CANADIAN NAVAL REVIEW

VOLUME 4, NUMBER 3 (FALL 2008)

Northern Strategy Deficit: What to Do with the Arctic Offshore Patrol Ships?

Technology Insertion: A Way Ahead

The Russian Navy: Has the Phoenix Risen?

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The *Canadian Naval Review* is published quarterly by the Centre for Foreign Policy Studies (CFPS) at Dalhousie University. It is a professional journal examining a wide range of maritime security issues from a Canadian perspective. In particular it focuses on strategic concepts, policies, historical perspectives, procurement programs and operations of the Canadian Navy, and national security in general. This initiative brings together members of the Canadian defence and academic communities and is a component of the CFPS's Maritime Security Program.

The *Canadian Naval Review* has two primary objectives:

- provide a respected, arm's-length focal point for discussing a broad range of issues relating to navy professional development; and
- provide a forum for naval, academic and public discussion of all aspects of naval and maritime policy.

The material included in the review is presented for the professional and general education of the readers. Articles, commentaries and opinion pieces are invited from the widest possible spectrum for the purpose of informing, stimulating debate and generally challenging readers. The opinions expressed by the authors do not necessarily reflect the opinions of the Editors, Editorial Board, the Centre for Foreign Policy Studies, the Department of National Defence, or the Canadian Navy.

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Photo: MCpl Eduardo Mora Pineda Formation Imaging Halifax

*The boarding party of HMCS **St John's** returns to the ship after searching a boat for weapons of mass destruction as part of an August 2008 exercise in the Caribbean.*

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Editorial: Learning from our Past, our Experiences and our Allies

This issue is packed with a smorgasbord of interesting articles reflecting topical issues facing navies, and indeed governments, today, including the Arctic, marine security, piracy on the high seas, Canadian shipbuilding, equipment challenges and the Canada First defence strategy. Add the regular columns and you have a fascinating issue all round.

The editorial in the Summer issue (Peter Haydon, "Naval Education") bemoaned the apparent lack of current naval historical awareness and considered that *CNR* has not been able to promote such awareness on the scale to which the editorial staff had envisioned. A number of readers responded to the editorial – one of the comments is included in this issue – and I would like to respond as well. Certainly there is ample naval history taught in the naval institutions of today. The Canadian Forces College, Fleet Schools and Maritime Warfare Centre teach the cyclical nature of maritime traditions, warfare and tactics all stemming from the lessons of the past. The commanders of today are quick to review lessons enumerated from previous operations and exercises. This in itself is learning from history, albeit recent history. Furthermore, sometimes the present-day commander will follow traditions commenced long in the past without even realizing it. The innovative idea of Admiral Nelson to get his commanders together face to face the day before the Battle of Trafalgar is a prime example. Group commanders today would always follow this successful approach on venturing into any multinational coalition or joint operation.

We learn in other ways too. Let me use a Nova Scotian example. The Swiss Air crash, which saw the loss of 229 passengers off St Margaret's Bay, Nova Scotia, occurred 10 years ago. The poignant memory of how people came together and helped the families of the victims remains a source of Maritime pride. There were many comments by those families that if the crash had to happen, it happened in the right place. Behind the scenes, the lessons of a similar crash off New York the year before were reviewed in detail. It was no coincidence that the families were

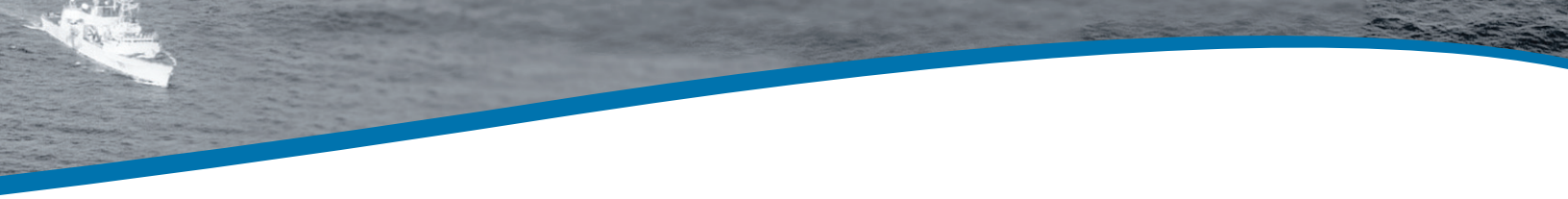
Photo: DND

*NATO's Standing Naval Force Atlantic (SNFL), to which Canada always committed at least one ship, was probably the greatest Canadian naval learning experience of the post-War era. Here, HMCS **Protecteur** refuels HMCS **Algonquin** and HMS **Danae** during a NATO exercise in the 1980s.*

informed of the daily situation prior to the media, that the public and the media were kept informed minute by minute on a website, and that the black boxes were found quickly due to innovative technology, submarine capability and using every resource. As well, it was no coincidence that each passenger was identified as quickly as possible, that 98% of the plane wreck was recovered, that the families always came first, that all those on the operation were given post-traumatic stress treatment, and that more was done in three weeks after the incident than ever had been accomplished before. These were lessons learned from previous similar accidents. Nova Scotians are still lovingly helping the families – this is the maritime culture developed from years of maritime history.

There are several key points here. First, history will not repeat itself even if the lessons of the past are learned. Second, in the case of the Swiss Air crash, the post-crash lessons have been well learned but the recommendations to prevent a future crash of this nature have – most unfortunately – yet to be fully implemented.

Perhaps the most important lesson was that in a multi-disciplinary operation face-to-face meetings with the key



personnel of the agencies concerned is crucial to success. In the Swiss Air case, the Federal Council set up in the Maritimes provided such an opportunity – representatives of the RCMP, Canadian Forces, Immigration, Emergency Measures, Finance and numerous others regularly met with key personnel to share experiences and get to know the channels of communications for when a disaster did occur. When the Swiss Air crash happened, the heads of all the agencies who would play a part had already met and were used to operating together.

The North Atlantic Treaty Organization (NATO) is another example of an organization that has allowed Canada to learn from history, experience and allies. NATO has been holding face-to-face meetings since its inception. Both the Military Committee and the North Atlantic Council provide decision-making forums for military and political representatives. A set of major exercises is conducted biannually to practice these military and political decision-making processes. This is essential in order to be fully prepared when troops deploy to operational theatres.

As Canadians we should be aware that there is only one agency which takes experienced personnel to make a team of the governmental and non-governmental agencies which NATO troops would encounter in the field – the Pearson Peacekeeping Centre in Cornwallis, Nova Scotia. The Pearson Peacekeeping Centre's Exercise Department has been taking its contracted expertise to NATO and European Union military troops and headquarters for major exercises every year for the past five years. These exercises are primarily computer-based generation of events taken from past deployment experiences. The lessons learned from areas where NATO troops have found themselves are put together into a generic situation and exercised as close to what really could happen as possible.

The lessons from land, sea and air force operations in Bosnia, Somalia, East Timor, former Yugoslav Republics, Iraq, Kuwait and Afghanistan provide a menu for the training audience to choose. The media play a huge part in this training and are critical. There are 15 media personnel contracted to put together all types of media products throughout the exercise. This includes a television newscast each evening on the events of the day. A team of reporters trains the troops on holding press conferences, interviews in the field and disaster handling.

Several exercises have had the headquarters and force being trained and deployed to an area for peacekeeping operations from the sea. They have then set up a Combined Joint Force Task Group Commander from a command ship. This too has been invaluable to each service as they are forced to learn the lessons of each others' experiences. Too often they operate independently and therefore desperately need practice working together and understanding what each can offer.

The Joint Support Ship is being designed to fill the role of this command ship for the Canadian Forces. These ships are therefore critical for Canada being able to command forces worldwide when air and land insertion are impossible. Replacements are desperately required for the Canadian ships *Preserver*, *Protecteur* (and *Provider* long since paid off). Industry evidently came in with replacement proposals that were too expensive for what the government had hoped and therefore cancelled the process. This is most unfortunate as the government has effectively delayed the eventual replacements by years. The Request for Proposals came in with the required capability at a certain price. The proposals themselves indicated that the capability could not be obtained for the money available. The solution is surely to revisit the capability or provide more money.

With an election this fall further delay will be inevitable. The first Statement of Requirement for a replacement was developed in 1990 – we are now at 18 years and counting. What used to take 20 years from requirement to equipment is now a 30-40 year process. This is not good enough and our troops, sailors and air personnel deserve better. Will government ever spend the time to learn its part in the lessons from history?

The *Canadian Naval Review* highlights historical articles as well as featuring particularly topical subjects such as the Arctic security challenge. The requirement to preserve Canada's Naval Memorial, HMCS *Sackville*, and the history behind one of Canada's seagoing legends will be included in the issues ahead. Let us hope that universities, naval training institution and CF academies integrate such articles from the *Canadian Naval Review* into their curriculum. To quote Peter Haydon in his editorial in the Summer issue, "our history and our experience matter." The Canadian Forces have developed a tried and true process for learning the lessons of the past – the government needs to develop the same process and then both must use it. We have to hope that governments get smarter in terms of investing in our military by studying the lessons of the past. Let's make *CNR* a forum for doing so.

Vice Admiral (Ret'd) Duncan 'Dusty' Miller

2nd Prize Winner of the 3rd Bruce S. Oland Essay Competition

Northern Strategy Deficit: What to do with the Arctic Offshore Patrol Ships?

Commander Scott E.G. Bishop

Photo: Sgt Kevin MacAulay, Formation Imaging Halifax

*HMCS **Toronto** and CCGS **Pierre Radisson** in the Hudson Strait during **Operation Nanook** in August 2008.*

On 9 July 2007, the government of Canada stated its intention to acquire up to eight *Polar*-class 5 Arctic Offshore Patrol Ships for the navy and to begin construction of a deepwater port in the far north. Such an announcement was not entirely surprising. The acquisition of armed icebreakers to patrol the Canadian Arctic had long been a feature of the Conservative Party of Canada's election platform, and reflects a grassroots concern amongst the party membership over the status of Canada's Arctic territory.[1]

What *is* surprising is the long absence of the Arctic from the navy's own strategic plan. In fact, the navy's most recent set of strategic planning documents gives the Arctic cursory attention. *Leadmark: The Navy's Strategy for 2020* details the navy's vision and strategy in the coming decades. Yet, the Arctic is mentioned only 14 times within its 146 pages. The Arctic is given similarly light treatment in the navy's follow-on strategy document, *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*, with seven citations in 47 pages. In both documents, the references to the Arctic mainly consist of tag lines that expand the applicability of a particular issue to the Arctic region. In its most assertive and expansive statement on the Arctic, *Leadmark* reveals that it is essentially a document outlining a strategy for the navy in the Pacific and Atlantic, and a placeholder for some future naval role in the Arctic. According to *Leadmark*:

> The Pacific and the Atlantic areas of responsibility comprise some of the most challenging operating areas in the world…. As for the Arctic, global warming and advances in technology might allow a greater presence there, but surface operations will remain contingent upon the season. A number of factors, therefore, must be considered in the development of forces for Canada's naval defence: the split between two (and increasingly three) essentially disconnected coasts.[2]

Image: DND

Artist's impression of the Arctic Offshore Patrol Ship (AOPS).

Neither *Leadmark* nor its successor document gives the Arctic specific or separate treatment, inferring that the challenges facing the navy in the north and the strategy that it must adopt in its approach to this region are not distinct from those it encounters in Canada's Pacific and Atlantic approaches. Instead, naval strategy in the Arctic is viewed as an extension, or ancillary, line of operations to those in the Pacific and Atlantic. The question to be answered by naval strategists, then, is whether or not the problems of the Arctic are sufficiently different from those of the Pacific and Atlantic so as to warrant the development of a specific strategic approach to the north.

A number of facts would seem to suggest that such an approach is warranted. From a physical standpoint, the Arctic is a vast region equivalent in size to continental Europe and its isolation and remoteness will pose unique challenges to the navy in terms of mounting, sustaining and prosecuting naval operations. It comes with very different and challenging environmental conditions with which few naval officers have direct experience. And key stakeholder relationships in the Arctic such as those with industry, First Nations peoples, and other government departments are likely to be significantly different than those in MARPAC or MARLANT.

Another important difference is the kind of operations that the navy's vessels will undertake in the Arctic. In the Atlantic and Pacific approaches, the navy's non-training activities are task-focused. Warships conduct surveillance and contribute to the recognized maritime picture, they work with other government departments to conduct fisheries inspections, enforce environmental law, interdict drug smuggling, counter the flow of illegal immigrants and conduct search-and-rescue operations. The simple transposition of these roles to the Arctic is likely to prove problematic for the obvious reason that such practical tasks are likely to be in low demand in the Arctic. Yet these are precisely the threats being contemplated in the development of the concept of operations for the navy's new Arctic Offshore Patrol Ship (AOPS).

In the next 25 years, the navy's northern strategy must reflect the fact that these waters will continue to have low levels of vessel traffic, and that many of the tasks occupying the navy's attention in the Pacific and Atlantic will still lie beyond the immediate strategic horizon in the Arctic. A maritime strategy that narrowly focuses on duplicating the navy's Atlantic and Pacific task lists may not be the optimal strategy to pursue in the north.

Are the problems of the Arctic sufficiently different from those of the Pacific and Atlantic so as to warrant the development of a specific strategic approach to the north?

The extrapolation of Atlantic and Pacific threats to the Arctic is ill-reasoned on a number of grounds. First, there is little vessel traffic in the Arctic and this is likely to be the case for many years. Given the forecasted environmental conditions in the Arctic, including changes to weather and ice conditions predicted by global climate change models,


Photo: DND

The town of Iqaluit, Nunavut.

Photo: DND

*HMCS **Montreal** off the coast of Baffin Island.*

most vessels will continue to find it challenging to operate in the far north. Environment Canada's climate and ice models project that the Northwest Passage will not be feasible as a commercial route until 2030 at the earliest, but more probably in the 2070-80 time-frame.[3] Moreover, these models predict that as the ice pack breaks up, the southward movement of multi-year ice into the Arctic archipelago will make the Northwest Passage the last region in the Arctic to become safely navigable.[4] In short, climatology suggests that commercial traffic will eventually come to the Arctic, but its viability as a major oceanic trade route still lies near the end of the 25-year strategic horizon that is the subject of this paper.

Additionally, Canada's Arctic hinterland will still be too remote from major population centres or transportation hubs to be a practical alternative ingress point for terrorists, drug smugglers, or illegal immigrants. These areas are remote and present would-be smugglers or terrorists with both a challenging operating environment and a complex logistics problem. An overland entry into North America from the Arctic just does not make much intuitive sense when one considers that the Atlantic and Pacific approaches and their major population centres offer much more accessible and exploitable entry points.

The demographic characteristics of the north also argue against its use as an entry point for organized crime and terrorist groups. These groups seek to exploit the characteristics of the environment in order to mask their own activities. This would be a challenging task given the Arctic's sparse population, limited transportation infrastructure, very low volume of international traffic, and limited range of economic activity in the region. Although the viability of the Arctic as an entry point for these threats may eventually change with further economic development in the north, these demographic changes likely loom well beyond the strategic horizon envisaged for the navy's new Arctic patrol vessels.

The extrapolation of Atlantic and Pacific threats to the Arctic is ill-reasoned on a number of grounds.

This does not mean that Canada's interests in the north are not threatened. The status of the Northwest Passage under international law will ultimately decide how much control Canada is able to exercise over the vessels which use these waters and this will have major security implications for Canada in the future. Climate change coupled with an unfavourable interpretation of the Northwest Passage's legal standing could see the strait used with increasing frequency by merchant shipping that would not be subject to Canadian law. This poses real environmental risks to a fragile Arctic ecosystem, which in turn could endanger the traditional way of life for First Nations peoples. It would also open the Arctic archipelago to foreign warships and their right to transit passage. Increased freedom of operation for foreign warships in the Arctic, including the right of submerged passage for submarines, would pose

a threat to Canadian security. In short, it is the status of the strait under international law that poses the greatest security problem for Canada in the north, and this should be the true focus of Canadian naval strategy in the Arctic.

For these reasons, a maritime strategy that narrowly focuses on providing a capability to duplicate the task list that currently occupies the navy in Canada's Atlantic and Pacific approaches may not be the optimal strategy to secure Canadian sovereignty in the north.

If Canadian sovereignty over the waters of the Northwest Passage is the desired end state, then the navy needs to ask itself three questions when determining the ways and means to accomplish this strategy:

- How can the navy make a contribution to building Canada's legal case for sovereignty over the waters of the Arctic archipelago?
- What capabilities would provide meaningful, practical employment for the navy in the north?
- What is the minimum level of investment required to achieve the strategy?

Building Canada's Legal Case for Sovereignty

In the strategic horizon to 2030, global warming wrought by climate change will have many effects on the Canadian north, but only one of these will be of strategic import from the standpoint of the navy: the transformation of the Northwest Passage into a viable sea route for international shipping.

In the next 25 years, the main challenge for Canada will be to consolidate its position that the waters of the Arctic archipelago are 'internal waters.' To do so, Canada must demonstrate that it exercises effective control over its Arctic waters. This is the lens through which naval operations in the Arctic must be seen, as the capabilities and missions envisaged for the AOPS must be aligned to the somewhat abstract demands of strengthening Canada's legal case.

The navy's challenge is to 'operationalize' these points of international law in developing its northern maritime strategy and to develop a concept of operations for the AOPS that supports Canada's sovereignty claims when the more traditional, practical expressions of sovereignty through naval power are not in the offing.

Photo: Cpl David Cribb, Formation Imaging Halifax

*HMCS **Toronto** being refuelled by CCGS **Pierre Radisson** in Frobisher Bay during **Operation Nanook** in August 2008.*

Photo: US Coast Guard official

USCGC ***Polar Sea****.*

Employment for the Navy in the Arctic

The navy will have a direct role in providing Canada with the ability to exercise control over the strait by establishing a persistent presence in the Northwest Passage, conducting surveillance of the waters and providing the capability to mount an on-site response when Canadian laws are broken.

The presence of Canadian warships in the Arctic archipelago is a powerful manifestation of Canadian sovereignty, and these warships must be ready to interdict shipping in support of law enforcement operations – as improbable as these interdiction operations may be. However, neither presence nor interdiction missions are likely to provide meaningful day-to-day employment for the AOPS.

There will also be a requirement for the AOPS to undertake unit operational readiness and individual continuation training for the crew. In practice, however, this may prove problematic as stringent environmental regulations may impose limitations on the operation of underwater sensors, the use of training munitions and the establishment of new firing or training areas.

Perhaps the most obvious potential task for the AOPS is the 'interdiction' of foreign vessels and warships that violate Canadian sovereignty by entering our 'internal waters' without permission. However, such a mission would also present serious difficulties – and one must ask how frequent such a tasking might be in practice – particularly with respect to the incursion of a US government vessel into the Northwest Passage. Throughout its brief history, Canada has always been very careful to avoid a direct rejection of its Arctic sovereignty claims by the United States, a situation that was neatly summarized by Gordon Robertson, Clerk of the Privy Council and Secretary to Cabinet from 1963-1975, when he said "We always tried to be careful to assert positions … and avoid compromising positions, but never push things to the point that the Americans would come out with a plain, flat denial of Canadian sovereignty."[5]

In the next 25 years, the main challenge for Canada will be to consolidate its position that the waters of the Arctic archipelago are 'internal waters.'

This characteristic of the Canadian approach to Arctic sovereignty can be seen in the reaction of the Canadian government to the transit of the MV *Manhattan* in 1969. The government responded with the *Arctic Waters Pollution Prevention Act* (*AWPPA*), the intent of which Prime Minister Pierre Trudeau was careful to clarify was "to prevent pollution in the Arctic … it is not an assertion of sovereignty."[6] According to Ivan Head, former advisor to Prime Minister Trudeau, the *AWPPA* was one means of "slowly weaving a fabric of sovereignty in the North."[7]

It is in the strategic interest of Canada to avoid a flat rejection of Canadian sovereignty in the north, as the passage of time under the current status quo further strengthens Canada's legal case. Perhaps more importantly, Canada's best chance of securing sovereignty rights over the Northwest Passage lies with gaining US support for Canada's position. In many respects, Canada's success in securing its sovereignty over

the waters of the Arctic archipelago is tied to the USA. The United States is a key protagonist in Canada's sovereignty claims over the passage. It is the only state to challenge Canadian sovereignty through formal diplomatic protest[8] and in 1985 by sailing a vessel – *Polar Sea* of the US Coast Guard – through the passage without Canadian permission. Securing US support for Canadian sovereignty over the Northwest Passage would immeasurably strengthen Canada's position against other challenges.

Canada's best chance of securing sovereignty rights over the Northwest Passage lies with gaining US support for Canada's position.

In the future, the Canadian government is likely either to preserve the status quo or to pursue a diplomatic solution with the USA. In either event, it will continue to weave the fabric of its legal case for sovereignty in a way that does not directly provoke a US rejection of its claims. Given the close relationship between the two countries, there may be diplomatic opportunities to resolve Canadian and American differences on the Arctic. For instance, bilateral issues such as ballistic missile defence and the expansion of the NORAD mandate to include maritime security both offer Canada opportunities to assuage American concerns and recognize Canada's position. Moreover, there are signs that there may be political will in the United States to make accommodations on the issue. For instance, in 1988, Canada and the USA negotiated the Arctic Cooperation Agreement, in which the United States pledged that voyages of US icebreakers would be undertaken with the consent of Canada, without prejudicing either country's legal position regarding Arctic waters. More recently, there have been even clearer indications that the United States might be willing to accept Canadian jurisdiction over the Northwest Passage. In 2006, the former US Ambassador to Canada, Paul Cellucci, stated, "It is in the security interests of the United States that [the Northwest Passage] be under the control of Canada."[9]

The navy will need to be mindful of these issues when its units are patrolling the Arctic, and it will have to govern carefully with rules of engagement (ROE) any action which could be provocative and result in an outright US rejection of Canadian sovereignty claims in the Arctic. Ambiguity is useful to Canada: the passage of time further strengthens its legal position and it enables Canada slowly to build upon its position with legislation and other initiatives.

Photo: Lt(N) Fraser Gransden (2007)

Polar bears on the Arctic ice.

If a foreign government vessel enters Canadian waters without permission, then past history would suggest that the AOPS will be tasked to 'escort' the offending ship through the Northwest Passage, whilst the government either grants permission for which none was asked, or makes some form of diplomatic protest – formulas that were variously employed in response to the transit of MV *Manhattan* in 1969 and the US Coast Guard Cutter *Polar Sea* in 1985. Ultimately, the sovereignty interdiction mission for the AOPS will likely be reduced to an intercept and escort role, with special attention to the collection of evidence to assure that the *Arctic Waters Pollution Prevention Act* is not violated.

In order to determine what mission sets provide meaningful and practical day-to-day employment

for the AOPS, the experience of HMCS *Labrador* may provide a good template. The genesis of *Labrador* has striking parallels to the AOPS program. *Labrador* was the result of political determination to emphasize and strengthen Canadian sovereignty, and the impetus for the construction of the ship was entirely the initiative of Prime Minister Louis St. Laurent.

During its brief naval commission, *Labrador* carried civilian scientists onboard and was largely occupied with scientific research and the re-supply of government outposts in the Arctic. During *Labrador*'s famed transit of the Northwest Passage in 1954, its mission was to conduct oceanographic tests, hydrographical surveys, make magnetic observations, provide the navy with northern navigational experience, patrol the Arctic and carry out salvage and rescue operations.

These mission sets are not unique for polar vessels. Several navies around the world operate icebreaking vessels to patrol Antarctica, including those of Argentina, Australia, Chile, Japan, Peru, Spain and the UK. Three of these states have competing territorial claims in Antarctica. It is interesting to note that in every instance, the mission of these vessels is research and re-supply.

The duality of the Arctic's importance and impracticability has made it an asterisk in the navy's strategic thinking, as reflected in Leadmark and its successor document.

Not only is there a continued need for scientific research in the Arctic, it remains an important means of demonstrating Canadian control over its Arctic waters. Although some experts suggest that the Northwest Passage may soon be navigable, much of the passage remains poorly surveyed. Scientific research in areas such as oceanography, bathymetry, bottom mapping, climate research, marine biology and other fields is a practical manifestation of sovereignty and will make a valuable contribution to Canada's case for sovereignty over its northern water areas. The information garnered by such research is also of considerable interest to navies.

Although the Canadian Coast Guard has largely taken on the role of re-supplying northern communities and government outposts, the re-supply of new CF facilities planned for the Arctic, such as those in Nanisivik and Resolute, could provide valuable practical employment for the AOPSs. Similarly, the capability to re-supply or pre/re-position CF Army and Ranger patrols could similarly provide meaningful employment. Both of these tasks are also associated with the exercise of government control over an area.

Source: CIA World Factbook.

Map of the Arctic.

The Navy's Level of Investment

In many respects, the AOPSs will have a more symbolic than a practical role, as they will operate in very low-traffick areas and be occupied with the rather abstract task of reinforcing Canada's legal case in the Arctic. This is an important distinction, as this will drive what kind of capabilities will be required by the AOPS, and how much of the navy's resources should be devoted to the ships. An examination of the issue of underwater surveillance in the Arctic illustrates this point.

The exercise of sovereignty over a maritime area demands that one possess the ability to conduct surveillance above, on and below the surface of the water. Therefore, the failure to provide the AOPS with some sort of underwater surveillance capability would represent a serious shortcoming in capability for a vessel whose mission it is to enforce Canadian sovereignty – particularly since Canada currently has little, if any, capacity to conduct surveillance

in the underwater domains of the Arctic. How much should be invested in such a capability is answered by the fact that the symbolic value of an underwater surveillance capability is of equal (if not more) importance than the effectiveness of the sensor itself. An underwater sensor – even a rudimentary one – permits Canada to claim that it is conducting surveillance and controlling its underwater domains in the Arctic, much in the same way that small RCMP patrols were effective in consolidating Canadian claims to sovereignty over Arctic islands at the turn of the 20th century.[10]

Strictly with respect to the Arctic dimension of its concept of operations, the navy's capital investment in the AOPS should be minimal, and designers should be innovative in minimizing its operation and maintenance costs, both of which reflect the more symbolic nature of the vessels' mission in the Arctic. Neither the threat nor the practical tasks it will undertake in the Arctic demand sophisticated sensor or weapons systems. However, in some capability areas, particularly communications and command systems such as data exchange networks, the vessels will require a higher degree of sophistication. For example, in a sovereignty incident or major search-and-rescue operation, these vessels will be a focal point for media attention, and are likely to assume an important on-scene command and control function.

Conclusion

While the navy has long acknowledged that it has a role to play in the Arctic, it has nevertheless been reluctant to become physically engaged there. In a perennially resource-constrained environment, the Arctic has always been viewed as being in competition with the navy's more traditional lines of operations. The navy has also tended to view the Arctic as a vast empty space in which there are few practical reasons for maintaining a physical presence.

The duality of the Arctic's importance and impracticability has made it an asterisk in the navy's strategic thinking, as reflected in *Leadmark* and its successor document. Now that the navy appears committed to the construction of ice-capable ships and a physical presence in the Arctic archipelago, it needs to think carefully about how it will develop the ways and means to accomplish the strategic objective of securing Canadian sovereignty as set forth by Prime Minister Stephen Harper in July 2007 when he said:

> Canada has a choice when it comes to defending our sovereignty over the Arctic. We either use it or lose it. And make no mistake, this Government intends to use it, because Canada's Arctic is central to our national identity as a northern nation. It is part of our history, and it represents the tremendous potential of our future.[11]

Furthermore, the navy's strategic thinking must go beyond the level of the AOPS. As a lead agency in the maritime domain and the business of sovereignty protection, it is clear that the navy will play a key role in the development of a government-wide strategy for Arctic sovereignty. Just as the navy continues to play a key leadership role in development of Canada's maritime security strategy, it has an opportunity to take a strong leadership role in what will necessarily be an interdepartmental effort to fashion an overall strategy for sovereignty over Arctic waters. In the broader picture, strategic thinking that focuses solely on the role of naval warships in the Arctic will be insufficient to achieve the strategic end-state articulated by Prime Minister Harper.

Notes

1. The Conservative Party's "Canada First" defence policy platform called for the construction of three new armed naval heavy icebreakers to be based at a "new military/civilian deep-water docking facility" near Iqualuit.
2. See Directorate of Maritime Strategy, *Leadmark: The Navy's Strategy to 2020* (Ottawa: Canadian Navy, 2001), p. 101.
3. See Jackie Wallace, "Taking the Northwest Passage: Experts Stress the Importance of Answering Arctic Sovereignty Questions Sooner Rather than Later," *Canadian Geographic*, available at http://www.canadiangeographic.ca/magazine/MA06/indepth/place.asp#more.
4. See Environment Canada, "Northwest Passage Still Closed for Business," *Envirozine*, Issue 57, 15 September 2005, available at http://www.ec.gc.ca/EnviroZine/english/issues/57/feature2_e.cfm.
5. Gordon Robertson, quoted in E. Elliot-Meisel, *Arctic Diplomacy* (New York: Peter Lang Publishing, 1998), p. 139.
6. Eliot-Meisel, *Arctic Diplomacy*, p. 143. Over time, the basis for *AWPPA* has become codified into customary international law through the UN Convention on the Law of the Sea III (UNCLOS III) when Canada successfully negotiated the inclusion of the "Arctic clause" (234) into the convention.
7. *Ibid*., p. 144.
8. The United States formally protested Canada's adoption of a 12-mile territorial sea in the Arctic and Canada's *AWPPA* in 1970 which unilaterally extended Canadian jurisdiction 100 nm seaward to enforce the act. The relevance of the protest is questionable now, given that a 12-mile territorial area has been accepted by most states and is customary international law. Similarly, Canada has since adopted a 200-nm exclusive economic zone as accorded by international law, and the legal principles underpinning the *AWPPA* have been confirmed under Article 234 of UNCLOS III.
9. Ambassador Paul Celluci quoted in Don Struck, "Dispute over NW Passage Revived: US Asserts Free Use by All Ships, Canada Claims Jurisdiction," *Washington Post*, 6 November 2006, p. A18, available at http://www.washingtonpost.com/wp-dyn/content/article/2006/11/05/AR2006110500286.html.
10. See N. Caldwell, *Arctic Leverage: Canadian Sovereignty and Security* (New York: Praeger, 1990), p. 10. In 1922, a joint venture was established by the Department of Marine and Fisheries, RCMP and the Department of the Interior to establish a series of two-person RCMP outposts in order to meet the legal requirement for "effective occupation" of the islands. This relatively small commitment of resources was sufficient to secure Canadian sovereignty rights to these land areas.
11. Office of the Prime Minister, Press Release, "Prime Minister Stephen Harper Announces New Arctic Offshore Patrol Ships," 9 July 2007, available at http://pm.gc.ca/eng/media.asp?id=1742.

Commander Bishop is a recent graduate of the US Navy War College in Newport, Rhode Island. His last sea job was Commanding Officer of HMCS ***Halifax****.*

Obsolescence Challenges, Part 2

Technology Insertion: A Way Ahead

Brent Hobson

In the Summer 2008 issue of the *Canadian Naval Review* (Volume 4, No. 2), my article, "Obsolescence Challenges and the Canadian Navy," identified that the Canadian Navy is facing a number of obsolescence challenges. Two of the major challenge areas I identified were the rate that defence technology is evolving (and how this will affect Canada's ability to react to new threats and interact with its allies), and the failing logic behind the boom-bust approach traditionally employed by the Canadian Navy to replace and/or update its systems. In this article I would like to introduce the concept of technology insertion to the broader naval community

In 2005, a navy team completed a three-year study that looked at technology challenges in the navy. This Maritime Technology Insertion Working Group (MTIWG) also examined the challenges facing the United States and the United Kingdom, as well as investigating the initiatives that were being undertaken in these countries to combat these challenges. The study identified that Canada and its naval allies are all facing significant challenges trying to maintain operational currency. It further identified that the United States and the UK have been successfully utilizing a concept called technology insertion to address the challenges. The MTIWG concluded that adopting the TI concept could provide significant benefits to the Canadian Navy.

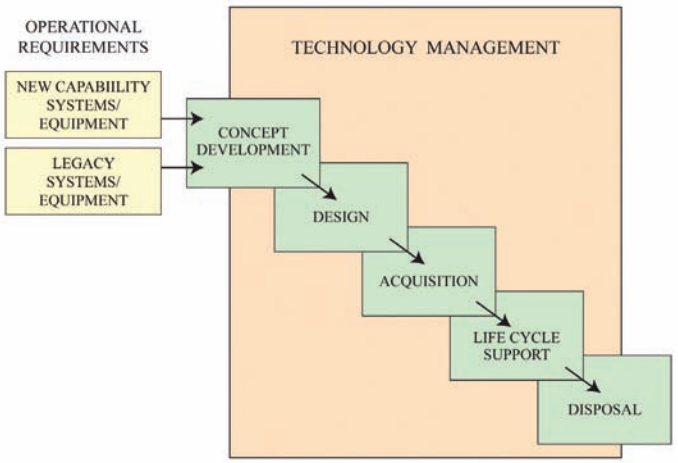
To begin it is necessary to review the MTIWG definitions for the key concepts of technology management (TM) and technology insertion (TI).

Technology Management and Technology Insertion

Technology management (TM) refers to the overall process of identifying and incorporating technology into military capability from concept development through design, acquisition, life-cycle support and disposal. Figure 1 shows the major components of the process.

Within the TM process there are a number of options for how a given capability is provided, based in part on considerations of cost, expected availability of parts and projections of how the technologies and military requirements will change over time. These considerations lead to the choice of through-life support strategy, as well as system design and acquisition routes that facilitate this choice.

Figure 1. Technology Management

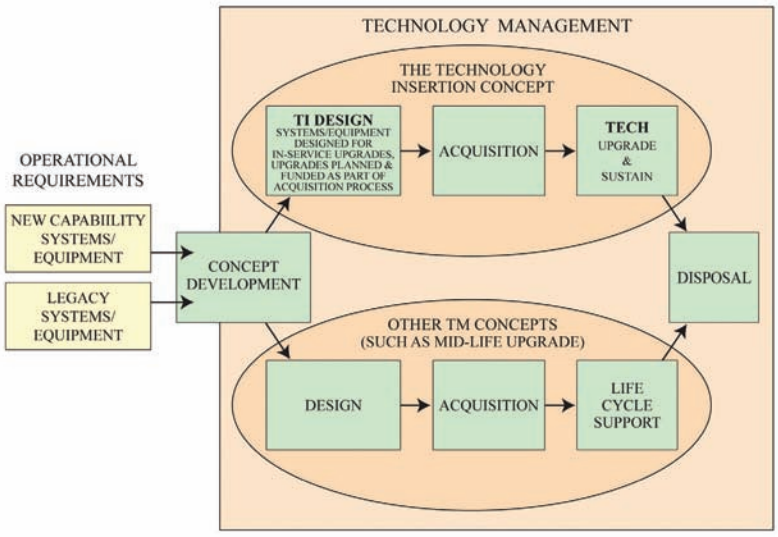


Source: Brent Hobson, Defence Research and Development Canada - Atlantic, 2007.

For equipment such as a ship's main gearbox, where neither technology nor military requirement is expected to change significantly with time, the most appropriate life-cycle support strategy likely will be based solely on maintaining the gearbox over the course of its service life without upgrade. When technology or requirement change is expected, equipment such as a gun system may be designed, acquired and supported based on a strategy of maintaining that capability to a certain point and then looking to take advantage of external improvements in the gun design. This may result in the system being replaced with an upgraded or new model perhaps once during the 30-year life-cycle of a ship, a point referred to as the ship's mid-life refit. When an upgraded version becomes available, a new project is stood up to obtain approval and funding to buy and install the replacement.

Technology insertion is a subset of technology management. It refers to the implementation of capabilities that are designed to be, and actually are, upgraded routinely over their serviceable lives. Equipment meant for technology insertion is designed in a modular fashion with open architecture specifications. The philosophy is that modules – whether hardware or software – can be replaced or added easily without redesign of the whole system. Long-term equipment sustainment is by replacement of components shortly after their commercial end

Figure 2. Technology Insertion within Technology Management



Source: Brent Hobson, Defence Research and Development Canada - Atlantic, 2007.

of life. New capability can also be added by component replacement. Such a combined sustainment and upgrade process allows systems to evolve over time, with a smooth and largely predictable spending profile. In general, only certain systems/equipments (primarily information technology-based) lend themselves to this application of the TI philosophy. Figure 2 shows the relationship between TM and TI.

With these terms defined, it now is possible to review how the United States and Britain are utilizing the TI concept.

United States of America

In 2002, the US Naval Research Advisory Committee published a study entitled "Life Cycle Technology Insertion."[1] The Assistant Secretary of the Navy for Research, Development and Acquisition commissioned this study to review the US Navy's processes for technology exploitation, to identify any problem areas and to provide recommendations for improvement.

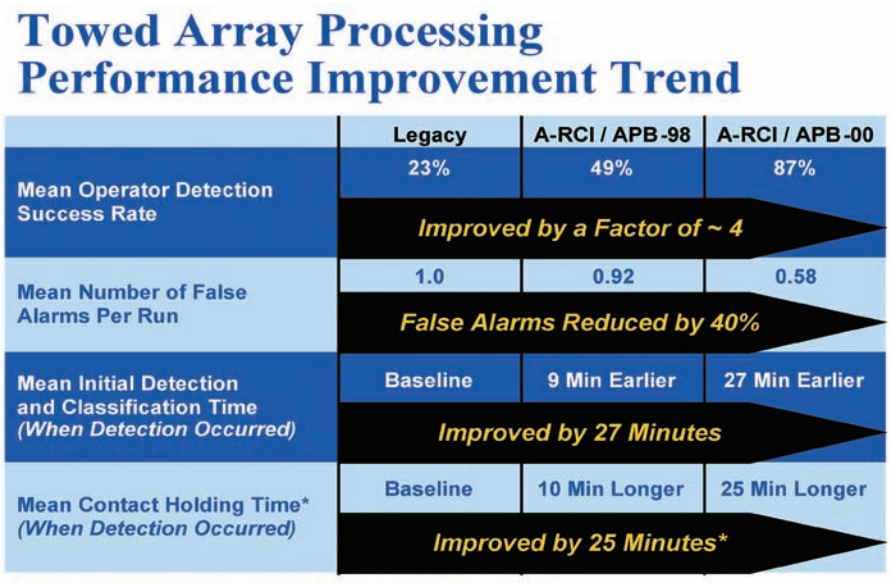
In the best practices section of this report, the committee identified the submarine Acoustic Rapid Commercial Off-the-Shelf Insertion (A-RCI) Program as an example of how to apply these best practices. This program was started by the US Navy in 1996 to deal with what it considered to be a crisis in its ability to field submarine sonar systems capable of dealing with a new generation of quiet threat submarines.[2]

The old sonar systems needed to be replaced; however, the forecast $1.5 billion development cost and the $90 million ship-set cost for a new military specification system was considered unaffordable.[3] The concept then for the A-RCI sonar was to design the system using commercial off-the-shelf (COTS) hardware and software components to provide the most up-to-date and powerful computer processing capability possible and then to establish a process to identify, undertake and manage regularly planned upgrades to the COTS hardware and software. This successful A-RCI Program led to the development of the AN/SQQ-10 submarine sonar system, the standard sonar throughout the US submarine fleet.[4]

The USN use of technology insertion provides for a continuously evolving baseline. The impact of TI in this instance is that every boat equipped with this sonar system receives improved capability from one deployment to the next. In general this results in a software upgrade being developed every year and a hardware upgrade every three years. It is then a matter of scheduling the submarines for their upgrades as part of their routine maintenance cycle.

Not only has the A-RCI process resulted in the development of a sonar flexible enough to meet the sonar needs throughout the submarine fleet, but the TI methodology has also proven to be significantly cheaper than more traditional development methods. Figures 3 and 4 illustrate some of the benefits reported by the United States.

Figure 3. Reported USN Technology Insertion Benefits – Performance



Source: Richard A. Udicious and Michael E. Feeley, "Acoustic Rapid COTS Insertion: An Acquisition Model for Future Military Systems," US Naval Institute Proceedings, Vol. 130 (January 2004), pp. 72-75.

Photo: MCPL Kevin Paul Canadian Forces Combat Camera

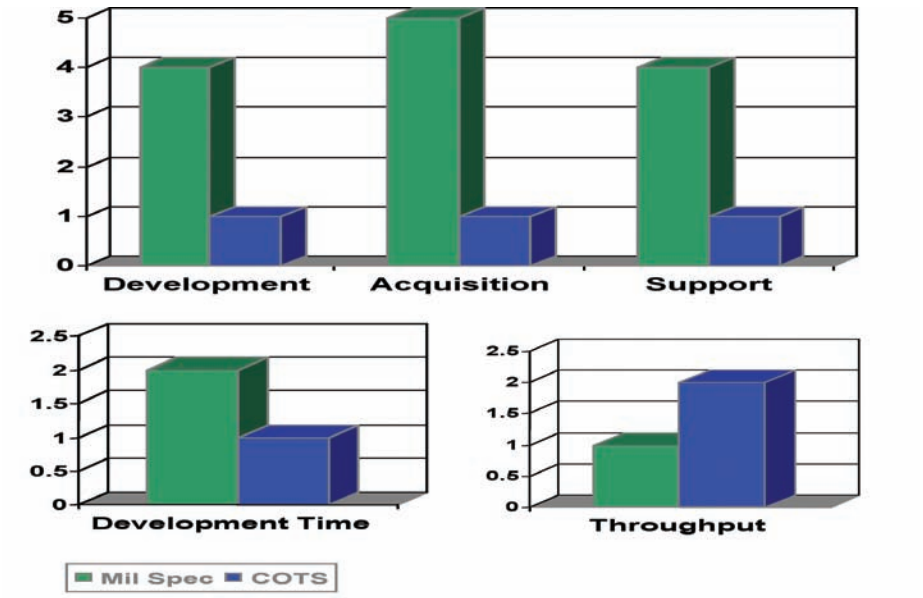
*Technicians re-load the 20mm Close-in Weapon System (CIWS) aboard HMCS **Ville de Quebec**.*

United Kingdom

In the UK, the Ministry of Defence (MOD) has identified as its main obsolescence challenge the ability of its acquisition system to respond to the rapid development of commercial technology worldwide. To address this challenge, the MOD established a Major Program Area (MPA) study.[5] The objective of this study is to identify and overcome the barriers to inserting new technology into existing platforms, systems and equipment. This is being done to cut time and cost of upgrading equipment, to mitigate obsolescence and to reduce whole-life cost.

In addition to the MPA study, the Royal Navy (RN) is also utilizing TI concepts in a number of areas. One such area is the Delivering Rapid Sonar COTS Insertion (DeRSCI) Project. This project was started as the RN faced problems, similar to the USN, in trying to keep capability up and costs down for its submarine sonar. This project uses open systems design and COTS technology to enable rapid capability upgrades through incremental acquisition and to reduce the impact of obsolescence.[6]

Figure 4. Reported USN Technology Insertion Benefits – Costs and Time

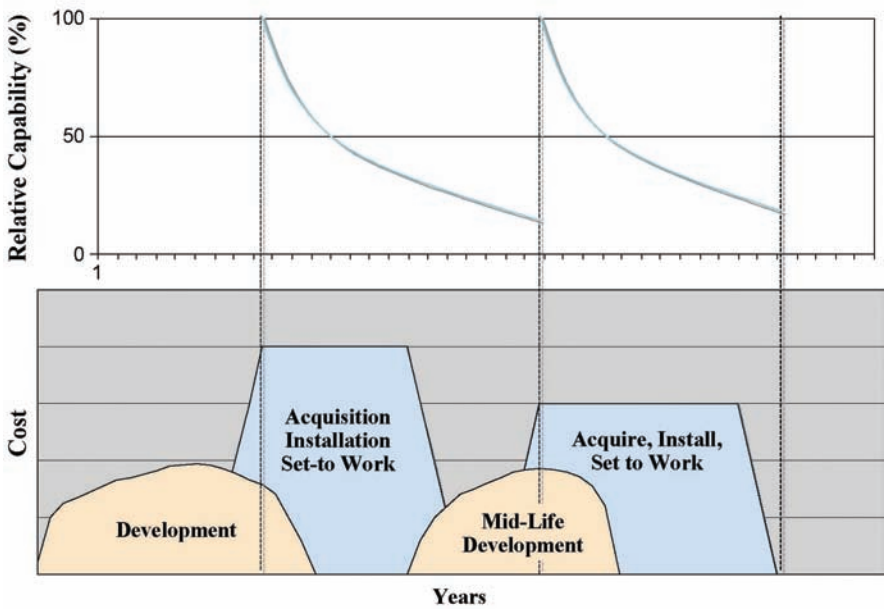


Note: Figures shown are relative. The A-RCI results have been normalized to 1 in each graph except throughput.

Source: Richard A. Udicious and Michael E. Feeley, "Acoustic Rapid COTS Insertion: An Acquisition Model for Future Military Systems," US Naval Institute Proceedings, Vol. 130 (January 2004), pp. 72-75.

Another area where the RN is utilizing the TI concept is in its Future Aircraft Carrier (CVF) Project. With technology developments increasingly being driven by the priorities of commercial markets and an ever-increasing uptake of COTS technology in defence programs, the RN has realized that defence programs have less and less control over the direction and pace of development of the technologies on which they are dependent. For the CVF Project, the RN decided it must deal with this reality at an early stage. As Martin Evans and Graham Stott note, "During the CVF assessment phase, a technology insertion strategy was developed to address the challenges of cost-effective technology

Figure 5. Boom-Bust Cycle



Source: Brent Hobson, Defence Research and Development Canada - Atlantic, 2007.

exploitation, for managing risk, sustaining capability, and achieving thru-life cost reduction."[7]

From this quick review of the American and British situations, it is apparent that both countries are experiencing obsolescence challenges similar to those being experienced by the Canadian Navy. In each country, operational and technology obsolescence, rapid technological change and budget limitations seem to have driven the defence departments to seek alternative solutions. Chief among these solutions is the adoption of the TI concepts.

The USN appears to have the most mature TI methodology. Its TI process began with the A-RCI Program and the philosophy is now being adopted by every sector of the fleet. In the UK, the MOD is currently investing significantly in studies of how best to use TI in its everyday business practices and it is utilizing TI concepts in the DeRSCI and Future Carrier Design Programs.

The experience of the United States and UK indicates that technology insertion could provide the Canadian Navy with an extremely effective model for addressing changing operational requirements, countering obsolescence and reducing through-life costs of ownership. The next section will now look further at these potential benefits.

Benefits for the Canadian Navy of Adopting Technology Insertion

As mentioned in the introduction, two of the major obsolescence challenges facing the Canadian Navy are:

- the difficulties faced in improving the navy's operational capability to meet rapidly changing operational requirements in regards to both new threats and interoperability with Canada's naval allies; and
- the boom-and-bust cycle of government investment.

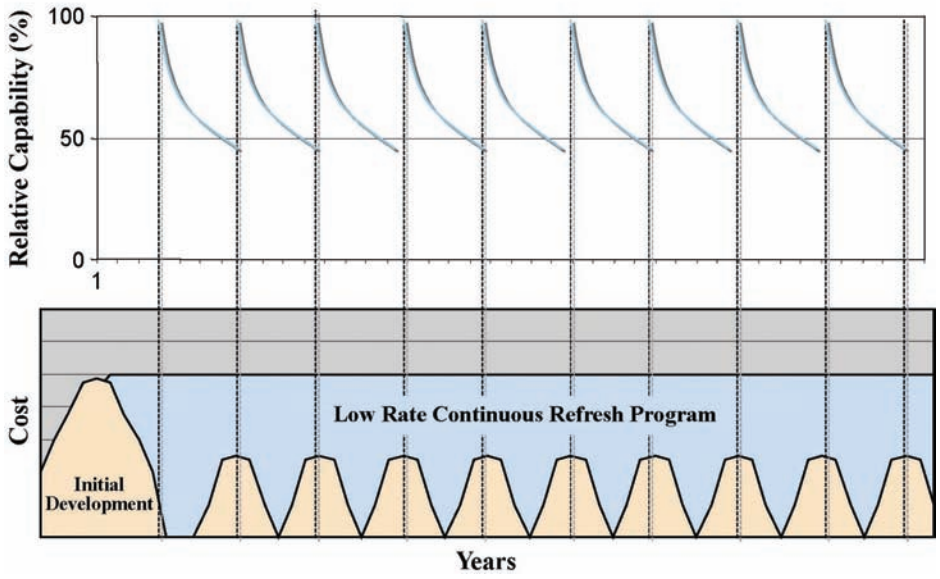
The US and UK experiences indicate that the following benefits might accrue to the Canadian Navy if it were to adopt TI. First, technology insertion improves operational capability. TI solves this problem through design specifications that make optimum use of COTs equipment and open architecture software that makes ship systems amenable to upgrades and easy replacement. As well, the associated acquisition contracting process facilitates technology upgrades on a regular basis. Thus the system remains current in both hardware and software resulting in increasing operational effectiveness over its life.

Second, technology insertion reduces the effect of the boom-and-bust investment cycle. The issue of cost management for naval capability is clearly a prime factor in the navy's development planning. Through-life costs are now gaining more visibility when accounting for the total

Photo: Cpl Danny Veillette, Formation Imaging Halifax

*Crew members of HMCS **Ville de Quebec** operating the 57mm gun fire control system.*

Figure 6. The Technology Insertion Approach



Source: Brent Hobson, Defence Research and Development Canada - Atlantic, 2007.

costs of a defined capability. Under the navy's principal life-cycle support process, an initial fleet fit of equipment is acquired and installed, and a lifetime supply of spare parts is purchased and warehoused. This is a very expensive process and therefore it has only been undertaken when the navy has benefited from the 'boom' portion of government spending. However from the initial installation until the system is replaced, the capability inherent in the system is fixed and it begins to degrade with age as well as becoming obsolete with each advance in the field. This situation is shown in the top section of Figure 5 while the bottom section shows the large costs associated with acquiring, installing and supporting a system using this method.

Under the TI concept, each upgrade of the technology refreshes operational capacity and this occurs much more frequently than under the boom-bust scenario as can be seen in the top section of Figure 6.

As can be seen from Figure 6 as well, not only are the initial costs lower than under the boom-cycle scenario but the costs over the life-cycle of the system/equipment are level given the programmed upgrade cycle that is built into the TI concept. This allows long-term planning to come into effect and it also eliminates the requirement to wait for a navy boom cycle to handle the mid-life refit requirement.

Conclusion

My article "Obsolescence Challenges and the Canadian Navy" in the previous issue of *CNR* noted that the major obsolescence challenges for the navy were that technology, opponents, missions and requirements no longer had the same lifespans as encountered during the Cold War. The article also noted that the boom-bust approach to planning and acquisition must be dropped in favour of a new paradigm focused on flexibility, modularity and growth space. This article has pointed out that Canada's major naval allies are facing the same challenges and they are adapting to these challenges through the use of the innovative technology insertion concept. Adoption by the Canadian Navy of the TI concept offers the potential to address its major obsolescence challenges. Prime among these is that it will allow the navy to maintain its operational currency at a much-improved level over the current life-cycle support philosophy. TI also offers great flexibility for planners to tailor system upgrades to changing operational requirements. As well, the TI concept takes full advantage of design modularity and planned growth space in systems. Finally the predictable nature of the spending offers much greater stability to navy planners over the current boom-bust process. These advantages make a very strong case for the Canadian Navy to adopt the TI concept.

Notes

1. US Naval Research Advisory Committee, "Life Cycle Technology Insertion," US Department of Defense, July 2002.
2. Richard A. Udicious and Michael E. Feeley, "Acoustic Rapid COTS Insertion (A-RCI): An Acquisition Model for Future Military Systems," US Naval Institute *Proceedings*, Vol. 130 (January 2004), pp. 72-75. Although this was written by two retired Navy Captains, they were both working for Lockheed Martin at the time.
3. Kerr Gib and Robert W. Miller, "A Revolutionary Use of COTS in a Submarine Sonar System," *CROSSTALK The Journal of Defense Software Engineering*, US Department of Defense, Program Executive Office Submarines, November 2004.
4. The AN/SQQ-10(V) is installed in SSN 688, SSN 688I, SSN 21, SSGN and SSBN 726-class submarines. The AN/SQQ-10(V4) system is also installed on the SSN 774-class submarines.
5. The MPA study is a UK process that engages the scientific, engineering and operational communities in a defence enterprise study. United Kingdom, Ministry of Defence/DSTL, "Technology Insertion, Major Programme Area: Definition Study," 17 October 2003, available at www.timpa.co.uk.
6. QinetiQ Ltd, "Transforming Maritime Capability," 2006, available at http://www.qinetiq.co.uk/home/defence/technology_solutions/maritime.QuickNavPar.27728.File.pdf.
7. Martin Evans and Graham Stott, "A Capability-led Technology Insertion Strategy," *Journal of Defence Science*, Vol. 9, No. 3 (September 2004), p. 141.

After 35 years in the Canadian Navy, Lieutenant-Commander Hobson now works part-time as a Naval Reservist at Defence Research and Development Canada – Atlantic.

The Russian Navy: Has the Phoenix Risen?*

Peter Haydon

Photo: www.rusarmy.com

*The nuclear-powered battle cruiser **Pyotr Velikiy**, still an intimidating presence at sea.*

Winston Churchill once said of Soviet foreign policy that it was "a puzzle inside a riddle wrapped in an enigma, and the key is Russian nationalism." Modern Russian foreign policy is quickly becoming just as perplexing especially in the wake of the August 2008 intervention in Georgia and as a result of a series of other recent military and naval deployments.

The existence, or sometimes the absence, of naval capabilities often provides clues to the nature of the state itself and its policies. States with extensive maritime interests, usually functions of territory, trade, natural resources, local industries and population distribution, usually maintain navies to facilitate and protect those interests. The size and capability of a navy is product of a calculus of economics, geography and threats to national security, sometimes with a measure of imperialism disguised as 'overseas interests,' all within a framework of domestic politics. The Russian Navy of the pre-Soviet era that grew into the Soviet Navy of the Cold War only to collapse rather dramatically in the last decade of the 20th century matches that model rather well. Now, as Russia re-invents itself as a world power, the re-birth of its navy is intriguing and provides some clues to the long-term policies of the Russian leadership.

Although much of the impetus for this analysis came from the Georgian crisis, an excellent book on the Russian Pacific Fleet by Alexey D. Muraviev, published by the Royal Australian Navy's Sea Power Centre,[1] provided some necessary background by de-mystifying the Cold War era at sea in the Pacific. *The Economist*'s August 2008 thought-provoking look at a "Resurgent Russia" provided some of the necessary political context for a new look at the Russian Navy.[2] As always, the bulk of the naval technical details come from the indispensable *Jane's Fighting Ships*.

Because modern navies are political instruments, rather than autonomous organizations as some believe naively, one cannot analyse any navy without taking its political context into account. What this means, amongst other things, is that numbers alone do not explain a navy's purpose or capability; one has to dig a little deeper to get answers to key questions like "Why does it exist?" and "How will its political masters use it?" Nevertheless, one invariably has to begin by looking at the number of ships in the inventory and where they are based.

Today, the Russian military as a whole is essentially a 'work in progress' as it tries to re-invent itself after the decade of almost complete neglect following the collapse of the Soviet system. However, it now has a new champion and, for once, funds to modernize. But as the 2007-2008

Photo: www.rusarmy.com

*The aircraft carrier, **Admiral Kuznetsov**, which is the centrepiece of the Northern Fleet Task Force is capable of operating several types of fixed- and rotary-wing aircraft.*

*A **Delta-IV** SSBN; an integral part of the Russian strategic arsenal.*

edition of *Jane's Fighting Ships* points out, improving the quality of the Russian military is a long and painstaking process requiring "years of investment and a fundamental overhaul of the defence management system, and also a serious appraisal of Russia's real defence needs." Without unlimited funds, and with no real prospect of that situation improving, military modernization will not be accomplished quickly and plans must run the gauntlet of inter-service rivalry as each branch of the once-mighty Soviet/Russian military tries to re-assert its place in the sun.

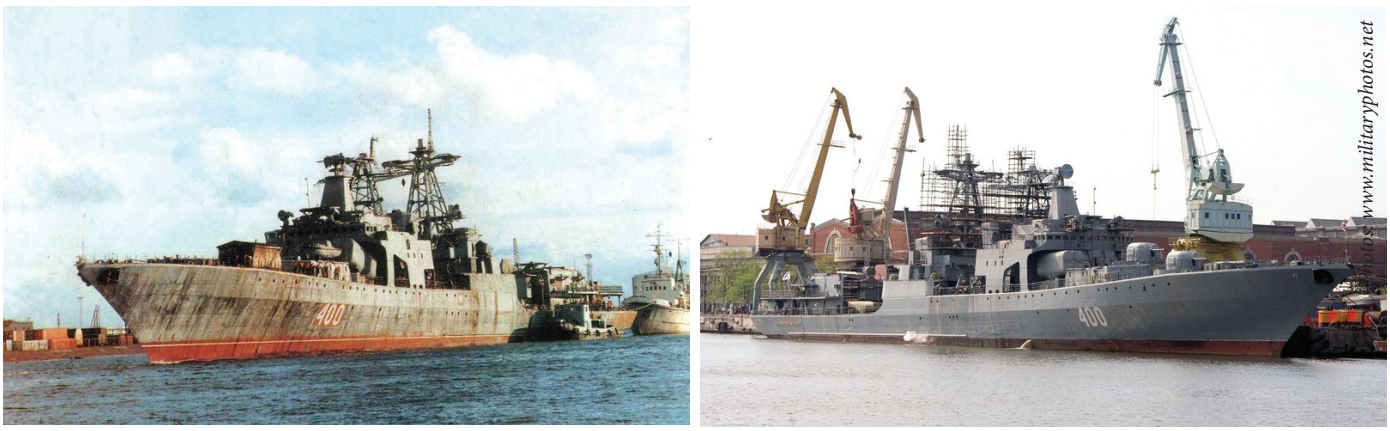
From the moment he took office as the new 'Czar' (some see him as a neo-Leninist reformer following, perhaps, in the footsteps of Khrushchev, Andropov and Gorbachev rather than being a Western-style democratic leader) Mr. Vladimir Putin has given military modernization high priority. Regardless of how we categorize him, he is a staunch Russian nationalist and committed to restoring Russia as a great power, and a strong military is certainly needed to accomplish this.[3] Yet progress is predictably slow and many elements of the old Soviet military system remain intact, and for good reason: it takes time to make the transition to the new model especially in a system that was inflexible and stifled individuality. Change implemented too quickly will result in chaos, but fortunately for the Russians the fiscal situation requires that the rate of change be dampened anyway.

Although the basic purpose of the Russian military remains as a guarantor of national security – a role to which counter-terrorism and counter-insurgency have been added – it is also required to be a symbol of a resurgent Russia on the world stage. And it is still a prominent marketing device for a wide range of future arms sales. As the *Jane's* analysis explains, there is a problem in the basic role because the military is still structured for Cold War power projection with capabilities to fight a war that will now never be fought. This strategic contradiction is being corrected through new equipment, but slowly. Even though the nuclear arsenal, strategic and tactical, has been reduced, it is still large enough to give the Russian government the means of intimidation.

The Russian Navy Today

The Russian Navy now maintains a mix of capabilities, many held over from the Cold War, that give the government some strategic flexibility as it re-asserts itself as a regional power and, in time, as a major power capable of independent intervention operations. Based on what the Russians have been saying, the recent operations against the Georgian vessels in the port of Poti and off the coast of Abkhazia are almost certainly the low end of the spectrum of power projection seen necessary by the Russian leadership.

The number of ships and their geographic distribution is still largely along traditional lines from the Soviet and pre-Soviet eras. The numbers are misleadingly large because there is uncertainty over exactly which ships and



*Before and after photos of the **Udaloy**-class destroyer **Vice-Admiral Kulakov** on being taken out of 'mothballed' status after 17 years and then after an extensive overhaul.*

Table 1. The Russian Navy Today

SHIP TYPE	FLEET				TOTAL
	Northern	Baltic	Black/ Caspian	Pacific	
SSBN	11			4	15
Other S/M	30	3	2	18	53
Carrier	1				1
Cruiser	2		2	1	5
DD/FF	9	5	4	7	25
Patrol	14	21	17	23	75
Support	11	7	9	11	38
Total	78	36	34	64	212

submarines are fully operational and which are in some form of reserve status. Raw numbers by type and location are given in Table 1.

To make sense of these raw numbers we need to assess their real operational capability and then measure that against what the Russians have stated to be their naval objectives.

Submarines

Of the 15 ballistic missile-firing submarines (SSBN), six are scheduled for disposal by 2010. The average age of the remaining nine – three *Typhoon*-class (*Akula*[4]) and six modernized *Delta* IV-class (*Delfin*) – is 20 years and they will need replacing soon if the deterrent capability is to be retained at present levels. So far, only three new SSBNs, the *Borey*-class, are being built and progress is slow. The new missile, the *Bulava*, which has now been test-fired successfully,[5] will be fitted to all the SSBNs except the *Typhoon*s which will likely be replaced by the *Borey*s in due course. Hence, Russia is able to deploy a considerable sea-based nuclear deterrent force for the foreseeable future. The question is, 'How much deterrence is enough?' And, here the Russian leadership has not yet provided an answer.

The other 53 submarines are a mix of nuclear-powered and diesel-electric vessels with an average hull age of 17 years. However, some are much younger in terms of usage because building was interrupted when the Soviet system first collapsed. The core of the nuclear submarine fleet consists of the seven cruise missile-firing *Oscar*-class (*Antyey*) and the 11 *Akula*-class (*Bars*) also able to fire land-attack cruise missiles and with a large torpedo capability. Although these submarines were designed for the Cold War and their exact role may not be clear, they remain effective instruments of intimidation. Of the 19 *Kilo*-class diesel-electric submarines, whose present defensive (sea control) role is easier to understand, about half were completed in the last 12 years. Because of their export potential, work was not stopped on these submarines during the decade of turmoil beginning in 1991.

The importance of submarines in Russian defence and economic policy can be seen from the decision to build a new class of general-purpose nuclear-powered submarine, the *Yasen*, which is just starting to enter service, and a new diesel-electric submarine, the *Lada*, the first of class, *Saint Petersburg*, is already in service. The export version of the *Lada*, the *Amur*-class, is drawing interest and it seems that Venezuela may be the first customer with an order for three of the class for delivery in 2012-13 while orders from China and India are anticipated.[6] Even taking the age of the submarine fleet into account and making allowances for maintenance cycles, it still represents a significant capability for deterrence, intimidation, sea control, surveillance and to support joint operations with land-attack cruise missiles and torpedoes. As the British found out in the south Atlantic in 1982, the nuisance value of a hostile or potentially unfriendly submarine in the vicinity of a coalition or unilateral intervention operation can change the plan quite quickly. It would be a grave mistake to think that the Russians have not grasped the lessons of that brief war.

Major Surface Warships

Russia's present 'blue-water' capability is similarly impressive on paper but is not sufficiently large to give the government the ability to mount and sustain a lengthy operation far from home. The inclusion of the carrier, *Admiral Kuznetsov*, and the nuclear-powered battle-cruiser, *Pyotr Velikiy*, in the Northern Fleet task force provides a powerful surge capability but that is all. Even though there is some scepticism over the operational effectiveness of the carrier, which is 25 years old and built during the period when the Soviet fleet was experiencing major quality control problems, the ship was able to take part in a major fleet deployment into the north Atlantic and Mediterranean from December 2007 to February 2008. The purpose of that exercise was largely symbolic and intended to show that Russia was still a credible actor on the world stage.[7] The use of an aircraft carrier to show the potential for power projection is a new aspect of Russian naval policy, and *Kuznetsov* in company with two cruise missile-firing cruisers and two heavily-armed destroyers was a significant show of force, albeit only for a limited time.

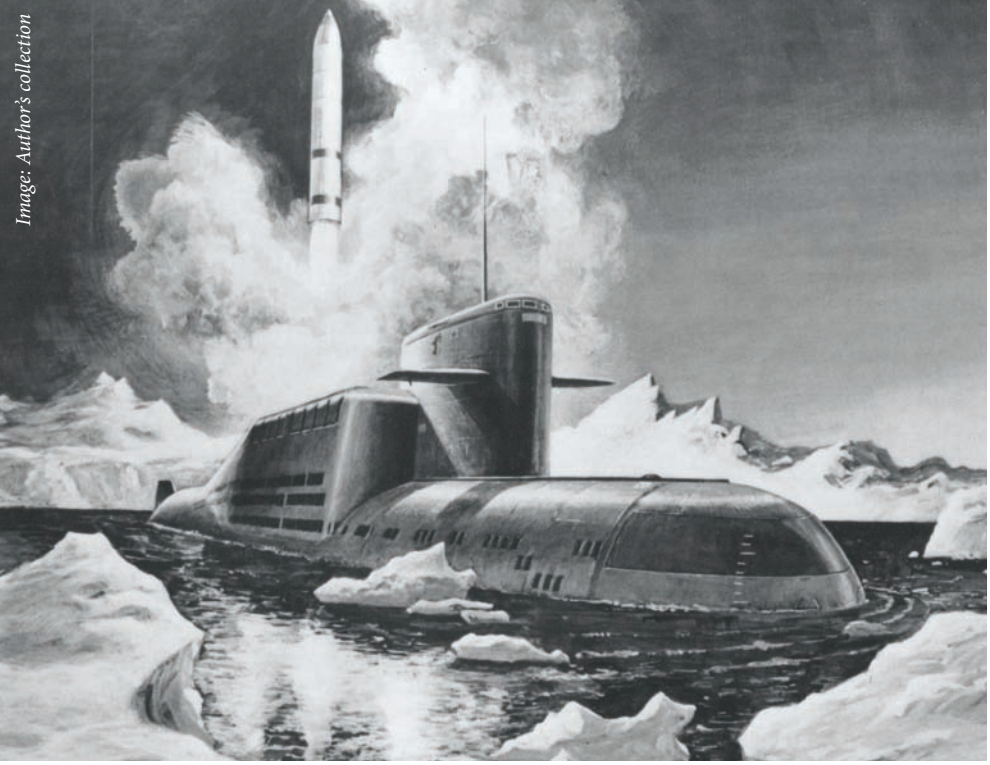


Image: Author's collection

*A Cold War era artist's impression of a **Delta-IV** firing an SS-N–23 ballistic missile from Arctic waters.*

Russian cruisers are essentially floating arsenals left over from the Cold War with a mix of land-attack cruise missiles, anti-ship and air-defence missiles; nevertheless, they are impressive. The *Pyotr Velikiy*, the last of the four *Kirov*-class battle-cruisers built in the latter years of the Cold War to counter the US carrier battle groups, seems to have more symbolic than operational value at the moment. A sister ship, *Admiral Nakhimov*, may be taken from reserve and overhauled at considerable expense but the strategic and/or operational rationale for doing this is unclear unless the Russians are trying to improve operational sustainability. The three remaining *Slava*-class (*Atlant*) cruisers, now over 25 years old, seem to be used as command and control ships with a good mix of area protection and land-attack weapons. The last of the *Kara*-class (*Berkot-B*) is based in the Black Sea; at over 35 years old, its future value is probably limited. There do not seem to be any plans to build new cruisers.

The Russian Navy today has some capabilities that should cause us to take it seriously.

The destroyers and large frigates[8] are distributed between the four fleets[9] on the basis of the traditional strategic importance of the regions. The nine *Udaloy*-class anti-submarine warfare destroyers and the eight *Sovremenny*-class anti-shipping destroyers form the backbone of the Northern and Pacific Fleets. They are relatively modern, effective warships and have a high degree of operational flexibility. The other eight destroyers and large frigates are older and mainly in the Baltic and Black Sea Fleets. The entire destroyer/frigate force will have to be replaced within the next 10-15 years, and the plan is to do this through a new program for a 4,500-tonne general-purpose frigate, the *Admiral Gorshkov*-class. Perhaps the Russian Navy may be adopting a lesson learned by Western navies, and from naval history generally, that one can never have enough frigates.

Minor War Vessels

Another clue to the future of the Russian Navy comes from the inventory of smaller warships which are based in every region. Although mainly remnants of the Cold War they remain effective in coastal waters. Interestingly, there are new construction programs for a 'stealth' patrol vessel, the *Steregushchy*-class, and for a general-purpose coastal patrol vessel, the *Astrakhan*-class, both being built in St. Petersburg. It is quite possible that the Russian leadership is using shipbuilding as a way of creating work and thus of stimulating the economy in much the same way that US President Franklin Delano Roosevelt did in the 1930s. More importantly, the Russian leadership sees their country still at risk from regional insurgency, as evidenced by the intervention in Georgia, and is taking appropriate action to maintain the necessary forces now and into the future. Not surprisingly, the coastal forces being maintained in all regions are adequate to prevail in almost any situation: the Russians still take the security of their country very seriously.

Fleet Support

Amphibious vessels and fleet oilers are also evenly distributed among the fleets. The amphibious capability seems to support the overall policy of intervening in regional disputes where security is seen to be at risk.

By Western standards, the number of fleet auxiliaries is low, but as the recent Northern Fleet deployment showed, those vessels are able to provide basic underway logistic support. As the commander of the navy, Admiral Vladimir Vysotsky, explained "What is important is that we have appeared [in the Atlantic and the Mediterranean] at a scheduled time and not just that we appeared there. We'll do all we can to build up our presence where Russia has strategic interests." He added that Russia intended to carry out similar missions once every six months.[10]

Strategic Interests and Naval Roles

Russian naval policy probably doesn't exist in a Western-style form. As in the communist era, as in the Western democracies, the navy is an instrument of state policy and

Photo: DND

*A **Kara**-class guided missile cruiser nested with two other Soviet warships in Vladivostok during the 1989 visit of a Canadian Task Group.*

completely responsive to the government. The purpose of the naval policy would be to establish the capabilities to be maintained, and this is apparently being developed but with difficulty.

The Defence Minister, Anatoly Serdyukov, is attempting to eliminate the corruption and bureaucratic ineptitude that has been the hallmark of Russian defence spending which is a necessary first step in re-building the new military. While he does this, the military is attempting to create a defence policy that serves its interests. As a recent *Jane's* analysis explains, the army, for instance, is championing local power-projection missions, such as the one in Georgia, or international humanitarian or peacekeeping interventions. The navy is "presenting itself as the only credible expression of Russia's new global ambitions and the air force as an incubator for new-generation technologies able to revitalise Russian industry."[11] Yet, at an operational level, Cold War thinking persists in maintaining the traditional view that the US Navy is the threat and that the real role of the Russian Navy is to deter the Americans from operating freely at sea.[12]

Admiral Vysotsky explained his view of future naval requirements in saying that the long-term aim was to acquire 5-6 aircraft carriers over the next 50 years. This vision of a new Russian naval superpower, which is probably unrealistic, rests on the conviction that joint operations must be the driving force behind equipment acquisition.[13] For now, the navy is being used as an instrument of Russian foreign policy on a much lower scale:

- to uphold Arctic seabed resource claims;
- as a show of force in waters around the Svalbard Islands in a dispute with Norway over the exclusive economic zone (EEZ);
- to make goodwill visits in the Pacific and Indian Oceans where task groups have conducted exercises with regional navies, including the US Navy; and
- as a display of power projection potential in the Atlantic and Mediterranean, as seen through the recent Northern Fleet deployment to those areas. There have also been reports of the Russian Navy re-establishing a base in Syria to support regional counter-terrorism operations, but Black Sea requirements have probably taken priority.

*An interesting photo of a **Kara**-class cruiser (referred to as a "large anti-submarine ship") from the Soviet era. This ship does not appear to be in service now.*

Conclusion

As Professor Muraviev explains in his analysis of the Russian and Soviet Pacific Fleets, the origins of those fleets lie in the need to consolidate the country's economic expansion in the 18th century and the related need to secure trade routes. But the Pacific Fleet never received the priority those national interests demanded because the Czarist focus was European. The Russo-Japanese War (1905) proved the folly of the Eurocentric policy, and it was only after the Second World War that the Pacific Fleet became a true strategic entity with a mission of countering the US Navy. From the Russian Navy's perspective, the present strategic focus is little different: the priority seems to lie with the Northern Fleet and the Cold War anti-American strategic rationale has not completely vanished. Until Russian foreign policy, especially in the Pacific, becomes clear, it seems as if naval policy will remain in limbo and at the beck and call of the Russian political leadership.

Is it fair to claim that Mr. Putin's foreign policy is a puzzle inside a riddle wrapped in an enigma, and the key is Russian nationalism? Yes, it is, and it is also fair to expect that the new Russian Navy will play an important role in implementing that policy as it is made more transparent. That said, lack of clear foreign policy statements will likely infuriate Western governments because the Russian leaders are likely to be more reactive than prescriptive for the next few years. Like the Russian Navy, Russian foreign policy is very much a 'work in progress' but with clear nationalistic roots.

That said, the Russian Navy today has some capabilities that should cause us to take it seriously. The deterrent and intimidation capability is modern and large; large enough to give Western politicians reason for careful second thought before attempting risky international ventures that might impinge on Russian 'interests.' Clearly, the security of the homeland remains a high priority and that, perhaps in the traditional Russian/Soviet way, will include a concept of ensuring the stability of neighbouring states. The navy has a traditional role in this policy. Finally, the Russian Navy has the capability to deploy significant force at quite long range as seen by the recent Northern Fleet exercises in the Atlantic and Mediterranean; however, it may well be that the show of force is somewhat hollow because the navy lacks the means of long-term sustainment and the operational effectiveness of the ships is questionable in some areas. The Russians certainly know this and are working on it.

The limiting factors, it would seem, are twofold: the availability of adequate funds; and the ability of the admirals to convince not only their political masters but also their army and air force colleagues of the need for a multi-purpose, combat-capable navy. In this they are not alone, that problem faces the admirals of most Western navies today.

***Author's Note:** Since this article was written, a Russian naval task force sailed for a 'good will' visit to Venezuela. American response has been muted but the event is being watched with concern and interest.*

Notes

* It is interesting to compare this article with my April 1992 article, "The Legacy of the Soviet Navy: Will a Phoenix Rise?" in *Canadian Defence Quarterly*, pp. 25-32.

1. Alexey D. Muraviev, *The Russian Pacific Fleet* (Canberra: Sea Power Centre - Australia, 2007).
2. See "Russia and the West after Georgia," *The Economist*, 23 August 2008. See also "Europe stands up to Russia," *The Economist*, 4 September 2008.
3. See "Europe stands up to Russia," *The Economist*, 4 September 2008.
4. For convenience and ease of reference I have stayed with the old NATO classification names such as *Typhoon* but have included the Russian class name, i.e., *Akula*, where known.
5. Center for Defense Information backgrounder dated 5 July 2007, "Russian Navy Successfully Tests New SLBM," available at http://www.cdi.org.
6. Jose Higuera, "Venezuela places order for Russian-built submarines," *Jane's Defence Weekly*, 6 February 2008; and *Jane's Fighting Ships 2007-2008*, p. 634.
7. See, for example, Valdimir Petrov, "Russian Navy seeks blue water revival," *Jane's Defence Weekly*, 12 December 2007; and Stuart Stogel, "Russian Navy Turns Up Heat," Newsmax.com, 17 January 2008, available at www.newsmax.com/international/russian_navy/2008/01/17/65388.html.
8. I have arbitrarily separated the larger frigates, over 3,000 tonnes, from the smaller vessels designated as frigates because it seems that the smaller vessels are mainly used for coastal work whereas the larger vessels work with the 'blue-water' task forces.
9. One frigate is based in the Caspian Sea.
10. Admiral Vladimir Vysotsky, quoted by Russian News and Information Agency, 2008, available at http://en.rian.ru/photolents/20080204/98302515.html.
11. "Russia's road to military reform," *Jane's Intelligence Digest*, 28 July 2008.
12. Martin Sieff, "Defense Focus: Cruiser strategy – Part 1," UPI.com, 28 May 2008, available at www.upi.com/Security_Industry/2008/05/28/Defense_Focus_Cruiser_strategy_--_Part_1/UPI-94211212006435.
13. Jon Rosamond, "Russian admiral reiterates carrier fleet aspirations," *Jane's Defence Weekly*, 10 April 2008.

Peter Haydon is CNR's Editor-in-Chief, and in a former existence studied and wrote about the Soviet Union and its navy.

Canadian Shipbuilding: Some Lessons Observed, if Not Learned

Michael A. Hennessy

Photo: Cpl David Cribb, Formation Imaging Halifax

*Two examples of the modern shipbuilding debate: ships that were controversial initially but proved to be enormously useful in practice. Here, HMCS **Shawinigan** and HMCS **Toronto** meet in Frobisher Bay during **Operation Nanook** 2008.*

As the Canadian Navy again looks to recapitalize the fleet and undertake the construction domestically of major surface combatants it is instructive to reflect on the experiences of all the previous efforts to build modern warships within Canada. Building major modern naval vessels, for Canada as for other states, must be viewed as a major national technological enterprise. Canada does not have a stellar record with these and there is too little history written about such efforts – they remain somewhat black-box affairs. To shed some light on those experiences this brief article draws on the extensive but not widely published lessons found in the extant public record of the Treasury Board, the Departments of Defence Production, Supply and Services, Industry, Finance, Defence and the Cabinet for all the major construction programs from 1946 to 1972, and some case materials from later efforts.

Canada has built 3-5 major classes of surface combatants, depending on how you view the modifications to the original 205 class (such as the *Restigouche*- and *Annapolis*-classes) and the demanding DDH 280s and the *City*-class Canadian Patrol Frigates (CPFs). Some truisms emerge:

- all were world-leading designs;
- all depended heavily on electronics, weapons systems and main machinery made available from offshore suppliers;
- many key technologies were made available to us by the USA and UK because of our special defence relationship, which while affording us access also reduced or greatly complicated the possible sale or purchasing of these vessels by other states because we could not transfer the technology; and
- Canada relied on imported technological expertise.

To complete these ships the state supported:

- the strategic distribution of work;
- the build-up of elaborate naval design staffs (particularly naval architects and design engineers) and shipyard production 'overseers';
- the creation of the Naval Testing Establishment;
- an engineering testing establishment; and
- the funding of a mixed civil and naval Naval Central Drawing Office and funded the creation of a commercial centre of excellence at Saint John Shipbuilding Limited.

All our major ships were built with considerable slippage from the original or first detailed schedule and, while some details can be argued, were well over the original budget estimates. In short, it is not too reductionist to

Photo: DND

A DDH 280-class destroyer at sea in her original distinctive configuration.

conclude that every major warship built for our navy has taken considerably longer and proven considerably more costly than originally conceived when the project received government approval. In a number of cases the time and cost overruns were so significant that, had they been forecast, the Treasury Board and Cabinet would most likely not have approved the project.

From all this expensive experience similar results have been obtained: we have received expensive but highly capable ships. Nevertheless, the following points should be noted:

- upon completion the industrial base built up over years was threatened with or did actually atrophy and then largely disappear;
- all classes were major tests of not only naval technical expertise but also presented profound challenges for the government agencies responsible for contract/project control, whether the Canadian Maritime Commission, the Canadian Commercial Corporation, the Departments of Defence Production, Supply and Services, Industry, or Public Works; and
- all have stirred political ire, drawn the attention of the Auditor General, and often set region or shipyard against region or shipyard.

It is not too much to conclude then that wherever one stands on what fleet Canada needs, any major recapitalization of the navy will face scrutiny, stir political debate and again challenge the competence of the Canadian state to manage such a great national technological enterprise.

At present the absence of any large-scale building program for over a decade has seen most, if not all, of the knowledge base and practical leadership experience developed during the last shipbuilding program – the CPF – disappear. Most of the designers and engineers, both commercial and within the various government agencies responsible, have left the Canadian scene. Any future program is well beyond the navy's management ken, and will call forth the development of elaborate project bidding, planning, building, testing and auditing regimes involving a myriad of departments and agencies and ministers – as would any program spending tens of billions of dollars, affecting hundreds of companies, and thousands of employees spread the breadth and width of this country. Such steps will entail increased costs and development time that will be difficult to forecast. As well, these issues will ensure political attention.

Moreover, modern warships are much more than their hulls – although even modern naval hulls have their own particular complexities (steel, aluminum, composites) – the hull is merely a box housing numerous complex technologies tied together in very complex systems of systems of systems, which if the ship is to be modern must be at the leading edge of many current technological capacities or they will already be obsolescent by the time of class completion. Paradoxically the most cost-effective

Photo: DND

*The launch of HMCS **Huron** at Marine Industries Ltd., Sorel, in April 1971.*

design is one that has already been built and that employs pre-existing components, which means building yesterday's ship today! Clearly that is an unsatisfactory state of affairs for a fleet that will serve for 30 years or longer.

To manage that challenge, the navy and industry will have to move from their current doldrums into waters that will need re-charting. History identifies many of the reefs but the pilots for the project should note the following points up front. First, time and money expended in planning will not be wasted.

Second, all bidders should be subject to a pre-bid qualification survey. Questions for those bidding should include:

- What is your track record?
- What is your present overhead and how is it calculated?
- What design capability, engineering and architectural staff do you have that can manage the experts you will hire?
- What are the regional labour costs?
- What is the state of the current physical plant – ways, lifts, shelters, etc.?

Third, the government agency responsible for contracting must be clear about what standards of work are being called for and know who will verify they are met. If commercial standards apply these must be spelt out in the contract like Lloyd's or naval standards that are already written and agreed to before the bidding concludes. The chief question with regard to standards is: whose standards? Further, how will compliance be verified? For instance, the supply ships went from a project of commercial off-the-shelf to a prototype system with naval standards being imposed by naval overseers rather than sticking to Lloyd's standards, the basis on which the contract was let.

Fourth, on the initial design, steps must be taken early to settle all design features and avoid fishing expeditions by the navy to see what is out there. This had been a feature of the major building programs through the 280 class. To prevent it, the Treasury Board and Department of Public Works insisted on a policy of 'negative guidance' during the detailed design phase of the CPF wherein the navy could refuse a design but not clearly state what commercial solution it would accept. The method of negative guidance used on the CPF is a very costly way to prevent the navy from discovering more expensive designs or better components – it added a good two years to the CPF class.

Fifth, there is a bottom line. Starting construction and letting contracts with largely only conceptual plans – not detailed building drawings – will always create delays and escalate costs. Cutting steel while the design and building process is still being hammered out has proven a problem. This is why the DDE 205 really had three prototypes built at once and why the 280 class was so delayed. From a project management perspective then the longest 'long lead item' is detailed planning, not major components or specialized frames. Steel should not be cut until a detailed building design is in hand.

Sixth, learning curves are important and greatly affect final costs. Among the chief examples are the Maritime Coastal Defence Vessels (MCDVs) where steel was cut before the design was completed. Construction was halted and that is reflected in the man-hours to completion. The first MCDV took over 400,000 man-hours, the final took approximately 200,000 man-hours. Even greater savings were illustrated by the CPF program with the first vessel taking over five million man-hours whereas the tenth vessel produced by the prime contractor accounted for only 2.2 million man-hours.[1]

Seventh, the prime contractor must know how to manage all aspects of the contract including the major sub-component contractors. This problem should not be underestimated. It is likely that if construction of major fleet units is to be done in Canada the lead shipyard would have to cobble together a new management and design team by 'cherry picking' experts from around the world. This is not the best formula for controlling costs because the team would be untested as a team and would

Photo: DND

*A success story: HMCS **Annapolis** operating her **Sea King** helicopter.*

experience a high degree of learning by doing. Having the wherewithal to challenge the major subcontractors on their methods and schedules would have to be built into the team but is an intangible which is difficult to articulate in project cost projections that will be brought forward as part of the bidding process.

Eighth, any bidding process may prove very protracted because, given the lack of advanced naval work and generally low demand in Canada's shipyards, the bidding conglomerate may find it difficult to raise performance bonds on the commercial market. The government has eased that problem in the past by offering cost-plus contracts of various types but such methods have fallen out of favour and have always proved very costly to the state.

Ninth, whatever programs eventually gain government acceptance all ships are compromises in hull design, endurance, habitability, weapons systems, sensors, speed, etc. Whatever the navy builds someone will be dissatisfied with it. The navy, DND and government need one voice on the choices settled upon. Expectation management is necessary.

Photo: DND

*A **Sea King** helicopter flying over HMCS **Assiniboine** and HMCS **Protecteur** during the annual Caribbean training period in the 1980s; a DDH 280-class destroyer is in the background.*

Finally, in that vein, any projected recapitalization will encounter some recurring criticism. The navy, and the government, will have to have answers for the following standard canards and criticisms:

- We don't really need a blue-water navy, do we?
- The navy wants too much ship.
- It would be cheaper to buy an existing design for offshore construction.
- The navy/government should avoid the answer that we'll build and sell offshore.

To sum up, in 100 words or less, all will follow whatever ships the navy and government settle on. First, the navy's recapitalization program will entail creation of a major national technological enterprise and tens of billions of dollars. Second, management of the undertaking will involve many major government departments – Finance, Industry, Public Works and Treasury Board – and will involve issues of broad industrial policy. Third, the industrial base will have to be cobbled together. And, finally, given the scale and magnitude of the program there must be wide political support, however won, because the cycle of construction will be slow – decades – compared to the political cycle of days, months and years.

Canada will have a first-rank navy in its waters. If it is to be *ours*, recapitalization must commence soon.

Notes

1. Confidential source.

Michael A. Hennessy is a Professor of History and Dean of Continuing Studies at the Royal Military College in Kingston, Ontario.

A Canada First Benefits Program

Janet Thorsteinson

Canada needs to take a managed approach to industrial benefits. The desired outcome from a managed approach would be a program that generates sustainable, strategic economic benefits that support Canadian sovereignty through the development of globally-competitive Canadian defence and security industries which can in turn support the Canadian Forces. In addition, these same industries would contribute directly to the economic wellbeing of Canadians.

The year 2008 has been such a good year for heartening government statements in support of Canadian industry that I think it is worthwhile to start by quoting extensively from two of the most significant documents: Budget 2008; and the Canada First Defence Strategy. First we had the Budget 2008 which stated:

> The Canada First Defence Strategy is intended to strengthen Canada's industrial and technological advantages by setting the foundations for a new relationship with industry. A stable, predictable, and long-term investment program will create new, significant, and long-term opportunities. Canadian industry will have the opportunity to position itself as high-tech leaders, invest proactively in research, and develop technologies that can be used at home and exported to foreign markets.

Then we had the Canada First Defence Strategy, 2008 which said in its Executive Summary:

> ***A Military in Partnership with Canadian Industry***
> The Canada First Defence Strategy will also have significant benefits for Canadian industry. The infusion of long-term stable funding it provides will enable industry to reach for global excellence and to be better positioned to compete for defence contracts at home and abroad, thus enabling a pro-active investment in research and development and opportunities for domestic and international spin-offs as well as potential commercial applications.

Having read this statement, I then turned to "Section VI: Positioning Canadian Industry for Success" to see how, specifically, the government intends to bring these to

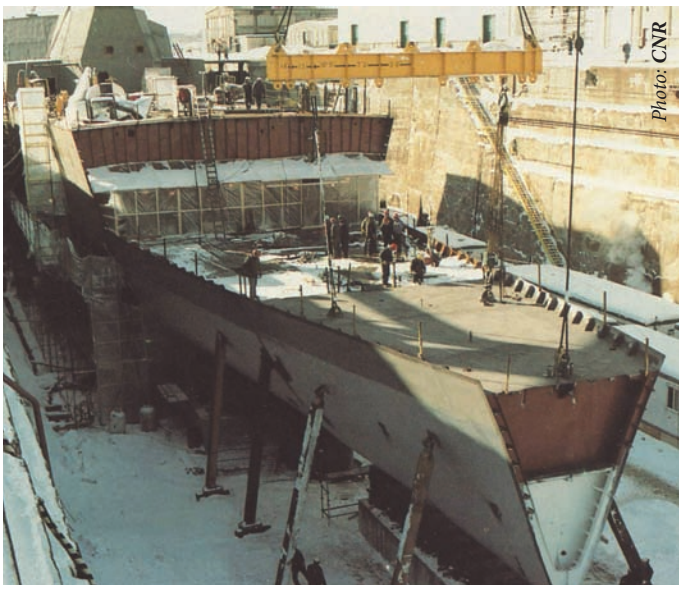


Photo: CNR

*The modern way of building warships – HMCS **Fredericton** modules being assembled in the Saint John Shipbuilding Ltd., drydock.*

fruition. There, under the heading "A New Relationship," I found the following intriguing idea tucked in as one of the specific measures that the government will take to enhance its interaction with industry: "the Government will revise the current industrial benefits policies attached to significant procurement projects with a view to encouraging industry to make long-term investment in Canada."

So, let's look at the Industry Canada description of the current Industrial and Regional Benefits (IRB) Policy before revising it and then let's look at some specific revisions that might improve it. The IRB Policy "provides the framework for using federal defence procurement to lever long-term industrial and regional development within Canada. It was created in 1986 to ensure that Canadian companies can derive benefits from procurements, such as new business or investments in new technologies."[1] IRBs are sometimes referred to as offsets.

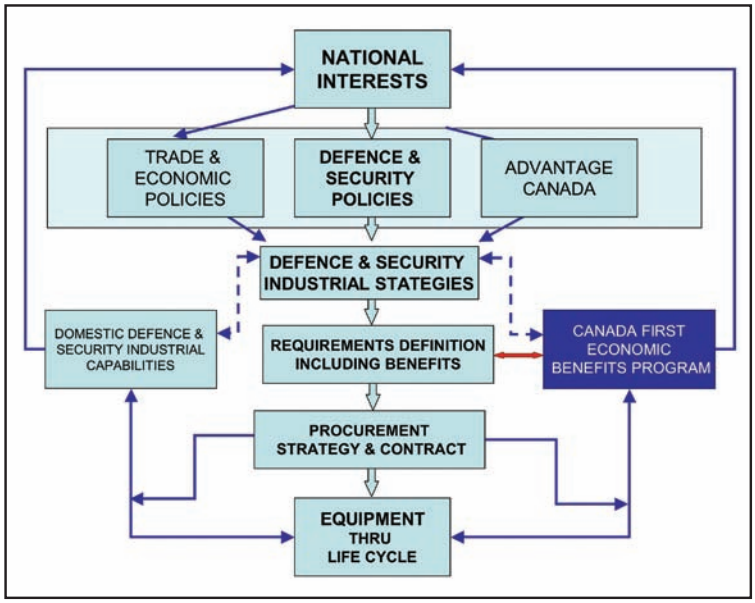
Canada should take a whole-of-government approach to leveraging defence procurement to the country's economic and competitive advantage, within a legal and policy framework. Such a framework would be multifaceted and complex and include trade and economic policies as well as defence and security policies and Advantage Canada (a long-term economic plan released in November 2006 designed to improve economic prosperity).[2] Based upon this legal and policy framework, Canada could then

establish industrial strategies and, once those were in place, mechanisms for delivery of the strategies. One such mechanism could be a Canada First Benefits Program, which I describe below, that requires that companies receiving major Canadian government contracts be required to re-invest in Canada in strategic ways. (See Figure 1.)

For such a program to be effective, I believe the following building blocks are needed:

- a whole-of-government approach recognizing that the national objectives cross departmental boundaries;
- a whole-of-industry approach that recognizes that Canada's critical, strategic technologies are more than shipbuilding and aerospace but rather cross platforms and, thus, focusing on ships or aircraft is less effective than focusing on defence electronics – we need mutually agreed key technologies that are to be targets of innovation;
- development of a strategic framework for economic benefits rather than a case-by-case transactional approach;
- a long-term capital investment plan that allows:
- long-term relationships between Original Equipment Manufacturers (OEMs) and sub-contractors at the leading edge of technology (i.e., not at the end of a production line);
- innovation and research and development with a linkage between the three Defence Research and Development Canada (DRDC) domains of expertise (human, physical and information) aimed at providing the Department of National Defence (DND) with access to the best capability in the marketplace (see Figure 2);
- development of human capital in knowledge-based technologically strategic fields;
- growth in the strategic technologies;
- export efforts of Canadian industry;
- a strong Canadian defence and security industry which will then be well positioned to support DND;
- Consideration of the desired economic benefits at the earliest stages of the acquisition process – at the requirements definition stage rather than at the procurement strategy stage (see Figure 3).

Figure 1. The Policy Framework for a Canada First Benefits Program



Source: Canadian Association of Defence and Security Industries (CADSI).

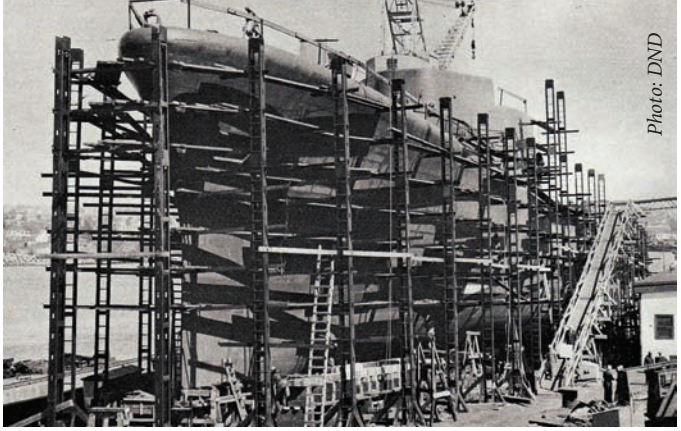


Photo: DND

The old way of building warships: HMCS Annapolis building in the Halifax Shipyard in 1962.

With these building blocks in place, I believe that, in order to encourage the most strategic re-investment, the Canada First Benefits Program should include the following:

- banking of benefits where companies would be given credit for initiatives that they have undertaken before a specific contract is awarded to them. Since there could be concern that companies could build up such a large credit that they would no longer be interested in establishing new and better initiatives, these credits would have a half-life of five years.
- flexibility in the percentage of the benefits that have to be committed before a specific contract can be signed so that companies will not feel obliged to take the benefits that are available off the shelf but rather can seek out meaningful offsets.
- since some investments are more beneficial than others, this should be recognized by weighting these investments more – this approach is sometimes referred to as "multiplier." Areas where this would be helpful are:
- strategic technologies (preference should flow to defence sectors) where these technologies are jointly agreed to by the Canadian government and the Canadian defence and security industries;

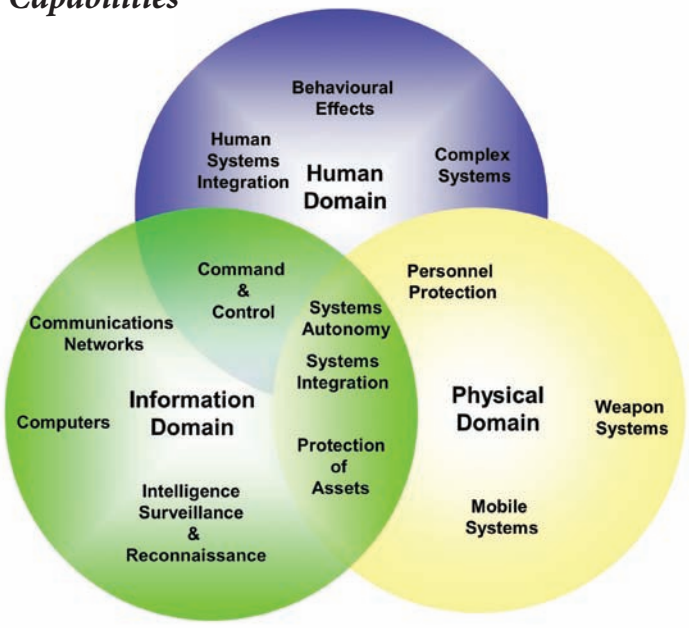
- venture capital funds for small and medium enterprises;
- innovation and research and development which might include jointly administered product development funds;
- world-product mandates on equipment entering into production (especially where the OEM includes the Canadian company in its ongoing supply chain);
- education and training programs especially those designed to increase business acumen, e.g., risk management and contract and project management training (note that this could be for both public and private sector participants and could include components in existing programs such as engineering and public administration where this is not usually the focus).

I believe that the government has shown leadership in:

- defending Canadian sovereignty and strengthening Canada's place in the world;
- strengthening the Canadian economy; and
- investing in the Canadian Forces for it to become a first-class modern military.

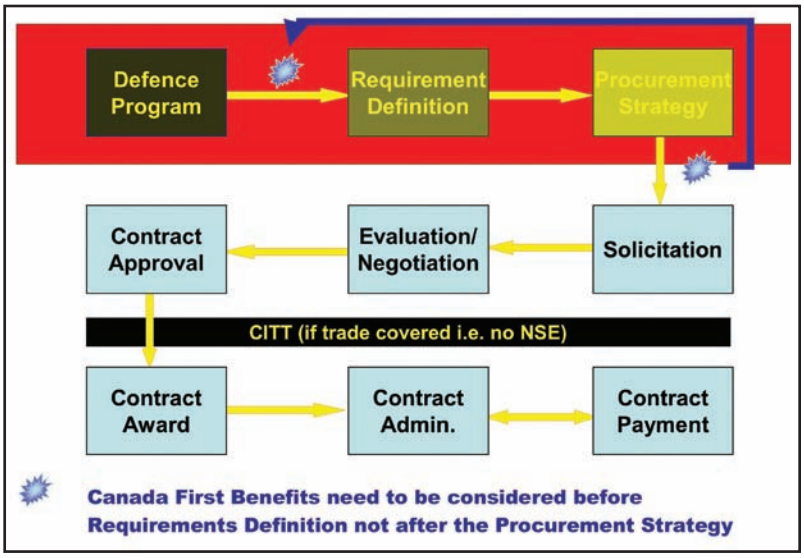
Now is the time for the government to deliver on the budget commitment and to take the next step in building an even stronger Canada: by taking a whole-of-government approach to creation of a Canada First Benefits Program to replace the outdated Industrial and Regional Benefits

Figure 2. Canadian Defence and Security Capabilities



Source: Canadian Association of Defence and Security Industries (CADSI).

Figure 3. Defence Acquisition Process



Source: Canadian Association of Defence and Security Industries (CADSI).

Program. Such a program should be:

- designed to create knowledge-based jobs in Canada – it will strengthen the Canadian economy and improve Canada's human capital;
- designed to strengthen the defence and security industries – it will support the needs of the men and women of the Canadian Forces;
- designed to focus the benefits from government spending on equipment and services in strategic technologies – it will enhance Canada's world-class industrial capabilities and ensure that Canada becomes a leader in innovation, research and development;
- designed to be considered at the earliest stages of the government's planning process when it can have strategic impact – it will ensure that high-quality benefits are achieved and that Canadians' tax dollars are invested wisely.

In summary, the Canada First Benefits Program will generate sustainable, strategic economic benefits that support Canadian sovereignty through the development of globally-competitive Canadian defence and security industries which can in turn support the Canadian Forces.

Notes

1. Industry Canada, Industrial and Regional Benefits Policy, available at http://www.ic.gc.ca/epic/site/ad-ad.nsf/en/ad03657e.html
2. Government of Canada, "Advantage Canada: Building a Strong Economy for Canadians," November 2006, available at http://www.fin.gc.ca/ec2006/pdf/plane.pdf.

After over 30 years in the public service, Janet Thorsteinson became Vice-President Government Relations at the Canadian Association of Defence and Security Industries (CADSI).

Making Waves

Naval Education and Naval Aviation

Commodore/The Honourable René J. Marin

In an editorial in *Canadian Naval Review*, Volume 4, Number 2 (Summer 2008), Editor-in-Chief, Peter T. Haydon, asks interesting questions and challenges his readers.

As an author of two law texts in Canada and one in Australia, I often ask myself the same question – do Canadians read? Do they read enough? What do they read? For authors, editors and publishers, is it worth the effort? How does one produce a magazine or book which attracts a solid readership?

The answers are not easy! First let me state the obvious: the *Canadian Naval Review* is an outstanding magazine! It fills a historical void – articles are well written, well edited and interesting if not fascinating to read. Whatever I am reading, as soon as *CNR* is delivered, I set aside any book and concentrate on it, and I read it from cover to cover. Regulars like Doug Thomas, Sharon Hobson and the Editor-in-Chief only to name three, bring much life to *CNR*.

What about readership? Regrettably Canadians do not read enough, and when they do, fiction is always more attractive than history. However, I am not satisfied Canadians are sufficiently acquainted with this fine publication or that Canadians have necessarily been offered or presented with well-written stories of our past. We often forget or take many events for granted.

Other publications of high quality do not abound in Canada. *The Beaver*, for one is an outstanding publication and its concentration on our history does not attract as many readers as it should. There was another problem and that is that until recently it was a closely guarded secret we had such a magazine! I suspect *CNR* has the same problem. It remains a hidden gem which should be better publicized. But how?

The readership of my law texts has been stable, or actually an increase of 2% a year. My publisher is satisfied, I am not. Yes, the book is in demand but more often copied regardless of copyright laws. Recently, short excerpts have been posted on the internet by the publisher, although it is too early to assess the results. If the experience is rewarding, I will share it in the hope we can learn from this experience.

To my knowledge, *CNR* is not commercially available. Should there be a small and contained pilot project to test the commercial demand for the magazine? Should copies be made available to selected universities, colleges and technical schools? Should it target certain history teachers? Should *CNR* test detachable inserts on naval books to facilitate the acquisition? Would McGill-Queen's University Press and other publishers cooperate in an insert with web ordering facilities? The editorial asks how many will read *A Blue Water Navy*, and the answer perhaps lies on how well it is publicized.

With 2010 – the navy's 100th birthday – looming on the horizon, the 'silent service' will have to be more vocal about its achievements. I represent the Chief of Maritime Staff on our Centennial Committee in addition to leading our effort at identifying commercial partners to financially assist us in celebrating our birthday. Many business persons have only a vague knowledge of our proud history. Few have realized that keeping our sea lanes protected enables trade and commerce to thrive, and few realize the benefits of our sovereignty patrols.

This begs another question, how good have we been individually and collectively at telling our story? When I join others in a focus group to tell our story and solicit funds, I inevitably leave with the impression we have not told our story often enough and certainly not often enough to business leaders in Canada. Even if the objectives of the campaign are not fully realized, it will have given us a chance to tell our story and gain more respect and pride in what we do. As leaders of our navy, we should take an active role in reshaping the curriculum of our schools to encourage the study of history, including our armed forces. We have much to learn from the Legion and veterans on that score.

To the Editor-in-Chief, have no self doubts, you are on the right path. It is a difficult but rewarding path. There is little wrong with *CNR*. A small focus group may help but when you raise such a fundamental question, you have shown the wisdom necessary to answer your own question. A wise person does not ask a question without some knowledge of the answer.

An Affordable JSS for Canada

Dave Mugridge

Since arriving in Canada, I have read with growing interest the many articles associated with the 'amphibious debate' and the fate of the Joint Support Ship (JSS) project. These are complex arguments which have been well made,[1] but on balance why shouldn't Canada enjoy the benefits of a limited amphibious capability for future military operations? As Canada moves towards an appropriate focus on proactive expeditionary operations, the development of an amphibious capability is as natural as upgrading strategic airlift. The growing relevance of littoral operations should not leave Canada observing from a self-imposed position of isolation and neutered reflection.

Given the outstanding performance of Canadian personnel in Afghanistan and as a leading NATO power, it is almost inconceivable to return to the limited peace-support operations which dominated the military from 1988 to 2001. Afghanistan has provided an operational watershed, promoting Canada and its military into the top echelon of responsible, proactive G8 states which are prepared to use or threaten military force to improve global security.

Like any military procurement project, the JSS project was likely to see an escalating financial bottom-line, run late and fail to deliver against an over-egged Statement of Requirement (SOR). Was cancellation the only option or could lessons have been learnt on how other countries have spawned an effective amphibious capability? Clearly Wal-Mart does not stock amphibious shipping equipment, but there are still considerable benefits to looking towards commercial off-the-shelf (COTS) for one-off purchases such as a pseudo-JSS.

Given the historic fact that the Canadian Navy accounts for less than 20% of the total defence budget and with the contemporary focus on deployed land operations, procurement cloth has to be cut according to budget. JSS was just too expensive as it stood and a wire brush had to be taken to the SOR to re-examine the difference between 'essential' and 'nice to have' capabilities. Once that had been done and compromises accepted, then the Department of National Defence could move towards building both the vessel and by implication a realistic capability.

Put simply, the requirements are: accommodation for the embarked military force (EMF); stowage for vehicles, defence stores and containerized bulk ammunition; modular medical facilities; planning spaces; large multi-spot flight deck with supporting hangar; and the ability to offload the EMF by air or sea. Given that Canada would probably look to deploy at most a light battle group, then an adapted large container or roll-on/roll-off (ro-ro) vessel could provide these facilities and more. Most of the above facilities can provide secondary uses and redundancy such as the flight deck being used as both weapons range and athletics field outside of aviation operations.

Such vessels can be procured from new-build design catalogues with any subsequent military adaptations being completed in Canada. Cost-effective defence procurement with follow-on Canadian industrial jobs is seldom a political or military problem. Election years are never a good time to thrust contentious defence procurement issues into the public arena, but governments tend to re-evaluate their national defence and security needs once elected.

There are many other benefits to COTS-derived platforms or adapted civilian ships. They are economical in terms of support costs (fuel, spares and reliability), manning to commercial standards means that outside the EMF they don't require a hike in naval personnel numbers, and through-life adaptation is much less expensive than bespoke military alternatives. Acknowledging the old expression 'you get what you pay for,' if it delivers a Canadian amphibious capability for the cost of a frigate then it presents value for money and demands further investigation.

Whilst the UK is rarely seen as a good example of completing defence procurement projects, HMS *Ocean* (LPH) is just that. The Royal Navy's amphibious flag-ship cost little more to build than an escort but has delivered significant operational effect beyond that anticipated. Its operational record illustrates the value of such a platform for the small but expeditionary-focused British military, including:

- humanitarian assistance in Central America (1998) and in Turkey (1999);

- peace-support operations in Sierra Leone (2000);
- military operations in support of both the Afghanistan campaign (2001-02) and the Iraq campaign (2003); and
- counter-narcotic constabulary operations in the Caribbean (2007).

HMS *Ocean* has required many in-service capability up-grades and enjoyed its fair share of teething and reliability problems, but when compared against the costs of operating a conventional carrier in the LPH role the benefits are self-evident. WW II escort carriers were famously described by their detractors as "cheap and nasty" but in reality they were cheap to build and nasty to the enemy. Canada should not ignore the lessons of history when looking to promote a valuable future military capability.

Alternatively, RFA *Argus*, procured for aviation support in 1988, has morphed into a flexible and highly employable asset, with an operational record which is the envy of many other bespoke platforms. A pseudo-JSS platform could, with minor adaptation, deliver replenishment-at-sea capability to any escort or task group. Such an addition to the Canadian order of battle would rectify current operational logistic shortfalls and complement existing support shipping.

Given Prime Minister Harper's assertion that the Canadian military mission in Afghanistan will end in 2011, surely the development of an amphibious capability that brings with it the options of operational poise, regional presence and afloat forward-basing should be actively pursued? All too often there are more reasons *not* to do something than there are to embrace change, but if change brings with it a capability that better reflects Canada's stated defence policy, its new dynamic role within NATO and offers politicians flexibility in these troubled times, it is worthy of further scrutiny.

Canada has established itself as a country which accepts that national prosperity and international security depend on its military shouldering a burden of foreign deployments and combat operations. An amphibious capability provides options which are not reliant upon host state support, allow for flexible regional presence and can be cost-effectively employed with more sophistication than simply boots on the ground. Given the move towards a comprehensive security strategy, such a capability allows for an effective multi-agency response to the full spectrum of foreign security-related operations. Amphibious capability makes political and military sense so long as it can be delivered inside a defence budget stretched by events in Afghanistan. In golfing terms when you leave the driving range for the course make sure you have all the clubs you need, because it's too late in the bunker on the 17th hole!

The future is not the son of Desert Storm,
But the stepchild of Somalia and Chechnya.
General C. Krulak USMC, 1999

Notes

1. For an excellent overview of the debate about whether Canada should get an amphibious capability, see Ann L. Griffiths and Kenneth P. Hansen (eds), *Marines: Is an Amphibious Capability Relevant for Canada?* (Halifax: Centre for Foreign Policy Studies, Maritime Security Occasional Paper No. 15, 2008).

The Morning After: Canada and the Post-Afghanistan World

Sean Clark

Eight months into his premiership, Prime Minister Stephen Harper returned to his hometown of Calgary and delivered a speech detailing his vision for Canada's role in the world. In this speech Harper explained that his "objective is to make Canada a leader on the international stage." In other words, Canada must move from the stability maintenance operations (or peacekeeping) of previous generations, and into the dangerous work of stability implementation – the securing of peace in the world's roughest spots. No longer should Canada wait for calm to arrive before lending a helping hand. Instead, Canada must forcibly *create* the stability necessary for political, social and economic reconstruction to proceed. This is no mean feat, and implicit in such a vision is the contention that Canada is capable of being a true leader on the international stage. Indeed, according to this view, only national will is lacking.

Unfortunately, such sentiment is incorrect. As laudable as international leadership may be, it will be impossible to achieve. Canada's international stature is certain to diminish in upcoming decades, not increase. Regeneration of the Canadian Forces – including fleet recapitalization – will therefore be constrained, and overseas military operations strongly avoided.

The central planks of this new foreign policy agenda – the re-invigoration of the Canadian Forces and the deployment of ground troops to Afghanistan – originate within the pervasive security fears that followed the 9/11 terrorist attacks. Stability implementation operations took great impetus from the ruins of the World Trade Center. Nevertheless, the *tone* of the Harper government is far bolder than previous regimes, for it confidently endeavours

to make Canada "matter again in the world." Such policy proclamations are of a vigour rarely matched in Canadian political history. Meanwhile, some 2,500 Canadian soldiers now find themselves amidst the most intense combat our country has seen since the Korean War. The government has clearly matched its words with action. Providing security for reconstruction and humanitarian assistance in rebellious southern Afghanistan is difficult work, and it is undeniable that Canada has paid dearly for its efforts to make the country a serious player on the world stage.

Therein lies the problem. Imposing a stable institutional framework in the face of a determined enemy requires *un effort du sang* – an effort of blood – and Canada has been bloodied to an extent not seen in decades. The Taliban are ferocious and have demonstrated themselves to be adept students of guerilla war. Deployed to the front lines of a revitalized insurgency, Canada finds itself caught in a conflict whose intensity seems unlikely to have peaked. Nearly 100 Canadians soldiers have already been killed in combat and, given recent trends, this toll is likely to continue. Most agree that Western forces will be performing the majority of the Kabul government's heavy lifting for years to come. As a consequence, bringing stability to the Afghan people will cost even more Canadian lives.

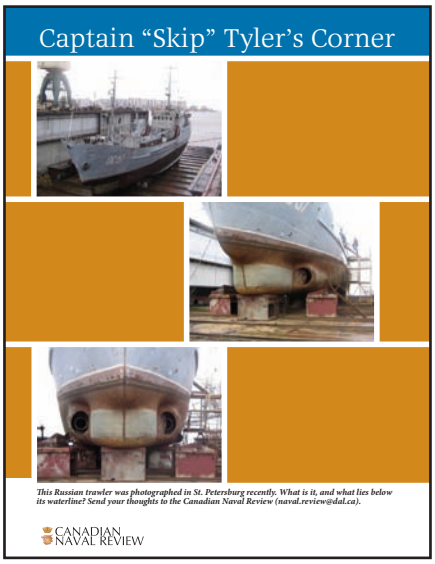
These losses have dampened the country's willingness to undertake such missions in the first place. Sombre ramp ceremonies, with their flag-draped coffins and lines of sorrowful soldiers, do not go ignored by the public back home. A state does not accept the passing its youth without serious reservation. Such concern has been devastating to the efforts both to re-brand Canadian foreign policy with more activist goals, and to re-cast the Canadian Forces into an armed servant of the international good.

Afghanistan was to be a shining example of how judicious use of Canada's military could bring hope, freedom and prosperity to one of the most ravaged places on earth. However, instead of a popular embrace of this new muscular credo, Canadians have crept back into insularity. In the years since 9/11, Canadian support for the mission has plummeted, and internal DND polling recently revealed that a "majority of Canadians still view their soldiers as peacekeepers and would rather see them helping disaster victims than fighting." Little surprise, then, that while on the campaign trail, the Prime Minister recently declared the mission's 2011 deadline to be firm. For the first time, Harper admitted that a troop pullout from Kandahar is in the cards – regardless of the project's security situation. This is telling, for the Afghan mission has become a sorcerer's apprentice, rather than serving as the catalyst to a more vigorous Canadian foreign policy, it has damaged such ambition beyond repair.

The obstacles to Canadian international leadership do not stop with the lack of will. In fact, when measured in raw economic power, Canada's stature on the world stage is *shrinking*, not growing. As of 2007, Canada sat as the world's eight largest economy – a hardly inconsiderable position. However, the unleashing of economic growth in underdeveloped states means that they will quickly pass our country by. Canada's high productivity is simply no match for populous societies enjoying the fruits of the industrial revolution for the very first time. For example, PricewaterhouseCoopers estimates that by 2050, further growth of newly industrializing economies will drop Canada into a 14th place tie in the global rankings of economic size. Put more starkly, in less than half a century, Canada's national output will sit at a mere 1/13th of the new Chinese colossus.

Canada's international clout is being swamped by the dramatic return of the Asian powers even now. The ramifications of this will be tremendous, ensuring that there will be less space for the Canadian voice, not more. Instead of boldly applying force and holding the ear of global policy-makers, Canada will be drawn tighter into the American orbit – a superpower facing serious geopolitical pressures of its own. In fact, China is expected to overtake the US economy around 2025, with India eagerly trailing close behind. If America's sphere of influence is declining, what does that portend for Canada?

This conclusion may seem galling to some – particularly those in the naval community. This is hardly surprising as research in political psychology informs us that humans are loath to admit relative loss. Yet such diminution is inescapable. Instead of leadership, then, the upcoming period of great transition will ensure that Canada's tough choices will concern how best to balance domestic interests with prudent international obeisance. Canada will have to learn how to manage its sovereign independence amidst the stark retrenchment of its American security guarantor and economic lifeline. Fanciful protestations will not reverse this predicament, and are best left ignored.



What Is It?

Lieutenant-Colonel (Ret'd) David L. Stinson

Interesting photographs on the back cover of Volume 3, Number 4 (Winter 2008) (and reproduced on this page). Hidden torpedo tubes, perhaps, for creating chaos at the start of a conflict if such a ship happened to be sitting in a foreign port and just happened to be pointing at a tanker, major warship, drydock gates, etc? Or are these the coverable inlets for a test model of a "tractor drive" – suck water in at the bow, expel it at the stern, all done very quietly – allegedly fitted to certain Soviet submarines and popularized by Tom Clancy in *The Hunt for Red October*?

May the *Canadian Naval Review* continue to prosper. I applaud the suggestion that *CNR* be adopted by the Chief of the Maritime Staff (CMS) in the same manner as the *Army Journal* and the very new *Air Force Journal* are supported by CLS and CAS respectively. It is the officers and non-commissioned members of the Canadian Armed Forces, regular force, reserve and retired, and some knowledgeable friends, who will 'keep the flame alive' for the necessary military capability in Canada. No one else will do it because no one else has the required knowledge. Press on!

Response from CNR: Like some aspects of the Russian Navy and the Soviet Navy before it, this ship and what it does is an interesting mystery which is why we offered it up for public comment. Your suggestion is the only one so far. Hopefully naval intelligence isn't dead!

The View from the West: Piracy in Somalia: A Growing Crisis

Christian Bedford

The year 2008 has been a banner year for pirates in Somalia. As of the end of September, there had been 59 incidents of attempted piracy off its coastline, and currently there are 14 ships seized in Somali ports with over 320 crew members being held for ransom. For over two years, the International Maritime Organization (IMO) lobbied the UN Security Council (UNSC) to take action to combat Somali piracy, a phenomenon that has grown steadily in recent years. In an unprecedented move, on 2 June 2008, the UNSC adopted Resolution 1816 (2008), authorizing foreign naval vessels to enter Somali territorial waters for a period of six months (likely to be extended) to use "all necessary means" to repress acts of piracy at sea, consistent with existing provisions of international law.

It is within this context that four Canadian warships found themselves operating during the summer of 2008. Canada has become one of the central navies in combatting piracy off Somalia. In June, Canadian Commodore Bob Davidson took control of Combined Task Force 150 (CTF 150), a flotilla of warships from seven states working to enforce peace and security in the Persian Gulf, Arabian Sea and around the Horn of Africa. This summer, Canada's contribution to CTF 150 included HMCS *Iroquois*, *Calgary* and *Protecteur*. The ships left Halifax and Esquimalt in April and rendezvoused in the Caribbean before crossing the Atlantic Ocean. The deployment of the three ships, with over 1,000 personnel, represents Canada's largest overseas military commitment after Afghanistan.

Although CTF 150 was initially established to hunt terrorists and smugglers of weapons of mass destruction in the waters between Pakistan and Oman, the central task of the multinational armada is now to ensure security in one of the world's busiest maritime shipping zones. In moving west to the Gulf of Aden where many of the pirate attacks have occurred, the CTF 150 vessels are now focusing on a waterway through which more than 20,000 ships and 30% of the world's oil pass every year. While CTF 150 represents a potent force to patrol the approaches to the Red Sea, the scope and sophistication of the pirate operations means that a broader effort, involving all affected countries, will be required if Somalia's piracy epidemic is to be brought under control and eventually defeated.

Far from a random group of miscreants high on *Qat* and looking for a quick buck, the pirates are part of large, well-organized criminal organizations based in Somalia, the semi-autonomous northern regions of Puntland and Somaliland, and in states such as Kenya, Tanzania and the United Arab Emirates. It has even been suggested that Canada, home to the largest Somali diaspora outside Africa, hosts organizational cells for Somali pirates. Experts on the topic say there are five main pirate gangs that operate along Somalia's 3,025 kilometre-long coastline (Africa's longest), each of which is tied to a powerful local warlord who, in turn, has connections to the largely ineffective Transitional Federal Government of President Abdullahi Yusuf.

Although born out of opportunity – i.e., there is no central authority to prevent it – it has been argued that Somali piracy is in fact viewed by many in the country as providing an essential service by policing the country's territorial waters and preventing illegal fishing and toxic waste-dumping. This self-righteous assessment may be scoffed at by Western shipping firms whose vessels are affected by the attacks, but illegal fishing in Somali waters is in fact quite a lucrative business. The United Nations estimates that the country regularly loses up to USD $100 million per year due to illegal fishing by states as diverse as Spain, South Korea and Egypt.

The pirates' sense of national duty notwithstanding, what may have begun as an exercise in maritime protection has now grown into the largest industry in Somalia. In a country where the average yearly income is at most $600 (all figures USD), a pirate earns between $10,000 and $30,000 per year, an unheard-of amount for most Somalis. Ransoms this year alone have included: a German-registered freighter released for $800,000; a Dutch cargo ship exchanged for $700,000; the Danish-owned icebreaker *Spitzer Korsakov* freed for $1.6 million; and the French yacht *Le Ponant* released after its owners reportedly paid $2 million. Analysts estimate that pirate gangs earned nearly $30 million from ransom payments last year, more than the entire annual budget of Puntland, which was roughly $20 million.

Somali pirates generally hold Western-flagged ships for ransom. Vessels with less well-to-do owners are employed as 'mother ships,' allowing the pirates to strike at vessels travelling far out at sea. In the case of the hijacking of *Le Ponant*, the yacht was attacked more than 160 miles off

the Somali coast by a Yemeni-flagged fishing trawler that launched two smaller speedboats, each with six pirates toting AK-47s and rocket-propelled grenade launchers. The use of mother ships has meant that the danger zone for ships has expanded significantly. Five years ago, captains were advised to stay at least 50 miles off the coast of Somalia. Today, due to increased attacks and enhanced capabilities, including GPS devices and satellite phones, that advisory has extended to 200 nautical miles, and will likely have to be expanded again after the Spanish-owned fishing trawler *Playa de Bakio* was seized by pirates in late June, 247 miles off Somalia's coast.

Although most Somali pirate attacks have targeted large bulk carriers, chemical and fuel tankers and personal vessels, ships carrying food aid for the desperately poor country have also been hit. It was for this reason that the UN's World Food Program (WFP) issued a call in November 2007 for protection from pirates. Since that call was made, frigates from France, Denmark and the Netherlands have provided escorts for WFP ships travelling to Somalia, and in August HMCS *Ville de Quebec* arrived in the Indian Ocean to offer protection to the ships. The mission has been a success: since escort ships arrived in November 2007, there have been no attacks against this vital lifeline to the Somalia people. According to the WFP, its food aid supports Somalis at a rate of eight people per ton of food per year. With 112,500 tons of food aid delivered under naval escort between November 2007 and June 2008, nearly one million Somalis will have received this assistance.

Canada's contribution to this endeavour is ongoing. In its first six weeks, *Ville de Quebec* successfully escorted shipments of more than 21,000 tons of food aid, and as a testament to this success the mission was extended by four weeks into late October. Through its actions both north of Somalia in the Gulf of Aden, and to the south in the western Indian Ocean, the Canadian Navy is contributing to both hard and soft security for the people of Somalia.

The Way Forward

In late September there was an attack that added a strategic dimension to the dangers posed by Somali piracy. On 26 September, a Ukrainian vessel carrying over 2,300 tons of arms was seized by Somali pirates. Onboard there were at least 30 Russian-made T-72 tanks, grenade launchers and various small arms. Should this equipment be offloaded it would increase the capabilities of the pirates and the danger posed to African Union peacekeepers in the country and international naval forces operating off the country's shores.

What is needed now is a sustained international effort to defeat Somali piracy, both at sea and on land. In order to

Photo: MCpl Kevin Paul, Canadian Forces Combat Camera

*HMCS **Ville de Québec**'s Rigid Hull Inflatable Boat (RHIB) ferries personnel between the warship and the freighter **Abdul Rahman** as **Ville de Québec** escorts the merchant vessel and her load of relief food supplies from Mombasa, Kenya, to Mogadishu, Somalia, in August 2008.*

accomplish this, there must be a two-pronged approach involving military and diplomatic resources. With respect to maritime security, there have been recent encouraging signs that the international community is prepared to act to re-establish order in the area. In early autumn, Norway announced it was sending one of its *Nansen*-class frigates, *Fridtjof Nansen*, to participate in CTF 150 operations in the Gulf. In the same week, Russia also announced it was preparing to send its own naval forces to protect Russian crews onboard many of the ships in the region. Although Russia declared that it would not participate in any formal naval squadrons like CTF 150, it is nonetheless encouraging that countries affected by this scourge are willing to commit forces in order to tackle it. Other affected states, including China, Malaysia and the Philippines, have condemned Somali piracy and have discussed committing troops or naval assets as part of an international force in the region.

Although there are encouraging signs on this front, there remains a gulf between how countries choose to deal with Somali pirates. France has shown that it will not hesitate to send in commandos to free French citizens being held captive, while countries like Germany have been willing to pay the ransoms that the pirates demand.

The UNSC Resolution is welcome news for shipping companies, insurers, vacationers and others who find themselves off the Horn of Africa, but a sustained, concerted effort is required by international navies to target piratical activities and disrupt these criminal networks. Canada has been a leader in such efforts, devoting significant naval assets in support of operations off Somalia's coast.

We must remember that piracy is both a land- and sea-based problem: one of the fundamental reasons that it persists is the lack of central authority in Somalia since 1991. If the international community exerts diplomatic pressure on Somalia's warring clans to the same extent that it employs sea power off its shoreline, piracy can be defeated. If not, states such as Canada may end up committing naval forces to the region for years to come.

Christian Bedford is a senior analyst in the Office of the Asia-Pacific Policy Advisor, Maritime Forces Pacific Headquarters.

Plain Talk: Should the Support Ship Sink?

Sharon Hobson

Has the Joint Support Ship (JSS) become a naval chimera? It's been about 15 years since the navy started planning for a multi-function support ship as a replacement for its three (now two) auxiliary oiler replenishment (AOR) vessels, and there's still no delivery date in sight. Maybe it's time to rethink this project.

Two teams had been selected to participate in the definition phase of the $2.1 billion project to provide the navy with three ships to support the fleet, provide surge sealift and support forces ashore. The teams, led by Thyssen-Krupp Marine Systems Canada Inc. and SNC-Lavalin ProFac Inc., submitted their bids in mid-March 2008 amidst rumours that the budget allocated by the government was insufficient.

On 22 August 2008, the government's contracting agency, Public Works and Government Services Canada (PWGSC), announced "the Crown has determined that the proposals were not compliant with the basic terms of the Request for Proposals (RFP). Among other compliance failures, both bids were significantly over the established budget provisions."

Vice-Admiral (Ret'd) Peter Cairns, President of the Shipbuilding Association of Canada, rankles at the implication "that if industry had done its job, we wouldn't be in this pickle, and there is no acceptance of whether there might be any culpability on the part of the Crown or the convening agency."

The plans for three multi-function support ships have been reviewed and reworked over the past 15 years while the navy waited for government approval to proceed. It was ostensibly fast-tracked in 2000, but nothing happened. Then the project was formally announced by the Liberal government in 2004, but it still didn't appear to make progress. Finally, in June 2006, the Conservative government, with much fanfare, announced it again, but used the same 2004 budget without including increases to cover the significant escalation in the cost of shipbuilding materials over the intervening years. Consequently, the $2.1 billion project – of which only $1.575 billion will go to the shipbuilders – is deemed insufficient.

So the navy still has no ships on the horizon. In the announcement of the cancellation, the Minister of PWGSC, Christian Paradis, maintained that "these vessels

Photo: US Navy

*One option to solve the impending Canadian fleet support problem: HMAS **Sirius**, a converted civilian product tanker, refuels USS **Juneau** (LPD 10) during exercises in the Tasman Sea in 2007.*

are a key priority of the Government of Canada." He also said "the Department of National Defence … [is] currently considering the next steps."

The first step, says Vice-Admiral (Ret'd) Ron Buck, former Chief of the Maritime Staff and Vice Chief of the Defence Staff, who is now acting as an industry consultant, is to validate the requirement. According to Buck, "the assessment the Navy will come to is … the requirement is valid, the requirement for three ships is valid."

Despite rumours that the government may opt to reduce the number of ships to be acquired, Admiral Buck says "the objective of the project was to ensure that there would always be one of these ships available to do the government's bidding.… [A]nd once you go below three ships, your guaranteed availability drops to something in the high 60s. When you go to three, you get a 98-99 per cent availability."

The ships are to replace the navy's two steam-driven *Protecteur*-class AOR vessels, which are 39 years old, and are increasingly difficult to maintain. Moreover, with many states banning single-hulled tankers from their waters starting in 2010, the navy will find its fleet movements becoming more limited even if it can keep the AORs steaming. The JSS was scheduled for delivery between 2012 and 2016. Cancelling the procurement process could add another two years (or more) to the acquisition, depending on whether the government decides to start the competition from scratch or add more money to the budget and amend the project definition phase.

Photo: DND

*The importance of the AORs to the sustainability of the Canadian Task Groups cannot be over-emphasized. Here, HMCS **Protecteur** refuels HMCS **Algonquin**.*

Photo: US Navy

*This capability was once a "bold and magnificent dream" for the Canadian military! Here, a Harrier AV-8B takes off from the USS **Bataan** during exercises.*

One concern that Admiral Buck has is that while the government's announcement said it was "committed to procure, repair and refit vessels in Canada," it did not say the ships would be built in Canada. As Buck says, "I believe it's very important for the government to clarify that."

Getting the government to clarify anything these days is next to impossible. The government – and unfortunately, the military too, either as reluctant captives or eager accomplices – does not appear to believe in an informed public. In contrast to the high-profile announcements of the serial starts to the JSS program, the PWGSC announcement of the cancellation was released to the media at 8:30 pm on a Friday night.

To deal with nosy reporters who persist on following up on the matter, various senior defence officials and analysts were provided with prepared 'Talking Points' to use in response to annoying questions. So, for example, if someone were to ask "what is the impact of this announcement on the navy?" the naval spokesperson is expected to say,

> Of course we're disappointed, but we're also strongly encouraged by the Government's commitment to equipping the Canadian Forces. We will assist the Department in every way we can to help identify the options to Government for moving forward.

If the questioner asks "What will the navy do now?" the response should be "We will continue to do what we do best, which is to prepare for successful operations both at home and abroad."

And when the question is "What happens if the navy is compelled to retire *Protecteur* and *Preserver* before they are replaced?" the answer is "We would deal with that issue in the same way we are managing comparable risks today – just as the Air Force has done with the Sea King helicopter – and with equal confidence in the skills and dedication of our people." (Nice redirect to the Canadian Air Force's problem child, by the way.)

Do the spinmeisters really believe that people will be satisfied with such drivel? Do they believe that the reporters and the public are so easily manipulated that they will get caught up in a version of 'Support the Troops' cheerleading and not notice that they weren't given any actual information? Why not tell the truth? Tell us that the navy will either have to stay home more, or will have to look into leasing some commercial tankers to get them through the next few years. We can handle it.

There needs to be a discussion of the navy's support ship requirements and what the options – and implications – are for this project. Those options include starting the whole project from scratch, reducing the number of ships, or calling for entirely different ships, perhaps a next generation AOR and a separate sealift ship, either bought or leased.

Given the current mess, it would not be impertinent to suggest that the navy rethink putting so many functions into one platform. In addition to the problems inherent in trying to design a completely new class of ship with a budget that's too small, it is easy to see operational problems arising when the ship is required for different tasks, in different areas of the world, at the same time. Who will get priority? As well, a ship that provides naval task force support and strategic sealift, as well as in-theatre, sea-based command and control and joint/combined force support, will make a high-value target for enemy attacks.

Understandably, there are senior officers and bureaucrats who would not want to revisit this issue. No one likes to admit they have spent more than a decade chasing what turned out to be nothing more than a dream, but given the navy's pressing needs, and the collapse of the current procurement process, they need to suck it up and accept the need to re-assess.

*Sharon Hobson is an Ottawa-based defence analyst and Canadian correspondent for **Jane's Defence Weekly**.*

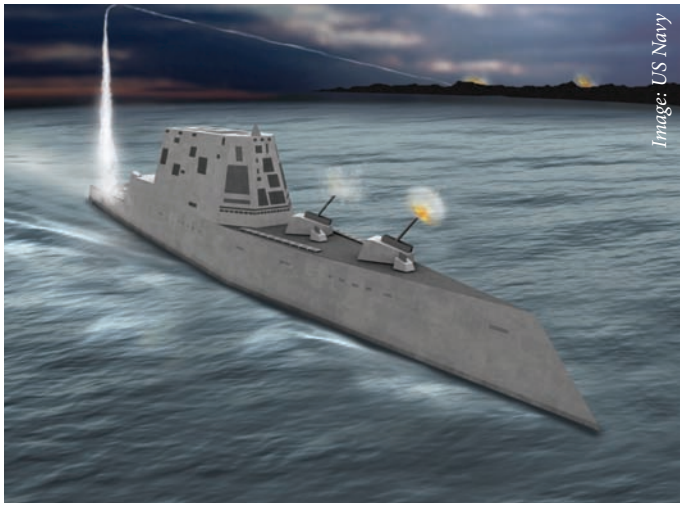
Warship Developments: DDG-1000 and LCS

Doug Thomas

After much fanfare and conceptual studies since the early 1990s (from the Arsenal Ship to DD-21 to DDX to DDG-1000), the United States has decided to limit the DDG-1000 program to just three ships, rather than the original 32 or, more recently, seven units. The first will be the USS *Zumwalt*, named after the innovative Chief of Naval Operations (CNO) from 1970-74, Admiral Elmo Zumwalt. With a full-load displacement of 15,000 tons, *Zumwalt* will be roughly 50% larger than the US Navy's current *Aegis* cruisers and destroyers.

DDG-1000 will be a multi-mission ship with an emphasis on land-attack operations, reflecting a desire to provide an updated replacement for the large-calibre naval gunfire support capability that was lost in 1990-1992, when the USN removed its four re-activated *Iowa*-class battleships from service. Much of the huge cost of the DDG-1000 program comes from research and development into new technologies in structure, weapons, automation and propulsion. It is anticipated that *Zumwalt* will cost at least $3.5 billion to build.

USS *Zumwalt* will have a much-reduced crew – compared to other destroyers and cruisers – of only 142 officers and sailors in order to help reduce operating and support costs. The ship will incorporate significant new technology, including a wave-piercing, tumblehome hull design to reduce its radar-echoing area and thus detectability, a superstructure made partly of large sections of composite materials rather than steel or aluminum, an integrated electric-drive propulsion system which will eventually facilitate installation of directed-energy weapons, a total-ship computing system for moving information about the ship, automation technologies for the small ship's company, a dual-band radar, a new kind of vertical launch system (VLS) for storing and firing missiles, and two 155-mm gun-mountings – the Advanced Gun System (AGS) capable of firing rocket-assisted, precision-guided munitions up to 100 miles. The research and development that went into DDG-1000 should benefit future classes of surface combatants and perhaps some of the new *Arleigh Burkes* (DDG-51) (up to 11 units) which will be built rather than the planned last four *Zumwalts*. The new DDG-51s should cost about half as much as DDG-1000.



Artist's concept of the DDG-1000.

A key part of the decision to restrict DDG-1000 to only three vessels is the need to increase the size of the fleet, the target being 313 surface combatants. In order to accomplish this within a constrained shipbuilding budget, unit cost must be reduced – and Littoral Combat Ships (LCS) and the new *Ford*-class aircraft carriers are going to be much more expensive than originally thought. In addition, DDG-1000 – even though it is huge by destroyer standards – was not considered large enough as a candidate hull for CGX, the replacement for the 22 *Aegis* cruisers. A major reason for this concern with size is the requirement to provide sufficient space and volume in the CGX design for the sea-based anti-ballistic missile mission. Part of this issue is a requirement to counter the Chinese anti-ship ballistic missile, an evolving major threat to carrier battle groups operating in the western Pacific. In the future, this type of weapon may well proliferate to other states, such as Iran and North Korea.

With the current and likely future cost of oil becoming a significant factor in force generation, and the US Congressional desire that future large warships be nuclear-powered, it seems likely that these cruisers will be a clean-sheet design: nuclear-powered and at least 25,000 tons.

Littoral Combat Ships

In the Winter 2007 edition of the *Canadian Naval Review* (Volume 2, No. 4), I discussed the Littoral Combat Ship (LCS). We are now at the point where the first two vessels of this type are being readied to join the US fleet. LCS is a fast, highly manoeuvrable, networked surface combat ship, and a member of the DDX family of US future surface combat ships (DDX, CGX and LCS). LCS is designed to satisfy the requirement for shallow draft vessels to operate in the littoral regions (coastal waters) to counter the threat

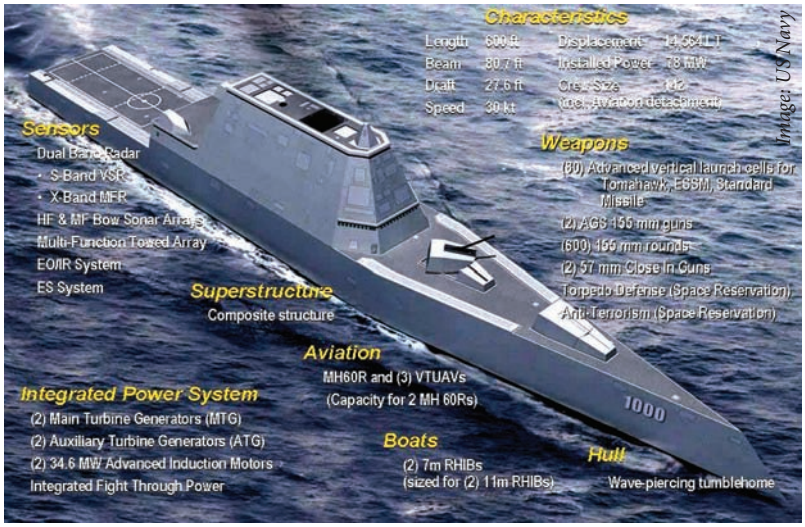


Image: USNavy

DDG-1000 characteristics and capabilities (note helicopters and mission modules).

of sea mines and quiet diesel submarines, and conduct a broad range of operations such as countering small, fast, armed boats potentially carrying explosives and terrorists. As with DDG-1000, LCS will have a much smaller complement than other warships of similar size.

USS *Freedom* (LCS 1) began underway builder's trials in Lake Michigan in late July. The navy's Board of Inspection and Survey conducted acceptance trials to determine if the ship's systems met naval standards, and *Freedom* passed these tests with flying colours. *Freedom* is scheduled to leave the Great Lakes in November 2008 for San Diego, which will be home port for all Littoral Combat Ships.

The LCS program originally envisaged a two-year construction period for the ships, but it has experienced many design and production difficulties: *Freedom* is well behind the original schedule, which in hindsight was unrealistically brief. Costs have risen dramatically from a projected $220 million in 2004 to perhaps $500 million at completion. Some of this extra cost will have been incurred through solving first-of-class production problems, and follow-on ships should be less expensive. Similar delays and cost escalation have afflicted Lockheed's competitor in the LCS program, the General Dynamics trimaran USS *Independence* (LCS 2), which is nearing completion at Austal USA in Mobile, Alabama. Cost growth and a desire to renegotiate the construction contracts caused the navy last year to cancel construction of each company's second ship: *Freedom* and *Independence* are the only Littoral Combat Ships in the pipeline. Three more have been approved or requested, but contracts have yet to be awarded.

The navy's fleet plan still calls for 55 of these ships. Each LCS will have a set of container-like modules and an MH-60 series helicopter plus unmanned vehicles (air, surface and underwater). An important part of the LCS concept is that its modularized mission package can be replaced within 48 hours. Each LCS will have a core crew of 40-50 and an augmentation team of specialists who will be embarked with each mission package. The USN plans to procure 24 mine warfare packages (approximately $68 million each), 16 anti-submarine warfare packages ($42.3 million) and 24 surface warfare packages ($16.7 million). Modules could be exchanged in US ports or flown overseas to support bases.

At 378 feet length overall and 2,862 tons full-load displacement, LCS 1 is roughly similar in size to Canadian steam destroyers built in the 1950s and 1960s; LCS 2 is a little larger. When the two prototypes are completed, competitive trials will be conducted to see whether one design is clearly better than the other for series production. It is possible that unit production of both designs might be authorized: *Independence* has a very large flight deck which confers the ability to operate a broad range of Vertical Take-off and Landing aircraft, manned and unmanned; and *Freedom* may have better sea-keeping qualities with its displacement hull.

Conclusions

DDG-1000 is a victim of its high cost and the need to build up USN fleet numbers. It does not matter how capable a warship is, it can only be in one place at a time! Even with cost escalation of the LCS program, it seems likely that 10 Littoral Combat Ships can be built for the cost of one *Zumwalt*. The LCS ability to be quickly re-roled – assuming alternate modules and suitably-trained personnel are available – is also a force multiplier so today's MCM force can be tomorrow's surface combat squadron. These two very different surface combatants are somewhat complementary: DDG-1000, with its capabilities to support forces ashore (Tactical Tomahawk and AGS), is much too valuable to be risked close inshore while LCS, with its high speed, shallow draft, relatively low cost and small crew is designed specifically for that role. It will be the LCS that other navies will be looking at for inclusion in their own service, not the strange-looking, costly, high-risk and highly specialized *Zumwalt*-class. Nevertheless, DDG-1000 promises to be a technological 'tour de force' which may point the way for the USN's future large surface combatants.


Image: USNavy

LCS-1 concept.

Book Reviews

A Blue Water Navy: The Official Operational History of the Royal Canadian Navy in the Second World War, 1943-1945, Volume II, Part 2, by W.A.B. Douglas, Roger Sarty and Michael Whitby; with Robert H. Caldwell, William Johnston and William G.P. Rawling, St. Catharines, Ontario: Vanwell Publishing, 2007, 650 pages, photographs, colour plates, maps, tables, diagrams, bibliography, index, CDN $60, ISBN 1-55125-069-1.

Reviewed by Ken Hansen

After more than half a century's wait, *A Blue Water Navy* completes the official history of the Royal Canadian Navy (RCN) in the Second World War. Following *No Higher Purpose* (Vanwell, 2002), a team of historians has used the same chronological style to address the final two war years. The only exception to the timeline is the inclusion of *Operation Jubilee*, the raid at Dieppe in 1942, in a chapter that begins the subject of combined operations in European waters. The book ends with the return of HMC Ships *Uganda* and *Prince Robert* to Esquimalt in the late summer and fall of 1945.

The subtitle of *A Blue Water Navy* is a misnomer – this book, like *No Higher Purpose,* is not concerned with naval operational concepts or doctrine. Rather, it is primarily a history of the 'operating' forces of the RCN. The focus, therefore, is on recording the activities of tactical forces and providing insights into the challenges they faced and successes they achieved. As is the case in other official histories, the activities of Canadians seconded to other allied naval forces are not covered.

The chief problem with *A Blue Water Navy* is that the general plan of the book does not stick to its purpose. A reasonably detailed tactical history could have been accomplished within the length provided, but too often the narrative strays off into issues of politics and strategy. These diversions, without proper exploration of the interconnecting issues of operational organization and campaign design, leave the text disjointed. While the descriptions of tactical activity are uniformly well written and enjoyable to read, particularly those parts that deal with naval engagements, the remaining parts are far less edifying.

The overall degree of tactical information provided does not compare well with the standards set out in either the American (Samuel Morison, *History of United States Naval Operations in World War II*, published between 1947 and 1962 in 15 volumes) or British (Stephen Roskill, *The War at Sea, 1939-1945*, published between 1956 and 1951 in three volumes) official histories. The American and British versions provide excellent descriptions of the command relationships, task organizations, operational plans and tasks assigned to naval forces for all major operations. Maps, tables and supplementary annexes provide the detail needed for academic study and analysis. These, although present occasionally and of good quality when used, are not included systematically in *A Blue Water Navy*. Advanced students of history and operations planning will not find the degree of detail needed for their analytical purposes.

It seems that the writing team has attempted to 'hit the highlights' rather than provide comprehensive detail. The composition of tactical formations and changes to them are not recorded. When reading either volume, readers will want to have a number of standard references at hand, such as: Marc Milner, *The North Atlantic Run* and *The U-boat Hunters*; Ken Macpherson and John Burgess, *The Ships of Canada's Naval Forces, 1910-1981*; Arnold Hague, *The Allied Convoy System, 1939-1945*; Gilbert Tucker, *The Naval Service of Canada*; or Paul Kemp, *U-boats Destroyed*.

In addition to its shortcomings based on a comparison with other countries' *naval* histories, *A Blue Water Navy* does not compare well against the official histories of the Canadian Army and Air Force. Thus this volume must be compared to C.P. Stacey and G.W.L. Nicholson, *Six Years of War*, published between 1955 and 1960 in three volumes, or the 1096-page third volume of the history of the RCAF by Brereton Greenhous et al., *The Crucible of War, 1939-1945*, published in 1994. It is evident that the team writing approach has resulted in a competition between perspectives for space and a rush to complete within the length allowed. Strangely, the Atlantic and the Pacific sections both end anticlimactically, without the benefit of a proper summation. Readers are left to tabulate for themselves the total contributions, subtract the losses, and come to some conclusion about the worth of either enterprise.

The main focus of this volume, as indicated by the title, is to explain the development of the "big ship-blue water navy" during the last years of the war. The sections on formulating Allied strategy, in which Canada played practically no part, are used to show how the post-war navy took shape. Neither aspect advances significantly the treatment provided by Tucker in *The Naval Service of Canada* published in 1952 which followed the preferable thematic approach for strategic and operational analysis. Unfortunately, in those few places where the text does attempt to employ operational terminology, it gets it

wrong. For example, it incorrectly describes the central Atlantic as "the centre of gravity" of the war against the U-boats (p. 39). In this case, the locale should be called the *area of operations*. The *tactical centre of gravity* was the endurance of the German U-boat forces that allowed them to reach and remain in their chosen area of operations for an effective period of time, while the *operational centre of gravity* was the Kriegsmarine's ability to generate, sustain and direct those forces. As well, critically important operational subjects, such as force generation, mission development and task organization, sustainment and logistics, are very poorly covered.

As is usually the case, logistics fares the worst of all. Barely half a paragraph is dedicated to it where the book examines the RCN's efforts to prepare itself for both leading and supporting roles in the invasion of Japan. Projecting power over oceanic distances is the ultimate test of a blue-water navy. Logistical inadequacy was the principal reason Admiral Ernest King was adamantly opposed to accepting the British Pacific Fleet into the central Pacific in the final stages of the war in the Pacific, fearing that it would require support from the US Navy. This proved exactly to be the case. The RCN was, if anything, worse prepared for the demands of operating at extreme ranges from Canada and from forward support bases established by the USN. Citing a secondary source for a report by the Royal Navy's liaison officer to Admiral Nimitz's staff, the text records: "Logistics is the most important aspect of the war at sea in the Pacific" (p. 538). Unfortunately, beyond a very few references to the RCN's lack of minor equipment like water coolers and laundry machines, little evidence is presented that the Canadian naval leadership even vaguely understood how far short they were of achieving their blue-water aspirations. Because of its tactical focus on the operations of a single light cruiser and an armed auxiliary, the vitally important operational issues of reach, endurance, replenishment and forward sustainment remain unaddressed.

The lack of an operational history is a critical deficiency in the development of a national maritime doctrine. Without a complete understanding of the roles played by Canadian naval forces within a large maritime alliance, the conceptual and procedural lessons of this momentous period will continue to elude the government, the service and the public. In sum, *A Blue Water Navy* captures useful tactical history in its descriptive sections, but its strategic and operational insights are not up to the standards of the analysis provided in other official service histories from World War Two.

China's Energy Strategy: The Impact on Beijing's Maritime Policies, edited by Gabriel B. Collins, Andrew S. Erickson, Lyle J. Goldstein and William S. Murray, Annapolis, Maryland: Naval Institute Press, 2008, 483 pages, references and index, ISBN 978-1-59114-330-7.

Reviewed by David N. Griffiths

Anyone who has spent time removing the "Made in China" labels from Canadian souvenirs will know how closely the economies of Canada and China are interconnected. Understanding the strategic implications of China's renaissance as a confident world power, enmeshed in a global web of complex relationships, requires an understanding of the energy that drives it. This makes *China's Energy Strategy* a particularly useful and timely book.

In its first two years, the China Maritime Studies Institute at the US Naval War College has produced some excellent analytical work that draws on extensive Chinese sources. *China's Energy Strategy* is the second in its series on Chinese maritime development and its 24 contributors represent an impressive array of expertise that, predictably, generates both consensus and disagreement. This in itself makes the volume a useful read.

One of the analytical pitfalls identified by several contributors is the seduction of 'mirror imaging' – i.e., projecting one's own assumptions, priorities and values on to the object of study. The United States, for example, is highly dependent on imported oil and gas, and therefore vulnerable to disruption of seaborne transport. In contrast, China, although it is importing increasing amounts of energy, meets 69% of its overall needs from domestic coal and another 15.8% from hydroelectricity. Chinese priorities and interests are, therefore, quite different. To the pessimist, China's increasing dependence on foreign fossil fuels suggests a motive for naval expansion to defend its sea lines of communication (SLOC). A number of contributors argue, however, that by increasing its dependence on seaborne imports, China is striking a deliberate balance between the vulnerability of SLOCs and the resilience inherent in diversification. This, the optimists suggest, is an opportunity for cooperative engagement.

In any case, the pessimists' concerns may be a misleading mirror image of the SLOC fixation of the United States and Japan. China does not depend on imported oil to keep the lights on and the heat burning, but mainly as fuel for vehicles, ships and aircraft. Even then, it has alternative domestic and overland sources, is building up a significant

strategic reserve, and is aiming for energy efficiency ("love oil as if though it were blood and value oil as though it were gold" in the lyrical words of one article in a Chinese military journal).

Another analytical pitfall is seduction by ulterior motives, conscious or not. In the words of one contributor, raising the spectre of a 'China threat' may simply be yearning for a cure for a case of 'post-Cold War enemy-deprivation syndrome.' To advocates of threat-based force development, Chinese naval enhancement looks like a challenge to a naval arms race, and Chinese funding of strategically located ports like Gwadar in Pakistan looks like a first step toward overseas basing arrangements mirroring those like the US 5th Fleet in Bahrain. Yet, for the foreseeable future at least, China's primary maritime focus remains on Taiwan, and its naval war-fighting capability is being optimized for securing and controlling its eastern maritime flank.

In that case, the maritime strategy supports a continental focus and China's need to secure imported energy supplies is unlikely to translate into a national drive for an expensive globe-spanning, SLOC-defending fleet. Rather, it appears to be diversifying its energy sources, forging alliances with resource-rich suppliers, using its navy as a diplomatic instrument and establishing influence in strategically valuable places. This is one reason for its frequent evocation of the 15th century politico-diplomatic voyages of Zheng He's fleets and their contrast with the cannon-toting entry of European vessels into the Indian Ocean some decades later.

China's current leadership is nothing if not pragmatic and, as one contributor notes, lacks personal military experience. That leads Chinese foreign energy policies to diverge from those of the West, especially because China does not insist on the same moral or performance standards as its democratic counterparts. This opens doors to Chinese investment and influence that most liberal-democracies would prefer to keep shut. Chinese aid for Gwadar's commercial port is a case in point. It is difficult to imagine a Canadian initiative that would accept the killing of some of its nationals or protection arrangements with local insurgents as a cost of doing business. Yet while China's choice of partners may be a point of disagreement, it can also be a channel for cooperation, if China is willing to use its influence in the common good.

One of the contributors to this volume points out that most analysis is not so much of energy security as energy *insecurity*. The enormous maritime capability of the United States does not look as benign from Beijing as it does from Washington or Ottawa. US policies and forces represent a standing threat to Chinese interests, especially in reserving the right to regain Taiwan by force if necessary. Chinese analysts look at US dominance in the Middle East and remember such incidents as the 1993 interception of the merchant vessel *Yin He* under the false assumption that it was carrying chemical weapons precursors and the 1999 NATO bombing of the Chinese embassy in Belgrade, accidental or not. Even humanitarian response can carry ominous messages to the sceptical. During the humanitarian response to the 2004 Indian Ocean tsunami, US carrier aircrew were required by regulation to continue readiness training. Innocent though these flights may have been, they also illustrated how easily the entrance to the Malacca Strait (through which 80% of China's imported oil now passes) could be closed.

Those who view the recent Olympic extravaganza in Beijing as an echo of the Nazis' 1936 spectacle in Berlin should pause for reflection. The spectacular opening ceremony made much of the ancient heritage of Confucius and Zheng He, but made not a peep about the founder of the Communist Party of China. A pragmatic leadership understands that cooperating to ensure a free flow of fuels and other seaborne trade within a stable global market system is far simpler, cheaper and more effective than military conquest. Pragmatism is serving the Chinese leadership well and, as the majority of the contributors to this book suggest, it will also serve our democracies well in engaging this awakening giant with its feet of clay but arms stretched toward the sea.

China's Energy Strategy is a comprehensive study of a complex, multifaceted issue, written by specialists for a broad (and primarily American) audience. Although some chapters contain some mediocre maps, it is a pity that the editors did not provide one or two good overviews for the benefit of readers unfamiliar with China or its energy infrastructure. But that is a quibbling point. Overall, this is an invaluable book for anyone wanting to understand China's economy in general and its maritime strategy in particular.

HMCS *Sackville*: Looking for a New Home

Jacqui Good

This May, retired Vice-Admiral Duncan 'Dusty' Miller had a 'Eureka' moment. He was in Stockholm, Sweden, for one day and asked what to see. Everyone told him not to miss visiting *Vasa*, the world's only surviving 17th century ship. The Vasamuseet is the most visited museum in all of Scandinavia with over a million visitors already this calendar year.

Vasa sank in Stockholm Harbour on its maiden voyage in 1628 and lay on the seabed for 333 years before being brought to the surface. It has since been restored and housed in a purpose-built museum. Its mast proudly protrudes from the top of the building.

As Dusty and his friends explored the museum, they oohed and aahed over the careful reconstruction and the clearly thought-out interpretative exhibits. In one area, you can learn about a sailor's life aboard ship. In another area, you can see what the various carvings represent. Ropes, sails, cannons, everything is explained in an entertaining way. And all this was for a ship that never fought a battle or made a voyage of discovery – and indeed, never made it out of the harbour! That's when Duncan Miller smiled and said, "This is what we need for *Sackville*!" Eureka.

When he isn't playing tourist, Admiral Miller acts as chair of the Canadian Naval Memorial Trust, the group responsible for keeping HMCS *Sackville* alive and well. *Sackville* is the last remaining *Flower*-class corvette, a sturdy ship that helped Canada win the Battle of the Atlantic in World War Two. In 1985, *Sackville* was officially recognized as Canada's Naval Memorial. The ship is a powerful national symbol of the Second World War, in the way the Vimy Ridge memorial stands for Canada's coming of age in World War One.

HMCS *Sackville* was rescued from the scrap heap by a dedicated group of volunteers who restored it to its 1944 configuration. For many years it has remained in the water in Halifax Harbour, either tied to a jetty just outside the Maritime Museum of the Atlantic or alongside the Dockyard. In the summer, visitors can scramble up and down the ladders and poke into all the corners of the ship. Even in winter, trustees and veterans gather for weekly get-togethers.

Sadly, the years in the water have taken their toll on *Sackville*'s hull. As its condition deteriorates, maintenance becomes more and more challenging and expensive. It is clear that HMCS *Sackville* needs to move indoors.

Photo: CNMT

*HMCS **Sackville** at her summer berth on the Halifax waterfront.*

For some time now, the Naval Memorial Trust has been talking to potential partners like the Waterfront Development Corporation in Halifax and the provincial Department of Tourism, Culture and Heritage about something called the Queen's Landing Project. This would become a star attraction on the Halifax waterfront. It would include an expanded Maritime Museum of the Atlantic and an adjoining new home for *Sackville*.

Over the past few summers, the Trust has hired young actors to impersonate 1944 crew members and offer animated tours of the ship. This idea would be expanded greatly in a new Canadian Naval Memorial Hall which could host large gatherings and conventions as well as hold *Sackville*. Special effects could simulate a submarine attack at night and other aspects of life at sea during World War Two.

"We want an iconic building, along the lines of Vasa Museum in Stockholm, a place that honours HMCS *Sackville* and what it represents," says Duncan Miller. "We have the potential to create an important tourist attraction similar to those in Greenwich, Portsmouth and Mystic Seaport. We celebrate the centennial of the Canadian Navy in 2010. What better time to break the ground for a new Maritime Museum?"

Jacqui Good is the publicity chair for the Canadian Naval Memorial Trust. She has also visited the Vasa Museum.

CANADIAN NAVAL REVIEW

2009 Canadian Naval Review Essay Competition

The *Canadian Naval Review* proudly announces that the annual essay competition, the Bruce S. Oland Essay Competition, has now been expanded by a new partnership with the Canadian Naval Memorial Trust (CNMT). Beginning in 2009, the annual CNR Essay Competition will have two categories each with a first prize of $1,000.00 and a second prize of $500.00.

The Bruce S. Oland prize will be awarded the best essay that addresses some aspect of either contemporary and future Canadian naval policy and/or operations or some aspect of Canadian maritime security that is or is likely to be of direct concern to the Canadian Navy. The second prize will be donated by the Centre for Foreign Policy Studies at Dalhousie University.

The Canadian Naval Memorial Trust prizes will be awarded to the best and second best essays written on some aspect of Canadian Naval history in the period 1910 to 1990. Essays should either examine the relevance of any lessons learned to contemporary situations or provide a fresh perspective on the origins, course and implications of some event or policy.

There are no fixed subjects for either category – other than the broad guidelines given above – in order to encourage authors to explore new themes, ideas and interpretations of events and governing factors. However, in judging the submissions, relevance to those broad criteria will be a factor. Potential authors who wish guidance on subjects may contact the Editor of *CNR*.

Photo: **CNR**

Commodore Bruce S. Oland and the winners of the 2008 annual essay competition, Kathleen Bigney and Alexandre Wilner. Their winning essay appeared in the Summer 2008 edition of ***CNR****.*

Submissions for the 2009 CNR Essay Competition must be submitted to the Editor, CNR via email (naval.review@dal.ca), by 1 May 2009. Essays are not to exceed 3,500 words. Longer submissions will be penalized in the adjudication process. 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. Photographs obtained from the Internet are not acceptable unless submitted in high-definition format.

All four prize-winning essays will be published in *CNR*.

Queen Elizabeth 2

Photo: Alistair Simpson of the CNMT

QE2 rounds Georges Island entering Halifax for the last time in September 2008.

QE2 leaving Southampton for her final round-Britain cruise in September 2008.

Photo: BBC Hampshire.

The *Queen Elizabeth 2*, the last of the great ships built for the trans-Atlantic passenger route, paid a final visit to Halifax in September 2008. The ship will become a floating hotel in Dubai later this year. Launched in September 1967, the 70,000 ton liner started work in May 1969, making her maiden voyage to New York from Southampton in 4 days, 16 hours and 35 minutes. During the 1982 Falklands War, she was requisitioned as a troop ship to take the 5th Infantry Brigade and stores to the South Atlantic. She returned to the trans-Atlantic route with periodic longer cruises after that adventure and eventually became a full-time cruise ship.

Photo: BBC

*The stern of **QE2** modified as a helicopter platform for the 1982 Falklands War.*

Photo: Alistair Simpson of the CNMT

QE2 in Halifax Harbour during her final visit.

Photo: Internet

*The launch of **QE2** at John Brown's Shipyard, Clydeside.*

CANADIAN NAVAL REVIEW