CANADIAN NAVAL REVIEW

VOLUME 6, NUMBER 2 (SUMMER 2010)

Earthquake in Haiti Triggers Tsunami of Canadian Relief

Climate Change and its Implications for the Canadian Forces

The Value of Concepts in Capability Development

A Letter from Korea

Our Sponsors and Supporters

The *Canadian Naval Review* (*CNR*) is a "not-for-profit" publication depending upon its subscription base, the generosity of a small number of corporate sponsors, and a small sustaining grant from Dalhousie University's Centre for Foreign Policy Studies for funding. In addition, *CNR* is helped in meeting its objectives through the support of several professional and charitable organizations. Without that corporate support *CNR* would not be able to maintain the content diversity and high quality "feel" presently found in the Review. Corporate and institutional support also makes it possible to put copies of *CNR* in the hands of Canadian political decision-makers. Without the help of all our supporters *CNR* would not be able to continue the extensive outreach program established to further public awareness of naval and maritime security issues in Canada.

CANADA'S NAVAL MEMORIAL H.M.C.S. SACKVILLE MÉMORIAL NAVAL CANADIEN

(www.hmcssackville-cnmt.ns.ca)

NAVY LEAGUE LIGUE NAVALE

(www.navyleague.ca)

The Canadian Nautical Research Society
(www.cnrs-scrn.org)

The Naval Officers' Association of Canada
(www.noac-national.ca)

CADSI · AICDS
Canadian Association of Defence and Security Industries
Association des industries canadiennes de défense et de sécurité

GENERAL DYNAMICS Canada

(www.gdcanada.com)

THALES

(www.thalesgroup.com)

WASHINGTON MARINE GROUP

Washington Marine Group of Companies, an affiliate of Washington Corporations, is primarily involved in marine transportation, ship repair and shipbuilding.

(www.washingtonmarinegroup.com)

To receive more information about the corporate sponsorship plan or to find out more about supporting *CNR* in other ways, such as through subscription donations and bulk institutional subscriptions, please contact us at naval.review@dal.ca.

CANADIAN NAVAL REVIEW

VOLUME 6, NUMBER 2 (SUMMER 2010)

The editorial offices of the *Canadian Naval Review* are located at the Centre for Foreign Policy Studies, 6299 South Street, Henry Hicks Building, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4H6

Phone: (902) 494-6846
Fax: (902) 494-3825
Email: naval.review@dal.ca
Website: www.naval.review.cfps.dal.ca

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, operations, history and procurement of the Canadian Navy, plus national security in general and marine/ocean affairs. 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 three primary objectives:

- provide a public forum for the discussion of the maritime dimension of Canada's national security;
- provide a public forum for the discussion of Canada's naval and maritime policies; and
- provide a source for the public examination of Canadian naval and maritime history and for the development of lessons learned.

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.

Articles, opinion pieces, book reviews and letters may be submitted via email or mailed (with an electronic copy) to the address given above. Send to the attention of the Editor, Dr. Ann Griffiths. Articles are to be in Word or WordPerfect format and no longer than 3,000 words. Articles must not have been published elsewhere. Citations should be kept to a minimum and articles must be accompanied by a 100-120 word abstract. Opinion pieces are to be 1,000-1,500 words. Authors of articles and opinion pieces which are published will be paid a small honorarium. Book reviews are to be 500-750 words. Photos may be submitted with articles or commentaries but they must be at least 300 dpi, at an equivalent size to 5 by 7 inches, and internet images cannot be used. Intellectual copyright will remain the property of the author, however, the right to re-publish articles initially published in the *Canadian Naval Review* remains with the Editorial Board. Articles and commentaries written in French are welcome and, if accepted, will be published in French.

Photo: DND Combat Camera

*The Royal Standard and Naval Centennial Flag flying from HMCS **St. John's** with Her Royal Highness embarked during the 29 June 2010 Fleet Review in Halifax.*

Contents

Editorial: Navies, Oceans and Legal Entanglements

One of the points Vice-Admiral Dean McFadden stresses in his numerous speeches for the navy's centenary is the balance that must be maintained between *mare liberum* (the notion that the oceans are free for all to use) and *mare clausum* (the notion that the oceans can come under state control). Another point Admiral McFadden has been making is about the type of maritime force Canada needs. As he said in testimony to a Senate committee in May 2010, what Canada needs is a "sea-control navy." These notions incorporate an evolving mix of international and domestic laws. The growing body of law relating to ocean activity may make life more complicated for navies as they are asked to balance freedom of the oceans with attempts at state control.

When we think about law and the oceans, we think of the United Nations Convention on the Law of the Sea (UNCLOS). It establishes rights and responsibilities of states relating, among other things, to continental shelf jurisdiction, exclusive economic zones, resources, navigation standards, archipelagic islands, rights of transit, deep sea mining, protection of the marine environment, dispute settlement and scientific research. But do the incidents that have happened recently on the oceans incorporate facets of law not included in UNCLOS?

There have been some interesting events over the past six months relating to navies and/or oceans. In particular:

- piracy and hijackings in the Gulf of Aden and off Somalia/the Horn of Africa;
- smuggling of goods and people;
- Canadian disaster relief activity in Haiti, the vanguard of which was the Canadian Navy;
- the sinking of the South Korean warship in March 2010 (allegedly) by North Korea;
- the oil spill off the Gulf coast of the United States;
- the violence aboard *Mavi Marmara* as it approached the Israeli blockade of Gaza in May 2010.

These incidents all raise different elements of domestic and international law, and relate to control (or lack thereof) of the oceans.

Piracy off Somalia has been a concern for several years. Trading states agree that disruption of trade is a problem for everyone. Thus, European Union states, Canada, the United States, Russia, India, China, and others, have contributed naval forces to ensure shipping is not disrupted as it passes through this area. A number of pirate attacks have been interrupted, pirates have been apprehended and probably attacks have been deterred. The first trials of pirates are concluding – five pirates tried in Rotterdam for a failed hijack attempt were sentenced to five years' imprisonment each in June 2010.

Hugo Grotius, one of the founders of international law, portrait by Michiel Jansz van Mierevelt, 1631.

Piracy has fallen into the category of universal jurisdiction for centuries but the response to it has been nowhere near universal. Different states have markedly different policy with regard to level of force and what to do with apprehended pirates. This is about policy but there are also questions of law. If pirates are killed by Western forces, could they be charged in international courts? What happens if pirates are killed by private security forces? If pirates are apprehended, where will they be tried, and under what laws? What happens if Canadian sailors transfer pirates to regional authorities and they subsequently get tortured? What happens if apprehended pirates are under the age of 18 years, and thus are by definition children? What happens if a hijacked ship runs aground when Canadian ships are pursuing it and causes an environmental disaster? These questions may become increasingly germane, and they all involve slightly different aspects of domestic and international law.

Once there are different laws, with different states claiming (or rejecting) jurisdiction, then you must have some way of deciding which set of laws will apply. Does this involve establishing a whole new set of rules to decide what rules apply when rules are disputed or conflict?

Some states may dispute the jurisdiction of other states or international courts – as the United States does with regard to the International Criminal Court. Or states may claim jurisdiction because their nationals are involved, or they reject the efficacy of another court, or they may claim jurisdiction because they hold the culprits themselves. As well, transnational 'public-interest' litigation – lawsuits that involve some international element relating to human rights, the environment or corporate accountability – is increasingly being initiated (and succeeding). Changes in law may affect the Canadian Forces in ways we cannot yet imagine.

There was a recent success for the RCMP in Nova Scotia in intercepting a yacht which was (allegedly) transporting illegal immigrants into the province. Movement of illicit goods – whether cigarettes, drugs, weapons, or people – is a common occurrence on the oceans, and into littoral regions. Constabulary activities are not what the leaders of the Canadian Navy want to do, but these activities are a growing part of offshore activity to enforce Canadian law and someone will have to do them.

The sinking of the South Korean Navy warship *Cheonan* on 26 March 2010 is an interesting example of the state-on-state conflict with which we are so familiar from the good old days. The incident has the ability to destabilize the delicate balance between North and South Korea, and has put both China and the United States in very awkward positions. If, as South Korea claims, *Cheonan* was sunk by a North Korean torpedo, this involves all the legal elements of aggression and state-state war. But the incident is also (probably) about domestic issues and succession inside North Korea.

The oil spill off the United States involves issues of resource exploitation (and the regulation of it), corporate responsibility, negligence and pollution. BP has already been forced by the US government to establish funds to compensate those whose livelihoods have been affected by the spill, and BP executives have been grilled by congressional committees. Legal charges will wind their way through the courts over many years.

The boarding and deaths aboard *Mavi Marmara* as it approached the Israeli blockade of Gaza in May 2010 raises many questions. Whether you believe the boarding was a justified act by Israeli forces to an unacceptable provocation, or a heavy-handed murder of peace activists by Israeli forces, there are unanswered legal questions. Is the blockage legal? Were the actions of the Israeli forces legal? Was proportionate force used? Did the personnel onboard the *Mavi Marmara* provoke the heavy reaction of Israeli forces? Regardless of your perspective on the incident, there are enough legal questions to go around.

Photo: Internet

Freedom or order? A June 2010 G20 'demonstration' in Toronto.

What is the point of all this? Three points stand out. First, if the world is intertwined through global trade and finance, then these diverging perspectives on laws that apply to actions on the oceans are a complicating factor for navies. The law on land has been settled over centuries of evolution, but on the oceans some issues remain unresolved. The oceans may be there for all to use, but they will be a patchwork of laws and lawlessness.

Second, military forces are increasingly being drawn into standards of civilian law – the 'civilianization' of law. We can see this in the discussions about Afghanistan and the treatment of people taken prisoner there. We can see this in rules of engagement and scrutiny of the behaviour of military forces in all situations. This, I think, is a good thing, military forces should not exist outside the law. But it means that the most important person in any military operation may be the lawyer who must be consulted at every stage and figure out the increasingly tangled web of laws.

Third, as McFadden has stressed there is a delicate balance between freedom of the seas and control of the seas. But his call for Canada to have a 'sea-control' navy is interesting. Is there a contradiction between control and freedom? Obviously *order* is necessary for freedom, but while order implies *law*, control implies *force*. Can we control the oceans and still have freedom of the oceans? Just as on land, there will be people who disrupt order on the seas and this cannot be allowed, but without attention, freedom of the oceans could end up being defined as control by those with whom we agree. By advocating sea control are we advocating keeping the oceans free for everyone, or just those with whom we agree?

Can there be a surfeit of law? Yes, obviously there can be. The important task ahead is to make sure that the laws formed internationally and nationally complement rather than conflict, and that we think carefully about order on and control of the oceans. This could help maintain the balance between *mare liberum* and *mare clausum*.

Ann Griffiths

Earthquake in Haiti Triggers Tsunami of Canadian Relief

Captain (N) Art McDonald

The 100th year of the Canadian Navy began like so many others in the preceding century when a crisis on a far distant shore produced the call for an immediate naval response. On 12 January 2010, the Canadian Navy played a significant and – as usual – a vanguard role in Canada's impressive joint, integrated, whole-of-government response to a devastating earthquake in Haiti. This article provides an overview of the maritime component's participation in *Operation Hestia* en route to establishing that Canada's ever-ready, combat-capable, globally-deployable navy is well prepared to deploy rapidly, and to conduct and lead humanitarian assistance/disaster relief operations. Furthermore, it must remain so, as a national institution whose standing stems from an enduring capability to deliver made-in-Canada effects on the international stage.

If you recall, on Tuesday, 12 January 2010, a 7.3 magnitude earthquake struck the central region of Haiti causing severe and widespread destruction. In addition to causing extensive damage, the quake and its after-effects took the lives of well over 250,000 people and displaced millions of Haitians. The reaction was universal. Owing to a foreign policy decision to re-engage in the Americas and a connection with Haiti in particular, the government of Canada responded quickly by ordering a Department of Foreign Affairs and International Trade (DFAIT)-led, integrated response, to include deployment of Canadian Forces (CF) personnel. They were to provide a joint force in support of the Head-of-Mission so as to execute humanitarian assistance and disaster relief operations capable of delivering immediate relief to the people of Haiti.

While details of the government/CF response were developed, the characteristics of maritime forces – readiness, flexibility, sustainability, mobility/manoeuvre and interoperability – ensured immediate and significant naval involvement. These naval characteristics meant it was possible to generate at very short notice a naval task group comprised of HMCS *Athabaskan*, with a helicopter air detachment, and HMCS *Halifax* for operational employment – the two ships furnishing a force of approximately 500 sailors, soldiers and airmen/women. Having been designated as the naval task group commander (and designated to become the Maritime Component Commander (MCC) of the naval forces if/when a larger joint task force was stood-up), I was embarked in *Athabaskan* with a small staff.

In anticipation of need, *Halifax* was re-roled at-sea in the hours immediately following the disaster, curtailing an operational deployment and returning immediately to port to be topped up and groomed specifically for a humanitarian assistance operation. *Athabaskan*, meanwhile, was re-activated from a six-week extensive maintenance period to do likewise. Both ships were then rapidly readied for deployment, embarking hundreds of tons of humanitarian/disaster relief stores and equipment in addition to the usual sailing requirements.

Photo: DND Combat Camera

*Sail first, plan later! HMC Ships **Halifax** (right) and **Athabaskan** en route to Haiti on 17 January 2010.*

Serving as vanguard for a larger but at the time yet-to-be-determined joint task force, the naval task group sailed from Halifax within 48 hours of the earthquake and less than 27 hours after receipt of the Warning Order. As usual, the rapidity of the naval response was achieved only through the unsurpassed dedication and professionalism of sailors and the whole of our defence team in Halifax. Moreover, the speed of the response meant the ships delivered a significant strategic effect for the CF and the government, providing a tangible demonstration of Canadian resolve, commitment, capability and leadership that Canadians needed to see.

Photo: DND

The media were a constant presence and were able to understand and communicate the naval role.

This operation invoked the age-old naval precept 'sail first, plan later' – which, by the way, is nowhere to be found in the official CF operational planning process! – and in so doing illustrated again the utility of a naval force that can set sail even as plans are being drawn up. In any event, once underway en route to Haiti, the task group staff and ships' teams commenced operational and tactical planning. They did this confident that it would all come together despite facing the usual naval planning challenges of possessing only broadly defined mission objectives, limited on-scene situational awareness, and unknown force structure and command architecture. As operational planning progressed, the ships' teams worked-up the variety of traditional and non-traditional skills that they anticipated would be required and tailored the training and preparations as the operational plans took shape.

These planning and preparation activities were all conducted under the watchful eyes of eight embedded members of the media. The journalists, reporters, photographers and videographers embarked in *Athabaskan* in order to document the story of Canada's vanguard response and report it daily to Canadians. The embarked media delivered unusual insight into the activities of a naval task group which invariably operates far from Canada and thus out of sight of Canadians. They also provided insight into the development and implementation of a large-scale, joint, whole-of-government contingency plan. And, most importantly perhaps, they also championed the outstanding daily contributions of some of the finest Canadians – sailors, soldiers and airmen/airwomen. The reports filed by embarked media documented both the challenges and the confidence with which Canadians were preparing to weigh into the unknown in order to make a real difference.

And so, while the Canadian public followed via the media, mission details became clearer. Canadian Expeditionary Force Command (CEFCOM) established Joint Task Force Haiti (JTF(H)) – a force which would eventually consist of approximately 2,000 sailors, soldiers and airmen/women, over one-quarter of whom were sailors – under the command of Brigadier General Guy Laroche who assumed command of all elements of the CF response, including the naval task group which was the maritime component of JTF(H). The purpose of the Canadian response was to deliver humanitarian assistance and help stabilize the situation through saving lives, mitigating suffering and supporting Haiti's recovery. Following a strategic reconnaissance with the Canadian Head-of-Mission, Ambassador Gilles Rivard, Brigadier General Laroche signalled that JTF(H) would undertake three key roles in coordination with DFAIT and the Canadian International Development Agency (CIDA). These roles would be:

- assist Canadians through an evacuation effort;
- save lives and mitigate suffering through humanitarian assistance/disaster relief measures; and
- create conditions for relief agencies to work independently to assist medium and long-term Haitian recovery.

In a teleconference with Brigadier General Laroche less than 48 hours prior to the arrival of *Athabaskan* and *Halifax* in Haiti, I received enough final details of the preliminary JTF(H) campaign plan to permit my task group planners to refine their plans so as to produce a supporting, flexible, adaptive, synchronized and sequenced maritime plan. This plan featured sea-based humanitarian assistance being conducted simultaneously in two zones, Leogane and Jacmel – this easily met the intent of the general plan laid out by Commander JTF(H). It also accommodated the gradual force build-up, international naval force collaboration, and the unique chal-

Scenes illustrating the disruption and devastation in Haiti after the earthquake.

lenges of the largest Canadian joint/whole-of-government expeditionary operation ever conducted.

The concept of operations for sea-based operations required the ships to:

- execute and/or enable humanitarian assistance/disaster relief operations both independently and in close coordination with other Canadian and international elements by
  - furnishing command element(s) for command and control of naval humanitarian assistance teams;
  - executing and/or enabling humanitarian assistance and disaster relief through light engineering work, general labour, force protection, technical support, etc.;
  - providing medical assistance;
  - producing and distributing water;
  - conducting and enabling delivery/distribution of humanitarian and disaster relief supplies;
- conduct air sorties in support of the maritime component and JTF(H) missions;
- support and lodge CF/government personnel in-theatre as capacity permitted;
- transport humanitarian or disaster relief supplies into or within the joint operations area;
- transport CF/government personnel into/within the theatre;
- support JTF(H) as an alternate command and control platform.

*HMCS **Athabaskan**'s Sea King helicopter doubled the ship's capability throughout **Operation Hestia**.*

With planning then complete, upon arrival off Haiti on 19 January – five days after departing Halifax and less than seven days after the earthquake – the ships commenced sea-based humanitarian/disaster relief operations off Leogane and Jacmel. Upon arrival and for a period of almost two weeks, the ships effectively tripled CF theatre strength and doubled on-ground presence through the lodgement ashore of ship-based humanitarian assistance teams comprising as many as 100 sailors per ship daily. The ships also doubled airlift/mobility capacity through the operation of *Athabaskan*'s CH-124B Sea King.

Much of the international assistance sent to Haiti was delayed by congestion at the Port-au-Prince airport. This was not a problem for the vanguard of Canadian assistance. The arrival and immediate employment of sea-based, operations-ready and self-sustained teams represented a significant strategic success for JTF(H). At a time when Haiti most needed hope, the maritime component, in cooperation with the CF Disaster Assistance Response Team (DART) in Jacmel and the command element of the 3rd Battalion Royal 22nd Regiment in Leogane, delivered it from the sea and emblazoned with a maple leaf!

As a result, the 19 January landing of maritime forces ashore at Leogane, the locale targeted as the Canadian main effort and a region where international response had yet to take hold, made front page news back home where Canadians craved tangible proof of Canadian assistance. But the arrival of *Athabaskan* and *Halifax* in Leogane and Jacmel was not merely a photo opportunity. On arrival sailors immediately commenced work helping Haitians, achieving full operational capacity less than seven days after the earthquake – the first JTF(H) units to do so.

Both ships conducted near-continuous sea-based operations for the duration of their service in JTF(H), pausing only briefly for periodic replenishment at sea from US Navy replenishment ships and for sustainment stops of

Photo: DND

*HMCS **Halifax** refuelling during **Operation Hestia** from USNS **Big Horn** at the same time as an **Iwo Jima**-class ship.*

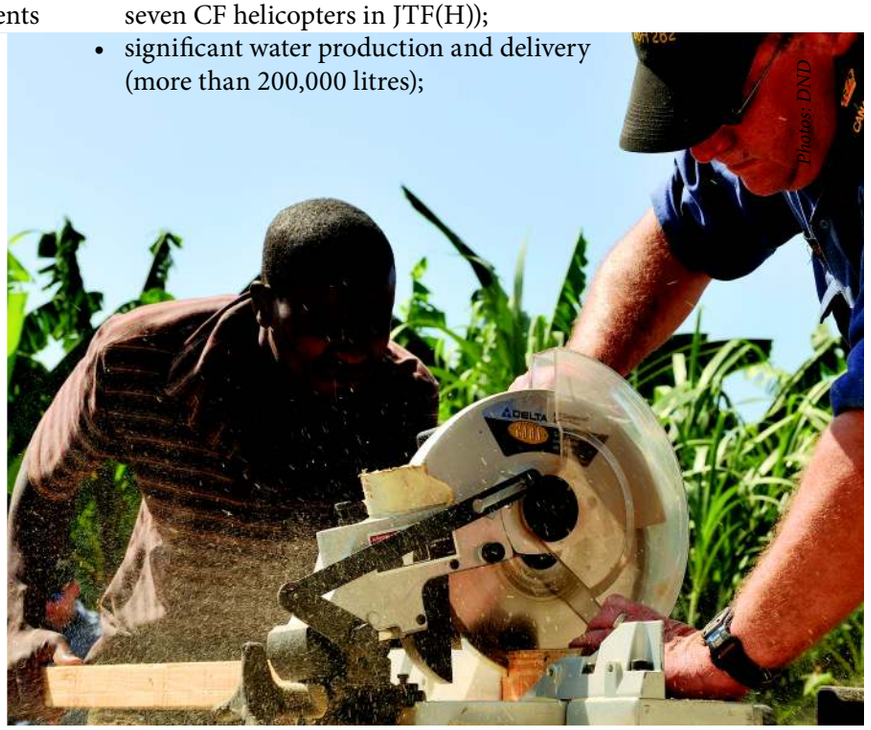
6-8 hours in Kingston, Jamaica, every 12-14 days. No task was too big (limited strategic sea-lift of troops and aid, for example) or too small (latrine digging and tree-cutting, for example) for the ships and their teams. And so, while maintaining emergency services and essential operations at sea (including significant amounts of flying and boat operations), the ships consistently and enthusiastically sent humanitarian assistance teams ashore to engage in whatever needed to be done. Our sailors did some absolutely impressive work in areas including:

- road clearance;
- provision of security;
- provision of medical triage;
- provision of medical clinic orderly service;
- provision of drinking water;
- organization and distribution of food;
- construction of sanitation facilities and infrastructure (shelter, fences, etc.); and
- repair of critical equipment (both military and civilian).

As you can imagine, much of this work involved largely non-traditional activities in non-traditional environments and circumstances for sailors. Yet *Operation Hestia* was successful because sailors, soldiers and airmen/airwomen personally sacrificed and contributed in an impressive, heartfelt and significant way to overcoming all obstacles to a first-class effort to aid Haitians. Haiti resonated with CF personnel who considered themselves the lucky Canadians who were being empowered to exploit their skills and make a difference.

In the end, personnel from *Athabaskan* and *Halifax*, often under DART or R22R tactical command and always in cooperation with non-government organizations, helped deliver significant and enduring medical, nutritional, hydration and other aid. Ship humanitarian assistance teams invested over 24,000 hours of labour ashore. Other noteworthy maritime component contributions were:

- air mobility/lift via over 70 Sea King sorties (one-third of JTF(H)'s total) that produced more than 225 flight hours (25% of JTF(H)'s total) and over 160,000 pounds (40% of JTF(H)'s total) of humanitarian or disaster relief stores, as well as via more than 150 Griffon cross-deck operations (note that the Sea King in *Athabaskan* was one of seven CF helicopters in JTF(H));
- significant water production and delivery (more than 200,000 litres);



Photos: DND

Canadian Forces personnel at work in Haiti.


Photo: DND

Canadians help transport injured Haitians to medical facilities.

- light industrial/repair support of JTF(H) reverse osmosis water purification units, JTF(H) generators, DART vehicles, JTF(H) air conditioners, etc.;
- lift/transport of 352 soldiers and kit (in two loads weighing 44 tons each (i.e., 550 lbs per soldier) into theatre from Jamaica; and
- lift/transport of approximately 14 tons of Jamaican/Caribbean Community (CARICOM) aid into theatre for CARICOM forces at the request of the Canadian High Commissioner to Jamaica.

The ships also adopted 12 local orphanages by delivering tailored medical, nutritional, hydration and clothing assistance, as well as assistance to provide shelter. Moreover, through the provision of security and orderly services at various civilian/military medical facilities (i.e., at the Canadian Medical Assistance Team's facility as well as at the DART facility), ships' teams were able to double treatment capacity in the area during the critical emergency and relief phases of the operation.

Athabaskan and *Halifax* were able to furnish the lion's share of JTF(H) strength and capacity in the early stages of the operation. Their influence diminished as the mission reached maturity and full force build-up was completed. This began, ironically, with the arrival of the 352 soldiers sea-lifted into theatre by the ships. Nonetheless, in being among the first responders and then serving for a total of over 80 days in theatre (*Halifax* served for 32 and *Athabaskan* for 53), the maritime component contributed a timely, effective and enduring effort in JTF(H) operations that helped produce positive effects for the people of Haiti.

In the end, Canadian leadership in the effort to jump-start Haitian relief and recovery was unmistakable. It stemmed from the rapidity of the Canadian response, the presence of a truly integrated force, the participation of the third largest military presence in Haiti (after the United States and Brazil), and the multi-region Canadian efforts.

These were all things that the maritime component can claim a share in! More importantly, Canada's response is widely regarded as a success – a demonstration of Canadian compassion, capacity and leadership of which both Canadians and their government are rightly proud. After all, as a leading member of the community of states, Canada is expected to show this kind of leadership – if not by the world, then certainly by Canadians! And, as the outpouring of support for Haiti proved, this is the case in the Americas and the Caribbean in particular where Canadian leadership can be significant given the often limited and fragile response capacity existing in some parts of the region.

Photo: DND


Photo: DND

Making friends in Haiti.

Photo: DND Combat Camera

After weeks of helping out, the navy takes its leave of Haiti.

The CF took a significant step forward in the conduct of a truly joint expeditionary operation during *Hestia* and as a result Canada delivered significant relief to Haiti following the disastrous earthquake. In keeping with the vision of the Canada First Defence Strategy, the CF fielded a 'meaningful contribution,' one-quarter of which were sailors. Proudly, the maritime component provided a significant element of that contribution, delivering strategic effects early and following those up with notable operational and tactical-level contributions to JTF(H) success as well. Fortunately, the operational circumstances as well as the inherent readiness, flexibility, sustainability, interoperability and tremendous capacities of maritime forces provided the recipe for success in this case. These facts no doubt influenced the deployments of the international community, and resulted in the lion's share of the 48,000 military responders in Haiti being sea-based.

In conclusion, as part of a joint, integrated force during *Operation Hestia*, the Canadian Navy proved once again – as it has many times in its first century – that it is a relevant national institution that can transform readiness into responsiveness and thence into relevance, delivering international impact and, consequently, influence for Canada. Given the overwhelming support Canadians give to an active internationalism, our unsurpassed compassion for those in need and the government's renewed priority on engagement and leadership – particularly in the Americas where nature will certainly deliver crises and disasters – another opportunity to do likewise is not far in our future. As an experienced, combat-capable, globally-deployable navy, we will surely be ready to answer the bell and once again demonstrate to Canadians and their government that their navy is a sound investment. After all, furnishing an immediate and recognizable response is, of course, what navies do best. As the CBC's Brian Stewart has recently written,

> Whenever Canada faces a world crisis involving international security or humanitarian aid, it is almost always the navy that gets the first call. So it has been throughout the now almost 100 years of the Canadian navy's existence, and so it proved once again in the Haitian catastrophe. Within hours of the earthquake, Ottawa was able to order up a significant naval operation that formed the vanguard of Canada's largest emergency relief mission ever. The fast deployment … won wide domestic and international praise. It gave the Harper government its most effective means to respond in the first weeks as airborne relief remained severely restricted by the limited landing space in Haiti.[1]

Notes

1. Brian Stewart, "Just How Ship Shape Are We?," CBC News, 10 February 2010, available at www.cbc.ca/canada/story/2010/02/10/f-vp-stewart.html.

Captain (Navy) Art McDonald, currently Commander of the Fifth Maritime Operations Group as well as Deputy Commander Canadian Fleet Atlantic, led the sea-based humanitarian assistance and disaster relief operations in Haiti as the Maritime Component Commander.

Climate Change and its Implications for the Canadian Forces

Lieutenant-Commander Ray Snook

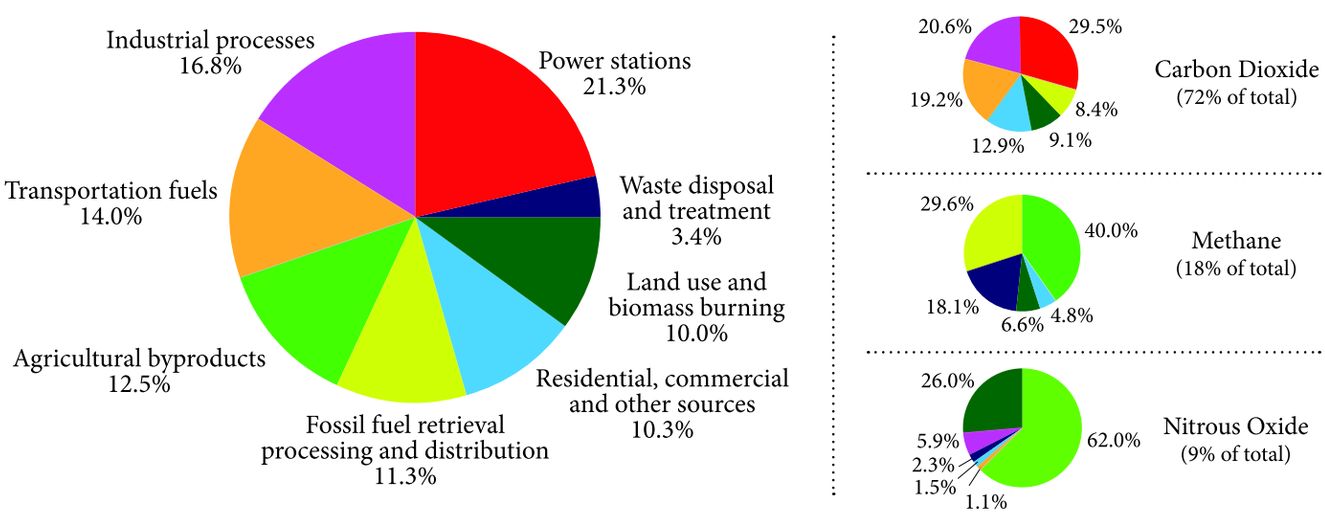
Without question, climate change is the topic *de jour*. A veritable rainforest worth of literature now litters the desks of media, scientists, advocates and sceptics. Even Osama bin Laden, in a brilliant information operation in January 2010, placed the United States firmly as part of the problem and by so doing established climate change as a terrorist propaganda tool.[1] This leaves the average person wondering how to make sense of this complex subject.

The reality is that science, unequivocally, is telling us that Earth's atmosphere is warming at unprecedented rates.[2] This rise in average temperatures is being observed almost everywhere on Earth and its impacts are evident in every region of Canada. There is also near-universal consensus that these changes have been caused by human activities and are beyond natural variation. An overarching contributor to the warming is the increased concentration of carbon dioxide (CO_2) in the atmosphere, primarily caused by the burning of fossil fuels such as coal, oil and natural gas. Humans now release just over 1,000 tonnes of CO_2 into the atmosphere *every second*.[3]

North America has thus far been insulated from any effects of climate change by wealth, technology and high adaptive capacity. This false feeling of security will not last. Climate change will have a significant impact on human health, and large areas of forest and farmland could be lost to drought. In the Arctic, the rise in temperature is twice the global average. The Canadian prairies are becoming particularly susceptible to weather extremes that are reducing water availability. If Canada is feeling the stress of climate change, then other less resilient areas of the world, notably Africa, could experience widespread hunger and malnutrition.

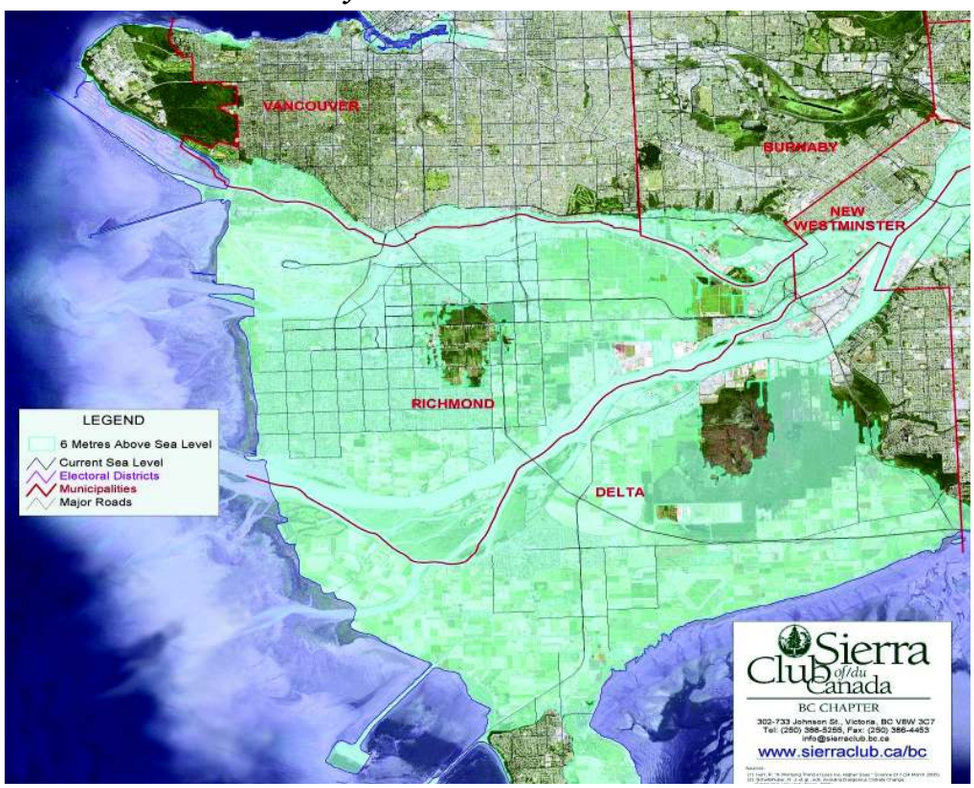
The planet faces interdependent and potentially devastating changes in three critical areas. First, sea-level rise is an inevitable consequence of increasing global temperatures as oceans expand due to their increasing heat content and ice melt. Low-lying coastal areas will become vulnerable to flooding and land loss, and susceptible to storm surges. There will be significant impact on dense populations, infrastructure and agriculture. An estimated 600 million people live no more than 10 metres above present sea level and thus forced migration, disruption to industry and destruction of key transportation networks will be a consequence. In Canada the lower mainland of Vancouver is particularly vulnerable. Elsewhere, among many

Figure 1. Global Annual Greenhouse Gas Emissions by Sector in the Year 2000 (Estimates, Emission Database for Global Atmospheric Research)



Source: Emission Database for Global Atmospheric Research, Image by Robert A. Rohde/Global Warming Art

Figure 2. Effects of a Six-Metre Rise in Sea Level on the Lower Mainland of Vancouver



Source: Sierra Club of Canada, BC Chapter, available at www.sierraclub.bc.ca.

locations, the Pacific Islands, Bangladesh and the Mekong Delta are at risk. Naturally, all of these places are littoral regions and therefore an environment in which modern navies, adept at operating close in shore, may be asked to provide assistance.

Second, water resources are already being strained by increasing populations. Demand will be exacerbated by increases in average temperature that have a substantial effect on river flows, water levels and the timing of peak streams. Availability would also be adversely affected by worldwide glacial retreat and evaporation. For example, in the La Paz region of Bolivia, whole villages may have to move because water is in short supply due to the shrinking glaciers in the adjacent Andes.[4] Nearer to home, in the Great Lakes basin a number of stressors converge (including warmer weather, declining ice cover, lower river flows and increased urban and agricultural demand). Water use restrictions, particularly in urban areas, could become severe in future and lead to rising tensions.

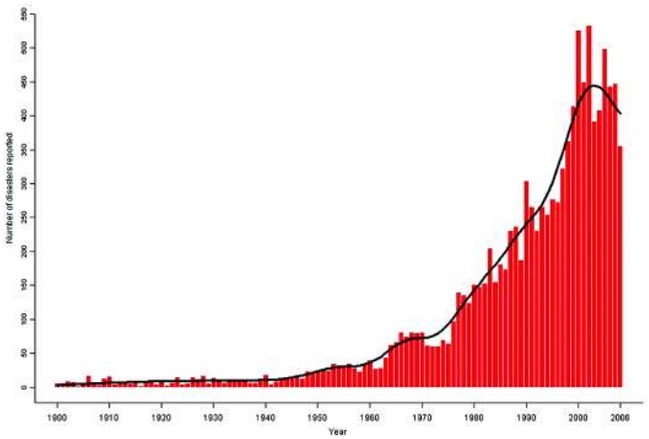
Third, the frequency and intensity of extreme weather events, including droughts, heavy precipitation, tropical cyclones and tornadoes, is increasing.[5] Temperature extremes will result in more forest fires (occurring earlier in the year) and the migration north and south of formerly tropical diseases like West Nile disease and malaria. Such changes to the biophysical world are already having harmful effects, such as the 'killer' heat waves experienced in Europe in recent years, and these will worsen with time.

It can be deduced that climate change will amplify existing social, political and resource stresses. Although not causal, the changes are likely to accelerate conditions for conflict. Weak states, exhibiting limited capacity for governance, will be particularly susceptible to conflict.

It is important to note that uncertainty is an inescapable element of projecting events in the future. In the case of climate change, however, the uncertainty is not about the fact that the Earth's climate is changing but rather about *how much*. Upper limit predictions indicate that by the end of the century, global average surface temperatures could rise by 4°C and sea levels by as much as two metres.[6] This is extremely worrying. But even more worrying is that the evidence suggests that the potential effects may have been *under*-estimated.

Uncertainty is no reason for paralysis, indeed, inaction equates to gross irresponsibility. The reaction to climate change can involve mitigation, adaptation or resilience. *Mitigation* is a deliberate intervention to reduce the sources or enhance the absorbers of greenhouse gases, which are thought to be the source of climate change. *Adaptation* is the adjustment made in response to actual or expected effects of climate change which moderates

Figure 3. Natural Disasters Reported 1900-2008



Source: International Disaster Database, available at www.emdat.be

harm or exploits beneficial opportunities. And *resilience* (or *adaptive capacity*) is the capacity of those systems to tolerate disturbance and cope with stress without collapsing into a qualitatively different state that is controlled by a different set of processes. A resilient system includes the ability to bounce back and rebuild itself when necessary. Humans have the added potential to anticipate and plan for the future.

What is 'Dangerous' Climate Change?

The dilemma faced by society and policy-makers is determining what constitutes a tolerable degree of climate change. An increase in temperature of 2°C has been considered a 'safe' or controllable level and is a figure now firmly etched in the policy context. However, climate change is non-linear and its effects will not be equally spread across the globe, and what is manageable for some could be catastrophic for others. If the temperature increases 2°C as many as four billion people could experience water shortages which, among other things, will have huge effects on agriculture. Cultivation of crops will no longer be viable in some parts of the world and hunger will increase dramatically. As well, the temperature increase would mean 40-60 million more people are exposed to malaria in Africa.

Beyond an increase of 2°C, the threshold to melt ice sheets will likely have been passed and sea-level rise will accelerate. And also beyond this threshold of 2°C lies the greater danger of 'tipping points' which involve soil carbon release and the collapse of the Amazon rainforest.

Danger lies in being lulled into a false sense of security by the apparently 'smooth' projections of climate change and the perception that there will be advance warning of any significant impact. This may not be the case – there are numerous examples of upheaval in the Earth's geological history when the climate system shifted rapidly and dramatically from one relatively stable state to another. Research suggests that a variety of tipping elements of the climate system, such as the release of methane from melting permafrost, could reach their critical point within this century under current emission trajectories.[7] The effects of these changes would be rapid and occur on a vast scale.

Although the scientific evidence has multiplied, there is much publicized scepticism of climate change and a growing bandwagon of denial and criticism. Rightly applied, scepticism is a healthy activity as it keeps the scientific community honest, demanding that it continues to re-examine and refine data. This leads to more accurate predictions upon which informed decisions can be made. However, those who bury their head in the sand and deny that climate change is happening are dangerously missing the point. Their ambivalence may be due to a number of reasons, including:

- the 'urgent taking precedence over the important' syndrome;
- the fact that it is simply too big a concept to consider;
- the 'ignore it and it will go away' syndrome; or
- the short-term view of governments which means climate change becomes a problem for tomorrow.

These attitudes show a remarkable lack of long-term vision and ignorance of the potential harm. Considering the dire consequences that climate change could bring, it would seem preferable to be *over*- rather than *under*-prepared.

Security Implications

Extreme weather events, drought and sea-level rises will affect our security and wellbeing in several ways. First, environmentally induced migration is potentially a huge issue. This is particularly so in an era marked by enormous population growth and rapid urbanization, especially of coastal cities. One recent report stated:

> In coming decades, climate change will motivate or force millions of people to leave their homes in search of viable livelihoods and safety. Although the precise number of migrants and displaced

Photo: Donald Glencross, DRDC Atlantic

Arctic landscape, Gascoyne Inlet on the southwest corner of Devon Island, August 2008.

people may elude science for some time, all available estimates suggest their numbers will be in the tens of millions or more. The mass of people on the move will likely be staggering and surpass any historical antecedent.[8]

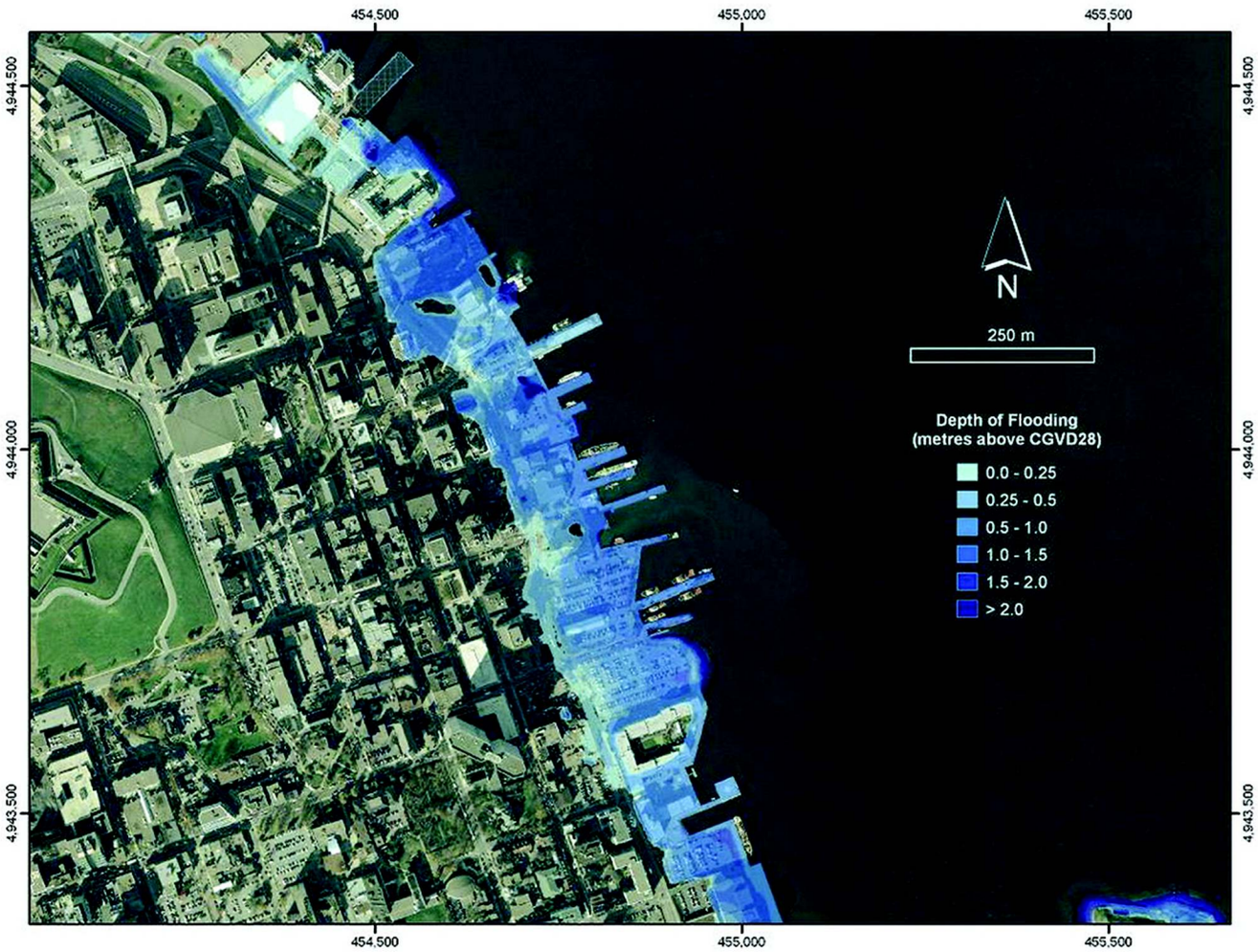
Canada will remain a popular destination and may face challenges dealing with 'climate refugees,' who currently have no legal status recognized in international law.

A second issue relates to governance. Fragile states and nascent democracies have limited capacity for governance, and many are unwilling or unable to adapt to the challenges of climate change. Extreme weather events and increasing temperature will exacerbate instability due to shortages of food and water. When basic instincts for survival cut in, the monopoly on the use of force by national armies often disappears, and where the rule of law cannot be upheld, society degenerates into a violent free-for-all. The consequences of climate change – drought, crop failure, flooding, etc. – can constitute the tipping point in unstable situations and spark local armed conflicts. Power vacuums provide fertile ground for political and religious radicalization and safe havens for organized crime and terrorist organizations.

A third concern is health. Health is always an early casualty when individuals or communities come under stress. Climate change is expected to increase this stress through many new avenues – the food we eat, the air we breathe, the water we drink and our exposure to infectious diseases. The warming of the Arctic and subsequent profusion of pollutant-absorbing microbes is cited as the reason that fish contaminated with dangerous toxins are now increasingly found in the Mackenzie River.[9]

A final concern relates to resources. Currently the human population is using resources at a rate that is 44% faster

Figure 4. Graduated Extent of Flooding Caused by Potential Sea Level Rise in Halifax



Source Geological Survey of Canada Open File 6346. Geological Survey of Canada Open File 6346, available at http://halifax.ca/regionalplanning/documents/HRM-OF_v5.pdf.

than what nature can replace and absorb.[10] The prudent limit of the Earth's biocapacity is being exhausted by excess. Unless restraint is applied, competition for life's essentials – principally water, food and energy – may well result in conflict. With increasing resource extraction off shore, navies will be expected to provide added security and protection.

So What? How does this Affect the Military?

The UK military and US Navy are leading the advocacy and thinking on climate change as it relates to defence. In the United States, the National Oceanographic and Atmospheric Administration (NOAA) has created a dedicated office that provides climate change information and advice on which individuals, communities and businesses can make informed choices. Similarly the CIA has formed a new centre dedicated to research on climate security, and Quadrennial Reviews of the Departments of Defense and Homeland Security have devoted sections to the security implications of climate change. In the United Kingdom, the topic features in the National Security Strategy and the Ministry of Defence has also drawn up an extensive climate change strategy that discusses mitigation and adaptation efforts.

Research, analysis and informed debate on the effects of climate change on the future roles and capabilities of armed forces are at an early stage. A better understanding of the processes of climate change is required before major new policies are considered. Notwithstanding this, a number of states have initiated mitigation strategies for their armed forces. In Canada there are three elements of this:

- How can the military be part of the solution to greenhouse gas emissions rather than part of the problem?
- How will climate change affect the military in terms of its facilities and infrastructure?
- How will climate change affect the role(s) of the armed forces in the future?

In terms of the first question, the response has centred on reducing carbon footprints by employing cleaner technology and by lowering energy consumption. The importance of progress on energy consumption is being revealed in places like Afghanistan where fuel supply convoys are exposed to risk of attack. Any reduction in fuel usage would ease the frequency of this risk.

Driven perhaps more by financial than environmental considerations, the military is also looking at altering its energy dependence as depletion of energy sources, and the price increases that will go with depleted resources, continues. The biggest barrier to adapting to new energy sources in the military is that most of the 'prime movers' within military technology – i.e., turbines, engines, motors, etc. – are oil-based and will continue to be so for the foreseeable future because the energy density of alternative fuels is too low and therefore ineffective for high-power use. Despite promising developments, synthetic, low-carbon fuels remain far from mainstream, although in the United States some have been approved for experimental military use.

On the second question, in some areas, the resilience of military bases and services is being assessed, vulnerabili-

Photo: DND

An iceberg in the Northwest Passage, 2005.

ties identified and weaknesses addressed in the face of climate change. As the photo on page 13 illustrates, much of the Halifax waterfront would be under water if the sea level rises – and presumably flooding would affect the naval facilities just north of downtown Halifax. However, this assessment activity is by no means universal and realistically only constitutes a rudimentary first step.

Where the military can reduce its contribution to climate change is in aggregating its estate and changing the power that supplies its infrastructure to renewable forms of energy. The Department of National Defence is the largest building owner in the federal government and installations exist in every province, located in 217 cities and municipalities. In the National Capital Region alone military personnel are distributed in 50 buildings. The energy demand from these is considerable and an audit should be undertaken to determine how resources can be used more efficiently.

It is on the third question that most attention has been directed. Where the greatest need for research and analysis lies is in determining the military adaptations required to tackle climate change-induced security issues. Several reputable think-tanks and senior military officials have drawn the conclusion that increasingly Western armed forces will be called upon to conduct humanitarian assistance and disaster relief missions.[11] As the only government organization with the ability to undertake such missions on a significant scale, the public will expect nothing less. In a local example, in June 2008 a bridge in Pangnirtung, Nunavut, collapsed because the permafrost on which its foundations were built had melted. Joint Task Force (North) assisted people in getting from their community to the mainland and in restoring municipal services.

The establishment of a new secretariat in the Department of Foreign Affairs called Stabilization and Reconstruction Task Force (START) has put Canada in a good position to respond swiftly to disasters such as the Haiti earthquake. As well, DND's Disaster Assistance Response Team (DART) has been made more effective by the addition of strategic lift aircraft to its inventory. However, concurrent or near simultaneous calls for help may stretch national capacity and thus a review of the size, shape, balance and structure of the CF in light of the security challenges flowing from climate change is necessary. Certainly supply chains and medical capabilities will need to adapt and strategic reach will be fundamental.

There will be a clear need for peace support operations too, and being called upon to intervene overseas and to help prevent or to resolve conflict may occur more frequently. Canada has a proud history of responding to these demands and in guaranteeing the physical security required to stabilize and reconstruct. Yet if the prevalence of such demands increases it may oblige a policy rethink. Perhaps effort and resources would be better spent 'up front' on capacity building and engagement activities.

Climate change will also affect procurement as both equipment and personnel will need to be able to train and operate at greater extremes of weather. Our helicopter engines, for example, are not designed to deal with the operational demands in hot climates and performance improvements will be required if the existing helicopters are to remain viable. The Arctic Offshore Patrol Ship is a clear illustration of a requirement born directly out of the effects of climate change.

Conclusions

On the premise that recognizing that a problem exists is halfway to fixing it, then there is a sliver of hope. There is burgeoning discourse about climate change, although detractors still abound. In Canadian society at large, polls indicate that awareness of the issue and its implications is widespread.[12] Federal government departments have begun to make policy changes. For example, the Departments of Natural Resources and Public Health have done considerable work and both have produced highly commended reports.[13] Within DND, although the discussion, debate and action are embryonic, there is growing recognition that the threat is real and more needs to be done.

Climate change has the potential to be a global threat of unparalleled magnitude and requires early, aggressive action in order to overcome its effects. Not all the solutions and opportunities are as yet apparent and further research into the implications and extent of climate change is required. However, there is sufficient science-based knowledge to warrant acting now. Although mitigation and adaptation will not eliminate adverse effects, they will vastly reduce the risks.

There is a Chinese proverb that states 'when the wind changes direction, there are those who build walls and those who build windmills.' As the wind of climate change blows there will be those who fade away and those who adapt and flourish. Rarely do challenges occur without some form of opportunity. Although climate-based conflict may characterize our future, some researchers argue that cooperation between states is just as likely.[14] It is possible that common interest in sustainable management of resources may drive adversaries to manage conflict in a more responsible way. Furthermore, human ingenuity

Photo: Ian Chris Graham, iStockphoto

View of clear cut on Vancouver Island.

is developing technologies that can help alleviate adverse climate conditions. History shows that when threats are real, overwhelming and immediate, the cussed human instinct for survival has a tendency to come to the fore.

However, to base our future security on such possibilities would be foolhardy in the extreme. If our profligate emissions are left unchecked, the cumulative effect of climate change will test global governance to the full. History also indicates that humans don't accept large-scale change easily and thus strong, unifying leadership is a prerequisite to successful adaptation. As the 2009 Copenhagen climate change conference illustrated, at a global level there is a paucity of leadership attempting to address the adverse affects of climate change. According to one element of the scientific community, if the current national proposals for greenhouse gas emission reduction were to be aggregated and fully implemented, there would be a 90% chance that by 2100 the average global temperature would have risen by 3.9°C, still double the 'safe' limit.[15] The consequences will affect all of us and it is inevitable that in some form or another the military will be required to respond.

Notes

1. Suzanne Goldenberg, "Osama Bin Laden Lends Unwelcome Support in Fight Against Climate Change, *Guardian*, 29 January 2010, available at http://www.guardian.co.uk/environment/2010/jan/29/osama-bin-laden-climate-change.
2. See, for example, National Oceanic and Atmospheric Administration, National Climatic Data Center, available at www.ncdc.noaa.gov/oa/climate/globalwarming.html.
3. New Economic Foundation, "Growth Isn't Possible: Why Rich Countries Need a New Economic Direction," 25 January 2010, pp. 24-35, available at http://neweconomics.org/publications/growth-isnt-possible.
4. David Shukman, "Glacier Threat to Bolivian Capital," BBC News, 4 December 2009, available at http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/8394324.stm.
5. World Health Organization, "Frequency of Natural Disasters in the WHO European Region," 2009, available at www.euro.who.int/document/WHD09/grapheng_vs2.pdf.
6. See "The Impact of Global Temperature Rise of 4°C," available at www.actoncopenhagen.decc.gov.uk/content/en/embeds/flash/4-degrees-large-map-final; and "Synthesis Report from Climate Change Conference: Challenges and Decisions, Copenhagen, 2009," University of Copenhagen, 10-12 March 2010, available at http://climatecongress.ku.dk/pdf/synthesisreport.
7. See "Tipping Elements in Earth's Climate System," *Science Daily*, 7 February 2008, available at www.sciencedaily.com/releases/2008/02/080204172224.htm; and "Methane in the Arctic on the Rise," *Arctic Focus*, 22 February 2010, available at http://arcticfocus.com/2010/02/22/methane-in-the-arctic-on-the-rise/#more-1094.
8. Mark Stal and Koko Warner, "The Way Forward: Researching the Environment and Migration Nexus," research brief based on 2nd Expert Workshop on Climate Change, Environment and Migration 23-24 July 2009, Munich, Germany, published by United Nations University, October 2009, available at www.ehs.unu.edu/file/get/4191. http://www.ehs.unu.edu/file.php?id=718.
9. Martin Mittelstaedt, "Mackenzie River's Fish Contaminated with Dangerous Toxins," *The Globe and Mail*, 9 February 2010, available at www.theglobeandmail.com/news/national/mackenzie-rivers-fish-contaminated-with-dangerous-toxins-scientists/article1462248.
10. Global Footprint Network, Research and Standards Department, 24 November 2009, Ecological Footprint Atlas 2009, available at www.footprintnetwork.org/images/uploads/Ecological_Footprint_Atlas_2009.pdf.
11. See Christine Parthemore and Will Rogers, "Promoting the Dialogue: Climate Change and the Quadrennial Defense Review," Center for New American Security Working Paper, January 2010, available at www.cnas.org/files/documents/publications/QDR&ClimateChange_Parthemore_Rogers_Jan2010_code406_workingpaper_2.pdf; Lee Gunn, "Climate Change Could be the Next Great Military Threat," *Bulletin of the Atomic Scientists*, 20 October 2009, available at www.thebulletin.org/web-edition/op-eds/climate-change-could-be-the-next-great-military-threat; and "Oceanographer of the Navy Addresses Climate Change," Seadiscovery.com, 4 January 2010, available at www.seadiscovery.com/mtStories.aspx?ShowStory=1034432072.
12. "Climate Change Bigger Threat than Terrorism: Poll," Canwest News Service, 10 January 2010, available at www.canada.com/technology/Climate+change+bigger+threat+than+terrorism+Poll/2428203/story.html.
13. See, Health Canada, "Assessing the Health Effects of Climate Change" and "Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacities"; Natural Resources Canada, "From Impacts to Adaptation: Canada in a Changing Climate, 2007," all available at http://www.hc-sc.gc.ca/ewh-semt/climat/eval/index-eng.php#guide.
14. Patrick Quealey, "Climate Security as a Catalyst for Peace," *Vanguard*, 2006, available at www.vanguardcanada.com/ClimateSecurity-PeaceQuealey.
15. Scoreboard, Science and Data, available at http://climateinteractive.org/scoreboard.

Before enrolling in the Canadian Forces and taking up his current post in the Directorate of Maritime Strategy in the National Defence HQ, Ottawa, Lieutenant-Commander Snook served for 32 years in the Royal Navy.

The Value of Concepts in Capability Development

Mark Sloan

The introduction of capability-based planning by many of the world's armed forces marked a change in the method by which the capabilities that they require are determined. In naval terms, the change heralded a move away from the question 'what size ships do we need?' to the questions 'what tasks will we be asked to do and, therefore, what capabilities do we need to have in order to conduct those tasks?' This different approach involves a number of related changes in process, including putting a greater emphasis on the conceptual foundation of a capability.

This article will argue that the development of such a conceptual foundation for the Canadian Forces (CF) is the key that underpins effective force development and capability delivery.[1] But, before developing this theme further, we need a common understanding of what a concept is. The Department of National Defence (DND) uses the same definition as the North Atlantic Treaty Organization (NATO). Both these organizations define a concept as "a notion or statement of an idea, expressing how something might be done or accomplished, that may lead to an accepted procedure."[2] In comparison, the Ministry of Defence (MOD) in the United Kingdom uses a more expansive definition. The MOD definition is:

> A notion or statement of an idea, expressing how something might be done or accomplished, that may lead to an accepted procedure or capability. Concepts will usually contain a combination of informed judgment, underpinned by the available evidence base, and innovative thinking.[3]

By either definition, a concept provides considered assessments of how armed forces might wish to operate in the medium to long term, and is not only related to equipment but also to all other aspects of capability such as training and procedures.

As well as determining the role of concepts, the definitions also point to their target audience. Because they take endorsed concepts forward into capability, DND's force developers are clearly a central part of that audience, as are policy-makers. However, effective capability-based planning also relies heavily on partnership with industry and, to an extent, with academia. There is, therefore, a significant advantage to be gained from explaining to them the conceptual direction being developed by DND. This will also give industry in particular the opportunity to highlight technologies that may be of use to defence but that might otherwise go unconsidered.

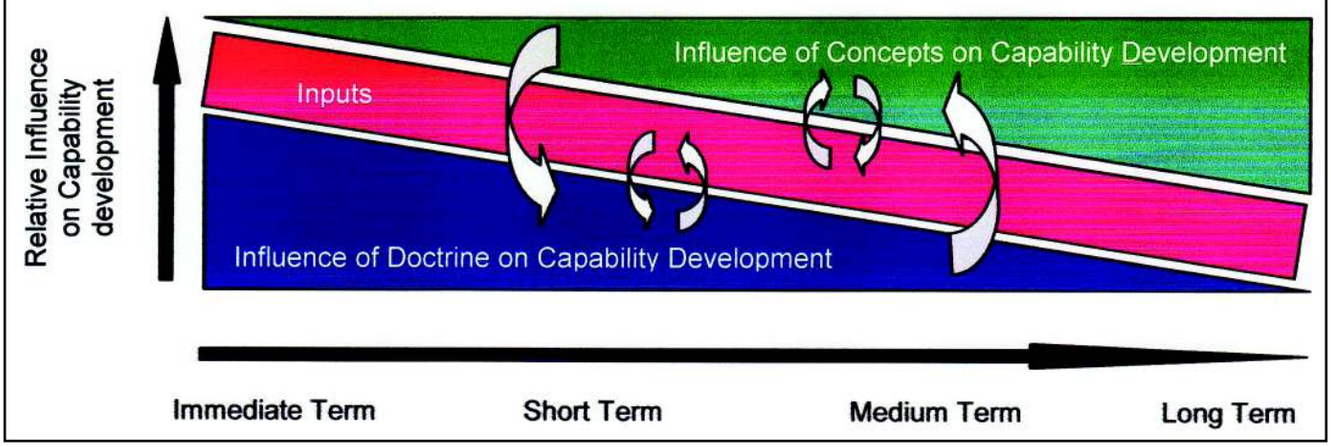
Photo: DND

*The new cooperative operating environment: HMCS **Toronto** refuelling from CCGS **Pierre Radisson** during **Operation Nanook** 2007. Under the present concept, the navy depends upon the coast guard for fuel when operating in northern waters.*

Before outlining the steps involved in developing a concept, we must briefly consider the relationship between *concepts* and *doctrine*. Both influence capability delivery but mainly – although by no means exclusively – at opposite ends of the chronology. Lessons learned from operations and exercises need to be recycled into the appropriate level (strategic/operational/tactical) of doctrine as early as possible so that others can benefit from the lessons. However, those same lessons should also be captured by concepts when they have relevance beyond the immediate term. Likewise, an issue identified in concept development that is as relevant in the short term as it is in the medium to long term should be reflected in doctrine.

Concepts and doctrine must therefore be viewed as related but different parts of the capability delivery process. Doctrine sets guidelines for the conduct of operations today, and concepts examine capabilities that need to be developed in order to minimize risk and optimize the chance of success in the future security and operating

Figure 1. The Relative Influence over Time of Concepts and Doctrine on Capability Delivery



Source: The author.

environment. The lack of either, or failures in the feedback loops between them, will create significant (arguably, insurmountable) challenges to the ability to develop capabilities in a timely, relevant and cost-effective way. This basic relationship is summarized in Figure 1.

Concept Development

Turning to concept development itself, it must be understood that a concept is not the starting point of the capability delivery process. Concepts themselves rely on a number of inputs, key among which are existing strategies and policies, including likely budgetary constraints. In the era of the 'whole-of-government' and comprehensive approaches, inputs will also come from outside DND, a prime example being Canada's National Security Policy. Thus, concepts affecting the Canadian Forces may have been determined based on consultations with other government departments like the RCMP, the Canadian Coast Guard, the Canadian Border Services Agency, Environment Canada, Fisheries and Oceans Canada, and perhaps emergency preparedness agencies at the federal and provincial levels.

In addition, there needs to be informed consideration of the future security environment, not only in terms of the demands that are likely to be placed on armed forces, but also in terms of the technology that might be available to them or that they might face. This is acknowledged in the CF's strategic assessment "The Future Security Environment 2008-2030 (FSE 1)" which states in its introduction that "the CF Force Development Community at large will use FSE 1 as a driver for integrated capability development, as a starting point for more specific security environment analysis, and as a means to inform concept development for CF and operational domains."[4] Not all individual concepts require this initial detailed analysis, although all will draw from it. However, high-level concepts – i.e., those setting out broad directions for the development of capabilities based on the analysis of the big picture factors – do require it because they set the overall framework for lower level concepts.

What is important is that the analysis flows through the hierarchy of high- and low-level concepts, thus ensuring coherence across the levels. This will mean that the context for a low-level concept written to support the development of a piece of equipment can be traced back to the high-level concepts which set out broad direction. As a simple example, analysis suggests that the re-emergence of geopolitical multi-polarity will introduce new and potentially destabilizing trends in the international arena. This, plus the political intent to contribute to international peace and security, indicates a need to maintain an expeditionary capability. That capability then drives a wide variety of requirements across the armed forces (and government generally), and creates a number of options for consideration by policy-makers which will, in turn, lead to the delivery of individual capabilities.

The baseline that these inputs create will help to ensure that the hierarchy of concepts that is developed will be grounded in reality, thus minimizing the chance of the concepts being dismissed as flights of fancy. In addition, as concepts are developed they themselves can inform the development of policy and strategy – a key point in the whole capability delivery process is that it is iterative, it includes a range of feedback loops.

Because it is iterative, effective concept development may also raise inconvenient truths that question the relevance and/or achievability of existing programs or policies. This is a key point both in its own right and because it emphasizes the essential need for concepts to be based on an intellectually rigorous analysis. It also requires that key authorities in the process accept the fact that concept development may give rise to awkward questions. Indeed, questions that challenge conventional wisdom should

be welcomed as an independent audit of decisions made elsewhere in the process.

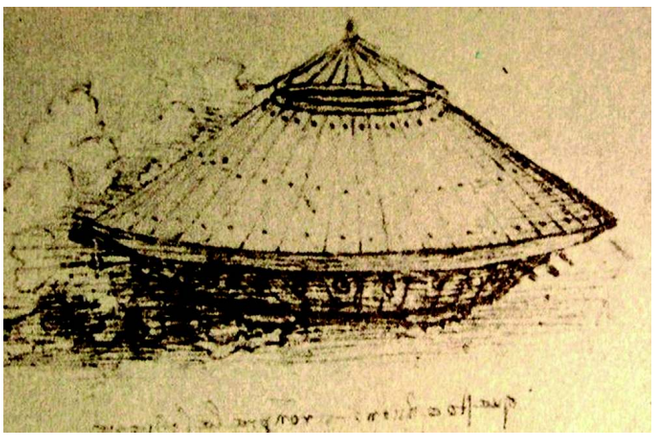
With this foundation analysis complete, it is now possible to examine the way in which particular tasks may be conducted in the context of the future security and operating environment. In other words, we can now determine the 'so-whats' for capability requirements of the analysis thus far. Perhaps the key to progress at this stage is to consider the higher level concepts that are required, and ensure that these are manageable in scope. For the Canadian model, this means examining in conceptual terms the overarching framework provided by the Canadian domain capabilities of:

- command,
- sense,
- act,
- shield,
- sustain and
- generate.[5]

Once the high-level conceptual view is in place, the foundation then exists to consider and develop middle and lower level concepts relating to specific capabilities or areas of capability, and to link to the more detailed framework established in the Canadian model by the enabling functions of personnel, research and development, infrastructure, concepts and doctrine, information management and equipment (PRICIE). This connection between the domain capabilities and the enabling functions is important because it translates the former into themes whose scope lends itself to ownership by individuals – individuals who have the resources, authority and accountability necessary to pursue their effective development. This ownership is key to ensuring that endorsed concepts are taken forward as intended, and are reflected in capability development. Without such championship, there will be a tendency in certain cases to 'overlook' the concept, particularly if it is, for example, 'inconvenient' – i.e., at odds with existing thinking. However, it must also be confirmed that PRICIE is the most effective structure for this part of the process and, in particular, whether it provides the necessary level of detail. In comparison, the US and UK models both seem to provide a greater level of detail and therefore, possibly, of more effective ownership.[6]

No consideration of the role of concepts would be complete without highlighting the essential need for experimentation to support their development. There are various types of concept-related experiments, but generally they examine the hypothesis under development and generate evidence that validates or refutes either the concept as a whole, or any of its individual components. Experimentation is therefore a fundamental part of the intellectual rigour inherent in effective concept development, and is essential in determining the underlying foundations and assumptions of a concept and its suitability for endorsement and resource allocation.

Some would argue that the ability to experiment is a nice-to-have rather than crucial capability – as is the luxury of time to do it. This is a mistaken argument because, without the evidence to support the prioritization stage of the process, capability development decisions become more subjective, at the very time when objectivity is vital. In the Canadian case, the importance of experimentation is recognized structurally by the Joint Concept Development and Experimentation (JCD&E) Branch within the Chief of Force Development's organization, as well as by maritime, land and air equivalents within the appropriate commands.



Internet/Wikipedia photo

This is Leonardo da Vinci's conception of a tank – a technology solution to an unwritten concept.

As concepts are completed, there has to be a formal mechanism for prioritizing them and plugging those that are then endorsed into the rest of the force development process. Vitally, this mechanism must identify the point at which resources already allocated to DND in its funding can be applied in order to allow an endorsed concept to be turned into a capability. Because not every capability is affordable, there will also be those that are identified as required but for which there is no funding. These unresourced capabilities represent risk against the ability to undertake the task in the manner foreseen by the concept, and therefore place realization of the concept itself at risk. This risk must be recognized, and once an understanding of discrete areas of risk is achieved, these can then be brought together in order to contribute to the analysis and understanding of the cumulative risk to the successful completion of tasks that is present in the defence program.

Photo: DND

What roles will there be for submarines in the future operating environment?

So, at this stage of the concept development process, three steps have been completed. First, we have identified the future capability needs of the Canadian Forces based on an analysis of the likely future operating environment, existing policy and strategy. Second, we have prioritized the capabilities identified by the concept, and identified those to be funded. And, third, we have identified the importance of sponsors with the necessary resources, authority and accountability, who will be responsible for taking the development of endorsed concepts forward.

The Challenges

What has been discussed thus far might make perfect sense – it seems obvious that there is a need to assess the future operating environment and existing policy and strategy before developing concepts about how to operate.

But concept developers are likely to face a number of challenges. Primary among these is gaining recognition that the value that concepts add to the capability delivery process is proportional to the effort and resources that need to be applied to concept development, including experimentation. In this regard, concepts, particularly at the higher levels of the hierarchy, are often referred to by detractors as nothing more than shopping lists. They can indeed be shopping lists, but this superficial view ignores two important points. First, they are shopping lists set against a specific context – the future operating environment. Second, unless the full range of capabilities required is identified in an objective fashion, it is not possible to prioritize those that will receive resources and those that will not be developed and represent risk.

Detractors will also question the value added because DND did not start from a clean sheet when it introduced capability-based planning. The CF already held a wide range of apparently effective capabilities for which there was a relatively limited formal conceptual foundation. So, introducing a requirement for concepts to be developed before capabilities are acquired risks being perceived as yet more change, more process, more money spent on studies rather than actual equipment/capabilities and, probably, a potential threat to core capabilities. This all increases the likelihood that it will take some time for the value of concepts to be understood in the defence community.

But it would be DND's loss if the point was missed that building a conceptual base for capability development across the CF brings significant advantages, including providing a wider understanding of where defence is heading in the long term. So, if concepts provide a strong foundation for the existing core capabilities, the process can only strengthen the case for their retention by providing evidence and support. Alternatively, the reverse may be true if the examination indicates that existing capabilities are less useful than others that need to be resourced – and these inconvenient truths will need to be faced, even if to do so is unpalatable. Without concepts, innovative, coherent and efficient capability development will be even more difficult if not impossible to achieve. Formalizing the development and adoption of these ideas also prevents the same ideas being revisited over and over as personnel in key posts change.

Another challenge to be overcome in this process is the relationship among maritime, land and air environmental concepts, or domain concepts (maritime, land, air, space, cyberspace and human[7]), and joint concepts. In this respect, the Canadian Forces have an advantage over the armed forces of other states in that they are, by definition,

a joint force. This points clearly to the need for joint concepts – or at least those concepts that are jointly endorsed – to have primacy over those developed and endorsed solely within a single environment or domain. There must, however, be a mechanism to ensure that issues unique to a single environment are not dismissed, and there thus needs to be a formal feedback loop into the joint process. Even with this recognition, achieving the correct balance between joint and single domain or environment issues will be challenging. And these tensions can become particularly acute as defence budgets face the prospect of significant cuts and environmental commanders fight their corners.

In addition, because the concepts hierarchy will include a number of types of concept, generated in a variety of centres, there needs to be a mechanism for auditing and managing the hierarchy as it exists across the Canadian Forces as a whole. Only in this way will it be possible to prioritize those concepts that need to be refreshed, or to be written to underpin measures to fill capability gaps.

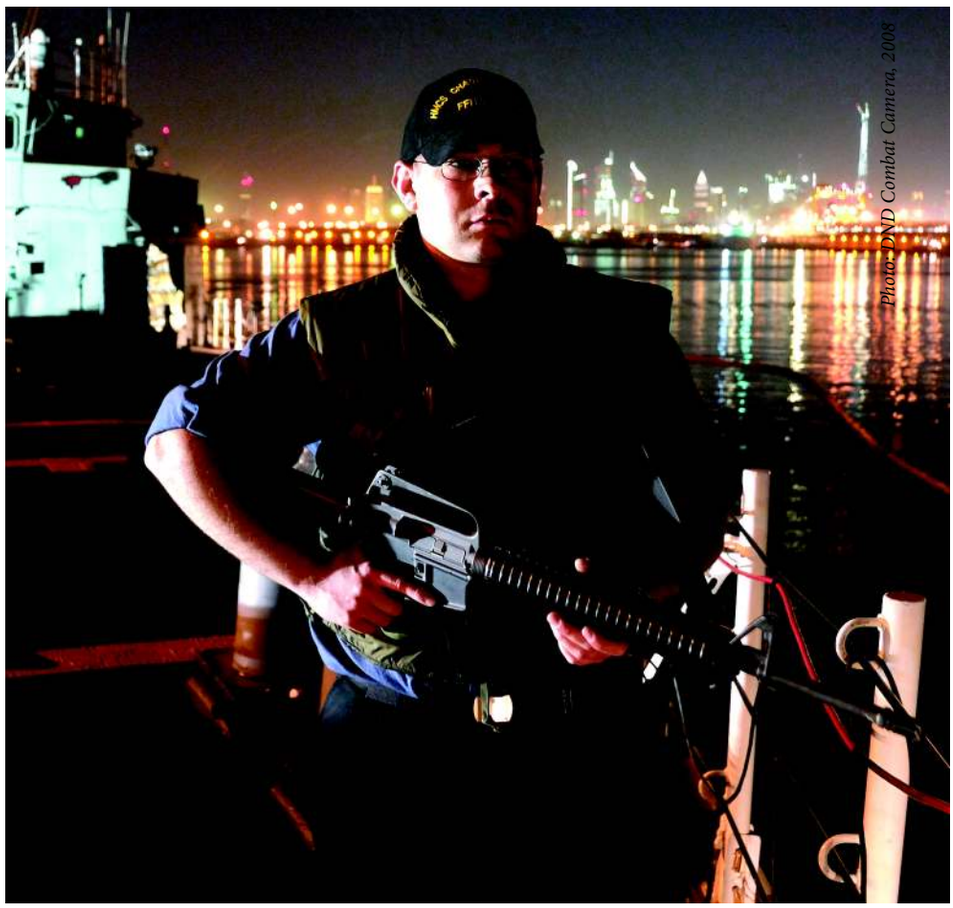


Photo: DND Combat Camera, 2008

*Some capabilities, especially those needed for self-protection, are not optional. Here, a sailor onboard HMCS **Charlottetown** stands security duty watch during a port maintenance visit in Dubai.*

Conclusions

Where does all this lead? Ideally, the output of this process is a set of intellectually sound concepts, deduced from a rigorous examination of current policy, strategy, doctrine and future trends, and supported by evidence based on research and experimentation. Such concepts will indicate the capabilities required by the CF in the long term, as well as those that have relevance now, and will help those making decisions about resource prioritization in support of force development. The rigour applied to the process of developing concepts will also allow the implications of changes – for example as a result of a strategic shock – to be traced through the concept hierarchy, and new assumptions made and conclusions drawn. Furthermore, those capabilities which a concept indicates are needed, but are not developed, represent areas of risk which can either be viewed discretely or collectively in order to assess cumulative risk across the CF. In sum, the process provides an intellectually sound way of deriving the capabilities that the CF of the future will need in order to operate in the environment prevailing at the time. Given that the environment will be at least as complex as today, it is important to get this right.

Notes

1. The terminology used here is deliberately generic in order to present the case from first principles.
2. Department of National Defence, Terminology Data Bank. NATO's Glossary of Terms and Definitions (AAP-6).
3. Development Doctrine and Concept Centre, "The Conceptual Contribution to Capability Delivery," Shrivenham, United Kingdom, available at www.mod.uk/DefenceInternet/MicroSite/DCDC/OurTeams/Concepts.htm.
4. Chief of Force Development, Department of National Defence, "The Future Security Environment 2008-2030 Part 1: Current and Emerging Trends," 27 January 2009, available at www.cfd-cdf.forces.gc.ca/sites/page-eng.asp?page=7241.
5. The Canadian version is slightly different from Britain's Defence Conceptual Framework which includes command, inform, prepare, project, protect and sustain. See British defence doctrine, available at www.mod.uk/DefenceInternet/MicroSite/DCDC/OurPublications/JDWP/JointDoctrinePublicationjdp001BritishDefenceDoctrine.htm.
6. The US Department of Defense uses DOTMLPF – doctrine, organization, training, materiel, leadership and education, personnel, and facilities. The UK model is TEPIDOIL – training, equipment, personnel, information, doctrine and concepts, organization, infrastructure, and logistics, with an overarching theme of interoperability
7. The word 'domain' is used here to reflect emerging DND thinking. 'Environment' is used where it refers specifically to one of the three arms (maritime, land and air) that constitute the Canadian Forces.

After 34 years service in the Royal Navy, Mark Sloan emigrated to Canada in early 2009. He is a Research Fellow at the Centre for Foreign Policy Studies at Dalhousie University, and has established his own defence and security consultancy.

Photo: Maritime Command Museum

"A Letter From Korea" by Lieutenant L.A. 'Andy' Collier, RCN

Michael Whitby

In this centennial year of the Canadian Navy, it seems appropriate to look back at some of the people and operations that have been undertaken over the past 100 years. What we have here is a letter written by Lieutenant Andy Collier home to Canada from Korea, where he was serving during the Korean War. The original of the letter was donated to the Maritime Command Museum by Ken Bowering a relative of the Collier family.

In December 1950, 27-year old Lieutenant Andy Collier was serving in Korean waters, double-hatted as Staff Officer (Operations) of the Royal Canadian Navy (RCN) destroyer force attached to the United Nations command, and also as Navigation and Direction Officer of HMCS *Cayuga*, commanded by Captain Jeffry Brock, the Canadian senior officer. Although hectic, the service of the three RCN destroyers had been relatively uneventful since their arrival in the theatre at the end of July 1950 but that changed drastically in November when Chinese forces counter-attacked across the Yalu River and pushed the UN armies back down the Korean peninsula.

Collier's letter provides an eyewitness account of the dramatic happenings after Brock – with three Canadian, two Australian and one USN destroyer under his command – received direction to cover the evacuation of US forces trapped in the port of Chinnamp'o, which lay 40 miles inland up a shallow, narrow serpentine channel. Brock originally planned to take his destroyers up the river during daylight but a misreading of the situation by the alarmed American commander at Chinnamp'o forced him to make the passage at night. *Cayuga* led with Collier navigating, and he made some 132 fixes over the perilous four-hour passage. The American and an Australian destroyer were forced to turn back after they touched bottom, but the other four made it safely. Upon arrival, as Collier's letter describes, they found a scene of some confusion but not nearly as calamitous as they had expected.

Collier was awarded the Distinguished Service Cross for his superb performance at Chinnamp'o. Described as "[a] very fine figure of a man; tall, well built, handsome with a very pleasant face," Collier went on to a distinguished career in the Canadian Navy, indeed in 1965 a senior officer described him as "[o]ne of the outstanding officers in the RCN." He retired in December 1979 having achieved the appointment of Commander, Maritime Command in the rank of Vice-Admiral. Sadly, Collier passed away in 1987 at Victoria, BC, well before his time at the age of 62.

Photo: DHH Collection

L.A. (Andy) Collier as a Commander after the Korean War.

Andy Collier's letter home is a valuable historical document not just for what it says about Chinnamp'o but also for what it reveals of the attitudes of the young Canadians who fought in the Korean War. Probably thumped out on the Leading Writer's typewriter and clearly written with an eye to history, Collier wanted to convey the pride that Canadian sailors had in their performance as well as the doubts he had about the final outcome of the war in Korea. We know now that the conflict reached a more successful resolution than Collier probably suspected, and that emphasizes the true value of the letter in that it

Photo: Maritime Command Museum

***Tribal**-class destroyers HMCS **Cayuga** and HMCS **Athabaskan** in Halifax in 1948 shortly before sailing for the West Coast.*

describes the mood of the moment, devoid of any degree of hindsight. That makes it good history. Finally, as Collier confirms, mail delivery to and from the Korean theatre was glacially slow.

* * * * * *

8th. Dec. [1950]

By this time I expect that you will have realized that the war in Korea is anything but over, in fact we have done more in the past three weeks than in most of our previous patrols last summer. It started off when we came up this way on the 19th of last month, and the way things are progressing right now it looks as [if] we will be around for a good long time yet. It appears that maybe the U.N. bit off a bit more than it could chew with the decision to carry on into North Korea with the Chinese commies standing along the border itching for an excuse to start something. When we left on the 19th things were static enough (So it was thought) to put a destroyer in charge and Capt. Brock was made senior officer of the West Coast forces that in itself was a big step and we had the three Canadian destroyers as our unit. From that time on the work got steadily greater and greater for me as in addition to just the straight navigation of the force I am also S.O.O. (Staff Officer Operations) and therefore was assisting the Captain almost continuously with the plans and employment of the ships in the unit. It was during this time that things started to deteriorate ashore and the situation began to take on a more grave aspect. We did not realize just how bad things were but even so we pressed home our patrols as near as safe navigation would permit us into the enemy waters.

Then we heard of the move afoot to remove the Allied forces from Chinnampo, and as quickly as we could, we rounded up the destroyers from their various patrols which now included besides the three Canadian DDs, two Australian destroyers and one Yank destroyer[1] and stood by ready to move in to the assistance of the army in Chinnampo itself first thing in the morning. The situation looked rather bad and even tho' it has been called 'a removal of forces to more advantageous positions' it was in fact an evacuation where once again the Navy has heeded the call from the army for assistance and, as that is one of our functions as a naval force, we were ready for the call.

The passage into Chinnampo is a very long one, about 45 miles and owing to the mining that had been going on it must be made thru' the swept channels which in this particular case are only 600 yds wide. That may seem rather wide to you but to pilot a ship and keep within the limits requires a lot of concentration. If you recall the Inchon invasion where they said the tides were 30 feet high, well the same applies to Chinnampo in a slightly lesser degree but that means also that the tidal currents are also very strong and this must be allowed for. Not only was it necessary to keep within the swept channels but this estuary is renowned for its shoals and shallow water. As I said previously it was the intention to go in at first light but at about 10 PM we received another urgent call from the forces ashore for support [so] that we decided to make this passage in the dark of night. At this point I was pretty well twitched and not at all happy with the prospect of leading 6 destroyers up the river but the task was there and as a navigator I was supposedly trained for just this sort of operation and got on with it. It was as dark as the inside of a cow's belly up top and the only thing we had to rely on was the Radar[2] which thank God really did its stuff. Boats (tugs and minesweepers) were stationed at the corners of the channel to assist and we set off in the dead of night with no moon. For the next 4 hours I was a very busy man fixing the ship continuously all the way in and by the time we dropped the hook off Chinnampo itself I felt very weary. We came mighty close to the shoals in a couple of instances but I am glad

Photo: Maritime Command Museum

*HMCS **Cayuga** in Korean waters in 1951.*

to say the nearest was one that passed 6 feet under our keel. Six feet is OK but mighty close for me. It was about 0330 when we anchored and by the time we were finished with the staff work involved I got turned in shortly after 5. I sure was beat as in the past 4 days before this I was lucky if I managed to get 4 hours a night, the patrols were all fairly close to the land and I was up every hour or so to make sure of our position. I went ashore with the Captain first thing in the morning to see about the evacuation and try and get things moving at top speed so that we could clear out before the actual shooting, if any.

I suppose there is usually a certain amount of confusion and tension at a time like this but things were progressing along OK and with a few pointed hasteners from the Captain we left them to get on with it. The docks were piled high with stores of all descriptions (more of this later when it fell on us to finish off the demolition of said stores).

Loading progressed at top speed all during the day and finally in the afternoon we got some fighters from the British aircraft carrier HMS *Theseus* so I changed my cloak and closed up as a Direction Officer to control them and find out what information I could from what they could see from above. Later in the afternoon the fires started up from ashore where the army were commencing their demolitions and just before dark [we] received word that all the army personnel were off the 'mud.' As the last of the transports and LSTs [Landing Ships, Tank] moved out of harbour we commenced our bombardment of the remaining ammunition and stores dumps. It was a terrible but magnificent sight as each shell landed in the middle of the fires a great explosion would go up several hundred feet in the air. One of [HMAS] *Bataan*'s targets was two big oil tanks and when she hit them it was really a sight, towering flames running all over the dockside as the oil ran loose, as it ran over the edge of the dock it was like a 'fire waterfall.' The flaming oil then spread away out over the water still burning fiercely. We had a great sight too when we first hit one of our targets, also an oil tank. It did not blow as *Bataan*'s did but merely burnt with great gusto. The tank got red hot and then we put 5 more 2 gun salvos into the tank and each one made a round hole as they went through with the tank left standing with 10 holes where the bullets had gone thru': some shooting with our 4 inch guns eh. Having disposed of all we could that would be of value to the enemy we weighed anchor and moved downstream and I was very thankful when we anchored for the night rather than attempt another night passage of that channel out thru' the shoals.

It is worthy of note to mention that this was almost entirely a Dominion's effort, the only exception being the Yank destroyer but the Brits missed out on this one, sort of retribution for me only on a much smaller scale for having missed the *Scharnhorst* 'do' in the last war.[3] It was commanded by a Canuck to which all goes to show that when the job is set before us there is no hesitation to get on with it and once started there is no giving up until the mission is accomplished. Thus the saying 'the difficult we can do immediately, the impossible will take just a littler longer.'

The big question now, of course, in all our minds is the outcome of this whole Korean war, we certainly have our shoes on backwards at this point and will it mean full scale evacuation or are we going to make a stand – if so where – or will the politicians have a go at squaring it off,

Photo: Maritime Command Museum

*One of HMCS **Cayuga**'s gun crews in action during the Korean War.*

but the outcome of any plan we may adopt sure does not look any too rosy. At the way in which our mail outgoing has been travelling I suppose most of the above will be answered. We had mail on the 18th Nov. and because of the flap there was not another chance until the 26th but there again owing to employment of ships that mail did not leave the operational zone until today.

Notes

1. The destroyers were HMC Ships *Cayuga*, *Athabaskan* and *Sioux*, HMAS *Bataan* and *Warramunga* and USS *Forrest Royal*.
2. *Cayuga* was fitted with Type 293 search radar, a fairly useful Second World War British set. However, *Athabaskan*, the destroyer following *Cayuga*, was fitted with a prototype of the Sperry high-definition navigation radar, which was far more effective.
3. In December 1943, Collier was undergoing training as a Midshipman in the battleship HMS *Anson*, which remained at its base in Scapa Flow instead of joining the force that destroyed the German battle cruiser *Scharnhorst* in the Battle of North Cape on 26 December 1943.

Michael Whitby is Senior Naval Historian at the Directorate of History and Heritage, Department of National Defence.

Think Big: Building Better Warships Under a National Strategy

Janet Thorsteinson

As spring became summer this naval centennial year, celebrations were overshadowed by a rare public display of discord at the top of the military and political rank structure. Vice-Admiral Dean McFadden, Commander of the Canadian Navy, informed sailors that budget pressures required some vessels to be removed from service and others to operate with reduced capabilities. The Minister of National Defence, Peter MacKay, denied that final decisions on the matter had been made, and the Chief of the Defence Staff, General Walter Natynczyk rescinded the order within days. Shortly after this, more headlines appeared forecasting a fight between shipyards on the East and West Coasts to win the 'centre of excellence' designation that would, in effect, choose the yard that builds Canada's new generation of combat ships.

This discord was unfortunate, coming as it did at a time when many ships in the Canadian fleet urgently need replacement. If ever senior officers and politicians should be of one mind, it is now. Fortunately, there are tools close to hand that can forge common purpose. A report released in December 2009 called "Canada's Defence Industry: A Vital Partner Supporting Canada's Economic and National Interests" recommended some. Commissioned by the government and carried out by the Canadian Association of Defence and Security Industries, one of its principal recommendations is the creation of a defence industrial policy. As the report states, "[a]mong its allies, Canada is unique in not having a defence industrial policy with implementation strategies to guide the relationship between government and its industrial base and to formally align economic objectives to military procurement." It also says, "Canada penalizes itself as few other nations do, delaying essential military materials, adding non-value-added costs to itself and to industry, and inhibiting its industrial champions from winning business at home and abroad."[1]

The report's recommendations are specific – fix procurement, make a single Cabinet Minister accountable for military procurement and create a defence industry strategy – but the underlying message is to think big. Canada will be spending about $43 billion on new ships in the coming decades, but total military spending for all new military equipment over the next 20 years will be $240 billion.[2] That is an enormous amount of money and a lot of it will be spent on the latest high-tech equipment. A defence industrial policy allows government and business to work together and optimize the benefits of spending, beyond the military applications. The potential of that money to benefit taxpayers is almost incalculable. Canadian companies are understandably reluctant to invest in facilities and training without some idea of how they will fare in the future. A defence industrial policy provides an element of security for that planning and investment, and puts politicians in the position of maintaining and enhancing ongoing processes, rather than constantly inventing, defending and sometimes abandoning defence programs.

Photo: DND

The need for new ships creates new intellectual challenges as innovative hull forms and propulsion systems are proposed in vessels such as the small waterplane area twin hull – the 'SWATH' – ship.

Although a defence industrial policy is about more than shipbuilding, it is likely that Canada will not be able to manage and exploit its shipbuilding capabilities without such a policy. As demonstrated by this spring's high-level contretemps, dealing with large procurements as unique 'one-offs' can produce unpleasant surprises rather than results. A strategy with 'buy-in' from one generation of military officers, politicians and bureaucrats will, with modifications, survive to serve under subsequent governments, not least because they provide political cover for what are necessarily expensive purchases.

Sailors can understand the value of a coherent and continuing defence industrial strategy. After all, they serve and sail on the aging products of a boom-and-bust system.

Photo: DND Combat Camera

Control and data management requirements also pose new challenges that could become opportunities. Here we see the machinery controls of HMCS ***Fredericton*** *during night operations.*

Ships wear out. A procurement strategy that brought replacements on stream in a planned and controlled manner would not only save money on training and keep modern ships on station, taxpayers would get more value during initial construction. As Peter Cairns, President of the Shipbuilding Association of Canada, pointed out in a recent conversation, "[c]ontinuous build means continuous improvement."

The current government has clearly thought about extracting the greatest economic benefits from defence spending. "Canada's Defence Industry" lists some of them, including the Strategic Aerospace and Defence Initiative and perhaps most important, the Canada First Defence Strategy (CFDS), which states that it "represents a significant investment in the country's industry, knowledge and technology sectors that will yield sizeable dividends for every region of the country. This clear, long-term plan will give these sectors the opportunity to better position themselves to compete for defence contracts in Canada and in the global marketplace."[3]

The Department of National Defence "Report on Plans and Priorities, 2009-2010" touches on its investment plan, which gives details on CFDS "procurement priorities and the timing of capital projects over the 20-year period and will allow Canadian industry to better plan and position itself for future contract opportunities and make sound research and investment decisions."[4] The development of a defence economic framework "will help us better achieve CFDS initiatives by enhancing cooperation in areas such as information sharing, and the cooperative management and exploitation of key technologies to enhance both Canadian business and Defence."[5] DND calls CFDS an unprecedented opportunity to link the department's buying power with Canada's economic objectives, while still meeting the military's requirements. According to DND, "[t]his will benefit the Canadian economy through the development of world class Canadian technology and will also provide the Canadian military with state-of-the-art, sustainable capabilities."[6]

Without a defence industrial policy, Canada will be leaving billions of dollars worth of economic and regional development on the table. If we are not managing our military procurements in the context of our own strategies, we will almost certainly reinforce the industrial strategies of other countries through purchases of equipment and intellectual property that we could have developed at home.

Canada Inc.

As much as it rubs against their sensibilities, Canadians must readjust their attitudes about cooperation between business and government if they are to receive all the benefits of military procurements. We do not have enough people, time and money for an adversarial, confrontational system. Today, for whatever reasons, we seem to have built a system which forbids contacts aimed at developing the best solutions at the best price. In Canadian military procurement, words like 'trust,' 'teamwork' and 'relationships' seem to have taken on dark connotations that they lack in almost every other context. Other countries have found alternatives to this institutionalized mutual suspicion. Surely Canada can do the same.

As for the actual nuts and bolts of industry-government cooperation, there is a substantial body of best practices available to us, simply because almost all of Canada's allies already practice it. There are policies and programs in place to support research and production of advanced military technology but senior leadership and support is necessary to bring the words off the page and produce action.

With the consultation that led to the document "Canada's Defence Industry," the government has set the stage for closer collaboration with industry. The National Shipbuilding Procurement Strategy announced in early June 2010 was also based on meetings with Canada's defence contractors. Clearly a collaborative approach is working and the elements for a defence industrial policy are moving into place. The sooner that policy is created, the greater the rewards.

Notes

1. Canadian Association of Defence and Security Industries, "Canada's Defence Industry: A Vital Partner Supporting Canada's Economic and National Interests," December 2009, p. 10, available at https://www.defenceandsecurity.ca/.../Military_Procurement_Main_Report_March_09_2010.pdf
2. *Ibid*., p. 1.
3. Department of National Defence, "Canada First Defence Strategy," Section 6, 2008, available at www.forces.gc.ca/site/pri/first-premier/defstra/position-eng.asp.
4. Department of National Defence, "Report on Plans and Priorities, 2009-2010," 2010, p. 32, available at http://dsp-psd.pwgsc.gc.ca/collection_2009/sct-tbs/BT31-2-2010-III-57E.pdf.
5. *Ibid*., p. 32.
6. *Ibid*., p. 32.

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

Making Waves

Tradition, 'Branding' and the Future of the Canadian Navy

Dr. Ian Holloway

In January 2010, the *National Post* published an op-ed in which I argued that the Canadian Navy was squandering a once in a century opportunity to deepen affection among Canadians for their navy.[1] What the navy should have done, I asserted, was use the centennial year as an opportunity to introduce a Canadian version of the navy's traditional flag, the White Ensign. By not doing so – and instead opting for a corporate-style anniversary banner ("pseudo-corporate frippery" was how I put it) – the navy missed a chance to develop a symbol of Canada's maritime heritage that would resonate with the public. Since then, *The Globe and Mail* has published no fewer than four editorials urging the restoration of the name Royal Canadian Navy, to largely a supportive response. What is most interesting is that the coverage given by the *National Post* and the *Globe* to these issues amounts to more press than the navy had gotten in many years!

Not all the commentary was positive, though. In particular, retired Admiral Chuck Thomas asserted that I had gotten it wrong on the White Ensign issue. In a letter to the editor of the *National Post*, he wrote that while I was correct in suggesting that the navy is in trouble, "the problems are, however, not born of bad flags and waning respect for traditions."[2] He argued that the real issue is the lack of "a long-term capital intensive shipbuilding program." Admiral Thomas is both right and wrong. He is absolutely correct that the biggest issue facing the navy is a lack of new ships on the order book. And he identified the nub of the matter as being a lack of political will. But that is precisely why the navy needs to think more creatively about cultivating its image among the public.

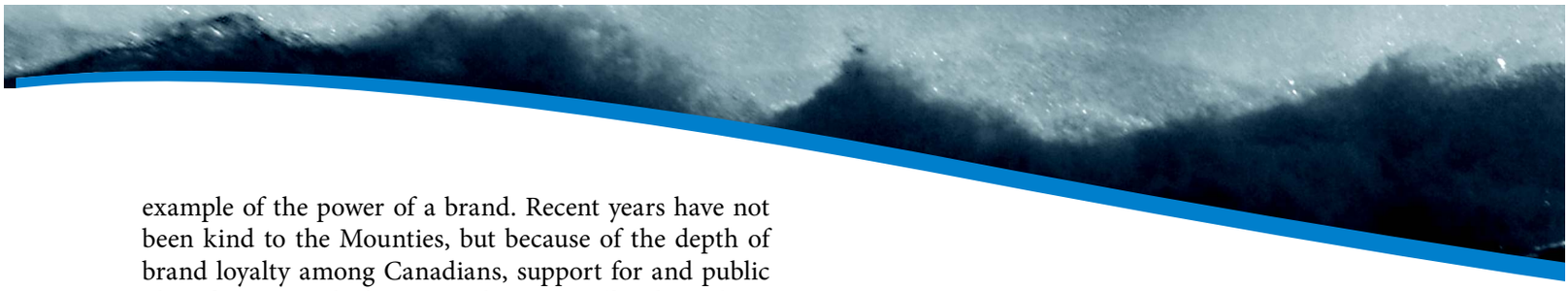
We live in the era of the 24-hour news cycle. What is front page news today is forgotten tomorrow. The work done by the navy in Haiti was quickly overtaken in the public mind by new disasters in other areas, much like the service of our frigates in the Gulf is now forgotten by Canadians. This is what makes the development of political will so devilishly frustrating. Even at the best of times, public will is ephemeral. We have recently seen the announcement of a new shipbuilding strategy from the government, but this is not the same thing as actually funding new construction. The truth is that Canada is about to enter a period of extended financial stringency. For the navy to carve out for itself a protected space in the political consciousness in such a setting will demand far greater levels of commitment and political savvy than it is accustomed to employing.

In academic circles where I currently work, few things raise as much ire as the concept of branding. It reeks of 'corporatization,' 'selling out' and other associated sins. But a brand is simply a way of describing the association of ideas and feelings with something. Any businessperson will tell you that without a successful brand, a product is doomed to failure no matter how good its quality. A good brand is worth as much as a product itself, which is why corporations go to such lengths to cultivate brands. The brand that, say, Tim Hortons seeks for itself through its activities goes far beyond the quality of its doughnuts and coffee. Even countries seek to brand themselves. Singapore, for example, has successfully branded itself as a business-friendly and safe gateway into Asia.

The concept of branding is no less valid for uniformed organizations. In Canada, the RCMP provides the best

Photo: DND

The new Canadian flag is hoisted for the first time in Esquimalt in February 1965 replacing the White Ensign previously flown in Royal Canadian Navy ships.



example of the power of a brand. Recent years have not been kind to the Mounties, but because of the depth of brand loyalty among Canadians, support for and public identification with the RCMP has not suffered nearly as much as one might have expected. The Mounties have been extremely astute in building their brand over many generations. Indeed, it is no surprise that the RCMP used the Olympics as an opportunity to display as much red serge as possible. It was a calculated attempt to reinforce its iconic association with Canada. Consider, too, the British Army. The one part that has not been tampered with is the Household Division. The public identification with the Household troops is so strong that it would be unthinkable for the British government to muck significantly with it.

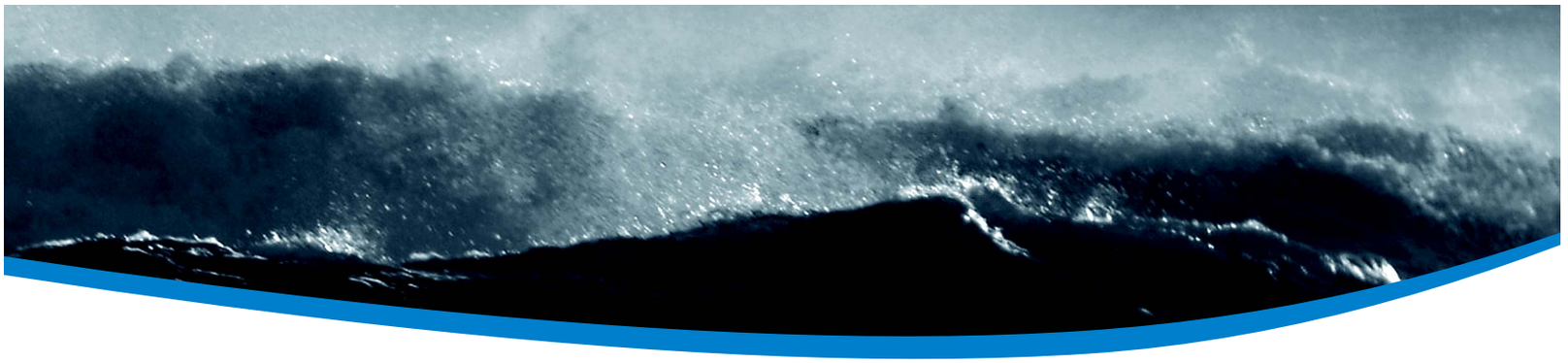
It is clear that culturally, the navy suffered in the 1960s and 1970s. I was a Sea Cadet in the mid-1970s when we were still wearing the old blue uniform, but the navy had shifted into greens. Whenever we marched in a parade with our local Naval Reserve division, we received the loudest applause. I remember once hearing a reservist ask in a discouraged tone why it was that the public seemed to like us better. Even to my adolescent mind, the answer was obvious: because we looked like sailors. We were what the public wanted to see – not a group of men and women who weren't recognizable at all. The point is that in the public mind, navies are associated with a Jack Tar image of sailors. That is why, after only a brief experiment with a suit and tie uniform, the US Navy reverted to what Americans affectionately call the 'Crackerjack suit.'

This leads me to the Canadian Navy. In the 1990s it was decreed that we could no longer celebrate Trafalgar Day. What a foolish thing to do. Of course, it was appropriate to weave the Battle of the Atlantic into our public image but there was no need to throw out the connection with Nelson and the defeat of Napoleon. Likewise, how ham-fisted was the move in 1999 to 'update' the traditional toasts of the day. To drink to 'a willing foe and sea room' may have little meaning today, but it has a dash that is more appealing than simply to raise a glass to 'our nation.' If there was any problem with the old toasts, it was that the navy didn't expose Canadians to them enough! The point is that in the military context, the brand is entwined with history and with martial values. And it is only once that brand is established that political capital will follow. That is why Admiral Thomas is incorrect when he says that the problems with the navy are not born of bad flags and waning respect for traditions. They have *everything to do with them*.

In the years since unification, the Canadian Navy seems to have gone out of its way to fight its natural brand rather than embrace it and use it to develop political will. During his early years as Prime Minister, when the navy was hoping for a program of fleet renewal, Brian Mulroney often referred to 'the Royal Canadian Navy.' Bizarrely, I remember hearing senior officers tut-tutting that the proper name was Maritime Command. We now have a Prime Minister and Minister of National Defence who reportedly are keen to restore some of the old traditions, including the name RCN and a Canadianized White Ensign, yet it seems that the navy wants to rebuff them. Unification was the navy's 'New Coke' moment, but unlike the Coca-Cola Company, which used the fiasco to its ultimate marketing advantage, our navy has seemed bafflingly resolute in ignoring the political opportunities it has been given.

Critics claim that these things would make the navy seem too British. I have never quite understood this. The Governor-General's Foot Guards and the Canadian Grenadier Guards haven't felt a need to change their uniforms simply because they inherited them from the Brigade of Guards in England. So why should the Canadian Navy feel insecure in its own traditions? Is our government somehow illegitimate because the legislature, and the names Parliament and House of Commons, came from Britain? Ought we to throw our system of rule of law on the scrapheap because we inherited it from Britain? And what about the English language itself? That must be equally suspect, given its origins.

The fact is that as a naval symbol, the White Ensign is just as Canadian as anything else. Legally, it became Canadian in May of 1910, when the RCN was established. But its connection with Canada is in fact older than the country itself. At Trafalgar, a young midshipman from Nova Scotia lay wounded beside Nelson in the cockpit of *Victory*, a ship bearing the White Ensign. In 1813, it was a Canadian, Lieutenant Provo Wallis, who sailed the captured American frigate *Chesapeake* into Halifax Harbour under the White Ensign. At Lucknow in 1857, African-Canadian AB William Hall from Nova Scotia won the Victoria Cross while serving under the White Ensign. The White Ensign's Canadianness was reinforced when four Canadian midshipmen went down with their ships at Coronel in 1914, and when the crew of *Niobe* tried to avert the Halifax explosion three years later. The White Ensign became thoroughly Canadian in the North Atlantic, the Mediterranean, the Pacific and everywhere else the RCN fought between 1939 and 1945. So, too, did it serve as a symbol of Canadian values in 1950 when *Athabaskan*, *Cayuga* and *Sioux* sailed for Korea in the first Canadian



mission on behalf of the United Nations. To suggest that the White Ensign was somehow un-Canadian simply because we inherited it from Britain suggests a level of insecurity and paranoia that is unfair to the navy and its accomplishments over the past century.

In the current fiscal environment, many might dismiss the re-naming of Maritime Command as the RCN or the adoption of a Canadian White Ensign as silly distractions from the real issue of maintaining a fleet in being. Clearly, these things will not lead to squadrons of new ships hurtling down the slips. What they would do, however, is send a signal to the Canadian public that the navy values its ancestry and embraces its identity as a fighting service with a glorious history. It would form the same sort of plank in the navy's branding program that red serge has done for the RCMP. Past experience with naval anniversaries tells us with absolute certainty that the naval centennial will represent a lost opportunity to develop the sort of political will of which Admiral Thomas spoke. The US Navy knows how to build a brand, as does the British Navy, but the Canadian Navy needs to learn this lesson too.

Notes

1. Ian Holloway, "A Flag that Falls Flat," *National Post*, 18 January 2010.
2. Admiral Chuck Thomas (Ret'd), "Letter to the Editor," *National Post*, 22 January 2010.

*Littoral and Riverine Operations**

Wayne P. Hughes, Jr, Captain USN (Retired)

The Canadian Navy has had a long struggle to do the best it can with the funds available. The fall of the Berlin Wall in 1989 and the collapse of the Soviet Union in 1991, changed many things about war and defence in Canada and indeed throughout the world. American defence spending shrank by 40%, and so did the size of the US fleet. I have little doubt the effects on the Canadian fleet were as severe or worse.

During visits to Canadian Forces College in the past decade, I've followed the Canadian Navy's post-Soviet search for its proper role, but here – with one exception – I will stick to the US Navy's (USN) struggle. The exception is a personal opinion. It is my suspicion that the Canadian armed forces, after many years of planning for NATO operations in the Atlantic and Europe, could easily underestimate the cost of delivering forces and supporting them in littoral operations overseas. European armed forces – who are accustomed to defending their homelands from their homelands – have

Photo: US Navy

*USS **San Antonio**, a capability some in Canada would like to see acquired.*

discovered even more forcefully than Canada the costs of putting out fires far from home.

The USN learned long ago how expensive are our amphibious, combat logistics, prepositioning and ready reserve ships for littoral operations around the world. Sea-based air is a vital element of all forward operations and American aircraft carriers are famous for operations in and across the littoral regions far from home. The cost of the system – a mobile airfield and the aircraft flying from it – is huge. The aircrews and ships' companies of 11 carriers absorb 46% of all billets in our 280-ship fleet. My rule of thumb – with no attempt at formal analysis – is that the ability to deploy and fight across the oceans at least doubles the cost of USN fighting forces.

The Canadian Navy and Coast Guard will be hard pressed to maintain homeland security of Canada's littoral regions, including coastal services of many kinds. And future Arctic Ocean traffic may entail new responsibilities. I am impressed with the number of icebreakers your Coast Guard maintains. I count at least 14, one as big as 15,000 tons. Close coordination with the USN and Coast Guard will offer substantial rewards for North American defence. This is consistent with both current US maritime doctrine and longstanding government cooperation on our common border.

The USN concentrates most attention on overseas operations because the US Coast Guard has primary responsibility for policing in home waters. But the nature of these overseas operations is changing. In the future we will be more concerned with the littoral areas – coastlines, deltas, estuaries and rivers. We are also going to become more

Artist's impression of the proposed Arctic Offshore Patrol Ship (left) and USS ***Independence*** *(right), prototype of a Littoral Combat Ship (LCS). Is this a logical Canadian acquisition?*

sensitive to protecting world trade and less concerned with projection of air and ground power into foreign hinterlands.

Forward operations, in cooperation with the many friendly navies around the world, are explicit and doctrinal tasks for the USN established jointly by the Chief of Naval Operations (CNO) and the Commandants of the Coast Guard and Marine Corps.[1] I think of it as overseas offence to match homeland defence against terrorists and other threats to peace and prosperity. The best solution is to distribute some of our fleet capability in smaller, more single-minded patrol vessels and inshore combatants. A study team at the Naval Postgraduate School estimates that for 10% of an affordable shipbuilding budget, the United States can build and maintain more than 200 such littoral vessels, including eight or 10 small carriers of short takeoff and vertical landing aircraft (STOVL), helicopter and unmanned aircraft, and up to 400 riverine craft.

The USN is struggling to create the ships and other systems implied by the "Cooperative Strategy" adopted in 2007. I hope we develop new and smaller vessels – smaller and less expensive than either of the two Littoral Combat Ship (LCS) designs – but we are not there yet. A big reason is that logistic support of coastal patrol vessels and coastal combatants to conduct forward operations is a complicated subject and will take some new thinking and flexible solutions for a fleet that is used to large ships that carry much of their own fuel, food and ammunition.

It is insightful to point out that navies shifted from the carrier aircraft era to the missile era of naval warfare around 1965. Currently a further transformation into the robotics era is under way. In the future, autonomous vehicles will be prominent in operations on both sides of a coast. They will come in many sizes, capabilities and threats, including the ability to search and attack in coordinated swarms. Canada must ponder the implications as the armed forces of the world exploit – or suffer from – the robotics era's effects.

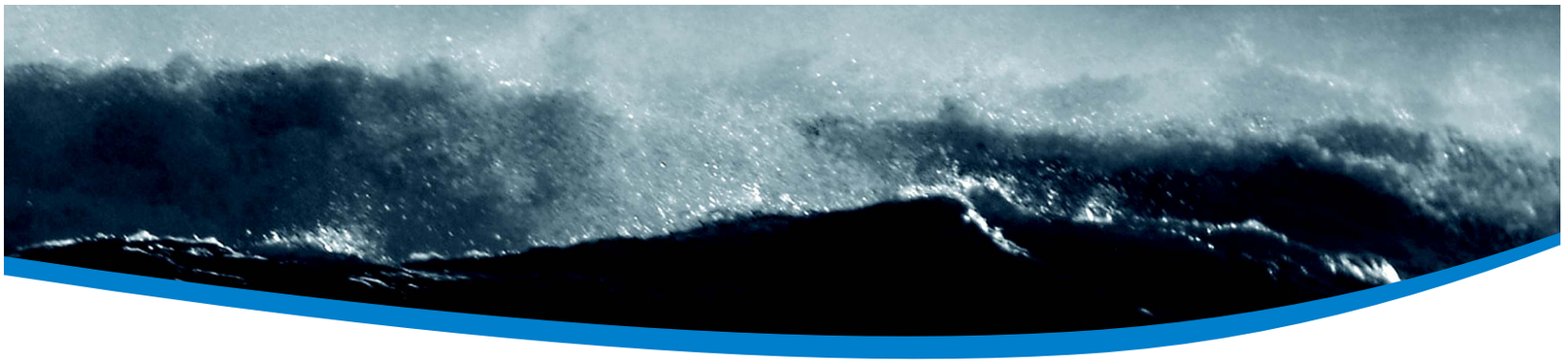
Let me give a quick summary of littoral combat.[2] Experience in the missile era is well established. Setting aside the never-fired nuclear ballistic missiles, the missile era began in 1967 with the sinking of the Israeli destroyer *Eilat*. Since then there have been about 300 cruise missile attacks on warships and shipping, the most recent of which was a land-launched missile that hit the Israel warship *Hanit* off Lebanon in 2008.[3]

Most attacks have been against tankers and other shipping, in which the hit probability of a missile was over 90%. Against warships that defended themselves, most examples occurred during the 1973 Arab-Israeli war. The probability of hit for all 122 missiles fired against warships that defended themselves was 27% – representing 33 hits.

There are three critical lessons learned from these examples. The first is that all occurred in littoral waters, including an attack in a port. The second is that the average masks the fact that the results were highly bimodal. Either a fleet was almost totally effective in defending itself or it was ineffective and suffered destruction. The third lesson is that the defender's success depended very heavily on soft kill – jamming or chaff – supplemented with a bit of hard kill point defence. There is only one instance in the entire history of missile warfare when a defending surface-to-air missile shot down an attacking anti-ship cruise missile.

A final category of attacks is upon warships that might have defended themselves but failed to do so. There have been 11 incidents involving 39 missiles. The hit probability against combatants that might have but did not defend themselves was 70%! As future missiles become more sophisticated, navies must develop new tactics, warship designs and search methods, or else the consequences of surprise attacks will become even more serious.

To conclude, there are four things about the littoral regions to ponder. First, "A Cooperative Strategy for 21st Century Seapower" emphasizes partnerships. Canada should endeavour to have a strong maritime partnership with the US Navy and Coast Guard for mutual homeland security.



Second, "Cooperative Strategy" emphasizes partnerships overseas, too. Overseas participation in ground operations is expensive for any navy – in air support, delivery and sustainment. Do not underestimate the naval cost of littoral operations in distant waters.

Third, missile era combat has been fought entirely in coastal waters. The winner is the side with better detection, tracking and targeting, combined with (especially) soft kill defence. 'Attack effectively first' is still a sound maxim of all naval combat.

Photo: Internet

An autonomous underwater vehicle (AUV) being loaded into a US Navy submarine. Is this a capability Canada should acquire?

Finally, the transformation to the robotics era will see fulfillment of the long-anticipated 'revolution in military affairs.' Success with unmanned and autonomous air, surface and sub-surface systems, including tactically coordinated swarms not only entails an intelligence, surveillance and reconnaissance advantage, but also more small, offensively powerful inshore combatants.

Notes

* This is based on remarks made at the Maritime Security Challenges Conference, Maritime Forces Pacific, April 2010.

1. General J.T. Conway, USMC, Admiral Gary Roughead, USN, Admiral Thad W. Allen, USCG, "A Cooperative Strategy for 21st Century Seapower," October 2007.
2. For more information, see Wayne P. Hughes, *Fleet Tactics and Coastal Combat*, Annapolis, MD: US Naval Institute Press, 2000.
3. I take my data from a thesis by Lieutenant John Schulte in 1994, supplemented by research by Peter Swartz at the Center for Naval Analyses and my own *Fleet Tactics and Coastal Combat*.

Taking the Navy out of (N)

Lieutenant-Commander Gene C. Fedderly

In any organization the use of proper terminology is a hallmark of professionalism and the naval service is certainly no exception. In this day and age of casual speech there are many areas where we fail to achieve the mark. I would like to point out one issue that I have noted increasingly over the past several years, with the hope that Canadian Forces personnel in general and naval officers in particular will take it to heart.

When the separate services were abolished 1 February 1968 and the Canadian Armed Forces were established, the intention was for all environments to use a common rank structure based upon that of the Canadian Army. This was soon proven to be unworkable in the naval environment, partially due to the confusion caused amongst our allies, who primarily used naval ranks based on those of the Royal Navy, particularly for officers. It would indeed have been confusing in a ship to have the 'Captain' being a Lieutenant-Colonel, the Executive Officer a Major and the department heads being Captains.

I understand that various attempts were made to rectify the situation including the use of Captain (S), Major (S), etc., to indicate naval Lieutenants and Lieutenant-Commanders, with the S standing for sea. Finally, around 1973, it was settled upon that Maritime Command (the word navy was still considered anathema) would be able to revert unofficially to the usage of the traditional naval rank structure, although Lieutenants and Captains would append (N) to their ranks to distinguish them from the official CF ranks of the same name. As described in the CF Manual of Abbreviations, the (N) stands for 'naval rank.' Prior to the introduction of French translations for our ranks in the early 1990s, the French equivalent was (M) which meant 'grade de la marine.' Although I am uncertain of the exact date, it was some time in the early 1980s that naval ranks were officially authorized for use throughout the CF.

All this being stated, there has been a trend in recent years regarding the usage of naval ranks with which I must take issue. Specifically, this has been to take the (N) and use it as 'Navy' both in speech and writing. To begin with, this is contrary to both the official abbreviation and what I believe was the intent of the initial use of (N) as merely a method of differentiation in official documents. Although I'm sure

the motivations behind using it this way have their root in naval pride, I think it is based on a lack of knowledge.

In the naval environment, it should be largely unnecessary and redundant to throw 'navy' in at the end of the two ranks in question. In addition to being technically incorrect, it also sounds quite clunky, and once led to the ridiculous situation where a reviewing officer for a parade was introduced as 'Captain Navy Davie.' If a situation does occur where a distinction needs to be made between 'aye, aye, sir' Captains and 'hey you' Captains, then a simple spoken 'N' can be used at the end of the rank, or if speaking in less savvy circles 'naval Captain Bloggins' would be the preferred manner, just as one will see in the media.

This may seem a small point, and I fear it might be a vain attempt at putting the genie back in the bottle, but shouldn't naval officers be the ones spearheading the charge to get these things right?

Pirates: Child Soldiers, the Canadian Navy and International Accountability

Dr. Shelly Whitman

There has been a great deal of attention placed upon the incidents of piracy that have occurred in the Gulf of Aden in the last two years. It has sparked media and academics to look at the issue from security and economic perspectives. Some have briefly touched upon the security-development nexus by referring to the extreme poverty and relative statelessness that contribute to the proliferation of pirates off the coast of Somalia. However, very little has been written about the fact that a great proportion of the pirates who are encountered and then captured are children.

Under the UN Convention on the Rights of the Children (CRC), a child is any individual under the age of 18 years. The CRC is one of the most universally accepted international conventions, with 194 signatories as of 2009. (It should be noted that the two states which have not signed are Somalia and the United States.) In April 2009 child pirates were extradited to the United States from the coast of Somalia after a failed attempt to capture a frigate led to intervention by the US Navy. US Defense Secretary Robert Gates described the four pirates as "untrained teenagers with heavy weapons."[1] In Somalia, of a total population of 9,832,000 it is estimated that 45% of the population is below the age of 14 years.[2] Hence the use of children by armed groups is a real possibility. UNICEF official Denise Shepherd-Johnson stated that "children are being systematically recruited and used in ever larger numbers for military and related purposes by all of the major combatant groups."[3]

Many Canadians, and this includes the naval staff, fail to understand that no matter how illegal the activities of these young pirates, they are children and, hence, under international law cannot be held accountable for their crimes. We must be prepared to treat children from the developing world with the same legal standards we expect our own children to enjoy. The Paris Principles and Guidelines on Children Associated with Armed Forces or Armed Groups defines a child soldier as "any person below 18 years of age who is or has been recruited or used by an armed force or armed group in any capacity, including, but not limited to children, boys, and girls used as fighters, cooks, porters, messengers, spies or for sexual purposes. It does not only refer to a child who is taking or has taken a direct part in hostilities." It is important to look at this definition, as many people who do not know or understand the definition mistakenly argue that the pirates are not child soldiers.

Using children for illegal activity is viewed as desirable by armed groups and criminal gangs for many reasons. They are vulnerable, fearless, relatively cheap to control, easily manipulated or indoctrinated, may not have alternative options and do not understand the long-term consequences of their actions. It is disturbing to note that the use of children by armed groups may be viewed as advantageous because they cannot be tried for their crimes according to international law. Any attempt at legal redress must therefore be sought from those who recruit and use the child soldiers. United Nations Security Council Resolution 1612 of July 2005 sets out specific obligations related to the accountability of armed groups that use and recruit child soldiers.

If Canadian troops are unaware of the international legal standards, one also suspects that they are unaware of the need to treat children – pirates or soldiers – differently from their adult counterparts. If they do not, there is the potential that mistreating the children may lead to international legal implications. Who is monitoring the children picked up by navies? Where are the children delivered? Is this a potential problem that could lead to human trafficking rings?

It has recently been reported that Somali pirates were killed after clashes with private security contractors which took place on 23 March 2010.[4] The European Union Naval Force said guards were on board the Panama-flagged MV *Almezaan* when a pirate group approached it twice and on the second approach a shootout occurred. The details

*HMCS **Winnipeg** escorting MV **Abdul Rahman** during counter-piracy operations in the Gulf of Aden in April 2009.*

of the pirates have not been released. This is not the first time pirates have been killed. Is it possible some have been children?

The Canadian Navy has recently been deployed to Haiti to give much-needed relief to the earthquake survivors. A great deal has been said about the role of our navy in disaster relief and humanitarian assistance. In the aftermath of the earthquake, youth gangs emerged as a natural response in a poverty-stricken country struggling to cope with the magnitude of surviving such devastation. Were our troops prepared and trained to deal with armed youth gangs? Thankfully we did not hear of any negative interaction between troops and youth in Haiti. But, if we are serious about taking on such roles, we need to be prepared for the possibilities.

It is time some attention gets placed on the readiness of Canadian Forces personnel for this issue. There is an urgent need for sensitization and training related to the interaction of our navy with child pirates. Failing to acknowledge the issue may not only lead to political and legal hot water, it may also lead to long-term psycho-social consequences for CF personnel when they return home. We need to generate the political will for international cooperation and information sharing that will create dialogue on best practices related to children as soldiers and pirates.

Notes

1. Glenda Kwek, "Fate of Teen Pirate Uncertain," *The Sydney Morning Herald*, 14 April 2009, available at www.smh.com.au/world/fate-of-teen-pirate-uncertain-20090414-a5ih.html.
2. *CIA World Factbook*, *Somalia*, available at www.cia.gov/library/publications/the-world-factbook/geos/so.html.
3. Denise Shepherd-Johnson, quoted in Katharine Houreld, "Children as Young as 9 Recruited by Somali Militants, given Power, Drugs and Weapons Training," Associated Press, 1 May 2010, available at www.biyokulule.com/view_content.php?articleid=2743.
4. "Somali Pirate Killed by Private Security," *The Globe and Mail*, 25 March 2010, p. A13.

Comments on the Spring Issue of CNR

Editor,

Re the photo of *Bonaventure* on page 21: this could not have been taken 3 July 1970 for on that day she was alongside the Shearwater jetty for decommissioning ceremonies. I am sure the photo was taken in December 1969 as *Bonaventure* returned from her last operational cruise and was heading for Bedford Basin to fly off her aircraft for the last time. That day, the ship had to get up to 20 knots in the basin to allow free deck launch of the Trackers as the catapult was unserviceable. As a footnote, *Bonaventure* had two further cruises, one to the Caribbean in January 1970 to serve as a tanker, army vehicle carrier and helicopter repair ship and another to Narvik (sailing Good Friday) to pick up army equipment. These two last cruises came about because of the delayed entry into service of *Protecteur*.

Pat DC Barnhouse
Chairman
Canadian Naval Technical history Association

Editor,

Thank you for the excellent edition celebrating our navy's 100th. There is, however, one error that I would like to point out. The photo on page 16 refers to NCIOP Leading Seaman Matthew Wright when in fact the individual in the picture is clearly wearing PO1 epaulets. Oops!

Alan C. Robb CPO1 (Ret'd)

Editor,

Congratulations on the Spring 2010 issue. It's timely and most informative. However, the caption accompanying the photo of five admirals on page 29 may require clarification. Four of the five served as Chief of the Naval Staff: Vice-Admirals Harold Grant, E. Rollo (not Roland) Mainguy, Percy Nelles and Harry DeWolf. Rear-Admiral Victor Brodeur's last appointment before retirement was Commanding Officer Pacific Coast 1943-1946.

Kind regards,
Len Canfield

*Response from **CNR***

*Thank you for all the comments, especially the compliments, about the Spring 2010 issue of **CNR**. We appreciate readers taking the time to let us know what they think. We are also happy to know that everyone is looking at the photos so carefully. Your corrections are noted. Thanks for keeping us on our toes.*

Plain Talk: A Questionable Strategy

Sharon Hobson

The government has finally announced a National Shipbuilding Procurement Strategy (NSPS) making both the industry and the navy cautiously optimistic about future shipbuilding programs. However, there are still a lot of questions about how the strategy will play out both politically and commercially.

Public Works and Government Services Minister Rona Ambrose announced the strategy at CANSEC, the defence industry's annual exhibition in Ottawa. She told the gathering that the government is "moving forward with a long-term strategic relationship with the shipbuilding industry." She noted that "[b]efore today, Canada remained the only NATO country without a long-term shipbuilding strategy." With the government intending to spend $35 billion over the next 30 years on 28 new navy and coast guard ships, as well as 100 smaller vessels, the new NSPS "will bring predictability to federal ship procurement and eliminate cycles of boom and bust, providing benefits to the entire marine industry."

The strategy calls for the government to "establish a strategic relationship with two Canadian shipyards designated as sources of supply for the larger ships, one for combat vessels, one for non-combat vessels." According to Ambrose, "to maximize job creation in exchange for the long-term predictable work, the two shipyards will be expected to make investments in infrastructure and skills training." They will also be precluded from bidding on contracts for smaller ships which will be set aside for the other Canadian shipyards.

Photo: DND

Without supply ships/AORs the task group concept is not viable. Can the existing AORs last another five years?

The two shipyards designated as the large shipbuilders will be selected through a national competitive process, which Ambrose says will be "held in an open, fair and transparent manner, with independent oversight provided by a fairness monitor." The government will then, says Ambrose, "negotiate a strategic sourcing agreement with each of the two selected shipyards before negotiating the individual contracts to deliver the ships required."

The announcement was treated with some relief by the shipbuilding industry, which has been on tenterhooks waiting for the government to do something – anything – to move its navy shipbuilding programs forward. This new strategy appears to fit the bill. However, there are a lot of questions that need answering before the industry can feel secure about its future.

First of all is the question of timing and sequence. Defence Minister Peter MacKay told the conference that the government expects "to have signed agreements with these shipyards within two years which should clear the way to award contracts for large vessel projects that the navy desperately needs." These include three new Joint Support Ships (JSS) to support the fleet, provide surge sealift and support forces ashore, as well as six new Arctic Offshore Patrol Ships, and a replacement for the three 38-year-old *Iroquois*-class destroyers.

Two years seems a long time to wait to restart a procurement program that was cancelled two years ago. The $2.1 billion project to acquire three JSS was cancelled in August 2008 after the government ruled that the bids by the two teams, led by Thyssen Krupp Marine Systems Canada Inc. and SNC-Lavalin ProFac Inc., were non-compliant because they exceeded the allocated budget. Waiting another two years before awarding a contract amounts to a four-year hiatus in a program which had previously been fast-tracked, and which in its last iteration was promising delivery of the first new ship in 2012.

As well, a four year hiatus may be a *minimum*. It assumes that a shipbuilding contract can be negotiated and ready for signing in 2012. But will it? If the government won't select a specific shipyard until 2012, how do the various contenders for the JSS finalize their bids, including their regional industrial benefits? And meanwhile, the navy's two 40-year-old support ships, HMCS *Protectecur* and *Preserver*, will have to keep steaming for another five years or more. And if they can't, what are the navy's plans to replace that support

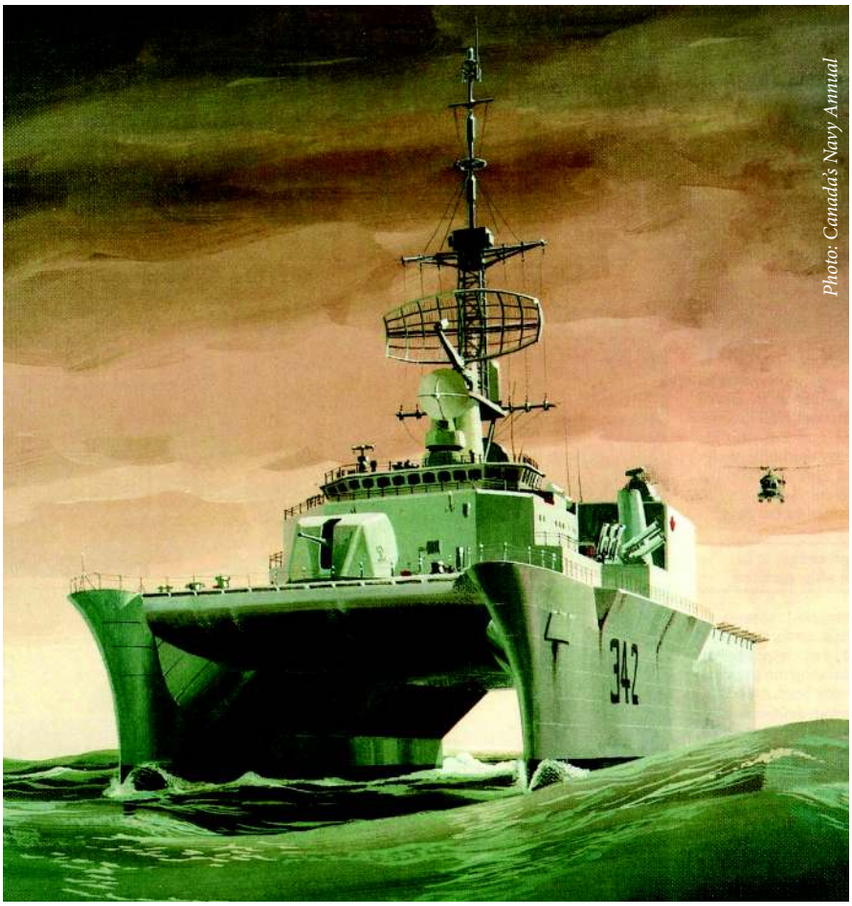


Photo: Canada's Navy Annual

Will the next generation of Canadian warships be radically different?

capability until the new JSS are commissioned?

Minister MacKay told reporters at CANSEC that much of the leg work on the JSS has been done, "and this is our top priority, of the list of ships in the queue, this is the one we want to move on first." However, a senior official in the Department of National Defence told *Jane's Defence Weekly* in early May that while there was still another 18 months of work to do on the JSS before reaching the contract stage, they would be ready to go on the AOPS in the near future. As this official said about the AOPS, "we have a very firm grip on cost and design requirements and would be ready to go talk to a shipyard relatively soon."

So the Minister says the JSS is the top priority but the contract won't be awarded until at least 2012. Meanwhile the AOPS is ready to go now, but according to the Minister, it will have to sit on the shelf for a while longer. Does this make sense?

Then of course, there are the questions relating to the whole big - ship - small - ship - combatant - non - combatant issue. Ambrose used these terms during her announcement, but they are not interchangeable and they require some strict definitions. A "Backgrounder" to the announcement provides some clarity on this issue. In it, 'large' vessels are defined as 1,000 tonnes displacement or more, and the ships which are considered 'combat vessels' are the new Canadian Surface Combatant (CSC) and the AOPS. The CSC is the 15-ship program to replace the three *Iroquois*-class destroyers and the 12 *Halifax*-class frigates. The JSS is considered a non-combatant under the NSPS. Not all navy experts would agree with this categorization, and the rationale behind it should be made absolutely clear to industry in order to avoid problems with future procurement programs.

There is the question about eligibility for maintenance and update work on the ships. Thus, while the NSPS provides for the selection of two yards for the *building* of large ships, contracts for the repair, refit and maintenance of the 'existing fleets' will still have to go through a competitive bid process. It's not clear if the selected new-build yards will be allowed to bid for the support contracts for the current fleet and the new ships, or not.

And then there is the perennial Canadian question about the regional distribution and the perception of fairness. It is perhaps significant in this debate that when the NSPS announcement was made, there were speeches by Minister Ambrose, Minister MacKay, the Minister of Fisheries and Oceans, Gail Shea, and … wait for it … Denis Lebel, Minister of State for Economic Development Agency of Canada for the Region of Quebec.

Huh? Why was the Quebec economic development Minister in there? Why was just one regional economic development Minister invited, and not the Ministers of State for Western Economic Diversification, the Atlantic Canada Opportunities Agency, or the Federal Economic Development Agency for Southern Ontario? The selection of the two shipyards is supposed to be a competitive process – Ambrose says there are five shipyards in Canada expected to compete. But Lebel's involvement in the announcement could reasonably suggest that Davie Shipyards of Levis, Quebec, has a leg up on the competition. That has to worry the other shipbuilders such as Washington Marine Group of British Columbia which some would argue is just as capable as Davie of building a ship the size of a JSS.

In general terms, the government's decision to move ahead with a shipbuilding procurement strategy is good news, but it's clear that its usefulness for the navy and the industry will depend on the details hammered out over the next two years. And it's those two years that are the kicker. The navy needs to move ahead with its shipbuilding programs now. It has waited long enough.

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

The View from the West: 'Green' Ship Technologies

Brett Witthoeft

In summer 2009, USS *Makin Island* sailed from a Mississippi shipyard to her new home port of San Diego. On the surface, *Makin Island* seems like an ordinary warship, but she is groundbreaking in naval terms, since she is the US Navy's first surface ship to be equipped with a hybrid engine.

Makin Island is the future of maritime travel and operations. US Secretary of the Navy Ray Mabus outlined his vision for a more environmentally-friendly navy in October 2009 when he pledged that a 'green' strike group comprised of nuclear-powered aircraft carriers and submarines, hybrid support ships and aircraft fuelled by biofuels will be deployed by 2016. In addition to the green strike group, Secretary Mabus outlined several other goals for reducing the USN's dependence on non-renewable energy and shrinking its carbon footprint:

- taking into account energy used during the construction and life-cycle of equipment when awarding contracts;
- increasing the fuel efficiency of the navy's land vehicles by 50% by 2015; and
- increasing the use of alternative energy to at least 40% of the navy's total energy needs by 2020 from the current level of 17%.[1]

Photo: Northrop Grumman Ship Systems

*USS **Makin Island** while under construction at Litton-Ingalls Shipbuilding in Pascagoula, Mississippi, 11 August 2006.*

The USN isn't the only organization to recognize the need for 'green-ing' ships. Commercial firms worldwide are developing new technologies to use renewable fuels and improve ship efficiencies to offer competitive edges for a future of increasingly scarce and expensive conventional fuels, and ever-more stringent environmental guidelines.

Makin Island *and Beyond*

What distinguishes *Makin Island* from other ships of the Landing Helicopter Docks (LHD) type is her propulsion system. *Makin Island*'s engines are not the traditional gas turbine-steam boiler configuration, but rather, gas turbines and the auxiliary propulsion system (APS). APS functions in much the same way that a hybrid car does, with the electrical system providing power at lower cruising speeds and the gas engines operating at higher speeds. APS can be used 75% of the time, and during her maiden voyage, it is estimated *Makin Island* saved over US $2 million – 3.4 million litres – worth of fuel.[2] APS is to be deployed on the new Landing Helicopter Assault (LHA) ships and plans to test APS on board *Arleigh Burke*-class destroyers are underway which promises to decrease significantly fuel costs for the USN.

South Korean shipbuilders have also made significant inroads in hybrid ship development. In mid-September 2009, STX Shipbuilding announced its new crude oil tanker, the Green Dream ECO-Ship. The ECO-Ship boasts improved fuel efficiency of 41% and reduced carbon emissions of 45% since it can use biofuel instead of bunker oil. STX achieved these improvements by reducing the number of propeller blades to three in a new scimitar-shaped design, installing a new system that recycles waste heat from the engines into electricity generation, and mounting wind and solar energy-capturing systems.

The Japanese have not been idle either. Nippon Paint Marine was inspired by tuna and dolphins whose skin emits a mucous that significantly reduces water resistance, and created a hull paint a mere 150 microns thick in early 2009. The paint contains a compound that turns into a gel when it comes into contact with water and reduces drag by 4%.[3] This 4% increase in fuel efficiency roughly translates to five tons less carbon dioxide emitted daily on a 10,000-ton tanker. Nippon Paint Marine boasts that the paint can be reduced to 100 microns in thickness in three to four years, doubling fuel efficiency.

Finally, the age of sail is making a revival with the German-built container ship *Beluga Skysails*. *Beluga Skysails* uses a computer-controlled, 160-square-metre kite that increases fuel efficiency by 15 to 20% by reducing engine use. The kite, made of special multi-cell fibres and shaped like an airplane wing, is deployed to heights of up to 300 metres, where the strongest and most stable winds blow. A shipboard computer monitors wind direction and speed and moves the sail around on a rail to take advantage of the highest quality winds, no matter their direction.

Photo: Northrop Grumman Ship Systems

*The **Wasp**-class amphibious assault ship, USS **Makin Island**, on completion of sea trials in March 2009.*

Alternative Fuels

In October 2009, an F/A-18 Hornet was tested in Maryland using a blend of camelina biofuel and JP-5 jet fuel. The Hornet's engine successfully ran for over an hour at afterburner speed at the same performance levels of pure JP-5. Camelina can be grown on marginal land, does not compete with food crops, and has been shown to reduce carbon emissions from jets by as much as 80%. In fact, Continental and Japan Airlines both tested camelina-blend biofuels on unmodified aircraft in January 2009 and found that it was more fuel efficient than 100% petroleum-based jet fuel.

Furthermore, the US Office of Naval Research (ONR) is developing the Ion Tiger unmanned aerial vehicle (UAV), which is powered by a hydrogen fuel cell. During an October 2009 test flight, Ion Tiger flew for over 23 hours, an unofficial record for a hydrogen vehicle. Admittedly, Ion Tiger's small payload and short air-time – standard UAVs can stay aloft for over 30 hours – limit its practical application, but its light weight and small profile make it less detectable and more easily deployable than conventional UAVs.

Green Sailing in the Future

Why bother with these currently expensive ship upgrades? The shipping industry accounts for approximately 4% – or 800 million tons – of global carbon dioxide (CO_2) emissions annually, roughly double that of the aviation sector, which is more commonly criticized for its pollution. International accords, such as the Kyoto Protocol have yet to specify limits on international shipping due to the difficulty in attributing ship emissions to a specific country. But the day will come when maritime carbon emissions will be regulated. The International Maritime Organization, which oversees international shipping, has already been criticized for its lack of action since the Kyoto agreement was signed in 1997.

Aside from the environmental reasons, adopting technologies that increase fuel efficiency and reduce dependence upon oil have direct economic and security benefits. First, increased efficiency directly translates into dollar savings. Although the current recession will pass, defence budgets worldwide – including Canada's – have been cut. Second, as readily accessible oil supplies begin to dry up, a reduced dependence upon fossil fuels will give more options to shipping and navies. Third, ship schedules are based in part around their fuel ranges, and a lessened need for fuel would mitigate the problem of stopping in less-than-optimal ports.

These new maritime technologies present opportunities for shipping companies and navies to continue providing goods, security and disaster relief while reducing pollution and cutting costs. Truly, the colour of sailing in the future is green.

Notes

1. Philip Ewing, "US SecNav: Cut Half of Oil Use by 2020," *Defense News*, 15 October 2009, available at www.defensenews.com/story.php?i=4326159&c=SEA&s=TOP.
2. "Navy Goes Green with New Hybrid Ship," *San Diego Union-Tribune*, 15 September 2009, available at www.signonsandiego.com/news/2009/sep/15/navy-goes-green-new-hybrid-ship.
3. "Nippon Paint Marine's New Hull Paint Reduces Ship Drag," *Coatings World*, BNET, January 2009, available at http://findarticles.com/p/articles/mi_hb053/is_1_14/ai_n31328588.

Brett Witthoeft is a security analyst in the Office of the Asia-Pacific Advisor at Maritime Forces Pacific Headquarters.

Warship Developments: Training Ships: Virtual or Actual?

Doug Thomas

In the past, when ships, crews and fuel were relatively inexpensive, it was common for navies to operate dedicated training ships. After World War II, Canada's two light cruisers were employed primarily for this purpose: HMCS *Quebec* on the East Coast for seamanship training of sailors; and HMCS *Ontario* in the Pacific for navigation training of junior officers. In the late 1950s, when manning and funding the operations of these big ships became an issue, they were paid off for scrap and the navigation training function was conducted in the seven modified *Prestonian*-class frigates of the West Coast-based 4th Escort Squadron.

Later, with the demise of these wartime ships, the training squadron was composed of the four destroyer escorts of the *Mackenzie*-class. This effort was augmented by *Bay*-class patrol ships (ex-minesweepers), the sail training ship HMCS *Oriole*, and wooden-hull auxiliary craft. Recently, basic sea training has been conducted in the new *Orca*-class Patrol Craft, Training (PCT). Junior officer bridge watch-keeping and advanced navigational training is done in operational frigates and destroyers.

It is worth examining the *Orca*-class as an example of a well-thought out sea training vessel, although it is limited to inshore operations. The increased speed (18 knots) and updated technology of the *Orcas* will ably support current navigation and watch-keeping training curricula. The enclosed bridge of this vessel provides good all-around visibility, a chart table and equipment suitable for emerging electronic charting technologies. The design of these vessels also includes a training room of sufficient size and technological capability to allow a comfortable briefing to be conducted for up to 20 personnel.

Orcas are unarmed when employed as training vessels.

Photo: DND Combat Camera

A Sea King helicopter hoists a sailor from the ***Orca****-class patrol craft, training (PCT)* ***Wolf*** *off Vancouver Harbour in February 2009.*

US Navy personnel operate the Navigation, Seamanship and Shiphandling Trainer (NSST) master control station.

If tasked to conduct operations, they may be fitted with a .50 calibre heavy machine gun on the fore deck and may carry a number of small arms with their associated equipment and ammunition. Indeed, several *Orcas* were employed in patrol and logistics support duties during the 2010 Vancouver Olympics and Paralympics. The eight *Orcas*, all based at Esquimalt, British Columbia, where the climate and protected waters are more conducive to year-round operation, are proving to be very useful training and general-purpose vessels.

Many navies have dedicated training vessels, such as the French *Jeanne d'Arc* and Japanese *Kashima*. Such ships are designed so that they may be readily modified for combat or support roles. Many Latin American navies operate sail training ships, such as the Chilean *Esmeralda* and Argentine *Libertad*, which frequently visit North American ports on training deployments or tall ship gatherings. These deployments also serve the purpose of broadening the education of junior officers and of 'showing the flag' abroad.

While at-sea training is important, a major development has been the computerized navigation and ship-handling trainer. These can be programmed to simulate the characteristics of a broad range of ships – on dry land. An increasing number of navies, coast guards and shipping companies are purchasing such bridge simulators. In January 2010, the Royal Australian Navy (RAN) announced a contract with the Norwegian firm Kongsberg Marine, a major supplier of these simulators, to upgrade and modernize an existing bridge simulator. The announcement stated that:

> The delivery will provide [the] RAN with high fidelity visual effects of ships, ship behaviour and the maritime environment. Through the state-of-the-art functionality provided by the ... ship bridge simulator, the Royal Australian Navy will be able to accurately replicate the full range of maritime operations likely to be experienced while on the bridge of a warship. This will include the ability to test knowledge, skills and competencies of trainees in scenarios ranging from simple tasks, such as passage planning, ocean passage and coastal navigation, to more complex tasks including pilotage, berthing and un-berthing, precise navigation and close quarter maneuvering when conducting warfare type exercises.[1]

It is worth noting that an important feature of the Canadian *Orca*-class ships is that they are equipped with a PC-based navigation radar system, which eases the transition from shore-based simulators to afloat operations.

Does this mean that simulators will totally replace training vessels? I submit that the sea is a sufficiently complex and alien environment that actual underway training and experience will always be necessary. However, maritime simulation is a highly effective means of educating and re-qualifying professional mariners before they proceed or return to sea, and it is now an important and necessary part of the training curriculum.

Notes

1. Commander Glenn Robinson, "The RAN Awards Significant Ship Bridge Simulator Contract to Kongsberg," DefenceProfessionals.com, 29 January 2010.

Book Reviews

Japanese Sea Power: A Maritime Nation's Struggle for Identity by Naoko Sajima and Kyoichi Tachikawa, Canberra: Sea Power Center – Australia, 2009, 202 pages, appendices, ISBN 978-0-642-29705-1.

Reviewed by Matt Gillis

Few states have experienced as many naval transformations as Japan. Its navy has transformed from a coastal force in the seventh century translating land warfare tactics to the sea, to a regional power triumphant through the Sino-Japanese and Russo-Japanese wars, to an oceanic world power and pioneer of carrier aviation, to its present state as a contemporary self-defence force.

This tumultuous history is catalogued by Naoko Sajima and Kyoichi Tachikawa in *Japanese Sea Power: A Maritime Nation's Struggle for Identity*, the second in a series from the Sea Power Center in Australia examining national case studies of sea power. Sajima and Tachikawa divide their book into four sections. The first section provides a brief introduction, offering a condensed maritime history of Japan and an outline of the geographical features that define it as a 'maritime nation.' The second section discusses Japan's maritime history from around 600 CE to the Second World War. The third section covers the last 50 years of Japanese maritime history, including the birth of the Japanese Maritime Self Defence Force (JMSDF) and Japanese-US relations during the Cold War. The final section – actually a series of appendices – includes supplementary items such as interviews, maps, the Japanese Constitution of 1947, photographs and charts comparing Japanese maritime strength with other Pacific states.

Japanese Sea Power does not offer a particular prescriptive argument; instead, the authors maintain that Japan, with its population and industries in close proximity to and dependent upon its coasts, is a maritime nation. Sajima and Tachikawa argue that "a Japanese nation without sea defences would be extremely vulnerable." Hence, "coastal defence is critically and eternally important for the defence of Japan" (67). They maintain that the JMSDF is limited not only legally, through the constitutional condemnation of force that may be perceived as offensive, but also through underfunding and personnel deficits compared to its regional neighbours. If there is a lesson in this book for Canadian policy-makers and military professionals, it is likely here, through an analogy to Canada's own naval budgetary and personnel woes, as well as the challenges in building popular and political appreciation for a navy.

While Sajima and Tachikawa underline the necessity of Japanese maritime security today, they fall short in satisfactorily identifying the threats and concerns in the maritime domain for Japanese interests. They point to "the defence of Japan from an invasion by the USSR" (73) as a significant concern during the Cold War, but only a few contemporary cases are offered, including a deployment of JMSDF minesweepers to the Persian Gulf in 1991 and domestic disaster relief after an earthquake in 1995.

Japanese Sea Power is small in size. The actual text by Sajima and Tachikawa is 93 pages including diagrams, which means that the evolution of Japanese sea power over 1,400 years is greatly condensed. Details are scant, with pivotal naval action during the Russo-Japanese War and Second World War receiving only passing mention. At the same time, however, this is a highly readable and accessible account of a long period of naval transformation. Sajima and Tachikawa make no pretence about providing an exhaustive study of the functions of Japanese sea power, but rather aim to provide a survey of doctrinal or strategic shifts and the perceptions of the navy in Japanese society and politics. In this they are successful.

While the authors avoid discussion of minutiae, the text is buttressed by the numerous appendices. The appendices help to plug gaps in the discussion by providing discussion of a variety of topics, from Japanese mythology to a comparison of Japanese military strength relative to Australia and New Zealand. Among the most interesting inclusions are American interrogations of Japanese flag officers conducted in late 1945, offering first-hand accounts of engagements at Midway, Coral Sea and Leyte Gulf.

Overall, Sajima and Tachikawa present a comprehensible survey of several centuries of Japanese naval history and transformation. *Japanese Sea Power* is an informative entry-level discussion of the topic. Those seeking tactical and operational details or a more critical and prescriptive consideration of contemporary Japanese maritime security may be obliged to look elsewhere. Still, this is a valuable 'first stop' book for learning about the long and turbulent maritime history of Japan.

The Royal Navy Officer's Pocket-Book, 1944, compiled by Brian Lavery, London: Conway, 2007, 144 pages, $16.95 (hardcover), ISBN 978-1-844860548

Reviewed by Colonel P.J. Williams

In this centenary year of Canada's naval service, it is appropriate to review the actions of those who came before us and who established the proud legacy we enjoy today. During the Second World War, the Royal Canadian Navy (RCN) played a leading role, having expanded to become the third largest Allied navy by the end of that conflict.

Of particular concern to the Royal Navy (RN) and its Commonwealth partners was the training of officers, and so during the war, the RN produced an extensive series of manuals on a variety of subjects, to complement training delivered at installations in Britain and overseas. Brian Lavery has compiled seven wartime manuals into this slim, highly readable volume, which provides some insight into what it meant to be and what was expected of officers aboard His Majesty's Ships in wartime. The manuals are as follows:

- The Officer's Aide Memoire;
- Notes for Medical Officers;
- The Treatment of Battle Casualties Afloat;
- HMS Duncan-Captain's Standing Orders;
- Your Ship: Notes and Advice to an Officer on Assuming His First Command;
- The Home Fleet Destroyer Orders; and
- Dealing with Mutiny.

Many of the subjects covered would have been included in the curriculum of HMS *King Alfred*, the RN officer training school, through whose gates passed some 204,562 officers during the war. The peacetime RN, and one assumes by extension its cousin the RCN, gave scant attention to leadership training, as it was assumed that the young men destined to command HM ships had gained the requisite leadership training at school or through other life experiences. Thus, we are treated to an entertaining chapter in which subjects as diverse as "Firmness and Fairness," "Smartness" and "Forethought" are covered.

The fact that many officers were new to the service also extended to "Higher Ratings," of whom the young officer was told to "not expect too much … as large numbers are at present being made and many are of very limited experience." Medical officers are told that "[n]aval Officers are extraordinarily polite," and that when proceeding to training they could take their golf clubs, tennis rackets and favourite books, but were not to expect compensation from the Crown in the event "of loss of any articles which are not essential to enable you to perform your naval duties." Considerable detail is given on how casualties were to be treated onboard ship, with the book making it clear that peacetime ("centralized") measures had to give way to a more decentralized system during hostilities.

I found the chapter entitled "Your Ship" to be the most interesting. Meant for a more experienced audience, this part of the book gives advice and guidance that would not be amiss in today's navy. For example, the authors point out that it is at the six-month point of command that a new Captain has to be at his most vigilant, as it is at this point that "[t]he forethought you originally put into going alongside no longer seems necessary…. Then the crash comes." The chapter also describes what are referred to as "The Three Grades of Order," in decreasing order of immediacy, "The Imperative," "The Volitive" and "The Admonitive." While an Imperative order such as, "Paint the whaler today," is meant for immediate execution, an Admonitive, such as "Isn't it time the whaler had a fresh coat, Number One?" is meant "for voluntary execution, disregard of which may be a little tactless." As to the matter of addressing the ship's company, the book strongly encourages Captains to rehearse their words beforehand, following the example of Winston Churchill. Wartime Captains were clearly busy men and despite their primary responsibility to fight their ship, they were still responsible for many administrative matters: on a weekly basis they had to review a number of ship's books, including three related to alcohol: Wine Book, Gangway Wine Book and the Spirit Stoppage Book!

The final chapter on mutiny is of a much more serious tone, and in its original version was classified "Confidential" and was to be kept under the Captain's control. The chapter describes both internal and external factors which may give rise to mutiny. When addressing the men, Captains were advised to do so from the opposite direction to that expected as it was believed that ringleaders often tried to hide in the rear of an assemblage. The book also states that "[s]hooting to kill should only be resorted to as a last extremity."

Each year the ranks of Canada's veterans who fought in the Second World War continue to dwindle. As a supplement to first-hand accounts, books such as this serve to give us a better feel for the doctrinal foundation and the training of those who went before us in a highly worthy cause. On that basis alone, the book is strongly recommended.

Small Boats, Weak States, Dirty Money: Piracy and Maritime Terrorism in the Modern World, by Martin N. Murphy, New York: Columbia University Press, 2009, 288 pages, $60 (USD), ISBN 978-0-231-70076-4

Reviewed by Dave Mugridge

This book is both timely and relevant as the threats of piracy and terrorism have catapulted maritime security into the public arena and made an international cadre of politicians and their military vassals uneasy. Whether you believe that failing security in the maritime domain is a significant threat or just a spasmodic irritation, Martin Murphy's comprehensive work is highly recommended.

Murphy's academic credentials are very impressive and this work attests to that scholarly authority. Potential

readers should not be deterred by the fact that this is a book written from an academic perspective because it offers a well-rounded review of current open source material. This book clearly benefits from the author's links with the shipping industry and UK Ministry of Defence, and these links generate a welcome breadth of perspective.

The book is divided into six chapters which address the various issues of terrorism and piracy. It would make excellent reading for military personnel deploying to an area where these threats exist. The statistics and assessments are pertinent and well laid out but illustrate the difficulty of establishing contemporary baseline figures as they predominantly reflect the situation to 2005. Murphy works hard to show the legal complexity of the definitions which pertain to and differentiate between acts of organized crime, piracy and terrorism. This endeavour becomes a fundamental foundation to his conclusions and findings.

Throughout the book the author seeks to answer three pivotal questions:

- What form does piracy take in the contemporary world?
- What is maritime terrorism?
- Are piracy and maritime terrorism similar or linked?

I believe that rephrasing the third question into two separate questions would better inform the reader. I would, therefore, instead ask:

- Are piracy and maritime terrorism similar?
- Are piracy and maritime terrorism linked?

By so doing the author could have tackled the issues of modus operandi and connections more thoroughly.

The title articulates an interesting trinity but is missing another consideration – failed international response or misdirected strategy. It is this that illustrates the wholesale malaise of contemporary maritime security. The futility of a multi-million dollar Canadian warship engaged in a game of cat and mouse with a handful of Somali pirates and delivering an end result of 'float-testing' a few AK-47s and an RPG is readily apparent. Yet the failure to address this issue in a coherent and comprehensive manner is not purely Canadian but international in its scale, a point which Murphy makes very clearly. Futile gestures in security are seldom welcome and HMCS *Winnipeg*'s deployment was just that, representing the failure of Canada, amongst others, to develop a sustainable maritime security strategy reflective of Ottawa's (defence, development and diplomacy) security mantra.

It seems to me that Murphy has developed the ideas expressed by many Canadian academics (in particular at the University of New Brunswick and Dalhousie University) about the symbiotic relationship between crime and terrorism as well as the likely nexus between the two.[1] To my mind, he over-states the difficulties of overcoming the operational and technical issues required to graduate from being a low-level threat to delivering a marine-based atrocity. This stems from his academic as opposed to operator's approach to the maritime security issue.

Despite these criticisms, Murphy's conclusions are well made and make sobering reading. They contain a timely warning about the current threats to maritime security and by default the global maritime transport system. Of particular import is his clear and unequivocal statement that piracy is a highly organized form of criminality and as such requires close attention. As well, ideology and differing objectives are a thin veneer to preventing collusion and cooperation between pirates and terrorists.

This book will be a standard reference book for many years. Those with a professional or academic interest in this subject must read it, complementing as it does the valuable work being done at both the Gregg Centre at UNB and Centre for Foreign Policy Studies at Dalhousie University.

Notes

1. David A. Charters and Graham F. Walker (eds), *After 9/11: Terrorism and Crime in a Globalised World*, Halifax: Centre for Foreign Policy Studies/ Centre for Conflict Studies, 2004.

The Ironclads: An Illustrated History of Battleships from 1860 through to the First World War by Peter Hore, London: Southwater Books, 2006, 96 pages, glossary, index, ISBN 978-1-84476-99-6

Reviewed by Commander Mark R. Condeno

When we hear the word 'Ironclads,' the most likely event that comes into mind is the 1862 encounter between the USS *Monitor* and CSS *Merrimack* during the US Civil War. The type also includes armoured warships of the late nineteenth century and those of the pre-Dreadnought era. In this highly illustrated treatise, retired Royal Navy Captain Peter Hore chronicles the development and evolution of these vessels as well as their impact on naval warfare and the transition of the naval forces of the period.

The book commences with an introduction in which the author discusses the origins of the type, the development changes and campaigns in which they were notable. He also looks into the pre-Dreadnought battleships of the major navies. He discusses two important battles in which the type is prevalent – the battle of Lissa in 1866

and the battle of Tsushima in 1905. The former is an engagement between the Austrian and Italian Navies in which the Austrian Navy emerged victorious. The battle also gave light to the tactic of ramming. The encounter on the Tsushima Straits marked the rise of the Imperial Japanese Navy as it proved its prowess in gunnery over the Russian Navy. Captain Hore also provides an overview of subjects such as the Swedish influence on the US Navy, the voyage and impact of the Great White Fleet, and the development of HMS *Captain*, a ship which capsized in 1870 and provides a perfect example of an unsuccessful warship design.

Similar to his earlier works, *Battleships of World War I & II*, the book opens with a country by country listing of the eight navies that possessed the type. This forms the core of the book. For the Royal Navy 12 classes are covered, from HMS *Royal Sovereign* to HMS *Lord Nelson*. The ships took part in the naval campaign on the Dardanelles, Zeebrugge and Gallipoli. The section on the US Navy follows, and covers from the launching of USS *Vermont* in 1906 to the USS *Mississippi*-class. The latter's history was eventful as these ships were the only American battleships to be sold to a foreign navy – Greece. Greece acquired the ships in 1914 and they served until they were sunk in the opening days of the Second World War. Next, Hore discusses the Imperial Japanese Navy, focusing on three of its pre-Dreadnought class (mostly British built). The remaining sections focus on the types that were in the order of battle of the German, French, Italian, Russian and the Austro-Hungarian Navies.

The book is well written and well researched. In addition to its impressive illustrations and magnificent photographs, construction, refits and operational histories for each class are provided along with specification details. The author deserves a commendation in bringing light to this rarely covered topic as only a few authors have ventured into this era of naval revolution. *The Ironclads* is a valuable and welcome contribution in the historiography of pre-Dreadnought warships.

Somalia ... From the Sea, by Gary J. Ohls, Naval War College Papers 34, Newport, RI: Naval War College Press, July 2009, 244 pages, ISBN 978-1-884733-59-8

Reviewed by Dave Mugridge

If one should learn lessons from recent history then Somalia is one place from which we could learn. Somalia's descent into chaos dates back to the events recorded in Gary Ohls' analytical digest of US involvement there in the early 1990s. The US Navy-led intervention came at a global watershed, when the world was adjusting to the end of the Cold War and 'enlightened' elements of the international community repaved the Somali road to hell with their good intentions. For both the United States and Canada, Somalia remains unwelcome military baggage. Despite the universal recognition of the need to intervene if a lasting solution is to be found, the events documented by this book have been so distorted by Hollywood and the North American media that they have transformed this troubled place into a military 'no go' zone.

Ohls recognizes the destructive power of hindsight as a lens and is to be commended for his objective description of how modern-day Western humanitarian idealism was broken on the anvil of warlordism, mass violence and systemic corruption. Although today's militaries are different beasts from those who went before, the learning culture for this type of operation remains strangely steadfast. Unfortunately, the lessons Ohls describes from operations in Somalia in the 1990s are equally applicable to the Iraq and Afghanistan campaigns of today.

Although this book documents an ultimately unsuccessful campaign, it contains a timely reminder of the flexibility, employability and capability of maritime forces to shape events ashore. For the Canadian military audience, its lessons are pronounced. They illustrate the need for maritime forces to possess a balance of littoral and blue-water capabilities. Lord Palmerston's gunboat diplomacy had no place in Somalia in the 1990s and has proved to be of limited value off Haiti or against piracy in the Horn of Africa.

The intervention in Somalia continues to influence foreign policy. Could we learn something from this about how the Afghanistan campaign will influence Canadian security policy post-2011? I believe the answer here is yes – premature withdrawal from combat operations and a failure to deliver enduring security for the Afghan people will ultimately mean that this international foray, as viewed by analysts and voters alike, is a strategic failure.

Ohls reminds the reader of the value of fully appreciating the mission to which you are committing your forces. The questions raised by this book make sobering reading, particularly when considered in the context of current military operations. Many of today's political leaders would feel uncomfortable if asked how their decisions rated against this sort of acid test.

In summary, this book won't rival J.K. Rowling for shelf space in Chapters nor will it compete with Tom Clancy for airport reading. What it does do is provide readers with a credible historic insight into the roots of today's Somali mire, reminding them that the principles of statesmanship are timeless and not set by election cycles or public opinion polls.

Comrades in Chili

Jacqui Good

For as long as anyone can remember there's been a Friday noon get-together aboard HMCS *Sackville*. As the sun crosses over the yardarm trustees, veterans, visitors and dignitaries, scramble down the ladder to the cozy space that looks for all the world like a pub. For an hour or so, Canada's National Naval Memorial stops being a museum and turns into a social club.

Inexpensive beer and wine are cheerfully dispensed from behind the bar. Sometimes there are plump sandwiches. Sherry Richardson refers to the event as "beer, sangies and lies" and she should know since she was captain of *Sackville* for five years in the 1990s. Now she enjoys showing up to talk (and maybe even lie) to old friends.

The current menu is usually anchored by either chowder or chili and, on this memorable Friday in early June, both items are being happily devoured. Chili fans are a little more vocal than those who favour chowder, but the split is about equal.

Food and drink are powerful incentives to climb down the ladder, but camaraderie and conversation are even more irresistible. Penelope Russell is at a table with Dr. Caroline Scott both of whose late husbands served in the navy and both women have become trustees of the Canadian Naval

Photo: DND Combat Camera

*HMCS **Sackville** fires its main gun in memory of the late Rear-Admiral William Moss Landymore prior to the committal of his ashes to the sea by HMCS **Toronto** on 1 May 2009.*

Memorial Trust (which literally keeps *Sackville* afloat). Caroline is excited to pass on news of the publication of a new book about *Athabaskan*, in which her husband Jack sailed. Penelope is keen to get information on the upcoming visit of Queen Elizabeth II to *Sackville* and Halifax.

At the other end of the crowded room, Patrick Onions is visiting from Wingham, Ontario. He served onboard *Sackville* in 1945 and 1946 and vividly recalls escorting captured German officers below to the wardroom. He

Photo: Canadian Naval Memorial Trust

*Vice-Admiral (Retired) Duncan Miller, Rear-Admiral Paul Maddison and George Zwaagstra aboard HMCS **Sackville** 4 June 2010.*

gestures vigorously at the bar and declares "[t]hey were standing right there!" The room swirls with memories. Someone brings out a flag from the captured U-190 U-boat. Several people mention that the U-boat engineer, Werner Hirschmann, is now an honorary member of the Naval Officers Association of Canada.

Part of the lunch routine is the introduction of any special guests. Today, Rear-Admiral Paul Maddison, Commander of MARLANT and his wife, Faye, are being feted. The Trust's Chairman, John Jay, thanks the Admiral for his leadership in persuading members of the current navy to become trustees. Admiral Maddison responds, "I'm absolutely certain that within the next year or two, there will be a tipping point, so that those who serve in the Canadian Navy will realize that *Sackville* is *their* navy as much as it is *your* navy." This suggests even bigger pots of chili in the future.

Admiral Maddison recounts his fondest memories involving the little corvette – Battle of the Atlantic commemorations with the solemnity of the committal of ashes at sea, a ceremony honouring the contribution of the Merchant Navy and the stirring nine gun salute for Admiral William Moss Landymore's funeral.

Then a bell rings and the company shouts, 'God Save the Queen'! The party gradually disperses, the dishes and glasses are washed and put away. Most of us will be back next week.

Jacqui Good prefers the chowder.

Canadian Navy Commemorates the Heroic Sacrifice of Lieutenant Hampton Gray

Second Lieutenant Christopher Daniel

The Canadian Naval Air Group held an official commemorative ceremony in honour of the only Canadian naval Victoria Cross (VC) recipient of the Second World War – Lieutenant Robert Hampton Gray VC, DSC, RCNVR – at the National War Memorial and Valiants Memorial in Ottawa on 19 May 2010.

The event was attended by Vice-Admiral Dean McFadden, Commander Maritime Command, Brigadier-General Dwight Davies, representing the Chief of the Air Staff, Peter Mills, Veterans Affairs Canada, and diplomatic representatives from allied countries. As well as an official wreath-laying ceremony, the commemoration included a bugler from the Stadacona band playing "The Last Post" and "Reveille" and a bagpipe rendition of the "Lament" and the "Rouse." "Today we recognize the achievements of Canadian naval aviation and we remember the heroic deeds of Lieutenant Gray," said Vice-Admiral McFadden. "His service is an inspiration to all of us," he noted.

On 9 August 1945, during one of the last operational flying days of the war in the Pacific, Lt. Gray climbed into his aircraft and prepared to lead his flight of seven Corsairs in the attack on Matsushima airfield from HMS *Formidable*. To avoid anti-aircraft fire, Lt. Gray decided to approach Onagawa Bay from the mainland. He entered into a rapid descent in order to get the aircraft down to sea level for the short bombing run of *Amakusa*, the largest Japanese warship in the harbour.

Despite the risk, Lt. Gray fearlessly attacked *Amakusa*. As the citation for his VC stated, "[i]n the face of fire from shore batteries and a heavy concentration of fire from some five warships Lieutenant Gray pressed home his attack, flying very low in order to ensure success, and, although he was hit and his aircraft was in flames, he obtained at least one direct hit, sinking the destroyer." Lt. Gray was one of the last Canadians to die during World War II, and was the last Canadian to be awarded the VC. His VC is displayed at the Canadian War Museum in Ottawa.

He is commemorated, with other Canadians who died or were buried at sea during the First and Second World Wars, at the Halifax Memorial in Point Pleasant Park, Halifax, Nova Scotia. The Royal Canadian Legion hall in Nelson, British Columbia, and the wardroom of HMCS *Tecumseh*, his RCNVR home unit, also bear plaques in his honour.

A memorial service honouring Lt. Gray's act of bravery was held in 2006 and a memorial erected at Onagawa Bay, just metres away from where his plane crashed. This is the only memorial dedicated to a foreign warrior on Japanese soil.

Lt. Gray is one of 14 figures commemorated at the Valiants Memorial in Ottawa.

Photo: Internet

Sub-Lieutenant Hampton Gray, RCNVR, on graduation.

Photo: DND

Vice-Admiral Dean McFadden, Commander Maritime Command, lays a wreath honouring Lieutenant Hampton Gray at the National War Memorial in Ottawa, May 2010.

If you want to maintain your connections with the naval community or make a difference for the Canadian Navy of the future, join the Naval Officers Association of Canada.

See **www.noac-national.ca** for more information.

The 2010 Canadian Naval Fleet Reviews in Esquimalt and Halifax

Photo: Peter Haydon

Photo: DND

Photo: DND

Photo: DND

Photo: DND

Photo: DND

Photo: DND

Photo: DND