundland as part of the USN's successful Trans-Atlantic team in 1919.

Byrd's relations with the local community were quite amiable. Undoubtedly, the demands of operational commitments and the quarantine of USN personnel during the Spanish influenza outbreak kept his charges out of trouble. In his autobiography, Byrd credited his men for their perseverance "up there on that forbidding coast, far from ordinary comforts and conveniences, continually forced to risk our lives in uncertain flying conditions." He also records that he found his Canadian neighbours of 1918 to be "tolerant, helpful, cordial and hospitable."<sup>5</sup>

Following the end of the war and the departure of American personnel, it was agreed that Canada would purchase all American ground equipment in return for a donation of the 12 remaining HS-2Ls, 26 Liberty engines and four kite balloons.

### ***Inter-war Period***

With the departure of the Americans and the disbandment of the RCNAS, the future of Shearwater was 'up in the air' – an uncomfortable but not unfamiliar predicament for the air station as will be seen.

In 1919, Shearwater was turned over to the Canadian Naval Service with the sole remaining member of the RCNAS making periodic inspection tours of the facilities in Halifax and Sydney. While Shearwater was under the control of the Naval Service, an application was made by the St. Maurice Forest Protection Association for the loan of two Curtiss HS-2Ls to conduct forest fire patrols in the

St. Maurice region of Quebec. Permission was granted and the first patrols were flown in June 1919. In addition to spotting for fires, the aircraft conducted aerial survey and photography missions along with liaison duties. Thus Shearwater, and the RCN, can claim to have had an important role in the development of 'bush flying' in Canada.

In order to oversee the further development of aviation in Canada, in June 1919 Canada established the Canadian Air Board and Shearwater was transferred from the Naval Service to the Air Board in 1920. In October 1920, the Flying Operations Branch of the Air Board and

the newly formed Canadian Air Force, a non-permanent air militia subordinate to the Board, carried out the first trans-Canada flight from Halifax to Vancouver. The Air Board flew the leg from Shearwater to Selkirk, Manitoba, while the Canadian Air Force carried out the leg from Manitoba west. In an epic saga, the flight began on 7 October and concluded in Vancouver on 17 October after 49 hours and seven minutes of flying time.

Until 1934, the activity rate at Shearwater fluctuated on a seasonal basis, with the permanently assigned HS-2Ls augmented as necessary by aircraft from other stations. In 1921 for example, the Air Board carried out an aerial survey of Halifax with an HS-2L and, in conjunction with a Felixstowe F-3 flying boat from Ottawa, participated in naval and military exercises with the RCN and the Halifax Garrison Artillery.

Following the election of William Lyon Mackenzie King in 1921, a single department of National Defence was established in 1922 and incorporated the former departments of Militia and Defence, Naval Service and the Air Board. Functions of the Air Board were incorporated within a new Canadian Air Force (CAF) structure which was, in turn, under the control of the Chief of the General Staff of the new department. Consequently, in December 1922, Shearwater was transferred to the CAF.

On 1 April 1924, the Canadian Air Force became the Royal Canadian Air Force (RCAF) and started a fitful expansion. Shearwater continued with aviation taskings requested by various government departments based on the decisions of an interdepartmental committee called the Civil Government Air Operations Committee. Since these activities could no longer be performed by an ad hoc group of aircraft on a seasonal basis, on 1 April 1925 the RCAF formed No. 4 (Operations) Squadron to be based



at Shearwater. This was the first organized Canadian squadron to fly from the air station and it continued to be employed on civil government air operations until 1927 when a further re-organization took place. The RCAF became the military branch of the air services and was essentially limited to air training at Camp Borden, Ontario, and Vancouver. Shearwater now reported to the Directorate of Civil Government Air Operations under the direct control of the Deputy Minister of National Defence.

Budget cuts caused by the Depression brought about a further re-organization of the RCAF in 1932. The RCAF establishment was slashed and, as an economy measure, the Directorate of Civil Government Air Operations was once again folded into the military structure under the Senior Air Officer of the RCAF.

After several years of inactivity, a detachment was established at Shearwater in 1933 to fly anti-smuggling patrols for the RCMP. These patrols apparently had little effect on smuggling and were terminated after the 1936 flying season. They did, however, lead to the establishment of No. 5 (Flying Boat) Squadron at Shearwater in 1934 after the station had been in a 'care and maintenance' status since the 1927 flying season. This, along with the decision to order five modern flying boats, the Supermarine Stranraer, from Vickers Canada in 1936 commenced the slow climb towards a modern military air force for Canada on the East Coast and an increased RCAF presence in Halifax.

By 1937, with the air force re-equipment program well underway, it became apparent that landplanes would be

needed to meet the requirements for long-range maritime patrols. Accordingly, Shearwater was earmarked for rapid expansion under the terms of an unemployment relief project and following the clearing of the upper base, runways were constructed.

This was the first concerted construction activity at Shearwater since 1918 and once again, it was done 'at the rush.' Although the facilities were not completed in time for the declaration of war in September 1939, they were ready for the arrival of No. 11 Bomber Reconnaissance Squadron and its Lockheed Hudsons on 3 November 1939.

The greatly increased presence of Shearwater and the RCAF in the local area was in evidence during the Royal Visit of 1939 when King George VI and Queen Elizabeth visited Halifax. As part of the ceremonies, the air force mounted a guard and flew three Stranraers from No. 5 Squadron as an aerial escort for Their Majesties when they departed Halifax on board *Empress of Britain*.

### **Second World War**

During the Second World War, Shearwater became the main operational air station of Eastern Air Command and performed many ancillary functions such as being the support base for the shipborne aircraft of the Royal Navy involved in convoy escort. It was also the home port of the RCAF Marine Squadron which had responsibilities for RCAF installations as far away as Labrador.

Significantly, the Second World War had a much larger impact on the local industrial base than the First World War. This was principally due to the much larger air effort



No. 5 Squadron's Supermarine Stanraer flying boats provided escort for King George VI and Queen Elizabeth on board RMS *Empress of Britain* in 1939.

Credit: DND Photo via Shearwater Aviation Museum



*Shearwater as founded in 1919 and as seen in 2016.*

mounted from Shearwater and in the Maritime provinces in general. While aircraft manufacturing did not take place in Halifax (although it did in Amherst, Nova Scotia), a major repair and overhaul facility was established in Eastern Passage. The Clark Ruse company, associated with Noorduyn of Montreal, established its overhaul facility in 1941 and used a site on the water to accept the large number of seaplanes in the inventory of Eastern Air Command. Landplanes based at Shearwater, including fighters and maritime patrol aircraft, were also serviced and were towed to the plant from the airfield along a special taxiway. The number of workers employed was significant and, in order to address the chronic shortage of housing in Halifax in general and Eastern Passage specifically, a married quarters development known as Clarence Park was built with 170 units.

The pace of activity at Shearwater slowed perceptibly during the final years of the war, particularly among the

fighter squadrons, although the maritime squadrons continued their operational activity until the cessation of hostilities in the European theatre in 1945. Following that, there was a rush to demobilize although there was a brief flurry of activity with the formation of the 'Tiger Force' of Lancaster bombers for operations against Japan. Three squadrons of these bombers were earmarked for Shearwater but following the end of the war in the Pacific in August 1945, demobilization proceeded apace.

Interestingly, all aviation activity at Shearwater did not cease at the end of hostilities. As the only suitable airfield in the area, both Maritime Airways and Trans-Canada Airlines operated commercial flights during the war and in the immediate post-war period. In fact, until the opening of Halifax International Airport in 1960, commercial operators remained a constant presence at the station.

In contrast to the First World War and the inter-war period, the Second World War was good to Shearwater and had a profound impact on the local community through the expansion of the air station, the establishment of a significant repair and overhaul facility in Eastern Passage, the beginnings of scheduled commercial services and, quite possibly, the employment of several formerly unemployed rum runners in the RCAF's Marine Squadron.

### ***Post-war: RCN Air Section Shearwater/HMCS Shearwater***

Initially, it appeared that with the end of the war, Shearwater was heading for a rundown period similar to that following the First World War but, in fact, it was about to enter a period which matched the pace of activity of the Second World War and then some.

In the closing years of the Second World War, the RCN, in an attempt to secure a 'big ship' navy, began the process of creating its own Naval Air Branch. With the arrival of RCN air squadrons onboard HMCS *Warrior* on 25 May 1946, an RCN Air Section was established as a lodger unit at Shearwater. An agreement for 'dual control' of the aircraft was worked out with the RCAF controlling all shore-based activities, including support services, and the RCN conducting all embarked flying and operational flying from ashore. Over the next two years, the situation on the airfield changed to the point where the RCNAS became the main user of the air station.

The RCN had looked for other base facilities in the Halifax area but it soon became apparent that there were no suitable alternatives. With dual control being a continuing point of friction between the air force and the navy, the issue of who should operate Shearwater was raised to the Cabinet Defence Committee and it was agreed on 1





HMCS *Bonaventure* at Shearwater, 1958.

December 1948 that the RCN should take control.

The years from 1948-1968 were exciting but challenging. Looked at from today's perspective, the operational achievements are staggering: the RCN accepted three aircraft carriers (*Warrior*, *Magnificent*, *Bonaventure*); three types of fighters (*Seafire*, *Sea Fury*, *Banshee*); three fixed-wing anti-submarine aircraft (*Firefly*, *Avenger*, *Tracker*); two anti-submarine warfare (ASW) helicopters (HO4S, CHSS-2/CH124); and a variety of support and training aircraft. Additionally, the RCN pioneered the marriage of a medium-sized helicopter to an escort-sized warship.

The expansion of naval flying brought with it the necessity to carry out depot-level maintenance. Under the terms of the original RCN/RCAF aviation agreement, the RCAF arranged in 1946 for Canadian Car and Foundry to carry out repair and overhaul of navy aircraft at the former Noorduyn plant in Cartierville, near Montreal. Consequently, a large number of spares were shipped to Montreal to support this activity. This arrangement became cumbersome, particularly in light of the shortage of spares. Fairey Aviation, based in the UK, had been sub-contracted to provide support to Canadian Car for its types of RCN aircraft (*Seafire*, *Firefly*) and became so disenchanted with the arrangement that it acquired the facilities of the former Clark Ruse plant in Eastern Passage from War Assets Disposal and in 1948 opened for business as Fairey Aviation Canada.

From 1948 until 1970, Fairey Aviation Canada was the principal repair and overhaul facility for the fixed-wing aircraft of the RCN and the maritime aircraft of the RCAF. With the arrival of the *Argus* long-range maritime

patrol aircraft, Fairey expanded its facilities by building a hangar at the Halifax International Airport.

Construction activity at the air station continued apace during the 1950s and early 1960s. On the airfield, the north-south runway (16/34) was twinned in order to handle jet aircraft and the Shearwater jetty was refurbished to handle aircraft carriers. Several wartime hangars were replaced with more permanent structures and modern accommodations were built for both the men and officers. Additionally, married quarters and a school were constructed to accommodate the newly arriving personnel.

While operational activity at sea was the *raison d'être* of the station, a number of flying operations were conducted from ashore, principally carried out by the helicopter squadrons. The most frequent of these were search and rescue operations conducted in support of the Rescue Co-ordination Centre in Halifax.

These were heady days but there were warning clouds on the horizon. The retirement of the *Banshee* jet fighter with no replacement effectively limited the RCN to ASW operations, and the *Bonaventure* refit in 1966/67 was an unmitigated public relations disaster, despite the operational justification. Additionally, the introduction of Unification in February 1968, which merged the RCAF, RCN and army into the Canadian Armed Forces (CAF), meant that naval aviators lost their ability to influence policy decisions as their interests were merged with those of the wider aviation interests of the CAF. The final nail in the coffin was the scrapping of *Bonaventure* in 1970 and with the last takeoff of a *Tracker* from the carrier, a unique chapter in Shearwater's history closed.



Credit: Cpl Nedra Coutinho, 12 Wing Imaging Services

Shearwater's Sea King helicopters celebrated their 50<sup>th</sup> anniversary in November 2012. With the arrival of the Cyclones to replace the Sea Kings, Shearwater will continue to play a key role in Canada's naval aviation history.

### **CFB Shearwater and 12 Wing Shearwater**

Organizationally, Unification meant that the air station became Canadian Forces Base (CFB) Shearwater. While much of the rotary-wing ASW activity continued apace, the decommissioning of the carrier meant that fixed-wing flying was doomed and with it went many of the personnel who made the air station such a vibrant place.

With the general reduction in activity in the late 1960s, Fairey Aviation closed its doors in 1970 and was acquired by Industrial Marine Products (IMP). The Eastern Passage facility was closed and was eventually acquired by the Autoport and is now the site of a thriving automobile trans-shipping business.

In 1975, under yet another re-organization of Canada's military aviation forces, Shearwater came under the control of the newly established Air Command.

In 1993, as a result of a budget-induced force rationalization, CFB Shearwater was further restructured and became 12 Wing Shearwater. Further budget cuts followed in 1994 which led to efforts to close Shearwater in 1995. This action was eventually delayed and in the same year, Base Halifax and Maritime Command took over responsibility for the support of a much-reduced Shearwater from Air Command.

While the final chapter in this saga has yet to be written, the future for Shearwater is looking promising once again. The air station is now the master maritime helicopter base of the RCAF and with the arrival of the Cyclones to replace the Sea Kings, major construction activity has again taken place.

### **Conclusion**

Since its inception, Shearwater has served in a variety of roles and under a variety of organizations. However, its

location at the entrance to Atlantic Canada's major port and on the great circle route between North America and Europe means that it has been and will continue to be involved with 'those who go down to the sea in ships.' It is no accident that Shearwater is the only air station in Canada to have conducted combat operations in both the First and Second World Wars.

Whether in peace or war, under whatever flag, Shearwater has made a major contribution to its country, its community, and both civil and military aviation. All who have served and continue to serve at Shearwater can take comfort from the fact that over the years, their air station has remained true to its motto, *Supra Mare Volumus* (We Fly Over the Seas). 🇨🇦

#### **Notes**

- \* The author wishes to acknowledge the significant contribution made by Colonel (Ret'd) Ernie Cable, the Shearwater Aviation Museum Historian, to recording the history of Shearwater.
- 1. Shearwater is located on the eastern side of Halifax Harbour in the lee of McNabs Island and is about six kilometres from HMC Dockyard. In order to reduce confusion, the term 'Shearwater' will be used to refer to the location which has had many titles – Baker Point, United States Naval Air Station Halifax, Air Station Dartmouth, RCAF Station Dartmouth, RCN Air Station Dartmouth (HMCS Shearwater), CFB Shearwater and 12 Wing Shearwater.
- 2. Shearwater has served under seven different flags or ensigns. They are: the flag of the United States of America 1918-1919; Canadian Air Board Ensign (1920-1924); RCAF Ensign I (1924-1941); RCAF Ensign II (1941-1948); RCN Ensign (1948-1968); Maritime Command Ensign (1968-1975); Air Command/RCAF Ensign III (1975-).
- 3. This hangar, 'Y' Hangar, is still in use today by the Fleet Diving Unit (Atlantic) albeit in a much-modified condition.
- 4. Letter GSO1 Halifax Citadel to Flag Commander, Admiral's Office HMC Dockyard, 26 August 1918. Directorate of History and Heritage 77/58.
- 5. Richard E. Byrd, *Skyward* (New York: Blue Ribbon Books, 1933), p. 75.

Colonel (Ret'd) J.L. Orr CD joined the Royal Canadian Navy in September 1963. Selected for aircrew training, he completed five operational tours on the Sea King helicopter, and held a number of command and staff appointments in Canada, NATO and the Middle East, including command of 423 Squadron.



# The Importance of Naval Education for Flag Officer Development<sup>1</sup>

**Vice-Admiral (Ret'd) Nigel D. Brodeur**

An individual who possesses a sound naval education, encompassing nautical education, will be well prepared to assimilate all aspects of naval training. He or she will be able to assess and learn from observations and experiences at sea, to adapt to unforeseen changes in naval technology and operational doctrine, and to indoctrinate others in new and novel marine equipment, processes and procedures.

Conversely, an individual who is confined to receiving only essential naval training will be narrowly focused on those vessels and naval equipment actually in service within his (or her) country and on the associated processes and procedures. The knowledge such persons can impart to subordinates and successors will inevitably be encapsulated, become dated and (lacking total recall) gradually diminish.

Nautical education is not a novel concept. For example, its importance was emphasized by Jean Talon, the first Intendant (Administrator) of New France following his return to France in 1672. Talon wrote, “[t]he Canadian Youth are improving their knowledge. They take to schools for sciences, arts, handicrafts and especially navigation and if this movement is sustained there is every reason to hope that the country will produce mariners, fishermen, seamen and skilled workmen.”<sup>2</sup>

The Board of Canada’s Trinity House was the first body to institute a nautical school in Canada. The Quebec Nautical School was created in 1852. Its Principal was George Templeman Kingston, a naval schoolmaster from the naval school in Greenwich, England, who held a Master’s degree from Cambridge. The nautical school was bilingual, textbooks came equally from England and France, and tuition was given in both languages. The school was ahead of its time. Unfortunately, that Trinity House school lasted only two years. Its Principal went to University of Toronto in 1855 to occupy the Chair of Meteorology and was later deemed the father of the Marine and Fisheries Meteorological service.<sup>3</sup>

It gradually became become apparent that some scheme of formal marine education was necessary and in 1902 the Department of Marine and Fisheries started a private school for that purpose in Montreal. In the following year other such schools were established at Halifax, Saint John, Yarmouth and Victoria.

Eight years later the *Naval Act* of 1910 would stipulate:



*The original Royal Naval College of Canada in Halifax, photographed in 1913.*

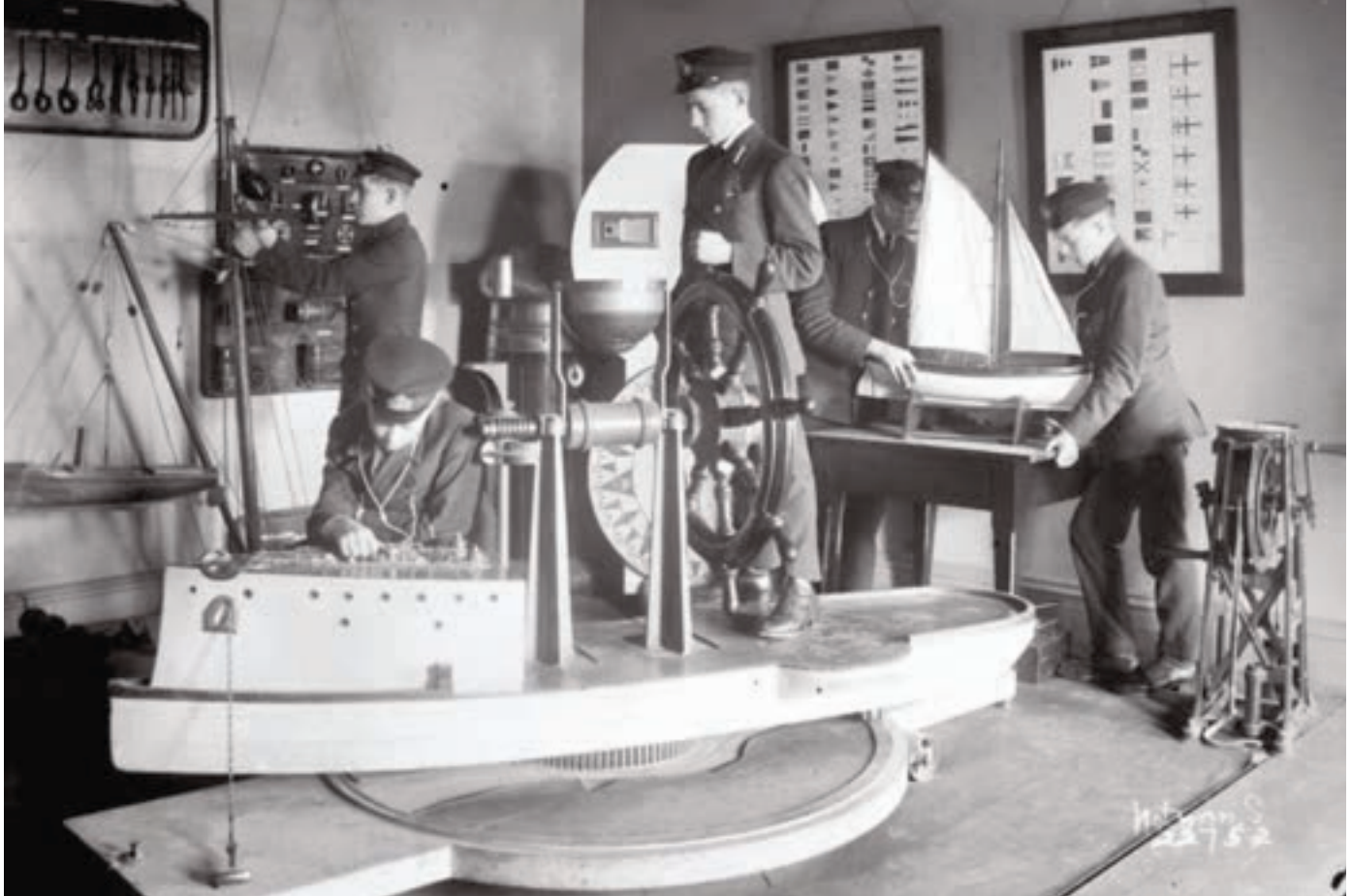
32. There shall be an institution for the purpose of imparting a complete education in all branches of naval science, tactics and strategy.

2. Such institution shall be known as the Naval College of Canada, and shall be located at such place as the Governor in Council may determine.

33. The Naval College shall be governed and its affairs administered under such regulations as may be made by the Governor in Council.

2. Such regulations shall be published in The Canada Gazette, and upon such publication shall have the same force of law as if they formed part of this Act.

34. The Naval College shall be conducted under the superintendence of a naval officer who has special qualifications with regard to discipline and to the instruction to be given, and such professors, instructors and assistants as are found necessary and as are authorized by Parliament.



Credit: Notman Studio, via Library and Archives Canada

Students at the Royal Naval College of Canada participate in a shiphandling class, 1914.

The Royal Naval College of Canada (RNCC) opened on 11 January 1910. The commander and the naval instructional staff were provided by the British Admiralty and three civilian schoolmasters, designated by the Canadian Civil Service Commission, taught mathematics, science and languages. It could accommodate 45 cadets; and 21 out of 34 initial applicants passed the entry examination and were selected.<sup>4</sup>

Initially the RNCC course took two years after which the successful graduates would be promoted to Midshipman and undergo a year's training in a cruiser. By the fifth term (1914) the curriculum was broadened to include preparation for other careers (and possibly also to parallel the program in the Royal Navy's (RN) college) and the course was lengthened to three years. In 1915 the subjects taught were mathematics, navigation, mechanics, physics, chemistry, engineering, seamanship, pilotage, history (including naval history), English, French and German. The prospects for comprehensive made-in-Canada naval education and training were indeed promising. They included a fine naval college, a large (11,000 ton) well-armed training cruiser (HMCS *Niobe*), a smaller (3,600 ton) cruiser (HMCS *Rainbow*) and the planned addition of four *Bristol*-class cruisers and six *River*-class destroyers to be built in Canada for the new Canadian Navy.

Sadly for the RCN, those made-in-Canada prospects did not materialize. The grounding of HMCS *Niobe* on Cape Sable Island in 1911, and her subsequent lengthy docking

and repairs, necessitated training the early RNCC graduates in RN cruisers and battleships. Then the new ship construction program was lost when the Wilfrid Laurier government was defeated in 1911. Finally, the devastating 6 December 1917 Halifax explosion rendered HMCS *Niobe* useless and virtually destroyed the Naval College. The final term for the 1917 graduating class was moved to the Royal Military College Kingston. The Naval College was transferred to Esquimalt in 1918, then was closed in 1922 as a cost-cutting measure.

Thus, Canada's total reliance on the Royal Navy for Canadian naval education and training was accidental – not intentional! The full impact of closing RNCC in Esquimalt in May 1922 was far greater than is generally recognized. A distinguished educator, Dean R.W. Brock of the University of British Columbia, stated:

I am very sorry indeed that it has been found necessary to abolish the Royal Naval College, and consider it a distinct loss to Canada in many respects. It is an educational loss. The training the boys received made them valuable citizens and an excellent influence in their communities. It furnished naval reserve officers which were useful in the war and may again be badly needed. It furnished technical men for the hydrographic survey, and trained officers for the merchant marine. In deciding to restrict Canada's participation in the Navy to training personnel, one would



have expected that they would have retained the school, for trained men require trained officers.<sup>5</sup>

The outcome of all the aforementioned disasters was that the RCN played a minor (and generally overlooked) role, in comparison to the Canadian Army, in World War I. The total Canadian naval enrolment was said to be 9,600 officers and ratings. HMCS *Niobe* operated briefly in 1914-1915 with the RN on contraband patrol off New York. HMCS *Rainbow* patrolled the Pacific Coast as far south as Panama. The RCN's two submarines CC-1 and CC-2 (initially bought by the BC provincial government) served on the West Coast for three years then transited, with their mothership HMCS *Shearwater*, via the Panama Canal to Halifax and operated on the East Coast for the remainder of the war. The RCN manned a fleet of assorted minor anti-submarine and mine-protection vessels, including 12 new Canadian-built *Battle*-class trawlers.<sup>6</sup> An important (and again largely overlooked) Canadian contribution to the naval war effort was the 10 'H' class submarines built in Quebec for the RN, and the achievements of the RCN officers and ratings who served in RN submarines – five of whom held a total of 12 appointments in command of RN submarines.<sup>7</sup>

There were unrecorded numbers of Canadians who entered the RN and its Air Service during the war – several of whom were highly decorated. Two from British Columbia were Lieutenant (later Lieutenant-Commander) Rowland Bourke who earned the Victoria Cross (VC) and Distinguished Service Order (DSO) in WW I, and

Lieutenant (later Captain) Frederick Thornton Peters who earned the DSO and Distinguished Service Cross (DSC) in WW I and in WW II earned another DSC and the Victoria Cross. The RCN also suffered Canada's first casualties of WW I – four Midshipmen from the first course to graduate from RNCC were lost when their RN cruiser, HMS *Good Hope*, was sunk with all hands at the Battle of Coronel off Chile on 1 November 1914. A fifth member of that first course Lieutenant W.M. Maitland-Dougall perished when the RN submarine D3 which he commanded was mistakenly sunk, with all hands, by a French dirigible on 12 March 1918.

Following WW I the RCN was savagely reduced. Its 1924-25 financial estimates to the Canadian government depict a total strength of 380 uniformed personnel. Its officer strength comprised 67 officers and seven Warrant Officers, with 28 of them training or serving overseas (i.e., in RN ships and establishments) – one of them was Lieutenant-Commander Percy Nelles, the future Chief of the Naval Staff (CNS). Naval Headquarters in Ottawa had only eight officers including Commodore Walter Hose, who had but one designated Staff Officer – Lieutenant-Commander Victor G. Brodeur. The Naval College was gone, the RCN was struggling to survive, and the workload on officers and men serving in NSHQ, on the coasts and in the two destroyers and four trawlers (all of them seriously undermanned) was extremely hard on all concerned, including their families.<sup>8</sup>



The crew of HMCS *Rainbow* poses for a photograph on the ship, 1917.

Credit: Library and Archives Canada



Credit: Library and Archives Canada

Commodore Walter Hose, left, is photographed here with Minister of National Defence J.L. Ralston and Assistant Deputy Minister of National Defence Major H.W. Brown at the London Disarmament Conference of 1930.

Nonetheless, the officers and men who served in the RCN between 1918 and 1939 were the nucleus which produced the miraculous growth of the RCN in WW II to over 102,000 uniformed personnel (in the RCN, RCNR, RCNVR and WRCNS) and some 365 ships. Nearly all of the initial Commanding Officers of Canada's 67 wartime frigates and 131 wartime corvettes were Royal Canadian Naval Reserve (RCNR) officers – seafarers who possessed Coast Guard or merchant marine tickets and years of sea-going experience. It was thanks to the training and leadership that most of them provided to their Royal Canadian Naval Voluntary Reserve (RCNVR) subordinates that the RCNVR in turn acquired the skills to command so many frigates and corvettes. Today no such large pool of Canadian RCNR-equivalent officers exists. Unless maritime and naval circumstances vastly change in Canada, a similar tremendous achievement, if ever needed, will not be possible!

WW II was also a war during which many RCN officers capably discharged responsibilities which nowadays would be assigned to officers at least one or two ranks higher. Between 1939 and 1945 that very sizeable RCN had only 11 Admirals and Commodores: P.W. Nelles, V.G. Brodeur, G.C. Jones, L.W. Murray, H.E. Reid, G.L. Stephens, C.R. Taylor, W.J.R. Beech, G.M. Hibbard (Acting Cmdr), E.A. Brock and E.R. Brock.<sup>9</sup> Nelles and Brodeur had joined CGS *Canada* as cadets in 1909 and transferred to HMCS *Niobe* as Midshipmen on her arrival in Halifax (21 October 1910). Jones and Murray were first term Royal Naval College of Canada (RNCC) and joined HMS *Berwick* as Midshipmen in 1913. Reid and Taylor were second term RNCC and joined *Berwick* in 1914. Beech was also second term RNCC; he joined the submarine CC-1 in 1916. Hibbard was third term RNCC and joined HMS *Erin* in 1915. Stephens arrived in Canada in HMCS *Niobe* in October

1910 as a 21-year old Royal Navy Engine Room Artificer Second Class. Both of the Brocks were transferees from the RN Voluntary Reserve. When Midshipmen Jones, Murray, Reid and Taylor arrived in *Berwick* their gun-room Sub-Lieutenant was Brodeur. The four RCN Midshipmen who were lost in HMS *Good Hope* at the Battle of Coronel were also first term RNCC graduates who had joined *Berwick* in 1913 prior to transferring to *Good Hope* in 1914. Their loss was undoubtedly a more serious blow to the infant RCN than is generally recognized.

The July 1945 Canadian Navy List names a total of 15 RCN ('Executive' Branch) Captains, six RCN Captains (Engineering Branch) and a single Supply Captain. Of those 22 RCN Captains, 17 later reached Admiral or Commodore rank and are named in *Canada's Admirals and Commodores*.<sup>10</sup> The first point to note is that all 17 were graduates of the Royal Naval College of Canada. The second point is the distribution of those 17 between the RNCC terms – 1<sup>st</sup> = 1, 2<sup>nd</sup> = 2, 3<sup>rd</sup> = 2, 5<sup>th</sup> = 3, 6<sup>th</sup> = 2, 7<sup>th</sup> = 1, 8<sup>th</sup> = 1, 9<sup>th</sup> = 4, 10<sup>th</sup> = 1 – and the fact that the terms 8 to 10 were taught following the RNCC's move to Esquimalt.<sup>11</sup> All of this indicates a small, but high quality, naval education institution. The third point to be noted is that Grant, Mainguy and DeWolf who successively succeeded Vice-Admiral Jones as CNS were respectively from the 5<sup>th</sup>, 6<sup>th</sup> and 9<sup>th</sup> terms at RNCC, and jumped over several of their RNCC predecessors so it would be incorrect to assert that promotions to flag rank in the wartime RCN were primarily dependent on seniority.

Although 13 of the 15 (Executive) Captains listed in 1945 became Admirals or Commodores in the post-war years, only seven of the 20 listed (Executive) Commanders later attained those ranks. In fact, Canada's large RCN in WW II had a far smaller proportion of Lieutenant-Commanders and above than it has in modern times and, as noted, the levels of responsibility held by those officers would probably equate to those held today by officers one to three ranks higher.

Unfortunately, the RCN's WW II achievements have been somewhat denigrated by the tendency of some modern authors to focus on correspondence or events which seemingly intimate that personal rivalries or enmities existed between some senior officers, which thereby had an impact on the war effort. One example would be the criticisms levied against Vice-Admiral G.C. Jones. His official letters to V.G. Brodeur during WW II are peppered with Jones' personal handwritten notes in the margin – notes which reveal great professionalism, loyalty and sense of duty, occasionally mixed with 'salty' humour. Presumably, those notes would not have appeared in the 'official



files,' hence would not have been seen by researchers.<sup>12</sup> It is evident that a spirit of mutual trust, respect and friendship existed between them. An excellent relationship also existed between Vice-Admiral G.C. Jones and Rear-Admiral George Stephens (another close friend of Rear-Admiral Brodeur) who rose from RN Engine Room Artificer Second Class to become the Chief of Naval Engineering and Construction spearheading the RCN's WW II ship-building miracle.<sup>13</sup>

Returning to the interim period between WW I and WW II, there was little (if any) standardization in naval education for RCN officers following the closure of the RNCC in 1922 until September 1942 when HMCS *Royal Roads* transitioned from being one of the three volunteer reserve training establishments<sup>14</sup> into the two-year HMCS *Royal Roads* naval college. A handful attended the Royal Military College in Kingston. Others attended the Royal Naval College in Dartmouth, England, or one of the British Merchant Marine academies, and these people may have received the most comprehensive naval education. Without knowing the curricula involved in the individual institutions, it is impossible to make comparisons, however there is evidence that the RCNC in Esquimalt provided excellent education – both from the aforementioned statement by Dean Brock of UBC and from the reality that five of the 38 cadets attending the college circa 1920 attained flag rank.

It is possible to make some useful conclusions from a review of the 1945 and 1946 editions of the HMCS *Royal Roads* publication "The Log" in conjunction with the 1945 and 1946 Navy Lists. First, the college held approximately 100 cadets – nearly three times as many as its predecessor. Second, the entirely naval staff was impressive both in numbers and in academic qualifications. In 1945 it comprised: a Captain as Commanding Officer; an Instructor Commander as Director of Studies; seven Instructor Lieutenant-Commanders who respectively taught navigation, engineering, history, mechanics, French, English and mathematics; a Lieutenant-Commander as assistant Navigation Instructor; an Instructor Lieutenant who taught chemistry; four Lieutenants who respectively taught torpedo, gunnery, engineering and accounting; and three commissioned Warrant Officers teaching seamanship, engineering and shipwright functions. In total these officers held five Masters degrees and three Doctorate degrees.

Given the talented staff at Royal Roads and their naval education program, the following words in the address given by the Commanding Officer Pacific Coast, Rear-Admiral V.G. Brodeur, at the 1946 graduation were entirely justified. In his address Brodeur stated "[y]ou have

received education second to none in this country or any country. You are fully equipped to face your Naval future. Your further advancement is in your own hands." Rear-Admiral Brodeur's praise of the education provided at Royal Roads warrants serious consideration. His assessment was based on his extensive wartime and peacetime experience in both the RCN and the RN in battleships, cruisers and destroyers, and including 16 years at sea, five commands of RCN destroyers and three commands of destroyer groups, commands of both the RCN Atlantic and Pacific coasts, and senior staff duties in both the RN Admiralty and in Naval Headquarters Ottawa where he resurrected Canada's Naval Reserve.

Commencing in the fall of 1946 Royal Roads underwent a transformation into a tri-service college – a made-in-Canada experiment which inexorably replaced *naval* education in Royal Roads with *military* education. Then, in 1949, a DND commission, formed to investigate disciplinary incidents in the RCN and to 'Canadianize' it, also examined Royal Roads' officer training and included the following prescient assessment in its report (known as *The Mainguy Report*).

It is not within our purpose nor our competence to offer well founded criticisms on the Tri-service training at Royal Roads. It is in any event a new experiment under observation and trial. In view of the particular problems of the Navy, of the peculiar and almost unique relationship between officers and men at sea, it is not unfair to state that Naval training, as such, has received greater disadvantages and less advantages from the institution of the Tri-service system than any other branch of the Armed Services.<sup>15</sup>



Cadets pass the reviewing stand during their graduation from Royal Roads, 1954.



Credit: Irwin Crosthwait, via Library and Archives Canada

Commanding Officer Pacific Coast Rear Admiral V.G. Brodeur, as illustrated by artist Irvin Crosthwait in 1945.

## Conclusions

A survey of the states possessing navies reveals that 34 of them use naval academies and colleges to train their naval officers. Several navies have two or more naval institutions for that purpose and some states use those institutions also to prepare students for careers in branches of marine sciences and operations. On the other hand only three states – Iran, Singapore and Sweden – seem to use tri-service military colleges analogous to RMC to prepare officers for naval careers, hardly a ringing endorsement of the Canadian approach!

I conclude that the indispensable initial stage to produce effective future admirals – a comprehensive naval education – no longer exists in Canada and must be restored. It is necessary not only for military naval education and Coast Guard marine education purposes but also, in expanded form, to instruct in other important aspects of marine sciences. When such an institution is realized, it

will also serve to inform and educate the Canadian public on maritime matters. And, finally, it will dispel some of the uninformed controversy, speculation and fear-mongering prevalent nowadays on the subject of potential marine disasters! 🚢

## Notes

1. This article is based on comments about a 9 November 2016 paper entitled “Observations on Flag Officer Development,” written by Captain RCN (Retired) Norman H. Jolin.
2. As quoted in Thomas E. Appleton, *Usque ad Mare: History of the Coast Guard and Marine Services* (Ottawa: Canadian Department of Transport, 1968), p. 8.
3. *Ibid.*, pp. 87, 266-267. The 1985 edition of *The Canadian Encyclopedia*, p. 943, includes an article on George Templeman Kingston but makes no mention of his naval involvement with the school in Greenwich, the Trinity House school in Canada, or the Marine and Fisheries Service.
4. *The Naval Service of Canada*, Vol. 1, p. 156. The Minister of Marine, Fisheries and the Naval Service, the Honourable Louis Philippe Brodeur, requested that French Canadian candidates be permitted to take the entry examination in French. This was rejected by Rear-Admiral Kingsmill’s staff. Brodeur’s subsequent letter to the Deputy Minister of the Naval Service, George J. Desbarats, querying why the Naval Staff could not be guided by his department’s bilingual experience, is contained in the L.P. Brodeur fonds. That repudiation of French-speaking Quebec naval candidates largely explains why few French Canadians served in the RCN during World War I.
5. Quoted in *Ibid.*, p. 324.
6. Ken Macpherson and John Burgess, *The Ships of Canada’s Naval Forces – 1910-1993*, Appendix 7 (St. Catharines, Ontario: Vanwell Publishing, 1994).
7. Dave Perkins, *Canada’s Submariners 1914-1923*, Appendix 1 (Erin, Ontario: The Boston Mills Press, 1989).
8. Rear-Admiral V.G. Brodeur fonds, Volumes 5 to 8. As Staff Officer to CNS Commodore Hose 1922-1925, Lieutenant-Commander Brodeur was responsible to the CNS for: Regular Force personnel and training; ships and barracks organization, training and operating; naval organization enquiries, boards and investigations; and Naval Reserve organization, training and personnel.
9. The main reference document is the July 1945 edition of the Navy List.
10. *Ibid.*, pp. 262-264. Their surnames in the Navy List’s sequence are: Grant, Mainguy, Agnew, Creery, Godfrey, Edwards, Houghton, Bidwell, Miles, Hope, De Wolf, Lay, Adams, Davy, Knowlton, Porteous and Cossette.
11. Peter J.S. Dunnet and W. Kim Rempel, *Royal Roads Military College 1940-1990: A Pictorial Retrospect* (Victoria, BC: Royal Roads Military College, 1990). The photo of the RNCC students and staff circa 1920 on pages 52-53 shows and names 38 cadets. Five of these – Adams, De Wolf, Lay, Pullen and Porteous attained flag rank – a high percentage indicative of the high quality of naval education.
12. The subject annotated letters are contained in the V.G. Brodeur fonds. A researcher reading only the official correspondence could have been misled.
13. Vice-Admiral (ret’d) Robert Stephens, *A Certain E.R.A.: The Life and Times of Engineer Rear-Admiral George Leslie Stephens* (Sea Waves Books, 2011), p. 238.
14. See *The Naval Service of Canada*, Volume 2, p. 247. The three were HMCS *Stone Frigate* at Kingston, HMCS *Royal Roads* near Victoria and HMCS *Kings* in Halifax – producing RCNVR officers somewhat disparagingly termed the ‘90 Day Wonders.’
15. Department of National Defence, *Report on Certain ‘Incidents’ which Occurred on Board H.M.C. Ships Athabaskan, Crescent and Magnificent (The Mainguy Report)*, Ottawa, 1949, “Section E: Officers’ Training and Royal Roads.”

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# Canadian Naval Ship Design: Two Old Sailors Talk\*

## Amphion

It was a dark and stormy night. Two old sailors sat in an airport bar waiting for their flights to leave.

“Did you ever wonder,” said one to the other, “just how much influence we Brits had in the design of the Canadian fleet?”

After a while, the other old sailor replied, “That’s an interesting thought because the RCN always prided itself on breaking free of British influence after the Korean War. Yet, when you think about it, you damn Brits always seem to have a finger in the Canadian naval shipbuilding pie. And you’re still doing it with that unproven ship, the Type 26.”

And so began, as the storm raged on and all flights stayed on the ground, a discussion between two old friends, both long retired, Richard retired from the Royal Navy (RN) and Johnny retired from the Royal Canadian Navy (RCN).

“OK,” the Englishman said, “But the Type 26 is being pushed by industry and not Admiralty. Anyway, you old rascal, let’s be very honest, the RCN has always been more than a just a little British. You started life a British clone in 1910 because you couldn’t have done it any other way. As you matured, the logical thing was to buy ships and equipment from UK and have the RN look after the specialist training. That essentially established the young RCN as a colonial navy, as one of your brash historians once called it.”

“I never liked that damn definition,” Johnny replied. “But I can’t completely disagree with it. The young guy who made it first caught a lot of flack over that comment. But you’re right though, there was indeed an effort before the Great War and immediately afterwards to make the RCN

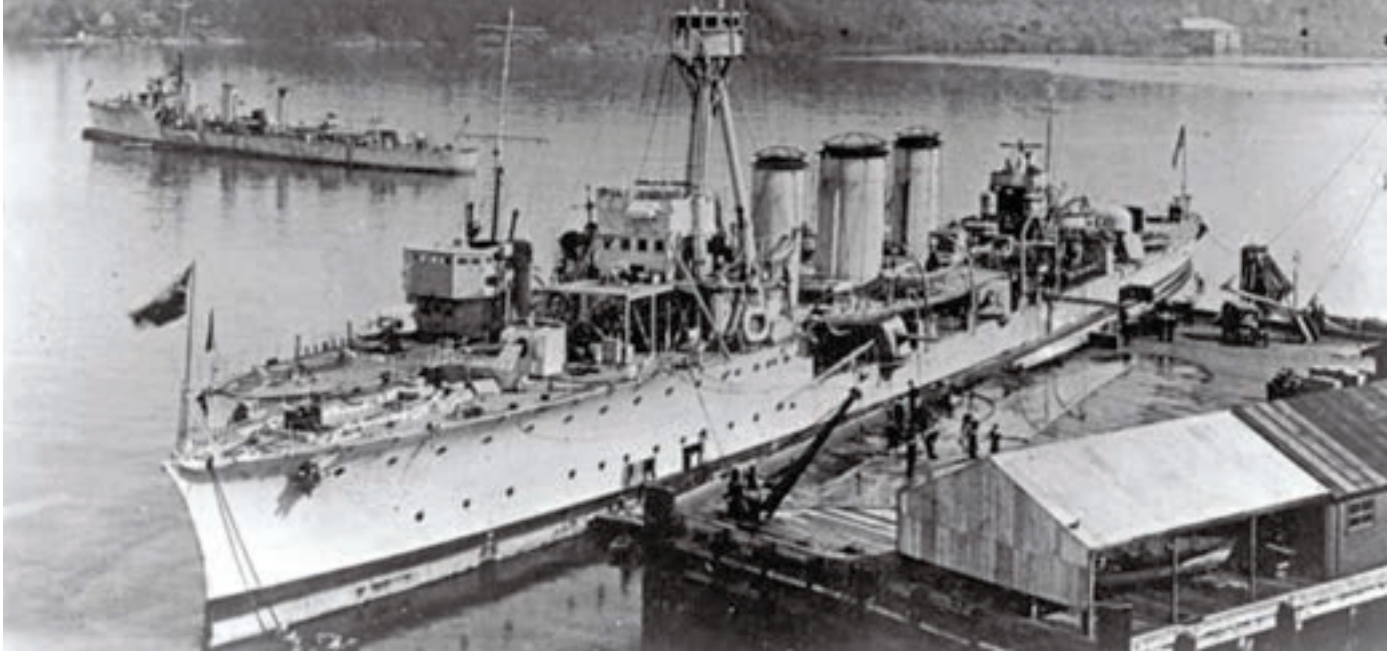
part of the Imperial Navy but nothing happened. After the war the RCN had to run a political gauntlet which lasted until the mid-1930s. So the focus was on survival, and the RN became even more important to us for training and for getting enough sea time to qualify people for promotion and command. Things were rough. At one point the bloody general in charge of the Army tried to have the Navy disbanded. He damn near succeeded. The problem was that the RCN just didn’t have any support on Parliament Hill. Much the same as today; the political focus has always been on Ontario and Quebec and on the relationship with the Americans. All too often, Canada’s rich maritime heritage and the economic reality of our oceans get brushed aside by blinkered politicians. Essentially, Canada has a continentalist mind-set and that’s one hell of an impediment to building an effective navy.”

“You know, Johnny, we Brits have never really understood your complex relationship with the Americans or why you never seem to have much closer ties with the US Navy, but we don’t have to share a continent with another state the way you do. We like to think, naively perhaps, that the Channel and the North Sea insulate us from the Europeans.”

“Richard, you’re not alone in not understanding the cross-border relationship; many if not most of my fellow Canadians don’t understand it either. The trouble is that our easy integration into American society and business and our widespread adoption of their culture is frequently at odds with the political aspects of the relationship. It often seems that the people on Parliament Hill would have us believe that the Americans are our adversaries rather than our best friends. Fortunately, our relationship with the



*A rendering of BAE Systems’ submission for the Canadian Surface Combatant, a modified Type 26.*



Credit: Library and Archives Canada

*Light cruiser HMCS Aurora in Esquimalt, 1921. Procured from Britain after the First World War, the small but modern vessel fell victim to postwar attitudes towards naval and military spending.*

USN functions independently of whatever political disputes are raging.”

“True, my friend, but that doesn’t really explain why you don’t make far greater use of American ship designs. I know there is a lot of US equipment in your ships now, but that wasn’t always the case.”

“Yeah, you’re right. Canadian naval policy does seem a bit convoluted particularly in the early years of the Cold War and very much more so later when an idiot Defence Minister imposed the lunacy of Unification on us. To make sense of it all you need a bit of history.”

“You might as well tell me the story, it looks like we have a long night ahead of us.”

And so Johnny began to explain the historical background. “The pattern of buying British was set in concrete around the time of the 1936 naval rearmament when the politicians came to their senses and realized that a war in Europe was a distinct possibility. There was no option but to go cap in hand to Britain to get the additional destroyers to create the long-sought destroyer flotilla. The Americans were committed to their own rearmament but with emphasis on big ships rather than destroyers. The other factor that was important in 1936 and to a far great extent in 1939 was the almost total lack of a Canadian defence industrial base.”

“If I’m not mistaken, Johnny – and by the way British schools didn’t teach Canadian naval history but I learned a few things when working with the RCN in submarines all those years ago – a good many warships were built in Canadian yards during the war including, I think, four modern *Tribal*-class destroyers.”

“Right, we did indeed build four *Tribals* and a slew of corvettes, merchant ships, minor war vessels and, later,

frigates but the bigger warships were of Brit design. Until about 1943 we didn’t have the capability to design or build modern warships; just corvettes. That’s when the first RN engineers and constructors came over and started to set up the necessary technical organization. We couldn’t have done what we did without your help. Even then it took a while to get going.”

“Why was that?”

“Well, at the end of the war, the RCN was in better shape than it had ever been and had plans to modernize even further using surplus RN carriers and destroyers. The admirals wanted a carrier-based task group on each coast. The problem with that idea was that their dream fleet had no clear purpose the politicians could endorse so the RCN had to run the political gauntlet again. Although cut back to about 6,000 people, they were able to hang on to the ships by putting nearly half of them in reserve.”

“That happened in UK too.”

“Yeah, peace is a powerful political opiate. The Canadian admirals used the disarmament period wisely to create a really good technical staff complete with its own drawing office. The idea was to be able to do it all in Canada in the future. The incentive came from the wartime experience when we had to rely almost completely on the RN for technical support. Actually, it was one of your people, Rowland Baker, who got it all going. Even in the early post-war years, the heart and soul of the RCN’s technical staff was provided by RN engineers and constructors on loan. That wasn’t a problem. Because nearly all Canada’s regular navy senior officers were RN trained and most had spent time in RN ships, the bond with the RN was strong and the information flow between Ottawa and Admiralty was virtually constant through both formal and informal channels at many levels. But we didn’t have the



depth of technical experience to go it alone.”

“Didn’t our Senior Naval Liaison Officer (SNLO) in Ottawa routinely sit in on your Naval Staff meetings?”

“Yes indeed, and he reported back to the Admiralty on how the RCN was slowly transforming itself into a more NATO-centric navy. But he also provided us with some valuable insight into your long-range thinking. When our naval air branch broke free in the early 1950s and turned to the USN, much to Admiralty’s angst, because you couldn’t meet our equipment requirements, he wrote a long report on the whole situation. It was a good report and explained the situation very well, but it couldn’t do anything about the root cause of the problem which was that your supply system just couldn’t cope with our needs as well as your own, so we had to turn to the Americans. By the time we commissioned the carrier *Bonaventure* in 1957 naval air was USN equipped and trained.

“Do you think that damaged the relationship between the RN and RCN?”

“No, it was a strong, very comfortable relationship which served us both very well. We drifted apart for other reasons. Unlike the relationship we have with the Americans through the Permanent Joint Board of Defense (PJBD), our easy friendship with you guys was curtailed in late 1960s by the lunacy of Unification. When the Naval Staff was disbanded in favour of a tri-service organization – which never worked worth a damn – we no longer had the means to talk to you informally on a navy-to-navy basis except through the back door. Hell, we even had to talk to the SNLO through a diplomatic liaison staff. It was a major pain in the ass but it wasn’t long before we found a way to by-pass the new bureaucracy.”

“Something tells me you’re still bitter about Unification.”

“Damn right; it just about destroyed the navy not just because of the damage done to morale and that wonderful sense of family the RCN always enjoyed, but also because it threw the shipbuilding program into confusion.”

“How so, Johnny? I always thought continuity was maintained through those four very nice big helicopter-destroyers you built around 1970.”

“Not exactly, it was a struggle to get them and in the process some major changes had to be made.”

“Like?”

“Explaining all that needs some background so bear with me while I lay it all out, and incidentally, this explanation will let us take a look at your original question on British influence on Canadian shipbuilding programs. Forgive me

if I come across like a stuffy old academic but I’ve been giving a series of lectures on all this and you get into a pattern. Anyway, as you know, I was on the Navy Planning Staff for most of the early 1960s, so this stuff was my daily bread and butter.”

Johnny then went on, “When WWII ended we had a fleet plan but couldn’t get support for it – the politicians were only interested in demobilizing the wartime military and getting the country back to a peacetime economy. Like the end of the previous war, there was a false sense of euphoria that world peace was at hand and the new United Nations would guarantee it. Oh how wrong they were. No surprise that the warnings over future Soviet expansion into Western Europe given by Winston Churchill and others went unheeded. So with no money for fleet modernization the Naval Staff just kept on updating plans in the hope that things would change eventually. And they did of course.”

“Unlike you, Johnny, I wasn’t in uniform then but I do remember the Czech coup and the Berlin Crisis and how those events finally made everyone realize that the Soviets were going to be a problem.”

“Hey I’m not that old you wretch! Those events indeed changed everything. And about the same time we naval folk all agreed that any future confrontation with the Soviets would require that we defeat their submarines before returning to Europe. Although many saw it as a re-run of WWII but with the Soviets driving the U-boats, there would be some differences. The surprise was that we expected them to waste no time exploiting the German submarine technology. They’d grabbed a couple of German



*HMCS Warrior, Canada's first aircraft carrier passes under the Lion's Gate Bridge in Vancouver, 1947.*

Credit: Jack Lindsay, via City of Vancouver Archives

Type XXIs and XXIIIs and we figured they would put those innovations to work in their own fleet pretty quickly. As it turned out, if you remember, the Western navies – really only the RN, the USN and us – overestimated the Soviet Union’s industrial capability, and it took them until about 1956 to make operational use of the captured German technology. Anyway, we were caught with our pants down at the time, none of us had any anti-submarine warfare (ASW) ships able to handle the faster submarines. We needed new types of ships and new ASW systems along with some clever improvisation to bridge the gap until new ships could be built.”

Richard nodded in agreement as Johnny went on to explain. The storm outside raged on.

“Before 1949 when the government loosened the purse strings and agreed to fund a small naval modernization including three new fast ASW escorts, which became the *St. Laurents*, life was pretty grim for the navy. And it didn’t get much better for quite a while. The political decision made, our problem lay in getting a design for the new ships as well as figuring out how to upgrade the existing ships.”

“Obviously, Johnny, that was the point at which all those engineers and constructors we loaned you began to earn their keep.”

“Exactly! Without Rowland Baker we would have been in deep trouble. We were in trouble anyway because we didn’t have the resources to do everything. We got the drawings for the quick fix – the Type 15s – in 1947 but work was postponed for a year. It was a planning nightmare, we just couldn’t get the necessary equipment from UK to convert all four non-*Tribal* destroyers into ASW escorts. The 1949 decision to build three new ASW ships simplified things a bit – our Type 15s would have USN equipment and incorporate some of the innovations Baker made to the *Whitby* design to produce the *St. Laurents*.”

“What did he change?”

“Well, the *Whitby* design was innovative in itself, but I’m not telling you anything you don’t know. It was the first warship created specifically for NATO North Atlantic operations. Initially, we thought it would be ideal for the RCN but Baker convinced the admirals that we could do better by making a few changes. Some changes had to be made anyway to accommodate American equipment and bring the accommodation up to Canadian standards. We’d had enough of the unreliable Brit supply system and the Americans were willing to let us set up manufacturing plants in Canada, and this appealed to the politicians. It wasn’t just Canadianizing somebody else’s design, as we did with the submarines; rather, it made the *Whitby* design more compatible with Canadian waters. Sometimes I think we got rather too carried away with Canadianization; it could get very expensive. One of Baker’s main concerns was getting rid of water off the upper deck – not just storm water but also pre-wetting and de-icing – so he rounded all the deck edges and made a turtle-back fo’c’s’le. His design was a bit longer and a bit wider with a full beam-to-beam command position unlike *Whitby*’s much smaller bridge. He also brought the ASW mortars below deck level and gave the ship a lighter forward gun that didn’t need a break in the line of the fo’c’s’le. It all worked beautifully. Several of his ideas for operational spaces were also incorporated in *Algonquin*’s Type 15 conversion.”

“Did you eventually convert all four destroyers?”

“No, after the initial program delays, funding priorities shifted to the new ships and in the end only two destroyers, *Algonquin* and *Crescent*, were done.”

“As you know, Johnny, we were very happy with the *Whitbys* and repeated the design in the *Rothsays*, but their cost was a problem and so we followed them with those low-end ASW escorts, the *Blackwoods*. We should have



HMCS *Algonquin* after undergoing the ‘Type 15’ conversion, seen here in April 1956 off the Virgin Islands.

Credit: Library and Archives Canada





HMCS *Mackenzie* photographed on 21 September 1962.

Credit: Government of Canada

learned our lesson; single-purpose ships are just that, single purpose with little or no flexibility.”

“That’s right. We started to follow suit with the *Vancouver*-class which was really *St. Laurent*-lite intended for local work and supporting the new long-range passive ASW surveillance system (SOSUS). The plan was cancelled and everyone agreed that six more *St. Laurents* would be far more useful. That all happened about the same time as we all realized that a more general-purpose ship with adequate air defence was a necessary addition to the fleet. You guys came up with the *Leander*, which had to be one of the most successful warships ever built.”

“Very much so; we got great mileage out of them. Didn’t you play with the idea of building some too?”

“Not really, Richard. We followed your lead to general-purpose frigates but stumbled badly on the path to building them. We’re talking late 1950s here, and although Baker had gone back to UK he left behind a strong team to continue his ideas. The first cut at a general-purpose frigate, called the *Mackenzie*-class, started as an improved *St. Laurent* but quickly evolved into an almost completely new ship about a third bigger, more heavily armed with air defence missiles, and a new more powerful propulsion system. It was just too expensive and there were problems with missile systems so the powers-that-be decided to build six more *St. Laurents* instead. Fleet air defence remained a contentious issue for a long time and people put their faith in the Banshee fighters carried in *Bonaventure*; anyway, the politicians and the damn generals maintained that because there was no air threat in the Western Atlantic the RCN didn’t need sophisticated air defence systems.”

“That wasn’t the end of your quest for a general-purpose frigate though?”

“Oh no! The requirement remained on the books but nothing more happened until early 1958 when a new concept was presented to the Naval Board. Again, cost and size were the issues. Even though the RCN had approval in principle to replace all the remaining WWII destroyers and frigates on the basis of two new ships a year, individual programs had to be approved politically, so money was always a concern.”

Johnny continued, “The second version was smaller and less costly as well as being based on the tried and true *St. Laurent* hull. If I remember right, it was bigger by about 500 tons and some 30 feet longer but had the necessary close-range and area-air defence missiles as well as a five-inch gun. The trade off came at a slightly reduced ASW capability and a much smaller helicopter. In fact, it was closer to your *Leander* concept.”

“Did we influence that design change?”

“I don’t think so; affordability was the motivation. Thankfully, Rowland Baker had built the RCN technical staff very well and they were able to deal with all the design changes required by the Naval Board.”

“Baker really was an asset for you.”

“More than people realize.” Then after a pause, Johnny went on, “It was still an expensive ship and destined for a string of further design issues. Like the earlier *Mackenzie* concept, the new frigate had real problems with the missile systems. The Tartar area defence system wasn’t in production then and nobody could get a delivery date. The Americans cancelled the Mauler close-in system and no alternative was available. But the worst thing was that the Naval Staff was allowed to fiddle with the design by trying to give the ship both a troop transport and land operations support functions. Stupid! It was just too much for that size hull. In some ways it was a blessing when the Minister cancelled the whole program in 1964. They were beginning to meet the criteria of a camel being a horse designed by an army committee.”

“Was that the end of your general-purpose frigate saga?”

“Not completely,” Johnny continued, “After Paul Hellyer became Defence Minister in 1963, he not only introduced Unification but also demanded a rationalization of the RCN’s tasks and shipbuilding programs. He wanted a strategic justification for both numbers and capabilities. It was a painful process. As an independent, non-naval team did the rationalization, the Naval Staff developed a slew of alternate fleet plans all of which included general-purpose frigates and nuclear-powered submarines. When the rationalization was presented the conclusions were not that bad: the NATO ASW mission was endorsed without reservation but not the number of ships currently



Credit: WO Wayne Loane, via Library and Archives Canada

HMCS *Athabaskan*, an *Iroquois*-class destroyer, prepares to receive supplies from HMCS *Protecteur* in the Persian Gulf, 1990.

assigned to NATO; and the new role of supporting UN peacekeeping operations – which was Hellyer’s pet idea – was supported. Oddly, the nuclear submarines were supported too but without any priority. So the Minister cut the NATO commitment in half and decreed that the remaining WWII ships would not be replaced. On top of all that the Minister cut the navy’s strength arbitrarily by 1,000 people.”

“The admirals must have been gob smacked.”

“Oh yes, they were and several resigned putting fleet planning further in limbo for a while. In 1965 one more plan was developed which included an item, a political compromise, for four ‘Improved *Nipigon*-class’ helicopter-carrying destroyers (DDHs). If you remember, Richard, the last two ships of the third batch of *St. Laurents* were built to carry helicopters like the modernized *St. Laurents* and were known as the *Nipigon*-class. They were approved

partly to placate the shipyards which had lost the contract for the eight general-purpose frigates. After a long, painful process they became the four *Iroquois*-class destroyers. They were not general-purpose frigates but had an air defence missile system as well as a command and control capability. More significantly, they were entirely Canadian designed.”

“So, what you are telling me, Johnny, is that after modifying the *Whitby* design, the RCN didn’t look to us for technical help.”

“That’s right, Richard, we followed some of your general design ideas like the utility ASW frigate – the *Vancouver/Blackwoods* – and we echoed your shift to a general-purpose frigate. Once our naval air had been converted to USN equipment, the only field of close cooperation lay in the submarines, and that’s a story for another day. By the late 1960s, nobody could call us a colonial navy any more. Our priorities were NATO and continental defence with the Americans and we had come to rely on the United States for quite a lot of training and much of our equipment which, ironically, we put into hulls that still echoed British rather than American design concepts.”

“Thanks, Johnny, that was fascinating. I’m not sure it sheds any light on the present shipbuilding fiasco, but it certainly lays out the difficulty the RCN has always had getting political approval for new ships. Anyway, my friend, it looks like the storm is abating so maybe they’ll be calling our flights soon.” 🍷



Credit: Government of Canada

The Honourable Paul Hellyer, Minister of National Defence, photographed in 1966. Hellyer was responsible for controversial decision to unify the branches of the armed forces.

#### Notes

- \* It should be noted that this is an interpretation of history and should be taken as such.
- \*\* Obviously, these two gentlemen would not have mentioned sources in their discussion but in fairness to readers, a note on sources is appropriate. Background to the conversation can be found in several places especially the Naval Staff minutes now available at the DND Directorate of History and Heritage. For those who want to read about this saga in more detail I recommend: S. Mathwin Davis, “The St. Laurent Decision: Genesis of a Canadian Fleet,” in W.A.B. Douglas (ed.), *RCN in Transition* (Vancouver: UBC Press, 1988), pp. 187-208; J.H.W. Knox, “An Engineer’s Outline of RCN History: Part II,” in James A. Boutilier (ed.), *RCN in Retrospect 1910-68* (Vancouver: UBC Press, 1982), pp. 317-333; and Richard Oliver Mayne “Years of Crisis: The Canadian Navy in the 1960s,” in Richard H. Gimblett (ed.), *The Naval Service of Canada 1910-2010: The Centennial Story* (Toronto: Dundurn Press, 2009), pp. 141-159. Also, some of the stories, such as that of the *Vancouver*-class, have been covered in past issues of CNR.



# Making Waves

## Comments on “‘Amphibiosity,’ ‘Big Honking Ships’ and Royal Canadian Marines”

Commander (Ret’d) R.A. Rutherford

This is in response to the commentary written by Colonel P.J. Williams in the Winter issue of *Canadian Naval Review* (Volume 13, No. 4). Colonel Williams, as you have an interest in naval affairs, I have an equal and opposite interest in the army. Having settled in the Kingston, Ontario, area after my retirement from a 37-year naval career, I found that a neighbour was a classmate from Royal Military College who had just retired from the army. He got me interested in the Army Simulation Centre at CFB Kingston as an interactor (the only one with a naval background at the time) where I learned a bit about army logistics (I was not much use in a foxhole), and became their resident expert on amphibiosity, at least as it applied to their computer systems. I have since moved back to Nova Scotia, but I retain fond memories of the years I spent on exercises with other retirees and with the army, from which I learned some valuable perspective.

Having established my credentials and experience, I read your article “‘Amphibiosity,’ ‘Big Honking Ships’ and Royal Canadian Marines” with a great deal of interest. You make a very compelling argument for establishing an amphibious capability in Canada, which I hope makes people sit up and take notice. I noted with satisfaction that you had advocated investing in the *San Antonio*-class Landing Platform/Dock (LPD) which I totally agree would be the best choice of an amphibious vessel to meet Canada’s needs. However, I also agree with those skeptics you mentioned who raised the matter of convincing our political masters to come up with the funds. I believe there is a way to get there by means of the AOR/Joint Support Ships (JSS) which are currently envisaged in the National Shipbuilding Strategy.

If you happened to notice, the article immediately preceding yours in the Winter issue of CNR is my own gaze into the crystal ball to suggest what capabilities should go into the next support ship after the new *Protecteur*-class JSS are built (“After the New *Protecteur*-Class, What Next?”). In a nutshell, I suggest that it should be able to work in the Arctic, and that it should be large enough to embrace a significant amount of sealift, and have the means to put troops, vehicles and cargo ashore via landing craft and helicopters. This would not make it exclusively an amphibious assault ship (it would still have to have a prime mission of fleet replenishment) but it would build upon the inherent sealift capacity of MV *Asterix* and that of the extant JSS design and thus give the Canadian Armed Forces the means to gain experience in amphibious operations. It would then be a smaller (and perhaps achievable) leap to the acquisition of a purpose-designed LPD, once the utility of such a ship was proven.

My feeling is that an incremental increase in sealift by successive support ship designs is a far better way to achieve the aim than to suggest the acquisition of LHD-type ships (not one but four!) advocated in another article in the same edition of CNR. The LHD is indeed a very capable vessel, arguably the epitome of amphibiosity, but for all that, it is essentially an aircraft carrier. To my mind and in my experience, such a ship is way more than the RCN would ever need to land on a beach in any scenario short of world war, and beyond its amphibious capability, it is very limited in its flexibility and adaptability. If amphibiosity should catch on and take root in the Canadian context, I would like nothing more than to add an LHD as the flagship of a Canadian Amphibious Ready Group, but it would be the last ship I would call for, not the first.

It was a pleasure to read your article, sir. You have at least one person in your cheering section. 🍷



*USS Arlington*, a *San Antonio*-class LPD, sails by the Statue of Liberty on 23 May 2018, as part of the New York City Fleet Week ship parade. While Canada is unlikely to spring for such a vessel immediately, it could be a goal for the future.

Credit: Timothy Choi

## Maritime Power Projection: A Challenge for the Australian Defence Forces

Brian K. Wentzell

Given its similar history and size, Australia is always interesting for Canadians to observe. As an island – albeit a big one – located in a region that is defined by maritime issues, Australia generally pays more attention to the oceans and its navy than Canada does. It might be useful for us to examine what Australia has been up to in terms of capabilities.

In the Foreword to the book *Australian Maritime Operations*, Vice-Admiral T.W. Barrett, the Chief of the Royal Australian Navy (RAN), observed, “[t]he 21<sup>st</sup> century is just as much a maritime century as it is an Asian century.... Asia’s intra-regional trades and linkages are more maritime in character than those of either Europe or North America and our region has more maritime boundary disputes than any other region of the world. Australia itself is more reliant on the sea and proper functioning of global maritime trading system for our security and prosperity than at any time in the past. In short, [Australians] are absolutely dependent on good order at sea.”<sup>1</sup> This book examines the capabilities, limitations and organization of the RAN in accordance with the Australian Maritime Doctrine.

This book describes the requirements for implementation of the concept of maritime operations. Sea control includes not only operations on, below and above the water, but also on adjacent lands. In the absence of a marine corps, the Australian Army, in concert with the RAN and Royal Australian Air Force (RAAF), is tasked to undertake land

force operations in littoral areas. The range of operations envisaged include:

- the landing of amphibious forces and special forces to directly influence events on land;
- the delivery ashore of seaborne land and air forces;
- bombardment by guided or unguided weapons from ships or their embarked aircraft;
- peace enforcement, involving the use of military force to assist diplomacy in restoring peace, possibly without the consent of one of the contending parties; and
- peace-making operations to secure a ceasefire or peaceful settlement, involving diplomatic action and the direct and/or indirect use of military force.<sup>2</sup>

The nature of specific operations will depend upon the intent of the Australian government and the tasks it assigns to the Australian Defence Forces (ADF).

According to *Australian Maritime Operations*, it is anticipated that operations will range from an outright over-the-shore assault of an objective to raids designed to achieve a specific purpose, to landings in support of other operations, to the demonstration of military capability. In all such operations, surprise, speed of manoeuvre, accurate targeting data and accurate weapons are crucial to produce the required effects. Australia envisages the ability to conduct such operations either independently or in concert with other states. As noted in this book, and illustrated the world over, without consistent political will, there will be no success.<sup>3</sup>

The Australian government has expended considerable



The Amphibious Assault Ship HMAS *Adelaide* arrives at Pearl Harbor for RIMPAC 2018 on 25 June 2018.

Credit: Mass Communication Specialist 2<sup>nd</sup> Class  
Justin R. Pacheco, US Navy





Credit: Cpl Kyle Genner

*Landing Ship Dock HMAS Choules participates in the humanitarian assistance/disaster relief exercise Croix du Sud 2018 in New Caledonia.*

resources in the development of an amphibious capability. The RAN has acquired two amphibious assault ships, one Landing Ship Dock, and assorted landing craft to operate from the well decks of these vessels. The amphibious assault ships can carry four LCM 1E and four RHIBs. Each amphibious assault ship has extensive command facilities and can transport up to 1,000 army personnel. Each can support the full range of maritime and army support helicopters, including up to four Chinook heavy helicopters or greater numbers of attack helicopters or medium helicopters. The precise aviation component will vary with the nature of the operation.

The ships are equipped with vehicle decks for loading and off-loading of up to 110 vehicles of various types, including M1A1 Abrams tanks, armoured personnel carriers, engineer equipment and logistic vehicles.

The Landing Ship Dock, HMAS Choules, has a flight deck that can accommodate two Chinook helicopters and the well deck can handle one LCM 8 or two Landing Craft Vehicle Personnel (LCVP). Two Mexiflotes can be carried on the ship. These are capable of landing the M1A1 Abrams tank or assorted vehicles or stores. The ship can carry 32 tanks or 150 light trucks. In overload conditions the ship can handle up to 700 troops for short periods or 356 for longer periods.

The amphibious fleet is supported by the eight ship AN-ZAC-class frigates, the Collins-class submarines, and one – soon to be three – Hobart-class air warfare destroyers together with various smaller mine warfare, hydrographic and larger operational support ships. Although small in

numbers of ships, it is a balanced fleet.

The RAN is thus reasonably well equipped to conduct and support a small- or medium-scale landing operation that is in the nature of a reconnaissance or raid or demonstration. It can provide significant resources for humanitarian assistance/disaster relief (HADR) operations. It is also able to participate in a larger allied operation.

The RAAF has a reasonably large fleet of F18 Hornet fighter aircraft supplemented by EA18 G Growler electronic warfare aircraft, Airbus 330 tanker transports, C130 Hercules transports, and P3C Orion and P8A maritime patrol aircraft. It can provide a full range of combat and combat support services to the amphibious force. The older F18 aircraft will be replaced by the F35 in the next few years.

The Australian Army has a long history of participation in amphibious operations dating back as far as the Gallipoli Campaign of World War I. The most significant recent campaign occurred in Timor-Leste in 1999 when it gained independence from Indonesia. The ADF learned a number of lessons in Timor-Leste, not the least of which was that amphibious operations are complex, and require dedicated skills and special equipment to be conducted efficiently and successfully. With the war in Afghanistan and continued combat operations in the Middle East, the tradition of Australian participation in foreign wars has not abated. Thus, the ADF had to acquire new capabilities whilst maintaining traditional capacities. Against this background the army began a process, known as Project Beersheba, to restructure itself to be more effective in combat and non-combat operations. The army has about

22,000 regular personnel plus reserve and civilian members. There are three regular multi-role brigades and six reserve brigades. Each regular brigade has one light and one mechanized infantry battalion, an armoured regiment, an artillery regiment, and supporting combat and combat service support units. There is also an aviation brigade equipped with Tiger attack helicopters, Blackhawk, Taipan and Chinook transport helicopters. Paratroop and special operations capabilities are found in the Special Forces Command of the ADF.

The 2<sup>nd</sup> Royal Australian Regiment (2RAR), a regular force infantry battalion, was tasked in 2011 to form the core of the future amphibious force. As there was little amphibious experience or expertise in the ADF, the services looked to the US Marine Corps and Royal Marines for advice and assistance. Even with this assistance and acquisition of amphibious equipment, the development of an effective amphibious capability has been challenging. The proposed structure of the amphibious force included three Amphibious Ready Elements (ARE) and a support company that was equipped for water and combat support operations. The whole force would constitute the Amphibious Ready Group (ARG).

The ARG was designed from the outset to be able to conduct reconnaissance missions in littoral areas, raids, secure landing zones for follow-on forces, conduct demonstrations, and provide initial humanitarian assistance. It was not designed, organized or equipped for long-duration operations. Over time, the ADF realized that the full resources of 2RAR would be required to provide the capabilities for preparation of the beachhead for a more

robust landing force to undertake operations beyond the beachhead. The design was tested in a series of national and international exercises and culminated with restructuring of the battalion in 2018.

Henceforth, 2RAR “will conduct pre-landing activities – the 300 or so soldiers in the unit will serve as the command and control element, small boat operators, reconnaissance and snipers that go ashore on the small boats, a communications element and a logistic element.”<sup>24</sup> The main combat force that supplements the ARG will be an infantry battalion attached from the army’s rotating high readiness brigade for a one-year period. Over time, the amphibious culture and knowledge of the capabilities created in 2RAR will be spread across the regular brigades.

Aside from the issues facing the ARG, there are larger issues facing the ADF should a more robust amphibious operation be necessary. First, are there sufficient civilian ships available on short notice to augment the three-ship amphibious fleet? The British operation in retaking the Falkland Islands in 1982 would not have succeeded without ships taken up from trade. Second, are there enough appropriate ship-to-shore connectors to enable landing of personnel and equipment in shallow-reefed Pacific island waters? For example, the RAN discovered that its new LCM 1E landing craft cannot transport the M1A1 Abrams tank from ship to shore except in relatively calm conditions. Mexiflotes can be used but the RAN only has the capability to use two floats at one time from HMAS *Choules*. Thus, offloading its full capacity of 32 tanks would require many hours. In a contested landing this would not be acceptable. Finally, the ARG, as constituted, lacks attached reconnaissance, surveillance, artillery, combat engineering and logistic resources. With experience and time, the ADF will likely adjust the composition of the ARG to improve and expand its capabilities.

Given the geopolitical situation and environmental events in the Indo-Pacific Ocean region, there is a demonstrable need for amphibious capability in Australia. The challenge is the cost of acquisition of such capability and the ongoing costs of its maintenance and operations. Australia is one of the few countries that has the ability to do so and has taken the initiative to improve the security of the region and the well being of the Indo-Pacific people when natural disasters occur. Canada could learn from the Australians as they finetune their amphibious capability. 🇺🇸

#### Notes

1. T.W. Barrett, *Australian Maritime Operations*, 2<sup>nd</sup> Edition (Canberra: Commonwealth of Australia, 2017).
2. *Ibid.*, p. 123.
3. *Ibid.*, p. 127.
4. Megan Eckstein, “Australia’s Amphibious Force Nearing Full Operational Capability,” *USNI News*, 5 October 2017.



*An Australian Army truck reverses on to a LCM 1E landing craft.*



## Further Thoughts on Fleet Replenishment

Commander (Ret'd) R.A. Rutherford

In the Winter 2018 edition of *Canadian Naval Review* (Volume 13, No. 4), I wrote about what I thought should follow the Joint Support Ships (JSS) to be built by Seaspan under the National Shipbuilding Strategy. To save you from having to dig out that copy, my argument was that the follow-on to the new *Protecteur*-class supply ships (AORs) should be capable of Arctic Ocean operations and carry a modest beginning of amphibious capability in a lift-on/lift-off form. Since then, a fair bit of water has passed under the keel. MV *Asterix* has been delivered and has been trialled to the navy's apparent satisfaction. Several sources have burst into print speculating that the JSS will be much later arriving than we are currently led to believe. Finally, a *National Post* article written by Senator Colin Kenny<sup>1</sup> suggested that we should scrap the JSS and go for three more conversions on the model of *Asterix*. All of these things got me rethinking my previous article.

I fully subscribe to the need for four replenishment ships – one east, one west, one for north and one in reserve – and my thinking had been *Asterix* (1), JSS (2 and 3), and one more. However, if, as some are suggesting, the JSS will not be delivered until the latter half of the 2020 decade, *Asterix* will be spread very thinly for quite a few years. To guard against this possibility, the government should immediately contract with Chantier Davie in Lauzon, Quebec, to acquire MV A. *Obelix*, the sister ship of *Asterix*, and do another conversion. Davie claims that *Obelix* can be converted in two years and at a lower cost thanks to the experience gained with *Asterix*. That means that in 2020 (the year, not the decade), Canada can have restored the absolute rock-bottom minimum of two operational replenishment ships. And that will give us a chance to step back and reconsider the shipbuilding plan.

For instance, we could place the polar icebreaker back ahead of the JSS, and give the Coast Guard some badly needed relief in its icebreaker fleet which will still be urgently needed even though Davie may come through with four interim icebreakers now being considered – MV *Aiviq* and the three Viking offshore supply ships.<sup>2</sup> This would certainly delay the JSS deliveries to later in the decade, but given satisfactory performance by *Asterix* and her sister *Obelix*, this would be a fair trade-off to help the Coast Guard out of a problem area as acute if not more so than that of the navy.

If we can get to that point, we would have the JSS pair joining the fleet and taking over as the prime deployable



Minister of National Defence Harjit Sajjan at the steel-cutting ceremony for the first Joint Support Ship at Seaspan Shipyard on 15 June 2018.

ship on each coast, thus allowing *Asterix* and *Obelix* to work as backup for deployment operations and otherwise handle local tasks and be on standby for humanitarian assistance and disaster relief. At this point (around the year 2028) their hulls will be about 20 years old, and it will be time to start planning another pair of JSS to replace them. The advantage we gain here is that a pair of support ships would enter service every 15 to 20 years, and if they give the great service for the four decades that we got from the AOR 509 class, we can maintain a fleet of four support ships indefinitely.

Do I hear screams of anguish from Irving and Seaspan about circumventing the NSS, bypassing the competitive bid concept, and the incredible claim that they can do better for cheaper and sooner? I hope not. It is high time that the three major shipyards in this country stopped their incessant attempts to undercut and discredit each other, and get on with the work already on their order books. The work I am suggesting be undertaken by Davie is most assuredly all based on unsolicited proposals on Davie's part, but it is a series of well thought out projects to fill gaps in the government fleets resulting from a hiatus of new construction which went on far too long. And it is all *in addition to* the scope of the NSS. Nothing is lost to Irving or to Seaspan, something is gained for Davie, and the winners are the Royal Canadian Navy, the Coast Guard and Canada.



*MV Asterix carries out sea trials southeast of Nova Scotia with a pair of Halifax-class frigates in January 2018.*

So what happened to the Arctic and amphibious aspects of my earlier article? Well, there is a certain amount of sealift capability in any vessel of AOR size. They can carry two or more landing craft for connection to shore without having to rely on alongside berthing. I stand by my contention that our next AOR design (post-JSS) should contain much more sealift capacity in a larger (eg., Panamax) hull, in addition to its replenishment role. A perfect example exists today in the Royal Netherlands Navy in the support ship *Karel Doorman* (A833). And as for the Arctic, we may have to forego the *Polar-class* 5 hull of an independent icebreaker and accept just an ice-strengthened hull which will need icebreaker escort. By that time, we will have the AOPS to do the escorting. 🍷

#### Notes

1. Senator Colin Kenny, "There's Only One Right Choice for the Navy. Why Not Make It?" *National Post*, 1 February 2018.
2. Lee Berthiaume, "Federal Government Looks to Lease Icebreakers from Davie Shipyard," *The Canadian Press*, 18 January 2018; and Lee Berthiaume, "Feds Close to Deal with Quebec Shipyard Davie for Coast Guard Icebreakers," *CTV News*, 5 June 2018.

## ***The Navy has a Major Problem Attracting and Retaining Millennial-era Recruits***

Ken Hansen

I found the article "The Naval Reserve: An Alternative Prospective" in the Winter issue of *Canadian Naval Review* (Volume 13, No. 4) to be a confused attempt at rationalizing a new future for the organization. The argument hinges on what millennial people are like as a base for recruitment and how to attract them to service with the navy. To use a modern phrase that is so common amongst this generation that it can regularly be heard in television advertisements for a wide range of products, I say, "Wait, what?"

The problem, as described by Commanders Witzke and Tremblay in their article, is:

First, it is difficult to generate sailors and officers in some occupations in a part-time model because the training and experience requirements take too long to complete and are not easily modularized. Second, there is a large training, management and infrastructure overhead, and third, the structure is too limiting for the 'new' workplace and workforce, which makes it challenging to retain sailors and officers long term.<sup>1</sup>

Quite aside from this contemporary context, the Reserve's problem with attracting, training and manning billets with qualified people has all happened before.

The article, on some unexplained pretext, recommends the Reserve as "the ideal organization to recruit this new workforce" and, further, that it could also be "the ideal organization to develop and retain [it]."<sup>2</sup> The authors discuss the requirement to reach an Operational Functional Point (OFP), the most basic need for trades to be employed in ships, but show that this takes at least two summers' worth of training to complete, if everything goes right, and there are instances of people not achieving it in five years. The entire premise of the new plan is about getting people to sea earlier for a formative experience in ships. The problem is that a summer's worth of training time is wasted thereby.

The supposed answer is to assign new reservists, without any trade affiliation and no qualifications, to a ship for one summer of training before selecting "further occupation training informed by their experience at sea."<sup>3</sup> The benefit, they say, would be that "[a]fter one summer of training, the RCN would have a pool of trained sailors and officers ready to surge and support domestic operations."<sup>4</sup>

For millennials who, it is claimed, "want purposeful employment and the ability to make a positive impact,"<sup>5</sup> the plan is very vague. Just for a start, what ship will accept a large cadre of unskilled people for a basic indoctrination experience? Canada does not possess a large training ship as some navies or coast guards do. The entire Canadian seagoing naval training organization, which was largely focused on officers, is a shadow of its former self. The employment of destroyer escorts, minesweepers, yard craft, gate vessels and sailing craft for the sole purpose of training was simply unsustainable. Such a program might be possible in a *DeWolf-class* ship (the Arctic Offshore Patrol Ships currently being built), which will have extra accommodations, but the authors shy away from suggesting that the navy's newest ship should become primarily a recruitment and training platform. Moreover, this class of ship





Credit: Cpl Roderick Hopp, CFB Esquimalt

Naval Reservists and Royal Canadian Mounted Police officers patrol Burrard Inlet during **Exercise Silver** in preparation for the Vancouver 2010 Olympics.

will not represent what the navy wishes to portray as ‘a taste of the real navy’ to potential new members.

All of this has been hotly debated before. In the early 1980s I was on the personal staff of Vice-Admiral J. Andrew Fulton when the future of the Reserve was an active and thorny issue. I made a number of trips across the country with the admiral as he heard the Regular and Reserve staff proposals and considered their merits. The Reserve had a few functional tasks but also had a large number of members with no direct relevance to those tasks. Theoretically, the Reserves were a supplementary military manning resource in case of a declared national emergency. In general, the Reserve had great difficulty attracting and retaining people: many of the Reserve divisions across Canada were below strength.

The Reserve manpower system of that era was also considered too expensive, top-heavy and too unresponsive to employ operationally ready units without a very long warning period. At the time, the admiral and I both thought them very resistant to change. Reserve summer training accomplished little in two weeks and qualifications took far too long to achieve. Reservists serving, usually temporarily, in the Regular fleet typically arrived with too much rank and too little experience. The stumbling blocks then were the same as they are now: time, expense and effectiveness.

After the Reserve leadership balked and did not produce a realistic plan for change, Admiral Fulton ordered a radical purging of the Reserve establishment. An officer or non-commissioned member (NCM) had two choices, leave or get qualified for one of the approved occupations: mine countermeasures; control of shipping; or harbour defence. All others were expunged from the system. The howls of protest were duly noted but did not change the outcome. At the time, it was made clear that unless functional capabilities could be assigned to the Reserves their days would be numbered.

The changes were implemented and a lot of intended progress and unintended consequences occurred. Crewing the *Kingston*-class ships created a schism in the Reserve structure between the Reserve divisions and the Reserve fleet. Full-time on part-time status sailors<sup>6</sup> were needed to ensure the essential skills associated with sailing the ships were attained. Slowly, these ‘perma-shad’ reservists<sup>7</sup> earned respect, commensurate pay and benefits, and a grudging sort of organization status as the years went by. Now, because the Cold War is over and the navy needs these hulls to get sea time for Regular force sailors, the Reserve manning model is gone and the ships are coming to the end of their service life. Manning of the *DeWolf*-class ships will not be a primarily Reserve responsibility.

I find there are two problems with the model proposed in

this article. First, the authors say “[t]he RCN is a sea-going institution and service at sea must remain foundational to the development of sailors and officers.”<sup>8</sup> Given the changes that have transpired in naval warfare, technology and broad naval involvement in the security and safety areas, this assertion is dubious at best. As an organization, only the fleet is a seagoing entity. The bases, schools, management and myriad of support sub-systems are land-based. The fleet, vital as it may be to the imagination of many, is a shrinking component of the whole navy. In an era where change and unpredictability are two of the most common trends, having a flexible, innovative and educated adjunct to the fleet is more important than ever.

The second problem is the notion that a summer’s worth of sea time can generate a trained pool of sailors for domestic disaster response tasks, including things like urban search and rescue. One of the lessons learned from humanitarian assistance/disaster relief (HA/DR) missions is that useful skill sets and experience cannot be improvised. While the defence policy, *Strong, Secure, Engaged*, for the first time in Canadian history, lists “[p]rovide assistance to civil authorities and non-governmental partners in responding to international and domestic disasters or major emergencies” as the seventh of eight core missions,<sup>9</sup> the *RCN Strategic Plan (2017-2022)* only refers obliquely to the new national task in its “Ready to Help” part of the Vision Statement. The strategic plan focuses, almost solely, on bringing the new fleet into service and re-establishing its credentials as a global navy.

Without dedicated training, plans, appropriate equipment and logistical enablers, the comments about the navy’s role in HA/DR missions are mainly throwaway statements used to cover off the leadership’s reluctance to dedicate resources to these missions. Young millennial-era people are very smart, as the article tells us, and they will be only too quick to catch on to the lack of serious commitment from the navy. It is more likely than not that their experience in HA/DR missions will be demotivating.

The navy needs to revamp its entire manpower recruitment and retention systems for the sake of the whole organization. The lack of trained and experienced sailors in the Regular force is now at a crisis level, with some occupations reaching shortages of between 25 and 50%. Undoubtedly, the navy will scour the land-based side of the organization to meet fleet manning needs as it is clearly the admirals’ highest priority. Reserve members with any transferable skills from their time in the *Kingston*-class ships are being encouraged to change over to Regular force status. After the best have been siphoned off, the little that remains will, in my opinion, become targets



Credit: MCpl Chris Ringius,  
Formation Imaging Services  
Halifax

A diver from HMCS *St John's* prepares to inspect a jetty on South Caicos Island during *Operation Renaissance*, the humanitarian aid mission following Hurricane Irma, on 17 September 2017.

for the inevitable future budget squeeze as the cost of the new warship construction program spirals upward due, in large part, to the rapidly developing trade war with the United States.

The singular focus of the naval leadership on the fleet replacement effort is a major weakness in its approach to institutional change and organizational learning. Sooner or later, they will realize that a navy without ships could, given the right innovation, provide maritime security for Canada. But, a navy without people cannot do anything, except rust away on the industrial pile of irrelevance. If the millennial generation is to be attracted and retained, a radical restructuring of the entire institution, not just the Reserve element, is required. I hope it does not happen too late.

#### Notes

1. Commander Dennis Witzke and Commander Luc Tremblay, “The Naval Reserve: An Alternative Perspective,” *Canadian Naval Review*, Vol. 13, No. 4 (2018), p. 5.
2. *Ibid.*, p. 6.
3. *Ibid.*, p. 7.
4. *Ibid.*, p. 7.
5. *Ibid.*, p. 5.
6. ‘Full-time on part-time status’ was the way reservists were employed in ships. They got ‘full-time work’ but not the equivalent status or benefits as Regular force sailors.
7. ‘Perma-shad’ is a well-known slang term and somewhat pejorative reference to the reservists sailing in the *Kingston*-class ships.
8. Witzke and Tremblay, “The Naval Reserve,” p. 8.
9. Department of National Defence, *Strong, Secure, Engaged: Canada’s Defence Policy*, Ottawa: 2017, p. 17.





Credit: Richard Lawrence, via author

Twenty-seven Battle of the Atlantic and Korean War veterans were honoured at this year's gala.

## ***Battle of the Atlantic Gala Dinner 2018***

**Tim Addison**

The Ottawa Branch of the Naval Association of Canada (NAC), with the support of the Royal Canadian Navy (RCN), hosted the annual Battle of the Atlantic (BOA) Gala Dinner at the Canadian War Museum on 3 May. This event recognizes the men and women who served in the RCN, the Royal Canadian Air Force and the Canadian Merchant Navy during the Second World War. With the number of Battle of the Atlantic vets on the wane, for the first time RCN veterans of the 1950-53 Korean Conflict were also honoured for their service.

This year's Gala dinner was a huge success and the evening was truly memorable for all who attended. The event was a sell-out and 441 diners enjoyed an evening reception, consumed a delicious five-course meal and honoured 27 Battle of the Atlantic and Korean veterans.

The Minister of National Defence, the Honourable Harjit Sajjan, attended again this year and spoke at the dinner. Also present were several of his staff. Other dignitaries included: Senator Joseph Day and former Senator Colin Kenney; a number of Members of Parliament; Deputy Minister Jody Thomas from the Department of National Defence; and Commissioner Jeffery Hutchinson of the Canadian Coast Guard. There was also a contingent of cadets from Royal Military College who assisted in hosting the veterans and enjoyed the opportunity to meet serving and former members of the RCN, members of government and the defence industry.

As part of the proceedings the Admirals' Medal was presented by Commander RCN to Captain (N) (Ret'd) Dr. Jim Carruthers, Past President of the Naval Association,

in recognition of tireless work in the Naval Association as President of the Ottawa Branch, Vice-President and finally National President over 10 years.

The evening also included a selection of Second World War-era songs sung by the Military Wives Choir which was well received by all. The Loyal Toast was delivered by Korean War veteran Lieutenant-Commander (Ret'd) Bill Black, which was considered a fitting way to start the transition to an event that will include veterans of Korea and other naval veterans in the years to come.

The Battle of the Atlantic dinner is reliant on the generosity of a number of companies. This year's sponsors included: Alion Canada, Babcock Canada, BMT Fleet Technology Canada, BMO Nesbitt Burns, Canso Investment Council, CSC Home Team (BAE, CAE, L3 Technologies, Lockheed Martin Canada RMS, MDA, and Ultra Marine Systems), Irving Shipbuilding, Leonardo (DRS Technologies), MBDA, Naval Group, Navantia, Prospectus Associates, Raytheon Canada, Rolls-Royce Canada, SNC Lavalin, and Seaspan Shipyards.

In addition to allowing the Naval Association to honour the veterans, the funds generated by the dinner every year support the Naval Association's Naval Affairs program and its efforts to promote a capable and effective RCN. The success of the program can be measured to a degree in the very positive results for the RCN in the government's defence policy, *Strong, Secure, Engaged*, which was adopted last year. 🇨🇦

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# Dollars and Sense: Arctic Futures

Dave Perry

The Royal Canadian Navy's (RCN) core mandate from 1948 to 1989 was NATO anti-submarine warfare (ASW). Responding to Soviet submarine developments in the 1950s and 1960s, Canada was one of the original NATO members working to provide a formalized response to the sub-surface threat posed to NATO aircraft carriers. Starting in 1964 with the Matchmaker exercises and the Standing Naval Force Atlantic that followed in 1968, the RCN was an active participant in NATO's North Atlantic naval operations, which generally focused on the Greenland-Iceland-United Kingdom (GIUK) gap. Tracking Soviet submarines as they left their bases on the Kola Peninsula and headed out into the wider Atlantic Ocean became one of Canada's key strategic contributions to the Cold War effort.

This past is eerily similar to the present. Over the last several years the RCN and Royal Canadian Air Force have become increasingly involved in ASW exercises and even operations on both sides of the Atlantic Ocean. Russian submarine activity has returned to Soviet-era levels of activity. While Canada was significantly less involved in ASW during the 1990s and into the 2000s, it now has some of NATO's best ASW capability and is in the process of acquiring more. The progressive modernization of Canada's Aurora maritime patrol aircraft, operationally ready status of the *Victoria*-class submarines and the Cyclone helicopters' nascent operational readiness mean these capabilities have already been put to use. Once the Underwater Warfare Suite Upgrade for the modernized *Halifax*-class frigates is completed (a Request for Proposals for the project was released in April 2017 and the project was awaiting government approval at the time of writing), Canada will have a sophisticated ASW capability above, on and below the water. As was the case a generation ago, these assets are being deployed into the

Atlantic and the same GIUK gap, including up into the Norwegian Sea.

Do these activities constitute Arctic operations? In the Canadian government's nomenclature they are described as operations in the North Atlantic, but when we look at where Canadian forces are actually operating at least some of these activities have occurred north of the Arctic Circle. And, importantly, the Russian forces they are operating against are based in the Russian Arctic. Russia's strategic aviation forces are largely based in the Russian Arctic as well.

In recent years, Canadian officials have given a twofold assessment of these modernized Russian forces. First, they have described them as enhancing Russia's ability to act in its own Arctic territory. Second, because most Russian strategic capability is located in the Arctic, Russia's Arctic modernization was acknowledged to provide a major modernization of Russia's globally deployable strategic forces.<sup>1</sup> This has been brought home to Canada by the resumption of long-range Russian aviation patrols approaching the Canadian Arctic archipelago and the coastal approaches to North America since the late 2000s. Canada launched NATO reassurance measures after Russia's invasion of Crimea in 2014 and its destabilizing efforts in eastern Ukraine, and some of these Russian flights have coincided with visits by Ukrainian officials to Canada in what appears to be Russian strategic signaling of unhappiness.<sup>2</sup>

Since Crimea, Canadian officials have characterized modernized Russian capabilities, their use in Crimea and their resumption of out-of-area military activity to levels not seen since the Soviet Union as a 'challenge to the rules based international order' and a 'threat to international security.' Prime Minister Trudeau's second Foreign Minister, Chrystia Freeland, in particular, has been pointed in describing Russia's destabilizing activities abroad as strategic threat to the liberal democratic world.<sup>3</sup> Yet, when discussing Canadian security and defence in conjunction with a modernized Russian military, Canadian officials have been remarkably circumspect. They have instead gone to great pains to state that Russia poses no threat to Canada, as they see no Russian malign intent accompanying its capability improvements.<sup>4</sup> Regarding Canada's Arctic territory in particular, Canadian officials continue to state that they see no "active military threat in our own Arctic" and that the Canadian Arctic is "an area of co-operation."<sup>5</sup> In the minds of some Canadian officials, Greenland evidently exerts a powerful influence



HMCS *Windsor*, a *Victoria*-class submarine, sails on the surface during the anti-submarine warfare exercise *Cutlass Fury* in the Atlantic on 18 September 2016.

Credit: Cpl Chris Ringius, Formation Imaging Services Halifax





A CF-18 Hornet intercepts a Russian TU-95 Bear bomber in the North American Air Defence Identification Zone on 5 September 2007.

over Russian intentions. West of the Danish territory, the Russians act benignly and in a cooperative fashion with Canada, whereas to Greenland's east they pose a threat to international security.

The only Canadian officials who do not use this type of soft language when describing Russia are those Canadian officers posted to NORAD. Unlike their peers reporting to only Canadian superiors (and not the American NORAD commander), Canadian officers working at NORAD actually describe Russia as a threat. And while these officers are also concerned about the eastern and western coastal approaches to North America, they are worried about transpolar threats emanating from the Russian Arctic.

This inconsistent approach to Russia and the Arctic is reflected in *Strong, Secure, Engaged*. The discussion of the Arctic in the 'Global Context' section of the document focuses only on the increased civilian accessibility of the region due to the impacts of climate change and technology improvements. Consequently, the suggested military response for the Arctic in this area of the policy is an increase in constabulary response. Later in the document, though, multiple enhancements to Canada's core Arctic military capability are proposed, many specifically to contribute to the defence of North America. These include: modernization of the North Warning System; intelligence, surveillance and reconnaissance; space-based communications; and enhancements to northern logistical arrangements including the forward operating locations for Canadian fighter jets.

This disconnect – i.e., that Russia is assessed as a strategic threat abroad, viewed benignly in Canada's North, but that Canada must bolster its contribution to the defence of North America, primarily in the Arctic – seems to be the result of the Trudeau government's two-pronged approach towards Russia. The government has pursued a policy of both dialogue and deterrence with Russia, having campaigned on a promise to end the previous government's "empty chair"<sup>6</sup> policy of diplomatic non-engagement with Russia. Trudeau's first Foreign Minister Stéphane Dion, vigorously embraced the idea of renewing relations with Russia and put particular focus on the Arctic as a key forum for engagement with

the Russian government. During his tenure, which ended in January 2017, the re-engagement with Russia received greater prominence in public comments than deterrence or reassurance measures.<sup>7</sup>

There is, fortunately, an indication of the development of a more coherent approach to Russia and the Canadian North. Following the expulsion of four Russian diplomats after the Kremlin's poisoning of an ex-Russian spy and his daughter in Salisbury, England, Foreign Minister Freeland linked the incident with a wider pattern of Russian activity. Previous statements on Russia by the Trudeau government, particularly by Dion, treated each Russian activity in isolation. By such logic, Russian activity in Crimea was distinct and unconnected to anything Russia might do in the Canadian Arctic. In contrast, the statement after the Salisbury attacks linked the expulsion with Russian interference in Canadian democracy and efforts to undermine Canadian security, along with "a wider pattern of unacceptable behaviour by Russia, including complicity with the Assad regime, the annexation of Crimea, Russian-led fighting in eastern Ukraine, support for civil-strife in Ukraine, Georgia, Moldova and other neighbouring countries, interference in elections, and disinformation campaigns."<sup>8</sup>

Hopefully this is an indication that Canadian attitudes are shifting towards a more coherent approach towards the Canadian Arctic. In either a bilateral or multilateral context, through NORAD or NATO, Canada has to ensure it is defended against possible Russian aggression, including in the Arctic. With the publication of *Strong, Secure, Engaged* Canada has already adapted its stance in concert with NATO and has indicated it will do so in a NORAD context as well. There is no evidence that Canada should adopt a different approach when dealing with the Russians on its own. The Arctic is increasingly becoming an area of strategic importance; Canada's Arctic territory is no different. 🇨🇦

#### Notes

1. Stephen Burt, "Evidence," Standing Committee on National Defence, House of Commons, Number 26, 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 3 November 2016, p. 5.
2. Steven Chase, "Russian Military Jets Flew within 100 kilometres of Canadian Mainland," *The Globe and Mail*, 19 September 2014.
3. The Honourable Chrystia Freeland, "Chrystia Freeland on Canada's Foreign Policy: Full Speech," *Maclean's*, 6 June 2017.
4. Burt, "Evidence."
5. Ambassador Kerry Buck, "Evidence," Standing Committee on National Defence, House of Commons, Number 79, 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 6 February 2018, p. 10.
6. The Honourable Stéphane Dion, "On 'Responsible Conviction' and Liberal Foreign Policy," *Maclean's*, 29 March 2016.
7. The Honourable Stéphane Dion, "Evidence," Standing Committee on Foreign Affairs and International Development, House of Commons, Number 7, 1<sup>st</sup> Session, 42<sup>nd</sup> Parliament, 14 April 2016.
8. The Honourable Chrystia Freeland, "Canada Expels Russian Diplomats in Solidarity with United Kingdom: Statement," 26 March 2018.

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# Warship Developments: Hybrid Carriers

Doug Thomas

Astute readers might look at the title of this column, think of hybrid cars with both gasoline engines and electric motors, and wonder: “what does the author mean, are these aircraft carriers that can run on batteries?” Or if they have an interest in naval history, they might remember the two Japanese battleships, *Ise* and *Hyuga*, which had their after turrets removed and replaced with a flight deck and hangar.

While these may be interesting topics to discuss at some point, this column is about medium-size amphibious vessels – generally 18,000 to 28,000 tonnes, with a flat helicopter-capable deck and frequently with a floodable well-deck to launch landing craft capable of assaulting beaches with embarked marines, armoured vehicles and mobile gun/missile batteries. Others conduct amphibious operations with landing craft lowered from their sides, or with embarked helicopters. They are hybrids because they can perform a number of roles, and with their flight decks and hangars can also perform some of the roles of an aircraft carrier – in a limited way of course, as their capacity is significantly less than large (and very expensive) aircraft carriers such as those operated by the US Navy. They are very flexible and useful vessels, and they form part of the order of battle of a number of the world’s navies and are being built for more.

Modern amphibious operations are based on the concept of ‘over-the-horizon assault.’ As the name indicates, the over-the-horizon assault comprises a military operation in which an amphibious landing is conducted with high-speed air-cushioned vehicles and helicopters from beyond the horizon where they can’t be easily detected or attacked by the enemy. The conventional Landing Ship Tank (LST) seen in World War II films had to approach the coastline and run its bow up on the beach in order to land armoured vehicles and troops, which was a very dodgy operation that exposed such vessel(s) to the risk of being fired upon by the enemy.

Navies with these ships built, or being built, include France, Spain, Australia, Japan, South Korea, Egypt (two French-built *Mistral*-class originally intended for the Russian Navy), Brazil (ex-HMS *Ocean* and perhaps a new ship), probably Russia, and doubtless more to come. One of the interesting issues is whether these ships can operate Vertical/Short Takeoff and Landing (V/STOL) aircraft such as Harrier and a Joint Strike Fighter variant, the F-35B, to be operated from the larger *Queen Elizabeth*-class



Credit: Cpl Darien J. Bjornal, US Marine Corps  
The Republic of Korea Navy Amphibious Assault Ship *Dokdo* sails between the American LHDs *Boxer* and *Bonhomme Richard* during Exercise Ssang Yong 2016 off the Korean peninsula.

in the Royal Navy. If one of these hybrid carriers operated 10-12 F-35Bs rather than a complement of troop transports, it could have a considerable strike role against land targets well inland or in an amphibious operating area. This raises a range of possibilities: in Australia, for example, the two *Adelaide*-class ships could operate as the core of an amphibious ready group (ARG) with a troop-carrying and landing capability in one ship, and a strike or combat air patrol role in the other. This pre-supposes a low-threat operation, where a relative few high-performance aircraft can tip the balance.

Let’s have a look at several of the more interesting of these vessels, and what their capabilities will provide in the way of options for their countries.



Credit: Italian Navy  
Italian LHD *Trieste* is currently under construction. It features a two-island design, similar to the Royal Navy’s *Queen Elizabeth*-class carriers.





The Japanese helicopter-carrying destroyer JS *Izumo* transits the South China Sea on 10 June 2017.

### **South Korean Dokdo-Class**

The South Korean Navy's *Dokdo*-class Landing Platform Helicopter (LPH) was commissioned 11 years ago. Construction on the second ship of the class, ROKS *Marado*, commenced in April 2017. The launching ceremony for the new ship was held at Hanjin Heavy Industries and Construction Shipyard in Busan on 14 May 2018 and it is expected to be commissioned in 2020 after tests and evaluations.

Both ships are 199 metres (643 feet) length overall with a beam of 31 metres (102 feet). They are equipped with a dock large enough to deploy the American Landing Craft Air Cushion (LCAC) and can carry up to 15 helicopters, 720 troops and a number of armoured vehicles. They are diesel powered and capable of a very useful 23 knots. *Marado* was built for \$650 million (US) and represents an impressive capability for that cost.

### **Italian ITS Trieste**

Construction of ITS *Trieste* Landing Helicopter Dock (LHD) commenced in 2017 and the ship is expected to be commissioned in 2022. This large 32,000 tonne vessel (245 metres or 804 feet length overall) will have a dock, and be capable of handling a variety of helicopters as well as attack aircraft. It will replace the small V/STOL aircraft carrier *Giuseppe Garibaldi*, which has been in service since 1985. *Trieste* will be fitted with a combined propulsion system diesel/electric and gas turbines (CODLOG) and will have a top speed of 25 knots.

The ship's main mission will be the transport, landing and sustenance of troops, employing helicopters and four landing

craft with a capacity of up to 60 tons which will be launched from its flooded dock in the stern.

### **Japanese JS Izumo**

For national and international sensitivities, the four largest warships in the Japanese Maritime Self-Defence Force are classified as helicopter destroyers. Since the latest and larger pair – *Izumo* and *Kaga* – perpetuate the names of aircraft carriers of the World War II Imperial Navy and are somewhat similar in dimensions (248 metres length overall and speeds in excess of 30 knots), this is a difficult argument to sustain. All four ships have a considerable capacity as LPHs to embark two or three companies of marines or soldiers, and land them employing troop-carrying rather than anti-submarine warfare (ASW) helicopters.

*Izumo* and *Kaga* can carry up to 28 helicopters, but normally the air group is limited to seven ASW and two search-and-rescue helicopters. Nevertheless, recent speculation is that up to 10 F-35B V/STOL aircraft could be embarked – particularly if they were modified with a ski-jump ramp to avoid the fuel expenditures necessitated by vertical takeoff.

### **Conclusions**

The combat capability and flexibility resident in a large ship that can carry troops and land them by helicopter or embarked landing craft is impressive. The same qualities of large hangar capacity and flight deck means that they can readily change roles and become a small fixed-wing V/STOL aircraft carrier. The navies briefly discussed in this column are but three of a number of those which can do this. 🇺🇸

# Book Reviews

*The U.S. Navy Reserves* (US Naval Institute Series), edited by Thomas J. Cutler (Series Editor), Annapolis: Naval Institute Press, 2015, 173 pp. \$27.95 (paperback), ISBN 978-1-61251-990-6

Reviewed by Mike Kocsis

This stimulating book is part of the *Naval Institute Chronicles* series that brings together past contributions to the US Naval Institute's *Proceedings* journal. Articles in this issue explore the past, present and future of the US Navy Reserves.

One selection, originally published in 1928 by (then) Captain Chester Nimitz, details the milestones that brought the Reserves into existence. Nimitz explains how the vision of a corps focused on training was made real when the US Congress earmarked funds for 1,200 students at prominent universities to receive "systematic instruction and training" in seamanship, navigation, ordinance, military law, naval engineering, tactics, communications and self-reliant leadership (pp. 26-7). Nimitz believed that educational achievement would prove critical to the future strength of the navy (p. 33).

A selection by Theodore Treadwell describes how, early in the US involvement in the Second World War, the Reserves established a distinctive role when the US Navy recruited promising students from civilian universities into commissions in order to create a 'Sub-chaser Training Center.' Later in the war, their contributions turned out to be decisive when specially trained sub-chasing units won back Atlantic shipping lanes (p. 75).

Several other selections explore the mandate and purpose of the Reserves. In an excerpt from his 1952 essay, Lieutenant W.H. Vernor describes the Reserves as a "standby squadron" the fundamental purpose of which was to complement Regular forces (p. 108). But in a 1980 essay, Captain James Albert challenges the notion of one integrated navy by providing a "flexible management strategy" in which the Reserves would strive for organizational independence. Only as an independent force, Albert argues, would the Reserves be properly equipped to play their role delivering specialized knowledge and training (p. 129).

In his 1984 essay, Vice-Admiral Robert Dunn portrays the Reserves as a talented and well-trained element of the navy (pp. 138-9). He nevertheless outlines what he sees as an unavoidable challenge, which is to find the optimal mixture of Reserve and active duty forces (p. 145). Rear-Admirals David O. Anderson and J.A. Winnefeld explain why the navy should "take ownership" of the Reserves in a movement of integration. In their view, the integration

paradigm is a precondition for clear lines of communication and efficient bureaucratic allocation (p. 166).

A 1990 essay by Harlan Miller argues for an operative concept called 'One Navy.' According to Miller, the two forces face the same structural challenges, so they should operate more or less as partners to build methodologies of training, transfer and promotion (pp. 147-8). But an essay by Robert Helsel published in the same year makes the case that integration is the best and perhaps the only viable strategy to build units able to respond to the conditions of peacetime and also the enlarged requirements of major deployments and active-duty threats. He lays out a series of performance evaluation programs, a system of incentives and rewards and other policy-making tools that would urge the navy toward integration (p. 158).

Several important themes run through the collection. A prominent one is the contribution of the Reserves to the US Armed Forces since before WW II. The contribution includes extensive deployments as well as phases of building, training and re-tooling. Another theme is that the organizational mandate of the Reserves varies considerably; in the past, the purpose of the Reserves was defined by specialized roles, but these expanded over time to make the Reserves an organization with a mandate and sweeping functions of its own.

Experts on the US Navy will continue to debate the potential roles of the Reserves and the optimal balance with the Regular navy. Still, no matter which era we consider, the advantages of the Reserves' system are not in doubt. Recruiting officers into the navy through the Reserve corps is an indispensable tool to raise the level of educational achievement in the Regular force, and by helping the navy absorb advanced knowledge and skills, the Reserves make the navy a more adaptable and effective fighting force. Even if they differ on whether the Reserves should be regarded as a standby squadron, an equal partner, a separate branch, or a deeply integrated department inside the US Navy, the expert discussions contained in this installment of the *Naval Institute Chronicles* are part of a tradition that enables the US Navy to meet new challenges and respond to changing circumstances.

The essays brought together by Thomas Cutler for this volume provide an invaluable service and they are some of the finest to be found in this Naval Institute series. 🍷

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and join the discussion!**





Since its founding, *Canadian Naval Review* has been hosted and published by the Centre for the Study of Security and Development (CSSD, formerly the Centre for Foreign Policy Studies) at Dalhousie University. However, as of this issue, *CNR* is moving to a new institutional host at the Mulroney Institute of Government at St. Francis Xavier University. The Mulroney Institute is an interdisciplinary research centre, dedicated to producing and facilitating innovative policy thinking and analysis. One of the Institute's research priorities is maritime security, making StFX an ideal host for *CNR*. There has been no change to *CNR*'s Editorial Board, or its editorial independence.

This new relationship will allow the journal to continue to bring together Canada's naval security experts, academics, serving members of the Canadian Armed Forces, and the maritime community, while advancing understanding of maritime security and what it means for Canada. 🇨🇦

#### 2018 CANADIAN NAVAL MEMORIAL TRUST

# Essay Competition

*Canadian Naval Review* will be holding its annual essay competition again in 2018. There will be a prize of \$1,000 for the best essay, provided by the **Canadian Naval Memorial Trust**. The winning essay will be published in *CNR*. (Other non-winning essays will also be considered for publication, subject to editorial review.)

Essays submitted to the contest should relate to the following topics:

- Canadian maritime security;
- Canadian naval policy;
- Canadian naval issues;
- Canadian naval operations;
- History/historical operations of the Canadian Navy;
- Global maritime issues (such as piracy, smuggling, fishing, environment);
- Canadian oceans policy and issues;
- Arctic maritime issues;
- Maritime transport and shipping.

If you have any questions about a particular topic, contact [cnrcoord@icloud.ca](mailto:cnrcoord@icloud.ca).

#### ***Contest Guidelines and Judging***

- Submissions for the 2018 *CNR* essay competition must be received at [cnrcoord@icloud.ca](mailto:cnrcoord@icloud.ca) by Monday, **30 September 2018**.
- Submissions are not to exceed 3,000 words. Longer submissions will be penalized in the adjudication process.
- Submissions cannot have been published elsewhere.
- All submissions must be in electronic format and any accompanying photographs, images, or other graphics and tables must also be included as a separate file.

The essays will be assessed by a panel of judges on the basis of a number of criteria including readability, breadth, importance, accessibility and relevance. The decision of the judges is final. All authors will be notified of the judges' decision within two months of the submission deadline.



On the 75<sup>th</sup> anniversary of its initial commissioning, the Second World War *Tribal*-class destroyer HMCS *Haida* was recommissioned as ceremonial flagship of the Royal Canadian Navy in a ceremony on 26 May 2018.

Credit: Royal Canadian Navy