



CANADIAN NAVAL REVIEW

VOLUME 5, NUMBER 1 (SPRING 2009)

**Brothers in Arms or a
Case of My Enemy's
Enemy is my Friend?**

**The Case for Canadian
Marines**

Amphibiosity Resurgent

**Future Capabilities and
Technologies**

**Canadian Naval
Technology Earns Global
Sales**



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.



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 5, NUMBER 1 (SPRING 2009)

Editorial Board

Dr. David Black, Peter T. Haydon, Dr. Danford W. Middlemiss,
Rear-Admiral (Ret'd) David Morse, Dr. Denis Stairs

Editor: Dr. Ann L. Griffiths

Assistant Editor: Douglas S. Thomas

Photo Editor: LCdr Pat Jessup

Subscriptions/Administration Manager: Dr. Shelly Whitman

Associate Editors: Dr. Richard Gimblett, Dr. Rob Huebert,

Colonel (Ret'd) John Orr, Michael Young

Graphic Design: Kim Squared Incorporated

Printing: Advocate Printing and Publishing

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, historical perspectives, procurement programs and operations of the Canadian Navy, and national security in general. This initiative brings together members of the Canadian defence and academic communities and is a component of the CFPS's Maritime Security Program.

The *Canadian Naval Review* has 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.

Copyright © 2009. ISSN 1715-0213 *Canadian Naval Review*



HMCS Athabaskan, HMCS St. John's and HMCS Toronto depart Halifax Harbour for TGEX 09.

Contents

| | |
|--|----|
| EDITORIAL: A RECRUDESCENCE OF THE CANADIAN NAVY? DAN MIDDLEMISS | 2 |
| BROTHERS IN ARMS OR A CASE OF MY ENEMY'S ENEMY IS MY FRIEND? DAVE MUGRIDGE | 4 |
| THE CASE FOR CANADIAN MARINES KEN HANSEN | 10 |
| AMPHIBIOSITY RESURGENT MAJOR R.D. BRADFORD | 16 |
| OBSOLESCENCE CHALLENGES PART 4: FUTURE CAPABILITIES AND TECHNOLOGIES BRENT HOBSON | 20 |
| CANADIAN NAVAL TECHNOLOGY EARNS GLOBAL SALES JANET THORSTEINSON | 25 |
| MAKING WAVES RESPONSE TO GILLIS ARTICLE IN WINTER ISSUE MICHAEL CRAVEN | 28 |
| THE IMPECCABLE AFFAIR: CHINA'S NEW TWIST TO THE LAW OF THE SEA CONVENTION ERIC LERHE | 30 |
| MIXED MESSAGES FROM U.S. NAVAL LEADERS ON INTERNATIONAL RELATIONS BRIAN WENTZELL | 31 |
| THE VIEW FROM THE WEST: ASIA'S RACE FOR CARRIERS CHRISTIAN BEDFORD | 33 |
| PLAIN TALK: OFF COURSE AND RUDDERLESS? SHARON HOBSON | 36 |
| WARSHIP DEVELOPMENTS: THE CHINESE NAVY DOUG THOMAS | 38 |
| BOOK REVIEWS | 40 |
| RADAR AT THE READY JACQUI GOOD | 43 |



Editorial: A Recrudescence of the Canadian Navy?



Photo: MCpl Eduardo Mora Pineda, DND
Canadian Navy in heavy seas. HMCS *Iroquois* during TGEX 6-07 Norfolk, Virginia.

“It was the best of times, it was the worst of times.”
Charles Dickens, *Tale of Two Cities* (1859)

This famous quotation could well stand as the theme for the navy’s new vision statement. The navy appears to be approaching a critical crossroads just as it nears its centenary in 2010. On the one hand, from the standpoint of geo-strategy and domestic security requirements, the navy’s core missions and national relevance are on the upswing and perhaps hint at better times ahead. On the other hand, in the harsh reality imposed by a deepening economic recession, the navy’s prospects for mustering the necessary political and bureaucratic support for an expensive modernization program are on the wane. Which of these trajectories is likely to prevail, and what, if anything, can the navy do about them?

Seizing the Strategic Moment at Home and Abroad

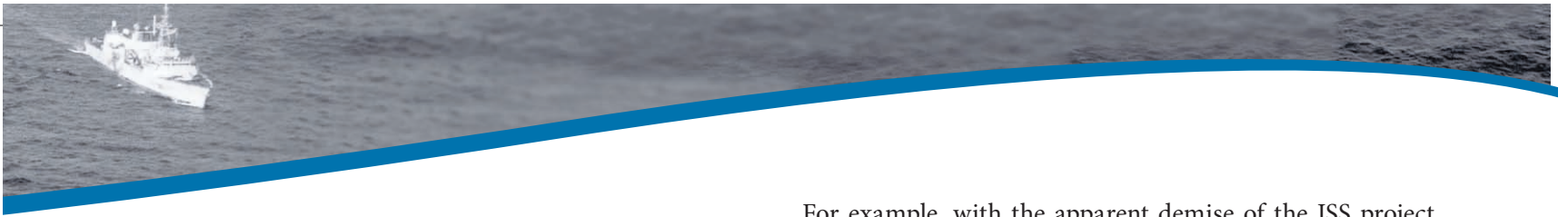
To begin with the upswing thesis, there is a growing sense that, from a military perspective, the emerging strategic environment is ripe with opportunity for navies generally.¹ First, Russia and China are poised to deploy their navies across the world’s oceans. This concerns Canada for many reasons, but in particular because one obvious arena of interest is the Arctic, already the locus of claims by Russia, the United States and the European Union. Ironically, global warming, by opening up the Arctic to ever-increasing periods of ice-free passage, may have stoked a new Cold War right in our own backyard.

Recently, Ottawa has begun to take the sovereignty protection mission in the Arctic more seriously. The navy

has undertaken a series of ‘show the flag’ deployments and exercises in the north, and Prime Minister Harper’s Canada First Defence Strategy includes core missions and new equipment projects that have a direct bearing on the navy’s role in protecting Canada’s interests in the Arctic region. And, unlike many of the planned re-equipment projects for the Canadian Forces (CF), navy programs that are geared to the ‘home game’ are less apt to encounter partisan political opposition. Moreover, there is the added sense that it is the navy’s ‘turn’ in the overall defence procurement queue – a view fostered in part by Senate Subcommittee reports issued under Senator Colin Kenny and public musings by respected academic commentators like Dr. Jack Granatstein.

Second, globalization has spun off a new twist on an old problem, as terrorism and maritime piracy have combined to pose new threats to state stability and to the order of the seas, especially off the Horn of Africa. As a maritime trading state, Canada has an economic stake in lawful transport at sea, while as a committed partner in the war on terrorism Canada is concerned about terrorism wherever it manifests itself. To these ends, Ottawa has recently deployed the navy to protect World Food Program aid to Somalia, in addition to a succession of ships deployed to the Adriatic and Arabian Seas in support of the campaign in Afghanistan.

Third, whatever the outcome of Canada’s mission in Afghanistan, senior Canadian Army officers have admitted that their people are near the point of complete exhaustion and are badly in need of a lengthy operational pause, and that their equipment requires reset and reconstitution. Other analysts have speculated that the overall experience of Afghanistan, with its unanticipated and mounting costs, both in casualties and equipment, may have tempered the taste of ordinary Canadians for additional interventions for the foreseeable future.² So, if the army is destined to sit on the sidelines in future conflicts and crises, then if our political leaders wish to participate in multinational missions, they will have little practical alternative to sending the navy to signal Canada’s willingness to participate. In these circumstances – not unlike those we experienced



in the 1990s – the navy will become the default foreign policy instrument for future federal governments.

Stumbling Blocks and Troubling Portents

But just as this strategic window of opportunity opens for the navy, there are numerous factors that, together, threaten to slam it shut. Some of these obstacles are derived from forces far beyond the navy's control; others, however, appear to emanate from within the navy itself.

Above all else, the spectre of a widespread and sustained economic recession casts a gloomy pall over all previously announced and planned spending for the CF. Big-ticket defence procurement programs are hard enough to sell to the Canadian public at the best of times and in the current economic crisis such programs, which often take 10-15 years to move from the drawing board to the field, do not qualify as 'shovel-ready' to a federal government seeking immediate job creation stimulus to a stagnant economy. In Ottawa, the political imperative is thousands of jobs now, not a few grey hulls later.

But even before the current economic meltdown took hold, many of the navy's major defence acquisitions had been cancelled, deferred indefinitely, or otherwise cast in doubt. While the explanations for each of these cases of procurement backsliding are varied, two of the prime suspects are inevitably present to some degree: unanticipated, rising costs; and badly under-estimated funding requirements. The simple fact is that there is no approved budget for any of the navy's capital acquisition projects: 3 Joint Support Ships (JSS); 12 frigates; 3 destroyers; 6-8 Arctic/Offshore Patrol Ships (A/OPSs); and finally, 4 submarines. This list reflects the navy's order of priority (from near to longer term), and does not include the much ballyhooed 'Big Honking Ship' championed by former Chief of the Defence Staff Rick Hillier, the costs for additional sailors to crew the vessels and to make up for existing personnel shortfalls, and it accepts, somewhat cautiously, that the new ship-borne helicopters are now a done deal.

Part of the difficulty today is undoubtedly the economic crisis, but one suspects that things had begun to fall off the slipways for the navy long before this. The Canada First Defence Strategy announced \$45-50 billion in planned capital spending over the next 20 years, but this sum, and the 'automatic' 2% annual growth DND funding formula (after 2011-12) and the 12% to capital that was to provide the necessary money, have been derided as being wildly unrealistic on the low side.

Whether or not this government is sincere about re-capitalizing the CF is one thing, but it is entirely another thing to ask whether the navy has got its own act together yet.

For example, with the apparent demise of the JSS project, what slippage, if any, has this caused to the navy's planned frigate-destroyer replacements which were scheduled to begin as early as 2015? Given past delays and cancellations, does the navy in fact have a fully costed procurement plan?³ Furthermore, recognizing that aspirations do not a strategy make, where is the navy's updated strategic vision document, and how well does it rationalize the sizeable outlays that it expects Canadians to shoulder?

Finally, is the navy onboard with the Harper government's intention to do more to safeguard Canadian interests in the north? Here, the navy, faced with a current procurement 'wish-list' that is no longer affordable, must not be seen to be throwing the A/OPS program out of the lifeboat in order to salvage its frigate-and-destroyer preferences. Whatever the merits of the navy's case, it would be extremely impolitic – to the point of risking the entire naval modernization effort – to defy the will of Canada's political masters via the old navy tactic of circling-the-destroyers.

Conclusion

Despite a significant restructuring of the navy's 'strategic communications' organization, and notwithstanding expressions of angst from the senior navy staff about Canada's 'maritime blindness,' the navy is simply not communicating effectively with Canadians about how it can – and does – make a difference to their everyday lives. Nor is it communicating what would be lost to Canadians in the absence of a balanced, robust and versatile fleet. The navy needs a determined public outreach strategy that follows a coherent, clear and simple public message,⁴ and it must eschew its usual 'insider's game' of preaching to the choir.

To do otherwise is simply not good enough. The navy must seize its strategic moment. It should become an institutional champion for the sovereignty protection role in the Arctic. It should confront the issue of its large, start-up capital costs directly and honestly with Canadians – it might also point out to Canadians that it found the hybrid answer to rising fuel costs long before Toyota. The public is starved for clear, reliable information about the navy's plans. To continue to drift aimlessly is to risk foundering at precisely the time when the navy is well-placed to regain its political and military relevance. 🍷

Dan Middlemiss

Notes

1. See Cincinnatus, "The Future is Bright, the Future is Dark Blue," *Naval Review*, Vol. 96, No. 4 (November 2008), pp. 307-314.
2. Douglas Bland, "The Afghan mission has taught our politicians a lesson," *Globeandmail.com*, 27 November 2008.
3. The total acquisition costs alone, without counting in-service, life-cycle costs, are likely to exceed \$30 billion in current dollars.
4. This is not to say that the navy is not trying to communicate, but only that, in trying to fashion the *perfect* message, it has not provided *any* clear message. The result is a near-vacuum in direct communications with Canadians.

Brothers in Arms or a Case of my Enemy's Enemy is my Friend?

Dave Mugridge

I believe that our uncertain strategic environment will result in a growing burden of operations, particularly in constabulary type functions. These operations may flow from ISPS Code, regional instability or specific government direction but will be in addition to and not instead of our war fighting role.¹

Questions about possible maritime links between terrorist and criminal groups have re-surfaced following the rise of Somali piracy and the evidence that the perpetrators of the Mumbai attacks in December 2008 arrived, with their weapons, via a hijacked fishing vessel from the sea. The post-9/11 strategic environment coupled with the recent global financial meltdown is creating conditions which are ripe for an increasingly close relationship between criminals and terrorists. Within the context of growing criminal exploitation of the world's oceans, this article will examine the nature of this apparently symbiotic relationship. The evident deterioration in international maritime security is reflective of society's general lack of appreciation of the importance of the maritime arena to both the global economy and the strategic environment – particularly at a time when terrorists could be said to have entered a new phase in their attacks on non-combatants.

There are nascent signs, however, that the Western world is becoming aware of its self-imposed vulnerability in this domain and is seeking to address its past mistakes. Kate Bryden's succinct and telling articulation of the failure of international bodies to address terrorism is equally pertinent to those who threaten maritime security.² The potential solution to these multi-faceted problems would appear to lie with developing a coordinated, coherent and comprehensive approach rather than the standard myopic naval knee-jerk reaction. Gaining political acceptance is essential if operational cross-pollination from related fields such as counter-insurgency, international development and law enforcement is to occur to aid the restoration of good order. This is broadly reflective of Canada's attempt to develop a three-dimensional approach to security that incorporates defence, development and diplomacy in order to maximize the effectiveness of Canadian activities abroad.³ In comparison with the current military focus, something tangible and cost-effective can be delivered as part of multi-agency operations.

The post-9/11 strategic environment coupled with the recent global financial meltdown is creating conditions which are ripe for an increasingly close relationship between criminals and terrorists.



Attacks in the Gulf of Aden hit record levels in 2008, with pirates attacking 111 and seizing 42 vessels.

Unfortunately, the train of progress is slow moving. The often-neglected field of maritime security is suffering a lamentable international malaise which threatens the already damaged global economy and may yet provide the backdrop for the next terrorist spectacular.⁴ The longer the current situation is allowed to deteriorate, the more unpalatable the cure and potential consequences will be. Many commentators have focused on the possible connection between non-state terrorism and the proliferation of weapons of mass destruction (WMD) to the exclusion of terrorism's links with other criminal activities such as piracy, smuggling and mass illegal immigration. Indeed, in the immediate aftermath of 9/11, the terrorism/WMD

nexus was considered *the* most potent threat to face the United States.

Before we go too far, it is important to provide a definition of security from which to build the arguments contained in the remainder of the article. Security should be seen as the absence or management of risk to the fundamental values cherished by a society. Therefore it is to be expected that both acceptable risk levels and values will be unique to a state. By and large this is a component of the contract between the state and its people.⁵ The delivery of security is not simply about employing direct military force abroad and indirect methods at home, it should incorporate aspects of all areas of government in both environments in a coherent and appropriate manner.

It can be persuasively argued that the current global financial meltdown represents the greatest and most immediate challenge to international security. But the soft underbelly of the global economic system is the extreme vulnerability of the maritime system to keep world trade flowing. Now is not the time to turn our collective backs on maritime-based terrorism or criminality which threaten to interrupt the vital circulation of goods or raw materials. We should also not ignore this exploitation of the inability of some states to police their territorial waters at a time of global weakness. The fact that the Western-dominated economy has created the potential seeds of its own demise is ironic, but should we allow political 'short-termism' and military myopia to stall a coherent response to illegal activities at sea? Political inaction may well have helped create the nefarious cancer plying the world's oceans but the international community retains the capability, capacity and resources to deal effectively with this disease – although for too long it has chosen not to.

What is required is comprehensive, coherent and coordinated activity that transcends both states and international bodies.⁶ Tackling the sources of socio-economic problems in concert with direct military and judicial action is reflective of the 'comprehensive approach' being pursued hesitantly in both Iraq and Afghanistan. But with perhaps the exception of the US Navy (USN) and Royal Australian Navy (RAN), few maritime security organizations have taken lessons from other people's mistakes, particularly in looking towards their land-based military cousins for inspiration in solving maritime problems.⁷ Even in North America the pace of security cooperation between Canada and the United States in the maritime domain lags behind other well-established aspects of mutual defence and protection.

It is essential to identify and acknowledge the very real constraints that exist and to identify what can be achieved

within the realm of maritime security before attempting to offer advice. In setting these contextual boundaries, certain areas require review – in particular the vulnerability of the maritime economy, and poorly drafted international legal conventions. Both of these contribute to a situation in which non-state terrorists like Al Qaeda and criminals operate effectively in the shadows.



MV Blue Marlin carrying USS Cole back to the United States after a devastating water-borne suicide attack on the ship killed 17 sailors and tore a 40 by 40 foot hole in its side.

The vulnerability of the global economy to disruption in the maritime environment by either (or both) terrorism or criminality should not come as a surprise to the readers of this journal, after all, 80% of world trade (by value) and 92-96% of trade (by volume) travels by sea, as opposed to less than 1% by air. Since the end of the Cold War we have seen the seemingly irresistible development of commercialism's greatest revolution – globalization. This has in turn fuelled an incredible increase in both the volume and value of maritime trade which allows terrorists and criminals to operate with virtual impunity as mere background noise.⁸ This increase in volume and value of maritime trade gives terrorists and criminals tempting political and economic targets. Just a few examples illustrate the importance of maritime trade in the Canadian (2005) and British (2008) economies:

- Canada derived \$100 billion from international maritime trade;
- 14% of Canada's overall trade is derived from maritime trade;
- 350 million tonnes of cargo moved through Canadian ports;
- the UK is home to the world's largest maritime shipping brokers;
- at 13 million tonnes (dead weight) the UK merchant fleet has grown fivefold since 2000;

- shipping generates £1 million per hour for the UK economy (the 4th largest UK services sector industry);
- the contribution of UK-based shipping to the Gross Domestic Product is roughly £10 billion a year of which £3 billion is taken as tax revenue; and
- British shipping employs some 100,000 people and supports 160,000 UK-based jobs.⁹

As I have argued elsewhere, international laws and conventions which were written to support maritime security have proved to be incoherent in the face of modern security challenges. These laws are often based upon outdated or ill-defined concepts, there has been a lack of international cooperation over their enactment and outright failure on the part of the international community to deal effectively with failed or rogue states. This has left many commentators questioning the validity of the international laws and conventions.¹⁰ In response, some states like the UK have established bilateral agreements with similar-minded countries in problem regions to prosecute those involved in piracy. The very existence of bilateral arrangements suggests just how unworkable the situation has become. As more countries follow this practice, does it sound the death knell for these international conventions as politicians illustrate a preference for band-aid bilateral agreements?

The failure of the international community to act in concert over piracy does little to promote confidence. At a time when regional capacity-building is essential, how many governments are fully engaged to ensure that states like Kenya, Yemen or Indonesia are given the necessary tools and support to take an active and leading regional role in the eradication of maritime criminality?¹¹

The International Ship and Port Facility Security Code (ISPS) was supposed to provide the maritime world with a comprehensive legal framework to combat both terrorism and criminality upon the high seas.¹² Its stringent obligations are designed to guarantee the safety of crew, cargo and society from terrorist or criminal acts. Yet this stove-piped bureaucratic response will not address the many root causes of maritime criminality or deter radical non-state terrorism upon the high seas. To contribute effectively to maritime security the response needs to be refocused upon those who use the maritime domain for illegal purposes and not innocent professionals. With sagacious application, however, it could provide an international judicial mechanism to complement a wider multinational response but it is unacceptable for the parameters of the ISPS Code to be self-regulated by individual states. Rectification of national shortfalls identified by independent monitors could be used as a medium for outside agencies or states to address capacity and capability issues within failing states. The realm

of maritime security is an area where international bodies such as the International Maritime Organization, United Nations, Group of Eight (G8) and NATO, with a cadre of lawyers and maritime experts, could act in concert to improve the status quo.

The marked deterioration of maritime security is demonstrated clearly by the growing incidence of piracy, the increase of people smuggling, the sheer scale of illegal narcotics being transported by sea, and the seeming ease with which terrorists can operate in the maritime domain. Research has shown that terrorists and criminals operate in the same twilight world, and since 2004 various Canadian academics have argued that there are collaborative and cooperative links between the



Ordinary Seaman Astride Leblanc onboard HMCS *Ville de Quebec* while the ship was alongside in Mombassa, Kenya, replenishing supplies during *Operation Altair* in 2008.

Photo: Cpl Dany Veillette, Formation Imaging Services Halifax



Skiff at sea in the Gulf of Aden with HMCS *Winnipeg* in background, April 2009. After confirming that the passengers onboard were not in any distress, *Winnipeg* provided humanitarian assistance in the form of water and fruits.

two groupings.¹³ My contention is that we are now on the cusp of seeing a strengthening of these links. The factors that could unite them are being melded at an alarming rate by current world events and demonstrate little sign of abating. Terrorists are no strangers to criminality and criminals are not strangers to the use of terror, so I suggest neither side has far to walk toward their philosophical rendezvous. As the global economy teeters on the brink of recession and regional conflicts are once again on the rise, it may be that we have reached a time in which the last shackles that prevented a union are removed.

The connection between terrorists and maritime criminals has been ignored by many analysts because of what they perceived as differing requirements and objectives of the groups. I would argue, however, that they are not that different – they are linked by *modus operandi*, regions, illicit money, weaponry and a desire to exploit disorder. Their range of activity threatens to mirror much of the legal exploitation of the maritime domain and represents a multi-faceted problem for both states and international bodies alike.

The criminal exploitation of the maritime domain is every bit as pervasive as activities on land but it has often been ignored until, like Somali piracy or Al Qaeda operations, they achieve a newsworthy spectacular success. The threats examined here are piracy and transnational organized crime such as illegal immigration, narcotics smuggling, non-state terrorism and the illegal movement of WMD. This list may seem simple enough, but the picture is confused by conflicting interpretations of these activities. The theoretical differences may seem like minor details but they compound legal issues and do little to promote a comprehensive, coordinated and coherent approach.

One of the key issues which has complicated the delivery of effective maritime security is the lack of agreed legal definitions. For terrorism there are at least 400 working definitions in use by national governments and international organizations, and the definition of piracy is based on an anachronistic concept from the 19th century.

Why is it so difficult to agree on definitions? As a phenomenon terrorism is such a sensitive issue that both opponents and practitioners alike try to gain political and ideological advantage from their definition – for example, defining people with whose objectives they agree as *freedom fighters* and with whom they disagree as *terrorists*. Because of this bias, it is important to look to an international body or academic source for an objective standpoint. My preference is to accept former UN Secretary-General Kofi Annan's UN-approved definition. According to Annan,

Any action constitutes terrorism if it is intended to cause death or serious bodily harm to civilians or non-combatants with the purpose of intimidating a population or compelling a government or an international organization to do or abstain from doing any act.¹⁴

Political considerations have also adulterated the concept of piracy and illustrate the problems of trying to establish a meaningful working consensus. The definition in the UN Convention on the Law of the Sea (UNCLOS) was written in such a way as to separate the crime of piracy from armed robbery at sea (inside territorial waters) and the long-abandoned act of privateering. UNCLOS limits the definition of piracy to an armed robbery that occurs in a ship on the high seas, outside the jurisdiction of any state. This limits the incidence of piracy reported and does not allow outside authorities to respond without the approval of the very failing states at fault. This situation reflects the political reality of international conventions, which to my mind further illustrates the failure of the current legal position and it also goes some way to explaining why we are witnessing the rise of bilateral arrangements.

But let us return to the topic of the connection between terrorism and maritime crime. As noted earlier, in terms of methods of operation the practitioners of maritime criminality and terrorism share many common characteristics. These disparate terrorist and criminal forces are unconventional in their organization, financing and campaigning. They are constituted in relatively small groups and, with the exception of the likes of Al Qaeda or large-scale narco-terrorist organizations, focused upon local or regional issues.¹⁵ The singular and fundamental issue that separates their political and criminal activities is ideology.

The following brief review of three contemporary examples will illustrate the widespread and complex nature of the problems associated with deteriorating maritime security. The examples were chosen to illustrate their multi-faceted nature as well as their significance to current socio-economic and security issues. When viewed collectively



World Food Program ship *MV Golina*, escorted by *HMCS Ville de Quebec*, approaches the coast of Mogadishu, Somalia.

they represent a clear case of a misjudged threat that has become tangible.

The first example is piracy off the coast of Somalia. The position of Somali piracy as the most newsworthy maritime security issue has come about because of the recent number of spectacular attacks on merchant shipping. Despite the efforts of the United Nations and a number of maritime powers, pirates have continued to attack, seize and ransom vessels in the glare of the media spotlight. There are a number of socio-economic and political reasons behind this, not least the failed nature of the Somali state, the loss of lucrative fishing grounds and the rise of warlordism.¹⁶ What is clear is the growing sophistication of the pirates' operational methodology that now includes swarm tactics, encrypted communications, competence in weapon handling and an ability to operate from mother ships well into international waters.

What is *unclear* is the level of cooperation that exists between the pirates who operate from Somali ports and the terrorists who have found sanctuary there. Western intelligence sources within Somalia are questionable at best and they remain uncertain as to how advanced these links are. Despite ideological and religious differences, the potential scenario of Al Qaeda assisting pirates and vice versa cannot be discounted. This would represent an invaluable opportunity for Al Qaeda to pursue an economic jihad against the West given that 12% of world trade passes just to the north of Somalia's coast. Should we not at least consider the possibility of cooperative links between the groups? The Al Qaeda attacks on the *MV Limburg* and *USS Cole* demonstrated a proven regional capacity to deliver the terrorist equivalent of a commercial war.

The second example is Colombian drugs and the trans-Atlantic connections that have been made to get them to market. Apparently there is now a criminal super-highway – known as Highway 10 – that fuses Colombian cocaine with North and West African illegal immigrants, weapons and diamonds smuggling. This criminal super-highway holds great utility for today's terrorists. In Colombia, FARC's collaboration with cocaine producers and its own cocaine production is well documented. It is also clear – given the regular drug seizures made in the Atlantic Ocean – that the majority of Europe's cocaine is transported by sea to the African coast, where it is then shipped north along the African and Western European coastline. These Atlantic routes could facilitate collaboration between criminal organizations and undoubtedly hold merit for terrorist organizations wishing to use this purpose-built criminal conduit linking Arab North Africa to their European targets. Here is a clear case of a dauntingly multi-faceted problem for the international community and one that demands a coherent, coordinated and comprehensive response. Unfortunately, state agencies in the West struggle in the face of scant resources and unwillingness on the part of other government departments to commit to this type of project.

The third example is GAM's terrorist campaign against Indonesian rule in Aceh, a long-running, bitterly contested affair. In order to finance their campaign, the terrorists ran a successful piracy operation in the littoral area off Aceh.¹⁷ One interpretation of this is simply another terrorist organization utilizing the proceeds of crime to finance its main campaign, very much in the manner of Northern Ireland's civil unrest. Others would argue that as the pirates were unlikely to be involved in the land-based military campaign this was at worst a simple case of mutual cooperation. I would argue that this sort of activity is fundamentally a conspiracy to conduct a terrorist act and should be treated as such by the international community.

Having used these examples to illustrate some elements of the current situation, I'd like to suggest how a new course of action would contribute towards resolving at least some of the issues raised in this article. Due to conventional military commitments in Afghanistan and Iraq at a time of financial collapse, the ability to satisfy the fiscal, materiel and personnel demands necessary to combat the problems of maritime security will be severely restricted for the foreseeable future.

Any new multi-dimensional response based on the coordinated, coherent and comprehensive approach will require leadership on the international stage, if it is to stand a chance of being successful ultimately. Will a



HMCS *Fredericton* sailors and RCMP officers sail a sailboat to Halifax after it was seized in a late-night raid off Nova Scotia. The Caribbean vessel was carrying three-quarters of a ton of hash oil estimated to be worth \$7.5 million.

multi-dimensional response be more expensive than direct military action and occupation? That is impossible to answer, but it seems unlikely. Nobody could tell the electorates of participating states exactly what the direct financial and personnel costs would be for the campaigns in Iraq and Afghanistan – and no one knows yet or if they do nobody is saying.

The conventional response to dealing with unconventional security threats has been largely discredited. One only has to look at recent Israeli forays into Lebanon and Gaza to see the unfolding strategic error that has occurred. The dispatch of a naval task group to Somalia will not cure local piracy as it fails to see the problem as one predominantly rooted in land-based socio-economic problems. Counter-narcotics patrols without corresponding action to prevent crop cultivation and escalating demand are unlikely to stop more than a small percentage of illegal drugs arriving on the streets. The fusion of diplomacy, deterrence and development strategies into a security model would likely remove the obstacles that hinder effective maritime security. The new reality of delivering effective maritime security demands that new methods are employed, even if these are only new to the maritime environment. This more proactive response calls for imagination and coordination not further procrastination. As well, analysis of the connections between terrorists and (maritime) criminals should aid the international response. To date responses have been misdirected and ignore the many lessons learnt from fighting irregular opponents in modern-day counter-insurgency operations.

In conclusion, the Western world is now very vulnerable to any escalation in terrorist violence and its ability to combat serious criminal activity remains questionable. Throughout history there has always been a marked deterioration in national and financial security during global financial crises, and today is no exception. The need for

flexibility in our response to security challenges has never been greater. Our ability to respond conventionally is over-stretched and becoming less politically appealing. A more comprehensive policy could offer politicians the ability to bring together the full force and legitimacy of the 'whole of government' and to incorporate civilian partners. The ability to learn lessons from the Iraq and Afghan campaigns would pay huge dividends in the arena of maritime security and certainly be more appropriate than looking for a reincarnation of Lord Palmerston's gunboat diplomacy for inspiration. As Lieutenant-General William B. Caldwell IV said in 2008, "[t]he soft power capabilities our military has in support of other instruments of national and international power are very vital to an effective strategy at this very crucial time in our history."¹⁸

Notes

1. Vice-Admiral Chris Ritchie (RAN), quoted in Jack McCaffrie, *Positioning Navies for the Future* (Sydney: Halstead Press, 2006), p. 24.
2. Kate Bryden, "The Response of International Organisations to Terrorism: Progress and Challenges for Effective Action," in David Charters and Graham Walker (eds), *After 9/11: Terrorism and Crime in a Globalised World* (Halifax/Fredericton: Centre for Foreign Policy Studies/Centre for Conflict Studies, 2004), pp. 374-386.
3. Elinor C. Sloan, *Security and Defence in the Terrorist Era: Canada and North America* (Montreal: McGill-Queen's University Press, 2005), p. 1.
4. Phil Williams, "Terrorism and Transnational Crime: A Global Perspective," in Charters and Walker (eds), *After 9/11*, pp. 27-28.
5. Sloan, *Security and Defence in the Terrorist Era*, p. 1.
6. Peter Lehr (ed.), *Violence at Sea* (Abingdon: Routledge, 2007), p. xi.
7. J. Michael Waller, "Stability Operations: US Army Embraces the Private Sector for Mission Success," *Serviam Magazine*, November/December 2008, p. 7, available at www.serviammagazine.com.
8. Lehr (ed.), *Violence at Sea*, p. viii.
9. For Canadian statistics see, Peter Avis, *Comparing National Security Approaches to Maritime Security in the Post 9/11 Era* (Halifax: Centre for Foreign Policy Studies, 2005), p. 5. For UK statistics see, Ministry of Defence, Naval Staff, "Killer Facts," 2009.
10. Martin Murphy, "Piracy and UNCLOS: Does International Law Help Regional States Combat Piracy?" in Lehr (ed.), *Violence at Sea*, pp. 155-183.
11. UK RN Amphibious Squadron at reduced readiness and manpower levels in order to support 3 Commando Brigade deployment to Afghanistan could have been used as a sea-base for Somali stabilization operations.
12. ISPS Code (2002), p iii, available at www.tc.gc.ca/marineSecurity/regulatory/isps/menu.htm.
13. See, for example, the chapters by David Charters, Phil Williams and Christopher Corpora in Charters and Walker (eds), *After 9/11*.
14. Kofi Annan, *In Larger Freedom*, United Nations, 2005, paragraph 91, p. 26, available at www.un.org/largerfreedom/contents.htm.
15. See Christopher A. Corpora, "Boxing with Shadows: Threat Convergence, Asymmetries and the New Security Challenge," in Charters and Walker (eds), *After 9/11*, p. 28.
16. The International Institute for Strategic Studies (IISS) recently published several excellent articles on piracy. See Jason Alderwick, *Combating Piracy off Somalia* (London: IISS Strat-com Series, 2009); Ken Menkhaus, "Dangerous Waters," IISS Adelphi Paper (Abingdon: Routledge, 2008), pp. 21-22.
17. Jeffrey Chen, "The Emerging Nexus between Piracy and Maritime Terrorism in Southeast Asia Waters: A Case Study on the Gerakan Aceh Merdeka (GAM)," in Lehr (ed.), *Violence at Sea*, pp. 135-155.
18. Lieutenant-General William B. Caldwell, as quoted by Waller, "Stability Operations," *Serviam Magazine*, November/December 2008, available at www.serviammagazine.com.

Dave Muirhead served as a warfare specialist in the RN for nearly 20 years. He is now a PhD student at University of Plymouth and holds an associate research fellowship at Dalhousie University while also working with a Norwegian Oil exploration company.

The Case for Canadian Marines

Ken Hansen¹



Photo: Sgt Donald Clark, DND, Army News

Canadian Special Operations Regiment personnel about to rappel from a CH-146 Griffon helicopter.

The debate over whether or not marines should form part of the Canadian Forces (CF) has been decidedly secondary to the one about acquiring an amphibious ship(s) for the Canadian Navy. The furore over General Rick Hillier's proposed 'Big Honking Ship' drew many commentaries,² the most common assessment being that a sufficiently capacious vessel was needed to move and support a battle group based on an infantry battalion.³ One pundit hinted darkly that anything less than the capability to move a full battle group was a "minimalist" approach "lacking flexibility and combat capability," that would be "simply a 'flag-waving tool.'"⁴ Navalists have also found no value in lesser amphibious ships,⁵ leaving the impression that, when it comes to such capability, you must either 'go big' or 'go home.'

David Perry has been the only writer, thus far, to endorse the idea of a limited Special Forces capability based on marines.⁶ He supports the government's plan for a 250-member Marine Commando Regiment based at Comox, British Columbia. He argues its creation should take precedence over maintaining existing naval capa-

bilities. In his view, the new security environment calls for augmented anti-terrorist response teams to counter attacks on Canadian shipping, offshore oil platforms, naval vessels, or ports. Other tasks for the marines would include boarding of uncooperative vessels and non-combatant evacuation operations.

Perry raises four key unresolved questions: cost; location; command relationships with Special Operating Forces Command (SOFCOM) and its main unit, Joint Task Force 2; and finding suitable candidates from within the navy. Drawing on USN sources, he notes the cost for the first year of a three-year training program is "over \$800,000" per person, and wonders how the Canadian Navy would be able to spare 2.6% of its most fit commissioned and enlisted members to fill the 250 billets. The US Naval Special Warfare Command represents only 1.6% of US total naval strength, and even it has experienced difficulty in finding sufficient suitable candidates. How, then, could the undermanned Canadian Navy do better?

Perry's only other commentary on marines is a post to

Broadsides, CNR's online discussion forum.⁷ He poses additional questions about the navy's plans to support Special Force operations. Noting the serviceability problems of *Victoria*-class submarines and the impending refit and update schedules for both the fleet replenishment ships and the submarines (and, it should be added, the *Halifax*-class frigates), he wonders what ships will be available to work with the marines and whether the fleet sustainment needed for long-range operations could be assured. Perry does not speculate on the appropriate characteristics of a ship for marine Special Force operations.

Because the *Broadsides* website is equipped to record readers' preferences among the site's 52 discussion topics, we know that Perry's article has consistently ranked in the top five topics since it was posted on 11 April 2007. The fact that Perry's article is the *only* one posted to this topic makes its popularity all the more remarkable. The extraordinary levels of interest in the issue of Canadian marines prompted further research into the subject.

This issue is considered from three angles in the book *Marines: Is an Amphibious Capability Relevant for Canada?*⁸ Among the articles contained in the book is a general survey of the world's marine, naval infantry and amphibious forces – entitled “Marines: Which Countries Have Them and Why,” which I wrote. Two other articles take opposing views, one arguing the merits and the other the costs of amphibious ships and marines for Canada. My article provides observations on the examples of marine Special Force organizations and their amphibious ships that are relevant to Perry's analysis.



USN *Tarawa*-class amphibious assault ship USS *Belleau Wood*, July 2004.

My article “Marines” tabulates and compares the 81 marine, naval infantry and amphibious forces from around the world. Of that number, four have either marines or naval infantry but do not possess amphibious ships. A further 38 countries with amphibious ships or landing craft have neither marines nor naval infantry.



Photo: WO Larry Graham, Combat Camera

A member of HMCS *Athabaskan*'s boarding party is lowered onto GTS *Katie* on 3 August 2000 after the merchant ship, involved in a contractual dispute, refused to proceed to port.

Based on the findings, a seven-level typology of marine force structures is described. The average data for each of the types of marine and amphibious forces is compared with the strength figures and budgets of the CF and the Canadian Navy to determine the feasibility of marines for Canada. In four of the types (Global Projection Force (Third Order), Special Operations Force, National Support Force and National Contingency Force), multiple comparable examples exist. The data for the SOFs are updated and revised for this article. When viewed in conjunction with recent analysis about the emerging trend of terrorists employing swarming tactics, the information helps to answer Perry's questions concerning costs, location, command relationships and candidates.

Cost

Of the 43 marine or naval infantry forces in the world, 13 states possess SOFs as part of their navy. Of that number, four states (Ecuador, Israel, Pakistan and Malaysia) have only a marine SOF capability. These forces are organized on a sub-company scale, most often called a Special Forces ‘group’ that averaged only 32 marines. Perry's cost figures, estimated on a notional regiment of 250 members, are inflated by the arbitrarily set size of the Canadian ‘regiment.’ Moreover, the type and scale of the equipment

and training of US Special Forces Command is based on a broader range of employment options that are made possible by the full array of naval and marine capabilities extant in the USN and US Marine Corps (USMC). That range of tasks is, and will likely always be, beyond the reach of a Canadian single-capability marine force. Perry's limited task list is far less demanding than those practised by American forces of the same type. The cost for specialized training in Canada will, therefore, be much less due to the lower numbers and less extensive training.

Location

The base chosen for a marine SOF must consider the naval support that is inherent to all marine activities, regardless of the capabilities the marine force embodies. My article explains that all marine forces are by nature lighter and less manpower-intensive than their army organizational counterparts. Because of this, they exhibit a tactical organization that mandates close association with naval forces. Marine forces integrate supporting arms and support services at lower levels than do army units. Typically, the average marine battalion integrates artillery with infantry capabilities, while the regiment will add a

command element plus air defence and armoured fighting vehicles – capabilities that are not often seen below the brigade-level in army forces. Marine units also tend to have fewer subordinate organizational structures; normally only two. This leaves the marine force with comparably more offensive striking power but less reserve capacity than army units at the same organizational level. This combination of characteristics enables the marine unit to embark quickly onto the ship and to disembark at the amphibious landing zone.

Marine units are also generally less capable in their logistical capacity than army units. They rely on naval units for many support services and for re-supply. Their concept of tactical deployment is, therefore, more concentrated and is often sited closer to the source of supply than an army commander would consider prudent. These characteristics are viewed as essential to the marine commander who will value speed of deployment and rapid delivery of firepower. Speed and surprise are frequently essential requirements for successful marine tactical activities.

The combination of the lighter scale and number of marine forces, their need for rapid deployment to achieve



Photo: (Released) Allied Joint Force Command Naples

Spanish forces conduct an amphibious assault during NATO Exercise Destined Glory 2004 in Sardinia.

surprise, along with a close support association with naval forces for operational and administrative support, practically mandates co-location with the navy or, at the very least, close proximity for home basing of the marine force. In the Canadian case where anti-terrorist operations are considered to be chief among the listed tasks, failure cannot stem from a lack of familiarity with each other's operating practices, equipment, or key command personalities. The Canadian marine organization will be a small single-capability force, requiring a strong navy-marine team relationship. Risking disassociation by physical separation is not worth the price of failure in 'no-fail' missions. Comox is probably too far from the main naval operating base to serve as an effective location for a marine SOF.

Command Relationships

The largest cost of a marine SOF organization is the administrative overhead that is needed to command, train, administer and support it. Rather than begin with a pre-set notion of the size of the marine SOF, the four examples of states that possess such forces show what such a force structure might mean by extrapolation for Canada. Overall, the CF's budgetary means are adequate to accommodate a comparable limited SOF organization (see Table 1).

The average number of marines required to support the SOF is high at 888 (including the 32-person tactical unit). Determining the proportions of the SOF to the parent military force and the navy, and then applying these ratios

to the Canadian force structure produces a somewhat less daunting number (see Table 2).

The data show that the Canadian Navy is proportionately larger than the parent navies of those countries that possess SOF-only marine forces. Thus, using that percentage would produce an estimate for a Canadian SOF marine force that is too large. The naval reserves for these countries are significantly smaller than those in Canada, indicating that reservists play little or no role in SOF marine organizations. A better indication of the numbers required is per cent of total strength. Using 0.9% of Total Active Strength, the rough appropriate strength figure to generate and sustain a SOF marine unit would be 562 people (see Table 3).

The overhead costs associated with generating a second 32-person tactical unit for Canada's other coast formation would not be appreciably higher. A total strength of 562 members is more appropriately termed a battalion; my chapter in *Marines* shows that the average strength of a marine force required to generate a single regiment is 3,638 people.⁹

The navy would be unwise to allow the administrative authority for such a specialized and highly navy-dependent unit to go to a non-naval formation. The only advantage of such an arrangement would be for the navy to divest itself of the administrative overhead of the SOF to SOFCOM. This arrangement would likely not lead to the type of closely coordinated navy-marine cooperation that is essential to mission effectiveness.

Table 1. Comparison of Average Key Characteristics between States with Marine SOFs

| Type | No. of States | Defence Budget | Population | M/NI Active Strength | Unit Size | No. of Units | Strength/Unit |
|--------|---------------|----------------|------------|----------------------|-----------|--------------|---------------|
| SOF | 4 | \$4.5B | 52.5M | 888 | Group | 1 | 32 |
| Canada | 1 | \$14.1B | 33.1M | NA | NA | NA | NA |

Table 2. Average Relative Strength Values for Marine SOFs

| Category | Navy Pct. of Total Strength | SOF Pct. of Total Strength | SOF Pct. of Naval Strength | Reserves Pct. of Naval Strength | No. of Amphibious Ships | No. of Landing Craft |
|----------|-----------------------------|----------------------------|----------------------------|---------------------------------|-------------------------|----------------------|
| SOF | 7.8 | 0.9 | 10.4 | 7.1 | 1 | 30 |
| Canada | 14.2 | NA | NA | 47.2 | NA | NA |

Table 3. Hypothetical Strength Figures for a Canadian Marine SOF Parent Unit

| Category | Total Active Strength | Active Naval Strength | Marine SOF Strength | SOF Pct. of Naval Strength | No. of Units | Unit Type |
|----------|-----------------------|-----------------------|---------------------|----------------------------|--------------|-----------|
| SOF | 62,500 | 8,900 | 562 | 6.3 | 1 | Battalion |

Candidates

Lowering the size of the tactical SOF unit to 32 marines also reduces the demand for suitable candidates. This number provides for the creation of four eight-person sub-units that would be appropriate to current ship, helicopter and boat characteristics. The smaller tactical teams would facilitate close cooperation with existing naval boat crews, diving team and explosive ordnance disposal teams. The four section organization would also allow rotation for the rest, training and administrative demands that always challenge small units tasked with holding high readiness for long periods.

The administrative support 'battalion' would also provide a reservoir within which prospective candidates could be familiarized with their new environment, a parent organization for handling trainees, and a receiving system to accept those leaving the tactical unit but for whom appropriate follow-on employment would capitalize on their skills. Graduates from the tactical unit would also provide emergency replacements and a small surge capability in unusual circumstances.

Size of the Amphibious Ship

The ship needed to support a marine SOF tactical unit – one that would number 32 members at the very most – need not be any larger than a destroyer or frigate. In fact, for the type of tasks Perry listed, a smaller and more manoeuvrable ship of lower visible profile and higher speed is preferable to a larger and slower ship. These characteristics are consistent with the types of ships employed by other marine SOF-only states. Support from a helicopter is also highly desirable, with only a single aircraft needed for operations employing a single eight-person tactical team.

While the numbers of amphibious ships associated with marine SOFs is low, the number of their specialty craft is high (30) (see Table 2). Because of the small size of the SOF tactical units, rapid deployment in response to such events as terrorist attacks is key to mission success. This will require a high degree of availability of the dedicated amphibious ship and its craft. Failing that, the ability to accommodate both the SOF team and its craft in a broad range of other ships in the naval fleet, and potentially other government ships, will mitigate the effects of the amphibious ship being unavailable.

Historically, small marine tactical teams have been accommodated and supported in modified warships displacing as little as 1,100 tons. The first such example occurred in 1938 when the obsolete USN *Wickes*-class destroyer *Jacob Jones* (DD-130) was used to carry 100 marines for a trial lasting 19 hours. A USMC review board estimated that up



Photo: Sgt Donald Clark, Army News

Troops from the Canadian Special Operations Regiment rappel from a CH-146 Griffon helicopter from 427 Special Operations Aviation Squadron during a training exercise near Kamloops, BC.

to 200 men could have been carried for up to 24 hours. With only minor modifications, the board estimated a 100-man team could have been carried for 48 hours. During the Second World War, a typical destroyer transport (APD) could accommodate 148 marines and 25 tons of deck cargo plus four landing craft. Some weapons and the second boiler room were sacrificed to provide internal storage and accommodations space. APDs most often carried reconnaissance teams and underwater demolition teams. They were also used in this manner during the Korean War. For an assault of division-scale, three APDs carried the teams to clear three landing zones. Approach to the landing zone was normally under cover of darkness and involved a high-speed dash to the point where the small craft were launched for a covert deployment of the teams.¹⁰

These historical examples provide conceptual guidance for the employment of Canadian marines against terrorists, for reconnaissance of an area before an evacuation operation, and for their participation in larger operations. The addition of a helicopter adds advantages for the approach, deployment, recovery and withdrawal stages of an activity.

The Case for Canadian Marines

The wide range of possible exemplars indicates that the USMC is not the best or only point of reference when it comes to the question of marines for Canada. A marine SOF is well within the fiscal, human and material means of both the CF and the Canadian Navy. The tactical units should be kept small, with the ability to generate smaller sub-units for rapid deployment. This arrangement is consistent with existing SOF-only marine forces and would be effective against typical terrorist tactics.

Recent analysis of terrorist tactics shows a definite tendency towards 'swarming' attacks by multiple small teams against the same or closely spaced targets. Their

objective is to overwhelm local sentinel and patrol forces, and to prevent anti-terrorist immediate reaction forces from countering more than a small portion of their attacking force. Most recently, the attacks in Mumbai and Lahore conformed to this general plan of action. Counters require the creation of more tactical units able to respond to simultaneous, small-scale attacks. They should not be based or organized in single, large units. The most economical solution favours "small teams that are not elite, but rather good enough to tangle with terrorist units."¹¹ A marine SOF that is co-located with each of Canada's major naval bases is a logical arrangement that would create a flexible and effective navy-marine team for employment at home and abroad. The marine SOF support 'battalion' could be located on either coast, or better yet, divided into two support detachments for each coast. The maintenance by the navy of ready-duty ships provides a ready-made arrangement for swift deployment in the marine environment. Aerial deployment to at-sea ships, whether navy or coast guard, would involve no more complex activities than those both services already conduct.

A smaller amphibious vessel is, therefore, the correct and logical place for Canada to begin its expansion into a marine force structure.

The only short-term limiting factor would be the material adjustments needed to accommodate marine specialty craft onboard navy and coast guard ships. This limitation has already been identified in recent interdepartmental exercises that have noted difficulties in boat operation between the two services, and the complete inability to support the craft used by the RCMP. Creation of a marine SOF will place further emphasis on this limiting factor, and will undoubtedly lead to the needed standardization or material adjustments.

A medium-term limitation will be the conversion of a frigate on each coast to some variation of an APD-type of configuration. The displacement of the current *Halifax*-class ships is more than ample to accommodate the full 32-person tactical unit and sufficient numbers of its special craft. Retention of the helicopter is highly desirable for use with the SOF.

The conversion of a *Halifax*-class frigate to an APD also presents a logical development for joint operations with the army. The army's *only* rapid response unit is a single company-sized force of approximately 115 soldiers that is

on standby for assignment to a non-combatant evacuation mission. The historical examples of APD-type warships show that a much smaller vessel than the 4,770-tonne *Halifaxes* could easily be modified to accommodate a similar number of troops. Rather than struggling to justify the construction of a Big Honking Ship, the rationale for much smaller APDs is both within the current policy guidance and easily substantiated.

A smaller amphibious vessel is, therefore, the correct and logical place for Canada to begin its expansion into a marine force structure. The creation of an immediate-reaction eight- to 32-person marine SOF provides a flexible response mechanism for a wide variety of tasks. It also dovetails well with the army's smallest rapid-reaction force and provides it with pre-arranged naval support for army-specific and joint operations.

Resistance by the navy to the concept of converting frigates to hybrid amphibious support ships on the grounds that it will divert resources away from the maintenance of existing capabilities is to be expected. However, a marine SOF requires close support and constant coordination with the navy in order for it to have any chance of effective tactical employment. Since anti-terrorism tasks are of the 'no-fail' variety, there is little option but to support fully the new capability proposed in the Canada First Defence Strategy. 🇨🇦

Notes

1. The opinions expressed in this article are not to be construed as declarations of policy by the Department of National Defence, the Canadian Forces or the navy. All information contained represent the personal opinions of the author.
2. For one example, see Dan Middlemiss, "No More 'Honk' in this Ship," *Broadsides* online forum, available at <http://naval.review.cfps.dal.ca/forum/view.php?topic=15>.
3. Gary H. Rice, "Navy needs both AORs and Amphibious Craft," *Frontline*, Issue 5 (2008), pp. 28-30.
4. Les Mader, "Reviving the Princes: Some Thoughts on a Canadian Standing Contingency Task Force," *Canadian Military Journal*, Vol. 7, No. 2 (Summer 2006), pp. 57-64.
5. Greg Aitken, "Beyond ALSC: We Need to Get Amphibious and Joint to Stay Relevant"; and Peter Haydon, "Canadian Amphibious Capabilities: Been There, Done it, Got the T-shirt," *Maritime Affairs* (Winter 2001), pp. 12-13, 14-19.
6. David Perry, "A New Marine Commando Regiment," *Canadian Naval Review*, Vol. 3, No. 2 (Summer 2007), pp. 15-20.
7. David Perry, "The New Marine Commando Regiment," *Broadsides* online forum, available at <http://naval.review.cfps.dal.ca/forum/view.php?topic=11>.
8. Ann L. Griffiths and Kenneth P. Hansen (eds), *Marines: Is an Amphibious Capability Relevant for Canada?* Maritime Security Occasional Paper No. 15, Halifax: Centre for Foreign Policy Studies, Dalhousie University, 2008.
9. Ken Hansen, "Marines: Which Countries Have Them and Why," in Griffiths and Hansen (eds), *Marines*, Table 5, p. 20.
10. Norman Friedman, *U.S. Amphibious Ships and Craft: An Illustrated Design History* (Annapolis, MD: Naval Institute Press, 2002), pp. 33-36.
11. John Arquilla, "The Coming Swarm," *The New York Times*, 15 February 2009, available at <http://www.nytimes.com/2009/02/15/opinion/15arquilla.html>.

Commander Hansen is currently the Defence Fellow at the Centre for Foreign Policy Studies at Dalhousie University.

Amphibiosity Resurgent

Major R.D. Bradford

With the 'current operations' focus in many quarters still essentially on land campaigns in Afghanistan and Iraq, the matter of dealing with the present and future security environment, one characterized by global scale and littoral prominence, gets put aside. During meetings and briefings I attended in Brussels, at Naval Amphibious Base Little Creek in Virginia, and the Joint Services Command and Staff College in England between July and December 2008, one point was clearly articulated: with the actual drawing down of British forces and imminent reduction of American forces in Iraq, the amphibious warfare establishments in these two countries are preparing to return to their work benches and take up the amphibious warfare tools again.

It is perhaps ironic that in the post-9/11 world the twin campaigns currently being conducted by the United States were initiated in great part by US amphibious forces in the Arabian Sea.

Given the shifting balance of effort, it is appropriate that this amphibious resurgence be considered. This is relevant to Canadians as well, for the Chief of Defence Staff recently re-affirmed his predecessor's 2005 commitment to a new approach suited to the global security environment and characterized by a comprehensive approach, combined and joint warfare, early crisis influence, full-spectrum capability, and joint and single-service force flexibility that no longer ignores the littoral regions.¹

A Renewed Focus

It is perhaps ironic that in the post-9/11 world the twin campaigns currently being conducted by the United States were initiated in great part by US amphibious forces in the Arabian Sea. In 2001 elements of the US Marine Corps were bounced into Afghanistan to open the theatre and initiate what will soon be a decade-long campaign. The Canadian Navy was part of that effort, providing protection to the *Bataan* and *Peleliu* Amphibious Ready Groups. Amphibious operations also marked the beginning of the Iraq campaign in 2003, the British experience proving the flexibility of amphibious forces. Two Royal Marines commandos (battalions) were projected ashore by British and American helicopters to carry out a number of critical tasks even though the troublesome nature of the Al Faw Peninsula had frustrated a surface assault. Surface elements were later employed in riverine operations while

amphibious ships provided support to forces ashore. From the autumn of 2001 to the spring of 2003, the amphibious forces of Canada's principal allies had a busy time.



Photo: USN

The amphibious assault ship USS *Bataan* transits alongside military sealift command combat stores ship USNS *Concord* during a connected replenishment and vertical replenishment.

However, in the tradition of the North Africa, Sicily and Normandy landings of the Second World War, these amphibious operations were 'curtain raisers' for what became essentially continental land campaigns, and long-term campaigns at that. The result has been a lengthy hiatus for much of the amphibious forces as their landing force providers, mostly marine corps, were drawn into the land operations. Although amphibious task forces were still constituted – the stalwart American Expeditionary Strike Groups and their Marine Expeditionary Units most prominent amongst them – and some exercises carried out following 2003, the scope, frequency and intensity of amphibious training fell off dramatically. The result in both countries was a loss of amphibious know-how and hands-on experience.

The first-of-class British Amphibious Transport, Dock (LPD), HMS *Albion*, is a case in point. As in Canada, the navy in Britain has suffered because of the protracted land-dominant campaigns which have not only sucked away troops and helicopters from the amphibious force but diverted critical funding from the fleet. The spanking new HMS *Albion* was launched in 2001 and commissioned in 2003. She embarked on a busy program, climaxing in 2006 with a major deployment to Vela, West Africa, in which she served as flagship. The exercise was "designed to demonstrate the UK's ability to conduct coastal and



Marines from 40 Commando onboard HMS *Albion*, land in Freetown, Sierra Leone, West Africa during *Operation Vela*.

beach operations in challenging hot equatorial and jungle environments and to demonstrate the UK's close partnership with NATO allies, and its ability to conduct joint operations."² The *Vela* deployment was the largest such exercise since 2001, involving 11 major warships, a submarine, a mine-clearance squadron, and a robust commando group supported by helicopters. However, the deployment did not herald a return to normality for the amphibians.³ The next year, only four years after its commissioning, *Albion* was placed in extended readiness. Tight money was a major factor, but a navy source was quoted as saying, "*Albion* and *Bulwark* were designed to carry Royal Marines. But the three commando groups which make up the deployable RM brigade are locked into the cycle of tours for Afghanistan because of the shortage of troops in the Army and are not routinely available for the amphibious role."⁴ Putting one of the two new LPDs on the sideline was a shock for the British amphibians, although it was well understood that this is a temporary measure.

Given pronouncements I have heard in recent months, the British genuinely expect an amphibious revival. As this article is written, *Operation Taurus 09* is underway, a six-month deployment to the Far East under the command of the Commander Amphibious Task Group, Commodore Peter Hudson, CBE, ADC, embarked in HMS *Bulwark* (the other new LPD). The size of the force approximates that in the *Vela* deployment: "12 ships, including support ships from the Royal Fleet Auxiliary, a US Navy destroyer; a French Navy frigate, a nuclear powered submarine, Royal Marines, Royal Navy divers, Assault Squadron Royal Marines from Plymouth, elements of 820 and 857 Naval Air Squadrons (NAS) from RNAS Culdrose, 847 NAS and Commando Helicopter Force (CHF) Sea Kings based in

Yeovil, and Support Helicopter Force Chinooks from 18 Squadron, RAF Odiham."⁵ But the scope far exceeds that of *Vela*, the actual exercise portions of which lasted from 11 October to 5 November 2006.⁶ The scope of training is broader as well, including hard-core amphibious warfare but also contingency response operations, maritime security missions, and other roles and tasks. This major effort, coinciding as it does with the British withdrawal from Iraq and changes to the British landing force, appears to be indicative of a true revival.

It should be noted that Britain's amphibious capability is not the only beneficiary of *Operation Taurus 09*. The Canadian amphibious effort will benefit from the participation of a Canadian naval officer, Lieutenant-Commander Greg Johnston. He is the first Canadian Forces (CF) officer to be posted on a full-time basis to an allied amphibious operating force, and serves on the N3 staff of the Commander Amphibious Task Group. The British have not spared him on *Operation Taurus 09* so far, employing him in various capacities to ensure his mastery of many diverse aspects of amphibious task group operations.

There is another impact on Canada. With their determination to take up tools again, American and British amphibians have expressed interest in the Littoral Exercise Areas in Newfoundland (LEAN) initiative, which was initiated in 1998 following the immensely successful Exercise MARCOT/Unified Spirit 98 and planning for Exercise Maple Wader 99. The paucity of amphibious training areas is a longstanding complaint in NATO amphibious circles, the shrinkage of such areas being accompanied by a greater reluctance on the part of local populations to tolerate exercises in the remaining areas. LEAN is focused primarily on the provision of offshore-inshore-ashore realistic manoeuvre areas suited to joint littoral manoeuvre of all kinds. Suspended temporarily



HMS *Albion* in Norwegian waters.



Photo: RN image

A British army soldier waves from an armoured vehicle while on patrol in Basra, February 2007.

in 2001 following the World Trade Center and Pentagon attacks, the LEAN initiative is in the process of its own revival with a view to supporting not only Canadian littoral manoeuvre training, but possible use by our principal amphibious allies as well.

Heterogeneity: The Army Factor

A key indicator of a renewed commitment to amphibious revival is reflected in the growing involvement of non-traditional (at least in Cold War terms) participants in amphibious forces. Army forces are particularly conspicuous in this respect. There is a peculiar notion that has taken root in Canadian Navy circles – i.e., that only marines can ‘do’ amphibious warfare. This simplistic and confused notion (one quickly discovers that there are different assumptions of what ‘marines’ are) deserves an article of its own, but it suffices to say here that army forces are becoming more prominent in modern amphibiousity. The French Army provides the main force of French landing forces, and the Australian Army remains firmly in the seat as that country’s landing force generator. The 3rd Commando Brigade, Royal Marines, has traditionally had three highly-capable Royal Marines commandos (battalions) as its core, but its field artillery, observers, field engineers and portions of its combat service support capability have always been army in origin. This new development is therefore not as new as it appears to be. Nonetheless, it is relevant to the Canadian Forces as we consider the post-2011 rebalancing and reconfiguration of forces and the resumption of the 2005 initiatives.

Interestingly, in the light of the quotation above that the Royal Marines were not sufficiently available to allow maintenance of the desired amphibious capability because they were locked into ground operations because

of army shortages, it is the British Army that has been tapped to assist in the restoration of that capability. 3rd Commando Brigade, Royal Marines, has found its traditional three commando units to be too few in number to meet ongoing demands and also maintain the amphibious capability. Consequently, a fourth infantry battalion will be provided to the brigade from the army. The Rifles are the regiment selected to provide a battalion to the commando brigade, with the 1st Battalion (1 Rifles) currently assigned. Additionally, Rifles officers and senior non-commissioned officers (NCOs) will be found in commando establishments like the Commando Training Centre at Lympstone. It will be interesting to see how the incorporation goes.

In 2008, the brigade commander commented, “3 Commando Brigade has a history as the UK’s independent amphibious brigade. 1 RIFLES are not commando-trained at the moment, but they are part of the Commando Brigade.”⁷ That was a year ago, and the Rifles have been determined to take their place as an effective manoeuvre unit within the brigade, although, interestingly, they have declared that they will seek excellence while retaining their distinct regimental identity and army character. One benefit that has been identified from this arrangement is diversity. There are four Rifles battalions, and 1 Rifles will see officers, senior NCOs and junior ranks from the entire regiment flow through it, bringing much knowledge of and experience in other forms of combined arms land manoeuvre and techniques. Thus, it is unlikely the Rifles will ever fit the Royal Marines Commando mold, just as the commandos will never fit the army battalion mold. The combination, if appreciated and properly managed, has advantages to offer 3rd Commando Brigade, Royal Marines.⁸



Photo: (Released) US DoD photo

An amphibious assault vehicle from USS Nassau advances on to Green Beach during a mock invasion in Stephenville, Newfoundland, during MARCOT '98.

This instance of growing army involvement is of great interest to the Canadian Forces, which has only one land force that can generate a landing force. Also of interest is the increasingly heterogeneous nature of the British amphibious force in other respects. The aviation element epitomizes this, with the army now providing attack helicopters (Apaches) as required and Royal Air Force support helicopters (exemplified by Chinooks) regularly working in the tactical air group (as in *Operation Taurus*). The Royal Navy's Commando Helicopter Force – the 'Junglies' – still provides the backbone of the aviation force.

Farther from home are the Australians, whose situation is more analogous to the Canadian situation and where differing navy and army perspectives on the nature of the landing force are still being reconciled. It is helpful as well to consider other new initiatives in the use of army forces. India is in the process of developing an amphibious army brigade. *Jane's Weekly* reported in January 2009, that 91 Brigade will have a strength of 3,000 all ranks, with troops drawn from the Sikh, Gorkhas and Madras Regiments. It is clear that this sizeable manoeuvre force is intended as the heart of a landing force capability. In this it is assisted by the prior existence of the Marine Commando Force, the Indian Navy's special warfare formation, but the new amphibious capability is still a work in progress and sufficient shipping, aircraft and other assets remain to come. Nonetheless, 91 Brigade joins INS *Shardul* as unmistakable evidence of India's intention to possess a genuine amphibious capability. *Shardul* (L16) was commissioned in 2007 and is described as a Landing Ship, Tank (Large) (LST(L)). One does not hear of too many LSTs these days, although they were once extremely numerous, but the nomenclature is correct: the ship carries and projects ashore armoured and mechanized elements. *Shardul* has even concluded an affiliation with the army's 5th Armoured Regiment. The LST(L) joins INS *Jalshwa*, formerly the American LPD USS *Austin*, which entered Indian service in 2007. There are also two smaller *Magar*-class amphibious warfare vessels and a host of major and minor landing craft. Like the Australians, the Indians have always had various parts of an amphibious capability on hand, but also like the Australians, they are busy building a very significant deliberate amphibious capability.⁹

Conclusion

There are a number of other developments, issues and challenges that capture the contemporary amphibian's eye as he surveys his domain. The list is long and diverse, and would include the following:

- new forms of landing craft on the horizon;
- the increased complexity, not of amphibious

operations *per se*, but of combined and joint operations, littoral manoeuvre (joint and single-service), and various forms of seaborne-seabased forces and activities (most of which share the amphibious warfare tool box with amphibians);

- the non-amphibious employment of amphibious forces, such as in riverine operations that form part of ground manoeuvre; and
- inshore water-space management challenges, particularly in low-intensity, peace support and contingency response operations.

As a Canadian observer, there are many other noteworthy items, but these must await another article. 🇨🇦



Photo: Royal Navy

Royal Marine Armoured Raider Craft.

Notes

1. General W.J. Natynczyk, "A SITREP from the CDS," 26 January 2009, Chief of Defence Staff, available at www.cds.forces.gc.ca/fea-pro/26012009-eng.asp.
2. "Action Ahead for Royal Navy Amphibious Task Group," 28 September 2006, Royal Navy News and Events, available at www.royalnavy.mod.uk/server/show/ConWebDoc.6802.
3. *Ibid.*
4. Ian Bruce, "Mothballed: The Ship that Cost £359m just Four Years Ago," *The Herald* (web edition), 8 May 2007, available at www.theherald.co.uk/news/news/display.var.1381414.0.mothballed_the_ship_that_cost_359m_just_four_years_ago.php.
5. "Navy Exercises Amphibious Force in Cyprus," 10 March 2009, Ministry of Defence *Defence/News*, available at www.mod.uk/DefenceInternet/DefenceNews/TrainingAndAdventure/NavyExercisesAmphibiousForceInCyprus.htm.
6. "Plymouth's Amphibious Forces Visited by Defence Secretary," 21 September 2006, Ministry of Defence *Defence/News*, available at www.mod.uk/DefenceInternet/DefenceNews/TrainingAndAdventure/PlymouthsAmphibiousForcesVisitedByDefenceSecretary.htm.
7. "Army RIFLES Prepare to Join the Marines," 28 March 2008, Ministry of Defence *Defence/News*, available at www.mod.uk/DefenceInternet/DefenceNews/TrainingAndAdventure/ArmyRiflesPrepareToJoinTheMarines.htm.
8. This idea of heterogeneity and its value to amphibiosity goes back to the 1990s and is discussed in "The Need for an Amphibious Force for Canada," Main Report of the Sea Base Expeditionary Joint Operations (SBEJO) Study, Canadian Forces Maritime, 2004, available at wps.cfc.forces.gc.ca/papers/amsc/amsc8/couturier.pdf.
9. "Indian Army to have Amphibious Force Soon," 29 January 2009, *Thaindian News*, available at www.thaindian.com/newsportal/uncategorized/indian-army-to-have-amphibious-force-soon-lead_100148581.html.

Major Bradford, CD, is the Staff Officer Amphibious Warfare at the Canadian Forces Maritime Warfare Centre, Halifax. He has been engaged in amphibious warfare development since 1996.

Obsolescence Challenges, Part 4

Future Capabilities and Technologies

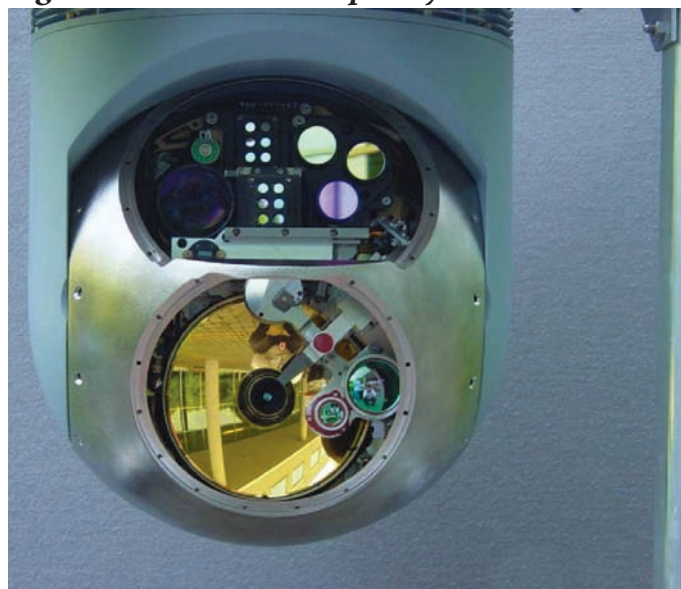
Brent Hobson

My last article examined the capability-based planning (CBP) process currently in use by the Canadian Forces (CF). Capability-based planning begins with current government policy then uses future security trend forecasts, and a set of CF scenarios to define a set of recommended capability goals the CF believes will be required in the 2010-2030 timeframe. The process also includes a review of current and planned CF capabilities to identify deficiencies. These force capability goals and the deficiencies are prioritized in the “Strategic Capability Roadmap” (SCR) where the information is presented under the following set of ‘capability domains’: Generate, Sustain, Command, Act, Shield and Sense.¹

This article will examine each domain in the current SCR, identify the capability deficiencies noted for the navy, and review the technological solutions the navy is pursuing to meet these capability deficiencies.

With the retirement of the baby-boomers, the competition for skilled employees in 2028 is likely to be fierce.

Figure 1. BAE Electro-Optic System



Source: DRDC Atlantic, D. Hopkin.

Generate

This section of the SCR focuses primarily on the human component of force generation as it relates to expected demographic changes by 2028. The primary observation is that with the retirement of the baby-boomers, the competition for skilled employees in 2028 is likely to be fierce. Obviously this will have an impact on the navy’s ability to attract personnel. The solution suggested by the SCR is to make CF career benefits competitive, if not superior, to those of other prospective employers. At the same time, the SCR suggests that by 2028, the CF will need to have increasingly automated and/or technology-based capability options to increase capacity in areas where personnel reductions are unavoidable due to general skilled labour shortages.

Sustain

In this domain, the SCR notes that, in general, the CF logistics and supply support systems are expected to keep pace with commercial advances to detect emerging requirements, monitor resources and track support processes to enhance domain-wide situational awareness and decision support. An integrated system of systems comprising strategic lift, rapidly deployable infrastructure and environmental support systems will extend the CF’s global reach.

For the navy, the SCR states that in this domain there will be a lack of over-the-beach capability with only minimal capability coming through delivery of the Joint Support Ship (JSS). Resolution of this capability deficiency is dependent on this being identified as a priority capability for the future naval platforms. The technology is currently available and widely in use by other allied navies.

Command

The Canada First Defence Strategy directs the Department of National Defence (DND)/CF to be integrated, flexible, multi-role and combat-capable.² To achieve these strategic goals, the SCR notes that new surveillance assets, and Arctic patrol vessels will be required. Table 1 illustrates the assets the CF has identified as priority projects for the navy over the next 20 years to meet these requirements.

While the capabilities necessary for each platform design

Table 1. Future Naval Platforms to 2030

| Target Period 1 1-5 years | Target Period 2 6-10 years | Target Period 3 11-15 years | Target Period 4 16-20 yrs |
|---|--|-------------------------------------|--|
| Arctic Patrol Ship, Halifax-class Modernization, Joint Support Ship | Canadian Surface Combatant Flight 1 | Submarine Life Extension Program | Canadian Surface Combatant Flight 2 |

are still being established, Table 1 indicates that the navy will have a series of new platforms that can be configured as required to support the capability requirements to 2030.

Act

In this domain the SCR states that while the navy is able to meet current capability requirements, there will be significant capability challenges when the destroyers decommission and the frigates enter their mid-life upgrade refit during the period 2014-2018. As this period approaches, the impacts of this situation will be re-assessed, and options to minimize the problem will be developed.

Future technology will be able to provide smart or reactive shield capabilities, in environmental clothing, vehicles, platforms and units alike.

The SCR goes on to note that although technology is rapidly evolving, the central force elements that generate the ‘Act domain’ effects are expected to remain essentially the same up to, and in some cases beyond, the 2028 timeline. While all militaries are using unmanned vehicle options to support the ‘Sense domain,’ the transition to an unmanned option for the next generations of major ‘Act’ equipment fleets is not expected to occur until after 2030.

Shield

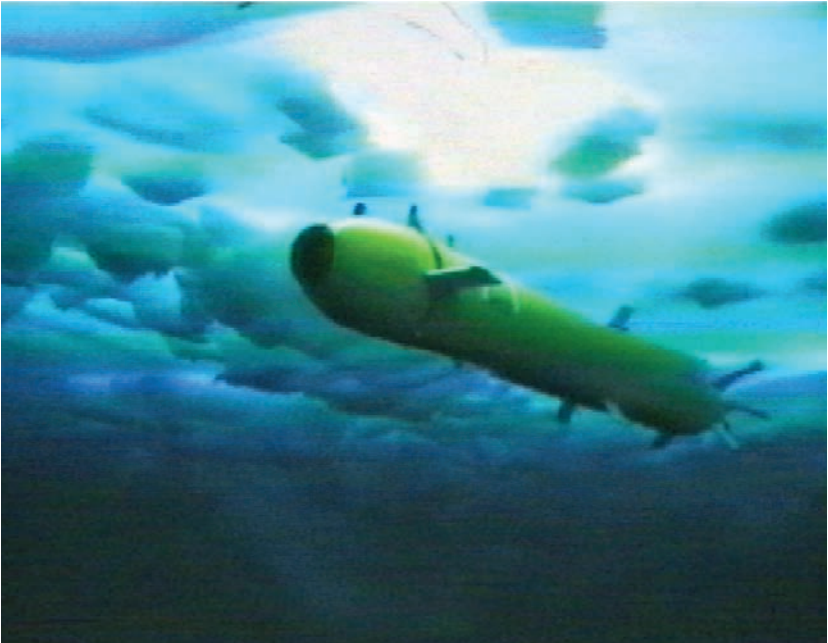
The SCR notes that future technology will be able to provide smart or reactive shield capabilities, in environmental clothing, vehicles, platforms and units alike. Deployable assets, such as vehicles, ships, aircraft, communication suites, networks and infrastructure will be hardened or equipped against specific risks. As such, there are no identified deficiencies for the navy. The SCR did however note that the navy would be losing capability in the area of mine countermeasures starting in 2017 with the retirement of the Maritime Coastal Defence Vessels.

In this area, Defence Research and Development Canada (DRDC) is pursuing two separate options to provide mine detection and countermeasure protection for the navy.³

These systems are the:

- Joint Multi-Mission Electro-optic System⁴: DRDC is working with the US Navy to investigate the potential for a British Aerospace Engineering (BAE) camera system (Figure 1) to be fitted in maritime aircraft or unmanned aerial vehicles. This system is being tested to see how well it can identify the presence of shallow minefields in an area before arrival of a task group.
- Covert Mine/Battlespace Reconnaissance System: In April 2008, DRDC began a research project to develop a commercial off-the-shelf unmanned underwater vehicle that could be launched from a small boat or submarine. The vehicle would conduct beach area reconnaissance and return to the launch vehicle or surface and transmit its information regarding mines and beach obstacles. This system is being developed using previous work conducted by DRDC in the area of unmanned surveillance systems (Figure 2).

Figure 2. DRDC Theseusice Unmanned Underwater Vehicle



Source: DRDC Atlantic, D. Hopkin.

Sense

In this domain, the SCR identifies that the navy has some serious capability deficiencies in the areas of surveillance and reconnaissance (S&R), primarily in the Arctic and off Canada's maritime approaches.

The SCR goes on to suggest that no single existing system has the capability to meet the entire S&R requirement. Therefore a 'systems of systems' approach to the S&R problem should be considered to link all S&R assets (space, land, sea and air systems) into a common maritime domain awareness picture.

To address this deficiency, DRDC is again undertaking such an approach through two programs: Trusted Situational Awareness Maritime; and Northern Watch.

Trusted Situational Awareness Maritime (Trusted SAM)

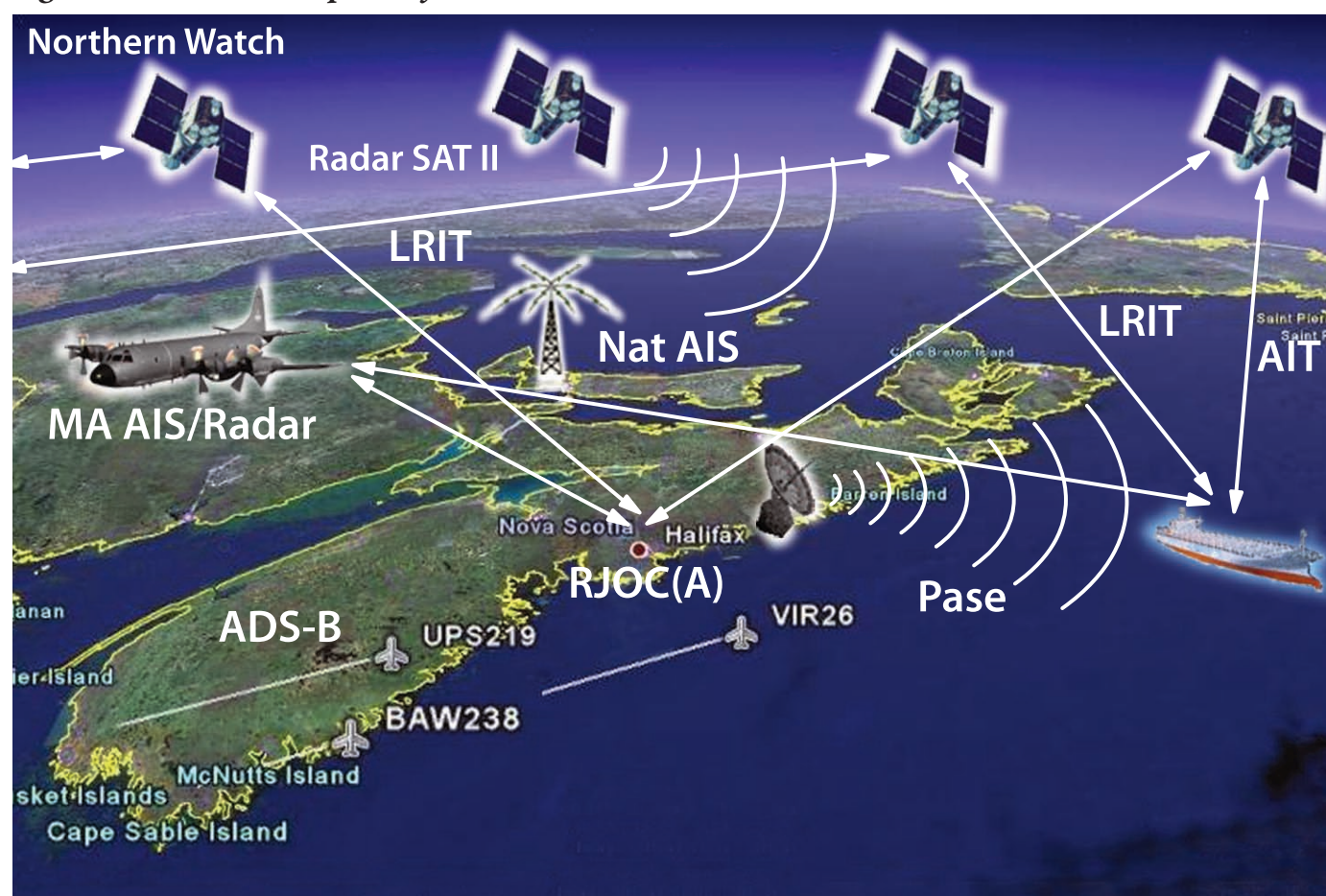
The objective of this program is to demonstrate that a number of new and developing coastal surveillance

information systems can be integrated to provide a high level of trusted maritime domain awareness information for use by the maritime community (DND, Coast Guard, Transport Canada, RCMP and the Canadian Border Services Agency).⁵

The plan is to look at the collection, management and integration of information from the following maritime information sources and new maritime sensor systems:

- Automatic Identification System (AIS). In 2004 an International Maritime Organization (IMO) regulation came into effect requiring certain ships to carry a transmitter capable of providing information about the ship to other ships and to coastal authorities.⁶ These AIS systems must be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages, and all passenger ships irrespective of size.

Figure 3. Artist's Conception of 'Trusted Sam' Picture



Source: DRDC Atlantic, M. MacIntyre.

- Long-Range Identification and Tracking (LRIT). In 2006 the IMO adopted a second resolution requiring the establishment of an international system for the long-range identification and tracking of ships.⁷ The LRIT regulation applies to the following ship types engaged on international voyages: all passenger ships, including high-speed craft; cargo ships, including high-speed craft of 300 gross tonnage and above; and mobile offshore drilling units.
- Radarsat-2. This is a Canadian second-generation commercial radar satellite designed to provide enhanced information for applications such as environmental monitoring, ice mapping, resource mapping, disaster management and marine surveillance.⁸
- Airborne AIS. This system has taken the same AIS systems used in shore-based monitoring stations and adapted them for government airborne sea surveillance operations.⁹ This enables positive identification of AIS-equipped ships even in zero-visibility conditions while reducing the dangers and time required for low-level flying to identify vessels.
- Space-Based AIS. This is a new concept being developed by commercial firms such as COM DEV International Ltd.¹⁰ This concept involves the installation of AIS (and eventually LRIT) receivers in satellites, with the monitoring and data collection done in space.

The outcome from the Trusted SAM project will be the collection, processing and presentation of the data from these various systems and sensors to a central operations location as an enhanced picture of Canada's maritime areas as shown in Figure 3.

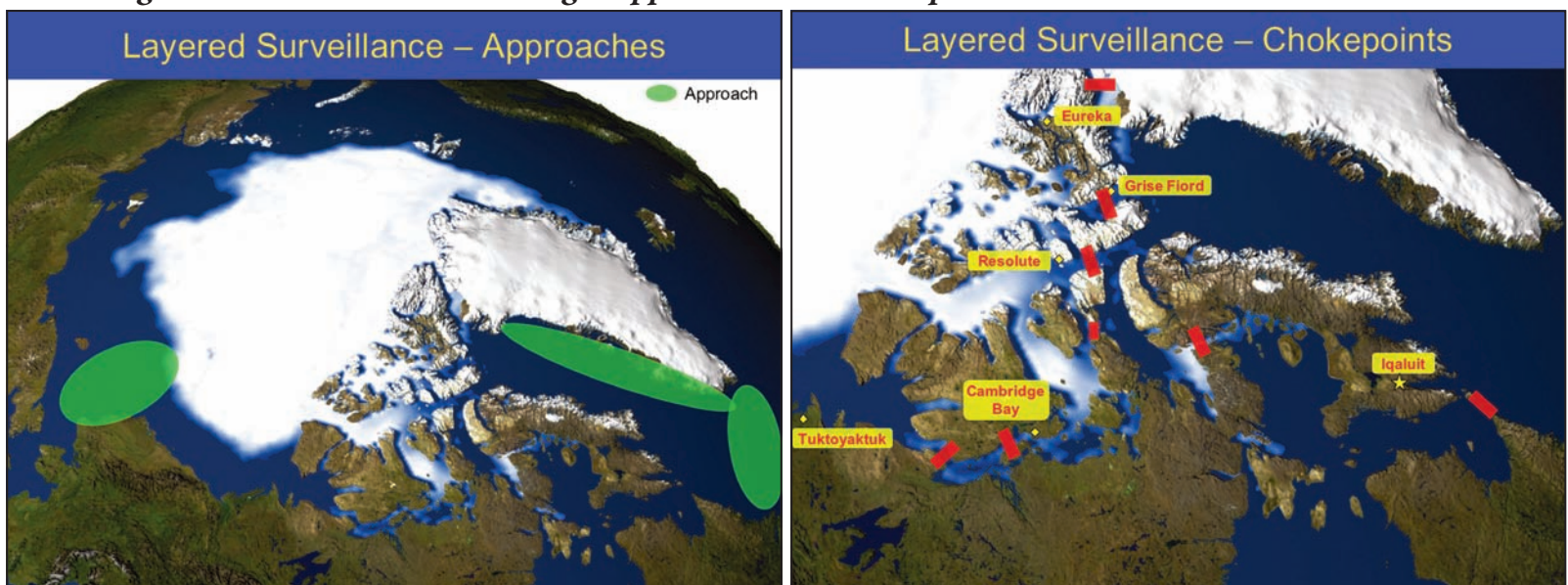
Northern Watch

This program began in 2007 with the objective of identifying which combination of systems can be best employed to achieve cost-effective surveillance of the Canadian Arctic.¹¹ Northern Watch is considering many of the same systems for the Arctic as the Trusted SAM project. In addition it also includes the underwater surveillance aspect. The approach is to establish a surveillance solution covering strategic chokepoints and approaches to the Arctic (Figure 4) in order to provide an operational commander a surveillance picture of the Arctic areas. The project team will also review Wide Area Surveillance studies from other countries and participate in conferences on this subject.

The project plans to establish a demonstration surveillance system at Gascoyne Inlet in the Barrow Strait chokepoint adjacent to Resolute. Subsequently this system will be used as the basis for developing solutions for the other chokepoints. The project will then shift focus to demonstrate how to conduct effective surveillance at the strategic approaches such as Hudson Strait or Amundsen Gulf.

To accomplish these objectives, the program is working towards the merging of data from a wide variety of

Figure 4. Arctic Overview: Strategic Approaches and Chokepoints



Source: DRDC Atlantic, N. McCoy.

sources such as conventional search radars, underwater acoustic-electromagnetic sensors, land-based electro-optical and infrared sensors and satellite-based radar. As with the Trusted SAM project, the concept is to collect information from the various sensors and transmit the information by satellite to an operations centre.

With regard to the navy, it is heartening to note that the SCR identified that it will meet the majority of its capability goals to 2030.

In the summer of 2008, the project ran the first of three trials in Gascoyne Inlet. The objective was to install some surface and underwater systems and collect surveillance data on traffic in the area and trial the satellite link concept. Due to inclement weather, fog, high winds and ice problems, the trial was only partially successful. However, it did provide the project team with valuable experience related to working in the Arctic, and highlighted the difficulty of achieving the necessary coverage in this extremely hostile environment.

Conclusion

This article has examined the impacts on the navy resulting from the first use of capability-based planning by the Canadian Forces to produce a strategic capability roadmap. The roadmap makes direct linkages between the government's policy objectives, a wide-reaching trend forecast to 2030, and an analysis of the requirements needed to support the most likely CF employment scenarios to produce a listing of capability goals and current and coming CF deficiencies.

With regard to the navy, it is heartening to note that the SCR identified that it will meet the majority of its capability goals to 2030. In the domains where major deficiencies have been identified (Shield and Sense), the defence research community is working to develop solutions for these problems using current and emerging technologies. Initial work on these projects has provided encouraging results with regard to the effectiveness of the selected technologies. The remaining difficulty is in the implementation and integration of these systems, especially in the harsh Arctic environment.

For some deficiencies such as over-the-beach capability, the SCR notes that the navy is unlikely to rectify this shortcoming in the near future. This will always be the case when initiatives must be prioritized to match the available funding. Only in an ideal world would all identi-

fied shortfalls be addressed.

As the capability-based planning process is now engrained in CF planning, the SCR will evolve to reflect new government policy, the impacts of major world events and changes to the list of tasks the CF is asked to do. It is more comforting to have a detailed analysis process and an agreed plan that only needs to be adapted rather than just reacting to new developments with no long-term thought given to future requirements.

As Victor Hugo once said, "The future has several names. For the weak, it is the impossible. For the faint-hearted, it is the unknown. For the thoughtful and valiant, it is the ideal."¹² For the Canadian Forces, capability-based planning and the Strategic Capability Roadmap appear to be the thoughtful process by which the valiant members of the navy can look forward to meeting the challenges of the future. 🇨🇦

Notes

1. See Department of National Defence (DND), Chief of Force Development, "Force Development and Capability Based Planning Handbook" 2900-1 (DGFDA), Vol. 4.2, July 2007, p. 20; DND, Chief of Force Development, "Strategic Capability Roadmap," Version 1, July 2008. The subsequent discussion of the 'capability domains' is derived from the "Strategic Capability Roadmap."
2. Government of Canada/DND, "Canada First Defence Strategy," 18 June 2008, available at www.forces.gc.ca/site/focus/first/June18_0910-CFDS_english_low-res.pdf.
3. Discussion, Lieutenant-Commander Hobson, DRDC Atlantic, with Mr. Dave Hopkin, 2 February 2009.
4. British Aerospace Engineering, News Release, "BAE Systems to Develop Surveillance Sensors for U.S. Navy," 6 September 2007, available at www.baesystems.com/Newsroom/NewsReleases/2007/autoGen_1078622551.html.
5. Discussion, Lieutenant-Commander Hobson, DRDC Atlantic, with Mr. M. MacIntyre, 23 February 2009.
6. International Maritime Organization, "AIS Transponders," 2002, available at www.imo.org/Safety/mainframe.asp?topic_id=754#regulations.
7. International Maritime Organization, "LRIT: The Regulation and IMO Resolutions," available at <http://lrit.com/regulation.html>.
8. See MacDonald Detweiller Associates, "Media Kit: About RadarSat-2," available at <http://www.radarsat2.info/about/mediakit/>. Readers may remember that the government recently blocked the sale of the company that makes this satellite to the United States. Critics of the sale were upset that this would hand over taxpayer-funded technology and, in the case of Radarsat-2, would give away technology designed to protect Canada's sovereignty.
9. Gatehouse, "Airborne AIS," available at <http://www.gatehouse.dk/Airborne-AIS-79.aspx>.
10. Spaceworks Software, "COM DEV Launches Advanced Space-Based AIS Validation NanoSatellite," Press Release, 28 April 2008, available at www.spaceref.com/news/viewpr.html?pid=25326.
11. Discussion Lieutenant-Commander Hobson, DRDC Atlantic, with Mr. Nelson McCoy 23 February 2009.
12. "Strategic Capability Roadmap," p. 3.

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

Canadian Naval Technology Earns Global Sales: In the Beginning was the Canadian Patrol Frigate

Janet Thorsteinson



Photo: MCpl Robert Bottrill, Canadian Forces Combat Camera

HMCS *Regina* fires its 57mm Bofors gun during Trident Fury 2007 off the west coast of Vancouver Island. Immediately behind is HMCS *Algonquin* followed by USS *Curtz*.

Long after the last *Halifax*-class frigate has retired from active service, the Canada Patrol Frigate (CPF) Program will still be contributing to the naval capability of Canada and its allies. The CPF, conceived in 1975 and tendered in 1983, did more than provide Canada with 12 ships that extended this country's global foreign policy reach. At home, the program sparked technological innovation that placed Canadian-developed technology on the *Halifax*-class fleet and, in the years that followed, earned foreign sales to navies around the world. That innovation went far beyond the stated requirements of government procurement policies. The CPF Program created a tangible legacy in manufacturing facilities that exists today and could expand tomorrow. The CPF helped to create companies that have recruited, trained and employed thousands of skilled workers, engineers and product managers. The

product lines developed and adapted for a home-grown Canadian market have gone on to create and in some cases dominate their niche markets around the world.

These industrial benefits are real, not rhetorical. Let me give some examples. Beginning as Dominion Aluminum Fabricators, Indal Technologies, of Curtiss-Wright Flow Control Company, developed telescopic hangars for the Canadian Coast Guard in 1963. Since then, the company has sold systems to equip more than 170 ships around the world. That led to Indal's involvement in the hangar door market and has resulted in the sales of more than 400 doors mounted on more than 200 ships, including *Halifax*-class frigates.

Indal is probably best known for its helicopter handling systems, starting with the Canadian Haul Down and Handling System, popularly known as the 'Bear Trap,' and its successor, the Helicopter Hauldown and Rapid Securing Device (HHRSD). Through development and cooperation with the

Canadian Navy and the federal government, the HHRSD became the Recovery Assist and Traversing System (RAST) and was first successfully exported to Japan, which remains a customer today.

In 1980, Indal, with assistance from the Defence Industry Productivity Program (DIPP) and under contract to the US Navy, developed a low-profile RAST system. Sales under the resulting USN contracts amounted to several hundred million dollars over the next 25 years. Six countries around the world have purchased 211 systems and the RAST system is still in production.

In 1990, the Aircraft Ship Integrated Secure and Traverse (ASIST) system was trialed aboard HMCS *Ottawa*, a *St. Laurent*-class DDH, with assistance from DIPP and Technology Partnerships Canada (TPC). Eight navies have



HMCS *Ville de Québec* hauls down a Sea King using 'Bear Trap.'

now purchased 60 ASIST and variant systems. Together, RAST and ASIST have claimed 75% of the global market. Today more than 90% of Indal's sales are exports, with 45% outside North America. Over the last five years, the company has generated 900 person years of employment and subcontracted tens of millions of dollars in parts and services from the Canadian economy.

With a history of development from Spar Aerospace to Leigh Instruments, DRS Technology Canada Ltd.'s (DRS TCL) Shipboard Integrated Communications Systems (SHINCOM) was installed on the frigates in the early 1990s, and earned a US military sale at the same time. A DRS Technologies system, SHINCOM II was developed with DND in the late 1990s, moving away from proprietary standards towards a commercial off-the-shelf system, using a standard programming language and interfaces.

The resulting SHINCOM 2100 system was installed in the Canadian Navy's 'TRUMPED' *Iroquois*-class destroyers, AORs and the operational research vessel *Quest*, earned sales to the Venezuelan and US Navies, and its underlying technology contributed to the AN/ON-568 Secure Voice System (SVS), which was competitively selected for the USN's *Aegis*-class destroyers. Because the US variant of SHINCOM is part of the AEGIS Combat System, through USN foreign military funds and foreign military sales, DRS has sold the SVS to Japan, Korea and Australia. In 2008, Australia selected SHINCOM 3100 for its *Anzac*-class frigates.

Over the last five years, 100% of DRS TCL sales have been

to the military marine industry. The SHINCOM line has averaged \$41.1 million in sales annually over that time, with 86% in export sales, and it generated 533 person years of employment.

Lockheed Martin Canada (LM Canada) has built global sales of military marine products from a solid Canadian foundation. Many of its products and specialist expertise have resulted from technology transfer from foreign companies' initiatives to meet Canadian government industrial offset program requirements. For example, LM Canada developed its Complex System Integration capability as a result of the US company's contractual obligation for the CPF project under which engineers from the United States and the United Kingdom taught LM Canada personnel the project management and engineering disciplines required to build and maintain a complex electronic system. Similarly, the LM Canada capability to design, manufacture, repair and overhaul Electronic Support Measure (ESM) systems, suitable for a harsh marine environment, was also acquired as a result of a foreign company's industrial offset obligation.

For 25 years, the number of LM Canada employees dedicated to marine projects has ranged from 300 to 700, with a high percentage of them holding engineering degrees. The skills they possess and the technology they have developed have won the company business in several other countries. In the last five years LM Canada has been contracted to provide the United States, Japan, South Korea, UK and Norway with Maintenance Procedure Trainers, the UK with an advanced ESM solution, the United States with sonar systems and mission computer systems, and the Netherlands with radar system components.

At the inception of the CPF project, W.R. Davis Engineering of Ottawa had experience in such diverse fields as military shelters and solar heating systems. Today, the company has unique products in service with navies around the world. For some of its products, there is literally no competition.

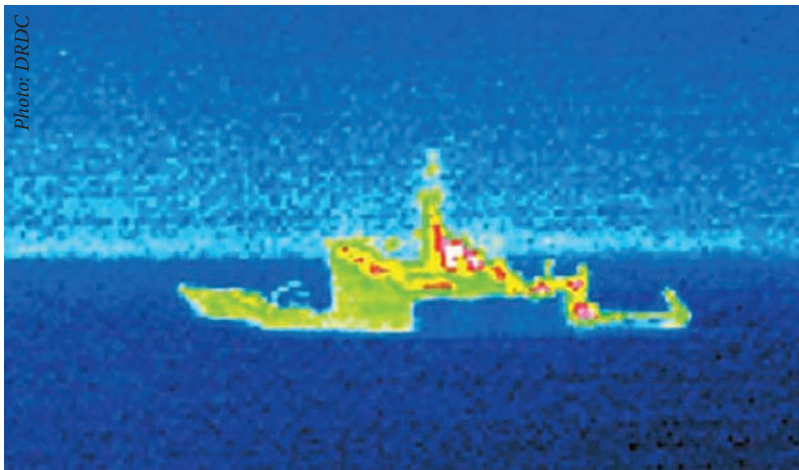
The Infrared Suppression System (IRSS) for propulsion engines, developed for the CPF, is in operational service on more than 70 ships of more than 20 classes. The company's Active Shafting Grounding System, used to reduce extremely low frequency electromagnetic (ELFE) signatures has no competition. It is fitted to all new naval construction in the United States and sales have been made to Norway, UK, Australia and South Korea, as well as Canada.

The Naval Threat Countermeasures System (NTCS) is software that models infrared ship signatures and threats.

Another unique product, NTCS has been adopted by NATO and the company has ongoing development contracts with some of its 20 users for annual revenues between 500,000 and one million dollars.

The company's expertise in infrared signature suppression has led W.R. Davis from naval applications to the aerospace market and it now supplies equipment for more than 10 different aircraft types and is operational with 300 aircraft. W.R. Davis supplies infrared suppression equipment to the US Army for the Chinook helicopter.

As a result of the original IRSS contract for CPF, the company has generated revenues of over \$100 million associated with those products.



An infrared image of CFAV *Quest*.

Building on Success

These products and the jobs they support would almost certainly not exist if the Canadian Patrol Frigate had not brought them into being. However, the subsequent foreign sales and commanding market positions would not exist if the companies behind them had not seized the initiative and created world-class products. The marketplace does not care about good intentions. The sales were made on their merits.

It requires skill and daring to take a specification that is specifically Canadian and turn it into a global product. The initial sale to Canada can provide tangible evidence that the technology actually works. The offshore sales prove that the technology is transferable and competitive. Bringing those products to market is not easy. The chain that runs from concept to design to prototype, from marketing to specification to contract award, from production to service to upgrade, is a long one. Every link in the chain must meet high standards, and every link is subjected to severe tests. Designing for a short production run can enforce innovation and efficiency, beginning early in the design process.



Photo: Combat Camera

HMCS *Charlottetown*.

With the delivery of 12 *Halifax*-class frigates, the Canadian taxpayers got full value for their money. The ensuing foreign sales of Canadian technology gave them a lot more. The CPF project cost \$8.9 billion and it returned \$7.5 billion in industrial benefits. The products it helped to create now sustain thousands of person years of employment and millions of dollars in sales.

Today, Canada is looking ahead to the design and construction of 15 Canadian Surface Combatants (CSCs). There are predictions that the design will be modular, to allow the smooth incorporation of new technology as it becomes available. The onboard electronics will most probably adhere to new generations of open standards, for greater interoperability and lower cost. The construction will almost certainly be done over a number of years. Open standards and interoperability mean that products designed to a Canadian standard will be more acceptable in export markets, because they will require little or no modification. The CSCs will likely carry current variants of the technology that was created for the frigates. The question now is whether the contract will be structured to allow Canadian industry again to design and build a new generation of innovative products. Will Canada build on success? 🍁

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



Making Waves

Response to Gillis Article in Winter Issue

Michael Craven

Commander, DMRS 9 Submarine Requirements



HMCS *Corner Brook* surfaces alongside HMCS *St. John's* with HMCS *Preserver* in background during a task group exercise off Bermuda, 27 February 2009.

The Winter 2009 edition of the *Canadian Naval Review* included an essay by J. Matthew Gillis entitled “An Undersea Identity Crisis: Evaluating Realistic Roles for Canada’s Submarine Fleet.” In developing his article Mr. Gillis quoted from Canadian government and Department of National Defence (DND) documents, US Navy online sources and a range of Canadian commentators on naval and submarine matters. In this latter category Mr. Gillis quoted from my essay on submarines published two years ago in the *Canadian Military Journal*.

“An Undersea Identity Crisis: Evaluating Realistic Roles for Canada’s Submarine Fleet” is an unfortunate title, not because it misrepresents the author’s analysis but because of its broader implication: namely, that Canada’s submarine service suffers from an identity crisis because some roles suggested for Canadian submarines are unrealistic. This is not the case.

While DND welcomes non-military commentators of various professional backgrounds weighing in on matters of defence and maritime affairs, the resultant advice is sometimes of doubtful utility and occasionally confuses public perception. Mr. Gillis does not substantially cross these lines; his recommendations contain merit. However, either through lack of information or misinterpretation, elements of his analysis do not lead to the conclusions he supposes. Furthermore, he chooses to invoke the arguments of others and on three occasions buttresses his case with incorrect information.

Notwithstanding public affairs information provided by the navy and DND, Mr. Gillis seems to draw inspiration from tired yet persistent arguments proposed by certain constituencies of the Canadian political, media and academic communities. In the past decade these arguments have become the *oeuvre* of these groups and seem to be impervious to logic that might discredit them:

- Canada’s navy, perennially denied adequate fiscal and other resources, is saddled with the unnecessary burden of submarines;
- the reason for inclusion of submarines in the Canadian naval order of battle is unclear;
- *Victoria*-class submarines in particular have been a bad investment.

Mr. Gillis adds his view that the government and the navy have failed to provide a cogent or consistent explanation of the roles of submarines – and worse, only disagree when they attempt to do so. Consequently, he claims that the public is “confused and apprehensive” about submarine upgrading and repair activities and the very survival of submarines is threatened.

Into this thin broth is added a dash of seasoning from yachtsman Peter C. Newman, who in 2004 penned a *Maclean’s* opinion piece entitled “The Submarine Fiasco.” Mr. Newman, whose previous service as a naval reserve officer encourages him to claim competence in specialized naval affairs such as submarines, propounded his view that the ‘real’ reason Canada has submarines is in response to external pressure from the United States – so that US Navy (USN) submarines can use the Canadian boats as targets!

Sadly Mr. Gillis accepts and promotes Mr. Newman’s theory, which must be exploded. The United States was emphatic in its expression of support for Canada replacing its *Oberon*-class submarines, as the US Navy benefits from interaction with Canadian submarines in bilateral and multilateral naval operations and exercises. However, the USN would be extremely disappointed if this was the only rationale. The United States shows great consistency in advocating that its primary maritime partners preserve basic capabilities in all facets of naval operations, including submarines. The USN has entered into comprehensive submarine Memoranda of Understanding with Australia and Canada, and gives substantial support to the Royal Australian Navy’s submarine operation and to the submarine arms of some South American navies.



As Mr. Newman undoubtedly grasps, when more or less similar naval vessels exercise together, both stand to benefit immensely. Canadian submariners hold their own in free play exercise scenarios with USN surface ships and submarines, in which the latter sometimes end up the hunted as opposed to the hunters. As Mr. Gillis correctly surmises, there is a substantial *quid pro quo* to such bilateral and multilateral exercises, including assignment of USN nuclear submarines to Canadian exercises where Canadian naval commanders exercise tactical control of these powerful vessels. This is neither small potatoes nor something the USN is inclined to do for just anyone.

Photo: DND



Search periscope onboard a *Victoria*-class submarine.

Are Canada's submarine roles really a mix of the realistic and unrealistic? All submarines, regardless of their size, armament and propulsion, have characteristics and roles in common. Depending on the geopolitical climate, some of these may be more appropriate than others at any given time over the lifespan of a particular type of submarine. It goes without saying that like many naval vessels, a submarine is first and foremost a warship and an exceptionally powerful tool of dissuasion. Contrary to the assertion made by Mr. Gillis in his opening sentence, submarines have been considered conventional weapons since the end of the First World War.

The maritime component of Canada's security and defence strategy is best served by a diverse combination of flexible assets that confer multi-dimensional capability, provide depth against a series of potential threats, and are to the greatest extent possible both responsive to and immune from the vagaries of geopolitical and technological change. In developing roles for its own submarines the

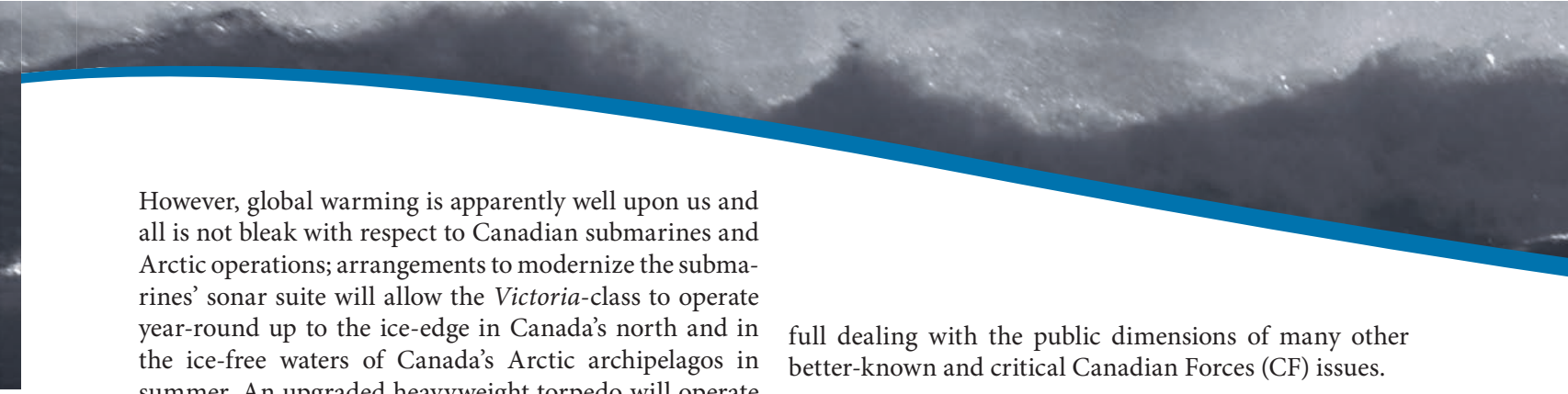
Canadian Navy has considered the unique characteristics of these highly specialized vessels which are able to execute functions unsuited to other maritime assets. That these characteristics are useful to the navies of many states has been affirmed repeatedly since the end of the Second World War. While it may be advantageous to emphasize specific submarine roles (Mr. Gillis' 'realistic' roles) that are in special demand in peacetime, there is nothing to be gained by misleading Canadian taxpayers; as Mr. Gillis points out in his opening paragraph, submarines are nothing if not menacing weapons.

Mr. Gillis seizes on the inability of *Victoria*-class submarines to operate in the Arctic and puzzles over the decision not to secure the benefits of Air Independent Propulsion (AIP), given the supposed limitations imposed by its absence. He mentions the 2007 northern deployment by HMCS *Corner Brook*, but is apparently unaware that while such deployments have not been frequent, *Corner Brook* was not the first and certainly will not be the last submarine to undertake a deployment of this type. Predecessors of the *Victoria*-class, Canada's *Oberon*-class submarines, deployed to Canada's north in the Cold War. Mr. Gillis's comments about Arctic submarine operations are correct in that *Victoria*-class submarines were not designed to operate under ice and cannot be affordably reconfigured to do so. But AIP is not enough; the size and construction of the submarines means that in the event of an emergency they cannot surface through ice thicker than a few centimetres; and AIP does not solve the problem of preserving a breathable atmosphere for 50 or more crew for days, as opposed to hours.



Photo: MCpl Blake Rodgers, Formation Imaging Services Halifax, Nova Scotia

HMCS *Corner Brook* appears out of the fog near Baffin Island during *Operation Nanook*.



However, global warming is apparently well upon us and all is not bleak with respect to Canadian submarines and Arctic operations; arrangements to modernize the submarines' sonar suite will allow the *Victoria*-class to operate year-round up to the ice-edge in Canada's north and in the ice-free waters of Canada's Arctic archipelagos in summer. An upgraded heavyweight torpedo will operate effectively under ice and in ice-filled waters. Admittedly, government has not yet approved these initiatives but their staffing is well underway; the upgraded sonar and torpedo inventory represent a potential expenditure of up to \$250 million over the next 8-10 years.

Let me turn to one of Mr. Gillis' fallacies. It is most certainly not the case that each *Victoria*-class submarine Extended Docking Work Period (EDWP) costs \$900 million. The true value of individual navy-conducted EDWPs underway today is, at just over \$100 million, significantly less. Future EDWPs will be conducted under the terms of the recently signed *Victoria* In-service Support Contract awarded to the Canadian Submarine Maintenance Group, potentially with as many as eight major maintenance activities being undertaken by Canada's shipbuilding industry between 2010 and 2023. The cost to the government to sustain *Victoria*-class submarine operations, including personnel, crew training, shore facilities, fuel, support to deployed operations, maintenance of all types (including EDWPs), obsolescence management and modernization is estimated to be approximately \$250 million per year (about a billion dollars every four years) over the life of the class to the middle 2020s.

The reality is that this number remains relatively constant no matter how intensively the platforms are operated, and would not vary much if Canada had two, three, five, or even six submarines. A major reason for this commitment of a significant portion of the navy's maintenance funding is that submarines demand the highest quality workmanship and safety standards. This is expensive to be sure, but this must be contrasted with the return on investment, in this instance a major contribution to the sovereignty and security of Canada.

In closing, Mr. Gillis professes support for submarines as a valuable component of the Canadian Navy. As submariners (no submariner – serving or retired – is ever a *former* submariner) my colleagues and I are naturally buoyed by his understanding of the important contributions that submarines can and do make to Canada's sovereignty and security. Mr. Gillis' concern about the "failure on the part of DND and the federal government to report ... on [submarine] tasks and successes" is recognized, but he must understand that the navy, the Department of National Defence and the government have their hands

full dealing with the public dimensions of many other better-known and critical Canadian Forces (CF) issues.

This focus on other issues neither implies lack of understanding of realistic roles for Canadian submarines, nor does it diminish the importance of moving the Canadian submarine operation forward to a steady state at a pace that is consistent with the broader challenges of naval and CF modernization. Mr. Gillis will be pleased to know that threats to the continued existence of a submarine component within the Canadian Navy, while always a concern, are generally based on arguments that do not bear up to rigorous examination. And that the Canadian Navy and its submarine service are not suffering from an undersea identity crisis. 🍷

The Impeccable Affair: China's New Twist to the Law of the Sea Convention*

Eric Lerhe

On 8 March 2009, according to the Pentagon, "five Chinese vessels shadowed and aggressively manoeuvred in dangerously close proximity to USNS *Impeccable* in an apparent coordinated effort to harass the US ocean surveillance ship while it was conducting routine operations in international waters." The incident took place approximately 120 kilometres to the southeast of Hainan Island, placing the location within the Chinese 200-mile Exclusive Economic Zone (EEZ). Chinese actions towards *Impeccable* illustrate Beijing's interpretation of its rights in the EEZ. Commander James Kraska, a professor of International Law at the US Naval War College at Newport, RI, has argued that, according to the legal terms and zone definitions of the United Nations Convention on the Law of the Sea (UNCLOS), China's actions are based on a very fanciful legal argument.¹ Kraska's article also underlines that this action is but one of a series of 'special' Chinese maritime legal stands, of which the most egregious is its 'special economic zone,' which goes beyond the mandated 200 miles to actually stretch some 900 miles from the coastline. It also attempts to take from Vietnam, the Philippines, Brunei, Malaysia, Taiwan and Japan their more modest EEZs to achieve this. This is the equivalent of Canada unilaterally extending its Atlantic EEZ 900 miles down to Florida.

As Commander Kraska points out, the Chinese claims are often based on their military clinging to rocks, which in



no way satisfies the UNCLOS requirement of being able to sustain human habitation. The requirement for the claiming state to have exercised continuous administration over them is also overlooked.

Most worrying is the fact that on at least 12 occasions since 1988 China has used its navy to enforce this claim. The most dangerous incidents involved a 1988 naval battle with Vietnam that killed 70 of the latter's sailors, and a 1996 naval gun battle with forces from the Philippines.

While these actions protected China's claim, the results were not very satisfactory to it in the long run. Actual oil and gas finds in the South China Sea have been disappointingly small. More seriously, China's aggressiveness encouraged Singapore to offer the US Navy critical basing rights for carriers and the Philippines invited the US military back under a new Status of Forces Agreement. Thus, all China achieved was a strengthening of the US position in the South China Sea.

This makes China's actions over the "Impeccable Affair" particularly curious, as the United States will not retreat from the area. Further, China has at least as great an interest in the freedom of the seas and the safe passage of sea trade as the United States. In fact, its need for maritime commerce and sustained economic growth is probably greater than most, given that such growth is critical to the Communist Party maintaining domestic peace. This readily explains China's very recent contribution to the counter-piracy effort off Somalia. Why Beijing would disregard the UNCLOS legal regime that bolsters high sea freedoms and security at sea with its actions against USNS *Impeccable* is, thus, a return to very short-term thinking. Commander Kraska correctly points out that China will ultimately have to join those that support UNCLOS, and we can, hopefully, treat the *Impeccable* case as an aberration. 🍷

Notes

* This commentary is taken from *Broadsides*, our online discussion forum, available at www.naval.review.cfps.dal.ca/forum/view.php?topic=53.

1. James Kraska, "The Legal War Behind the Impeccable Incident," *World Politics Review*, available at www.worldpoliticsreview.com/articlePrint.aspx?ID=3449.

Mixed Messages from US Naval Leaders on International Relations*


Brian Wentzell

The recently released US National Intelligence Council publication *Global Trends 2025* foresees the diminution of US global power and influence due to a combination of trends, events and the changing relative strengths of emerging countries, non-governmental organizations (NGOs) and non-state actors. The Council attributed much of the decline to waning US economic and military power. I argue that the reason for decline extends to political, cultural and technological influence as well.

In a *Washington Post* article, entitled "Building Our Best Weapon," dated 15 February 2009, Admiral Mike Mullen, the Chairman of the Joint Chiefs of Staff, drawing on an analogy with the Roman Empire, observed "Like the early Romans, we are expected to do the right thing, and when we don't, to make it right again." He continued, "We have learned, after seven years of war, that trust is the coin of the realm – that building it takes time, losing it takes mere seconds, and maintaining it may be our most important and most difficult objective." The sad events of prisoner mistreatment at Abu Ghraib and continuing civilian casualties from military action in Afghanistan are examples that he offered of the shattering of trust in the United States.

From my experience in an international health care NGO over the last nine years, I have observed a growing wave of disgust and distrust that is both more widespread and deeper than the ideologically motivated anti-American attitudes of the Cold War. The present distrust is far more worrisome as the United States will only regain what it has lost through a concerted effort to make things right over a long period of time. As the Admiral concluded, concerning the impact of civilian casualties occurring in the insurgency in Afghanistan, "Lose the people's trust and we lose the war." The challenge for the United States is to earn the people's trust.

Admiral Mullen is to be commended for his insight and wisdom. However, his conclusions have equal importance to the rest of the world, not just Afghanistan and Pakistan. If the United States is to be seen to be honourable and selfless in the pursuit of its national interests then American political, economic, cultural, financial and



business leaders will have to change their attitudes and behaviour. It seems that, aside from President Obama and Admiral Mullen, not all Americans have understood the problem or accepted the need for change.

For contrast read “Arctic Melt: Reopening a Naval Frontier?” by the Chief Oceanographer and Navigator of the US Navy, Rear-Admiral David Gove. It appears in the February 2009 issue of the Naval Institute’s journal *Proceedings*. It is a well-written argument in favour of renewed American naval interest in the Arctic. The justification for such interest is the impact of global warming on opening access to the sea routes and natural resources of the region, the competing claims of Canada, Russia and other Arctic frontier states that open access will allow other state and non-state actors to explore and exploit the area.

The Rear-Admiral considers the strategic importance of the area coupled with national security, sovereignty and freedom of innocent passage issues to constitute a new opportunity for the US Navy and US Coast Guard. One of his concerns is the existence of a number of chokepoints in Canadian territory along the Northwest Passages. He has similar concerns about the Northern Sea Route. Underlying these concerns are the claims of Canada and Russia that these sea routes go through their respective sovereign territories. He concludes, “U.S. naval interests will face new challenges in an increasingly ice-free Arctic with a strategic objective to understand potential threats to the United States from the maritime domain.” National and homeland security interests are at risk and countermeasures, including early warning of missile attack, maritime surveillance, and the protection of the freedom of navigation and over-flight are required.

It is a legitimate exercise to discuss the national interests of one’s country and to advocate the investment in new assets to protect those interests. However, the justification for the renewed national focus and investment in military assets is important for all to understand. Rear-Admiral Gove’s justification for his call to action is the existence of threats to American national sovereignty, security and economic interests. He encourages international agreements and laments his country’s failure to join the United Nations Convention on the Law of the Sea. In the absence of international accords, he is calling for national action.

How should Canada and other interested countries understand this article? Does it square with Admiral Mullen’s thesis that the United States must regain the trust of other peoples in the world? Rear-Admiral Gove seems to say that if the United States chooses not to join the Law

of the Sea Convention or other multinational or bilateral arrangements then it should take all necessary steps to protect its national interests including the interference in the national interests of other countries. Surely, this is not the message that Admiral Mullen wanted to convey to the world. It rings similar to the marginally reduced ‘Buy-American’ provisions in the recent stimulus measures adopted by the US Congress after international condemnation. It appears that, irrespective of what some key American leaders say about re-establishing trust, old habits die hard. Therefore, Canada has little choice but to reinforce its political, regulatory and military initiatives in the Canadian Arctic. 🇺🇸

Notes

* This commentary is taken from *Broadsides*, our online discussion forum. It appeared under the title “The Future of US Global Dominance at Sea.” The commentary is available at www.naval.review.cfps.dal.ca/forum/view.php?topic=53.

Editor’s Note

An extremely sharp-eyed reader has pointed out that the caption of the photo on the right on p. 4 of the Winter issue gives the wrong date. The Canadian submarine is HMCS *Grilse*, but the date is wrong. *Grilse* was returned to the US Navy in late 1969, after being replaced by HMCS *Rainbow* (ex-USS *Argonaut*) in December 1968. The caption date therefore should have been 1969 or earlier. 🇺🇸

Combined and Joint Operations from the Sea

The RAN Sea Power Conference 2010 Call for Papers

The sixth biennial RAN Sea Power Conference will be held at the Sydney Convention and Exhibition Centre over the period 27-29 January 2010. The RAN Sea Power Conference has become a significant event in the national and international maritime and security communities for its discussion on topical naval and maritime strategic issues. The broad theme of the 2010 Conference is *Combined and Joint Operations from the Sea*, and is aimed at informing how Australia’s new expeditionary capabilities may be best introduced into service and used to advantage. If you are interested in attending this conference or obtaining proceedings/papers presented at the conference, you can find out more information from the Sea Power Centre – Australia or from seapower.conference@defence.gov.au.

The View from the West: Asia's Race for Carriers

Christian Bedford

Few states would acknowledge it directly, but many observers of the region agree that the Asia-Pacific region is currently in an arms race, with several large- and middle-sized powers vying for strategic advantage in this dynamic area. Although much attention has been paid to the pursuit of high-technology weapons such as anti-satellite missiles, fifth-generation fighter jets and space-based cyber-warfare platforms, a sprint is currently under way to produce that icon of 20th century warfare, the aircraft carrier. From Seoul to Canberra, and Beijing to New Delhi, states across greater Asia are busy standing up carrier fleets of varying sizes. What does this trend say about strategic thinking and political posturing in what will be the geo-strategic centre of the world in the 21st century?

The Big Kids on the Block

In the past few years, it seems that barely a week has gone by without some mention of carrier-related activity in the Asia-Pacific region's three largest powers, the United States, China and India. US carrier activity in the Pacific has always been robust, but there was new emphasis placed on it starting in 2006 following the Pentagon's Quadrennial Defense Review that year. In the review, Washington announced a significant redeployment of its carrier strike groups, placing six of 11 in the Pacific for the first time.

This was followed up with the replacement of the sole American conventionally-powered carrier, USS *Kitty Hawk*, based at 7th Fleet in Yokosuka, Japan, with the nuclear-powered USS *George Washington*, marking the first time a nuclear-powered carrier had ever been permanently deployed in a foreign port. And with the delivery of USS *George H.W. Bush* in early 2009, the United States is moving into production of its post-Nimitz carriers,

the *Gerald R. Ford*-class, which promise to be the most advanced naval vessels the world has seen.

While the world's recognized leader in carriers continues to upgrade its fleet, India and China have their own ambitious plans to field these floating air bases. The buzz over China's carrier plans has been heard for decades, beginning in 1985 when Beijing purchased a discarded Australian carrier, HMAS *Melbourne*. Although ostensibly purchased for scrap, engineers from the People's Liberation Army (Navy) (PLAN) closely examined the carrier to become acquainted with such a complex vessel. In the 1990s, China sought to expand its knowledge of carrier designs when it purchased two ex-Soviet carriers, *Kiev* and *Minsk*, which were studied and then turned into floating amusement parks, and more significantly, the *Kuznetsov*-class carrier *Varyag* which sits in port at Dalian and appears to have been converted into a training platform for China's future carrier-based pilots.

The knowledge obtained through these acquisitions will power China's push to produce at least two indigenously-designed and built conventionally-powered carriers in the 50,000- to 60,000-ton range. Although steel is yet to be cut on these vessels, Beijing has been preparing for this entry into the carrier game by repositioning a state-owned shipyard from its current location alongside the Huangpu River in Shanghai, to Changxing Island offshore where it will have the room to construct these large vessels. Scale models of the yet-to-be completed Changxing Shipbuilding Base even show a carrier in a 580-metre dry-dock facility, if there remained any doubt as to the facility's purpose. The two carriers are scheduled to be completed between 2012 and 2015, and will form but the first phase of Beijing's carrier plans; a larger 90,000-ton nuclear-powered carrier is said to be already in the works.

While China prepares for its foray into aircraft carriers, its neighbour to the west has already begun to travel down this road. India has operated an aircraft carrier since 1961 when it commissioned INS *Vikrant*, a *Majestic*-class carrier similar to *Melbourne*, and added *Viraat*, an ex-Centaur-class carrier completed in 1959 and purchased from the British Royal Navy in 1987. Although *Vikrant* and *Viraat* gave the Indian Navy much experience in flat deck operations, New Delhi, with its increased economic might and regional ambitions, was seeking a more modern carrier fleet for a new century.



Sailors aboard the aircraft carrier USS *George Washington* form "Nice to meet you" or "Hajimemashite" in Japanese as the ship arrives for fleet activities Yokosuka, Japan, 25 September 2008.



INS *Vikramaditya*.

India followed a two-pronged procurement plan: purchase one carrier from its long-time arms supplier Russia; and begin plans to construct one itself. On paper, the initial deal with Moscow for *Admiral Gorshkov* – a 40,000-ton *Kiev*-class carrier built in the Ukraine in 1987 – was a coup for India. Moscow agreed to transfer *Gorshkov*, to be renamed *INS Vikramaditya*, virtually free of charge, if India paid for its refurbishment and bought Russian gear, including 16 MiG-29s, to equip the vessel. Although both sides warmly cheered the deal in 2004 as the next step in Russian-Indian defence relations, the optimism since has soured markedly.

Nearly five years later, Russia has raised the price twice, nearly tripling the original agreed cost, and *Gorshkov* remains at the Sevastopol shipyard in Russia's northwest. Although Russia claims that labour and raw material cost increases have pushed the price tag to USD \$2.7 billion, others say Moscow is attempting to extort India into ditching its plans for the carrier, inching the price ever higher until New Delhi drops out. This would, say analysts, leave Moscow with a virtually new carrier at a time when the Kremlin wants to re-establish its own carrier fleet, although perhaps at the cost of its lucrative defence ties to India.

The *Gorshkov* drama notwithstanding, India has carried out the second part of its carrier plan by laying down the keel of its first domestically-designed and produced aircraft carrier, dubbed Project 71, on 28 February 2009 at its Cochin shipyard. Once this vessel is completed in 2014, India will have a fleet of two modern carriers to patrol the Indian Ocean, providing the *Gorshkov* deal isn't scuttled by Russia.

Smaller, But No Less Significant

While the largest players grab the headlines, other Asian powers have steadily and quietly moved into the power-projection business. In mid-2007, South Korea's Landing Platform Experimental (LPX) program produced ROKS *Dokdo*, a 19,000-ton (full load) amphibious assault ship that can carry 700 troops, landing craft from a well dock, 10 tanks and 10 helicopters, greatly enhancing the ROK Navy's ability to assert power and influence events far away from its shores. Seoul intends to build two more of these 'light' aircraft carriers, with the ultimate goal of having, by 2020, three rapid reaction fleets comprising KDX destroyers and air-independent propulsion- (AIP) equipped submarines led by these new amphibious landing platforms.

Japan, too, has entered the fray with the completion of its 18,000-ton (full load) *Hyuga*-class 'helicopter destroyer,' so named because the country's constitution bars the production of offensive weapons such as the name 'carrier' implies. The *Hyuga*-class is the largest vessel in the Japan Maritime Self-Defence Force's already impressive naval fleet, and the first aircraft carrier built by Japan since



Artist's rendering of the RAN's new *Canberra*-class ship. The Australian Defence Force is acquiring two new amphibious ships with the first ship planned to be in service by 2012. The ships will be named HMAS *Canberra* and HMAS *Adelaide*.



DDH 181 *Hyuga*, launched on 23 August 2007 at the IHI Marine United shipyard in Yokohama. The name commemorates a Second World War Imperial Navy battleship that was modified towards the end of the war to carry fighter aircraft.

the Second World War. It has been noted that Japanese naval brass have pressed for a carrier since the mid-1980s, but were dissuaded by the United States which wanted Tokyo to focus on frigates and destroyers. The *Hyuga*-class, named after a famed WWII carrier battleship, will accommodate a similar number of aircraft and gear as the South Korean LPX ships, and will perform a similar role of being a power-projection tool for the Japanese government.

Australia is another country seeking to improve its amphibious capabilities and will do so through the construction of two Landing Helicopter Docks (LHDs). In 2007, the Australian government announced that Spanish shipbuilder Navantia would produce two *Canberra*-class LHDs for the Royal Australian Navy. These ships are much larger than the Japanese and South Korean vessels, weighing in at over 27,000 tons. The extra size will be used to accommodate a larger expeditionary force of over 1,000 troops, six to seven transport helicopters, battle tanks and Tiger attack helicopters. The Navantia design also features a 'ski ramp' which will enable the *Canberra*-class to launch unmanned aerial vehicles, or the F-35B, a short take-off, vertical landing (STOVL) fifth-generation fighter jet being jointly produced by an international consortium.

Although both Japan and South Korea officially deny it, their amphibious ships can also be refitted with ski ramps in order to accommodate the F-35B, and most naval analysts agree that this modification will take place in the near future.

While slightly smaller in scale, both Singapore and Indonesia have also embarked on paths to produce amphibious landing ships in the 7,000-ton range. These vessels, which carry smaller numbers of troops and three to four helicopters each, do not fit the traditional image of an aircraft carrier but were designed and built with the same goals in mind: to project power outside the country's waters.

The Wider Picture

So what does this flurry of carrier-building activity in Asia say about security perceptions? It is clear that for the United States, China and India, aircraft carriers serve as both a power-projection tool and a potent symbol of national strength befitting the world's largest economies. While the US Navy has long been seen as an oceanic police force of sorts, ensuring order in the global commons, the Chinese and Indian Navies have turned their focus towards the seas as their burgeoning economies import ever-greater amounts of resources by sea to sustain their national growth. Building carrier fleets goes a long way in helping to mitigate China's 'Malacca Dilemma' and India's 'Hormuz Dilemma,' referring to their energy chokepoints that are vulnerable to disruption.

Closer to shore, light aircraft carriers and large amphibious vessels can serve a wide array of tasks, from responding to natural disasters, launching stability operations, and operating effective 'over-the-horizon' forces in times of crises. It should be remembered that in this era of global warming, chaotic weather events and rising sea levels, over 75% of the world's population lives within 200 miles of the ocean. As security experts issue dire warnings about the reduction in human security arising from environmental change, the ability for states to respond quickly and effectively to such events as the 2004 tsunami or Cyclone Nargis in 2008 could dictate a state's influence over the outcome of such events, and in the process greatly increase its regional weight.

In the 21st century, aircraft carriers will be the most effective way of ensuring this influence. With so many Asia-Pacific states now pursuing these vessels, the region's security dynamic is sure to undergo significant change. 🇯🇵

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

Plain Talk: Off Course and Rudderless?

Sharon Hobson

Does the navy have a future? The army is moving ahead with plans to buy new trucks, tanks and mine-resistant vehicles, and the head of the army, Lieutenant-General Andrew Leslie isn't afraid to talk about the deteriorating state of his in-service equipment. The air force is in the process of acquiring helicopters and transport aircraft and the Chief of the Air Staff, Lieutenant-General Angus Watt, is candid about his personnel problems.



Photo: DND

HMCS Algonquin, sister ship to HMCS Iroquois on the west coast.

The navy is getting anxious. It needs new ships. While testifying to the Standing Senate Committee on National Security in early March, Admiral Robertson said “We need the joint support ship to be able to maintain our freedom of action internationally. We need replacements for the destroyers to maintain our capabilities in air defence and command and control.”

He deftly stepped away, however, from direct answers to questions about the JSS program. When one Senator asked him “Is everyone agreed on what the design and the engineering of those ships will be?” the admiral responded,

Let me address the issue regarding the international shipbuilding environment. Where we were last summer when that aspect of the procurement was terminated speaks to volatility in the international and domestic industry. The international shipbuilding environment is characterized by uncertainty and unpredictability to a degree that I had not experienced for much of my career.

He talked about the surprising cost increases of materials and said “the cost of material and labour and the other risks inherent in the domestic industry meant that that uncertainty was translated into a procurement process that was terminated last summer.” But he reassured the Senators that “it is not beyond us to do good jobs in building and modernizing ships. The joint support ship is not beyond us, either.”

All of that may be true, but he didn't answer the question. The Senator wanted to know if the design had been finalized, and the admiral needed to say, “no, because we can no longer afford what we originally wanted.” Nobody wants to be that blunt. They talk about redefining the requirements, but nobody is discussing the cheaper options and their implications. The other problem, of course, is that no



Photo: MCpl Robin Mugridge, Formation Imaging Services Halifax

HMCS Iroquois during Operation Altair, May 2008. Iroquois, commissioned in 1972, is the first of the modern Tribal-class destroyers and is celebrating 37 years in service.

The navy, however, seems not only stuck in neutral but is reluctant to talk about it. At this year's Conference of Defence Associations meeting, Vice-Admiral Drew Robertson talked for 22 minutes but failed to give the audience any real idea of what the plans were for his service's future. Was that because of caution or indecision?

Admiral Robertson is, of course, in a difficult position, having had a key project – the Joint Support Ship (JSS) project – yanked out from under him last August after the government deemed the two bidders to be non-compliant for not staying within the (inadequate) budget. Although the government outlined a vague plan for the navy in its Canada First Defence Strategy, the maritime staff must be concerned about the details. The government provided a long-term funding commitment but it has yet to produce the promised long-term procurement strategy which will show spending priorities and timelines.



Photo: Cpl Pier-Adam Turcotte, CFB Esquimalt Imaging Services.
HMCS *Protecteur* refueling *Calgary* during TGEX 3-07 with the USS *Abraham Lincoln* Carrier Strike Group off California.

one speaks in plain language. (This is what Vice-Admiral Denis Rouleau, Vice-Chief of the Defence Staff, told the Standing Committee on National Defence in February: “On the issue of JSS, as we all know, once the two bidders became non-compliant this past fall, there was the requirement that the capability remain extant, and we are now in the process of basically relooking at the options to be able to deliver that capability.... This is where it’s at now, redefining the requirements, and that is progressing very well.”)

Admiral Robertson told the Senate that the navy has “finished [the] examination of what our allies have done and have considered how best to move forward. That work will unfold over the next four months or so. We will see where that takes us by the start of summer.” Again, there is no suggestion as to what the options might be.

So this year – maybe – the JSS project will start again, for the fourth time (‘fast-tracked’ in 2000, announced by the Liberals in 2004, and announced again by the Conservatives in 2006). What the project will look like – fewer ships, different type of ship(s) – is anyone’s guess. As is the delivery schedule. The original schedule had called for delivery of the three ships between 2012 and 2016, but with the revamping of the project, no one is offering any timetables, although everyone is cognizant that the current two auxiliary-oiler-replenishment (AOR) ships are reaching the end of their service life and the navy is facing a gap in capability. Admiral Robertson told a questioner at the CDA, “it’s not clear where we will be in the 2013-14 timeframe, but we are taking steps to make sure that we have an AOR capability through that period.” He did not, however, elaborate.

Senior naval officers have said that the JSS, which offers a joint and interoperable capability with the army and air force, is the “path to the future.” But what happens to the navy’s path if the JSS doesn’t materialize?

Meanwhile, the government plan to acquire six to eight Arctic/Offshore Patrol Ships (A/OPS) inches along. The current schedule, announced in 2007, calls for the first ship to be delivered in 2013 and a full operational capability to be achieved in 2019. Given that these ships are not planned as sophisticated warships, it would not be

out of line to expect a faster build program. The navy, however, is likely dragging its heels. As Arctic expert Dr. Rob Huebert has said, “I think there is a real fear that if they get stuck doing Arctic – and they see it as being ‘stuck’ – that they will not get the full capability

replacement that they need for their blue-water activities.” The navy is determined that the A/OPS should not be seen as a military combatant, that they would only be useful in a constabulary role, so as not to give the government reason to renege on its promise for 15 new surface combatants.

The replacement program for the three *Iroquois*-class destroyers and the 12 *Halifax*-class frigates will not start until 2015. It will be an expensive program – one estimate has it at more than \$20 billion – that will need to be ‘sold’ by the navy to both the politicians and the public. Splitting the project into two or more ‘flights’ will help, with the replacement of the three destroyers first, but there’s no getting around the daunting bill for this 15-ship program.

Last July, General Walter Natynczyk, Chief of the Defence Staff, talked about his naval challenges. “I’ve got to lay keels for ships. I’ve got to fill up the navy divisions aboard ships. I have to make sure they have the training that they require,” he said. “I have to make sure the sailors in the navy know that they have a secure future.” But a big part of that involves having the senior staff reach out to the politicians and decision-makers to help them understand why a navy is important and what funding is required for Canada to have the type of navy it needs. Instead, too often those testifying in front of committees or talking to public interest groups sound like they do not want to part with information, that they are almost resentful of questions into their plans.

This is not a good time to be evasive or inarticulate. With the Afghanistan deployment still the top priority for the military’s personnel and financial resources, and with the global economy in a downturn, it’s going to be a tough slog for the navy to get the recognition and funding it needs. It would help if it was able to put forward a clear vision of its future, based on a pragmatic assessment of the geopolitical environment and the capabilities required and achievable. The navy’s motto is “Ready, Aye, Ready,” but it needs to tell the government and the public in clear language what it can’t do as well as what it can. 🇨🇦

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

Warship Developments: The Chinese Navy

Doug Thomas

The PLAN

The People's Liberation Army (Navy) (PLAN), was founded on 23 April 1949. From the 1950s to the end of the 1970s the main task of the navy was to conduct inshore defensive operations, and it was very much a junior adjunct of the Red Army. Since the 1980s, the PLAN has realized a strategic transformation to be able to conduct offshore defensive operations. Since 2000, it has been striving to improve its capabilities in integrated offshore operations, strategic deterrence and strategic counterattacks. It has also been striving to develop its capabilities to conduct operations in distant waters and counter non-traditional security threats. Through nearly six decades of development, a modern maritime operational force has taken shape, with increasing automation of data exchange and both conventional and nuclear weapon capabilities.



The Chinese Navy destroyer Qingdao DDG-113 arrives in San Diego during a goodwill port visit, September 2006. The ex-USS Midway CV-41, now a carrier museum, is seen in the background.

There are currently 250,000 officers, men and women in the PLAN, including 25,000 in the aviation wing alone. There are three naval fleets, each having under its command aviation, support bases, flotillas, maritime garrison commands, aviation divisions and marine brigades. At present, the navy has eight educational institutions, namely, the Naval Command College, Naval Engineering University, Naval Aeronautical Engineering College, Dalian Naval Academy, Naval Submarine College, Naval Arms Command College, Naval Flying College and Bengbu Naval School for Non-commissioned Officers.

The submarine force is equipped with nuclear-powered strategic missile submarines, nuclear-powered attack submarines and conventional submarines, all organized

into submarine bases and submarine flotillas. The surface ship force mainly consists of destroyers, frigates, missile boats, mine sweepers, landing ships and service ships, and is organized into flotillas of destroyers, speedboats, landing ships and combat support ships, as well as maritime garrison commands. The aviation wing mainly consists of fighters, fighter-bombers, bombers, reconnaissance aircraft, patrol aircraft and helicopters, all organized into aviation divisions. The marine corps is organized into marine brigades, and mainly consists of marines, amphibious armoured troops, artillery troops, engineers and amphibious reconnaissance troops. The coastal defence force is mainly organized into coastal missile regiments and anti-aircraft artillery regiments, and mainly consists of anti-ship missile, anti-aircraft artillery and coastal artillery troops.

Huge effort and much expense have gone into developing this modern navy, and I anticipate this momentum will be maintained and even increase in the near future. I intend discussing only a few of the developments which highlight recent gains.

The development of China's nuclear and conventional missile power has been among the most impressive and most closely watched aspects of Chinese military modernization over the past two decades, especially the development of an anti-ship ballistic missile capability which could deter or otherwise complicate US intervention in the event of a regional crisis or conflict. In addition to these developments, the PLAN's contribution to China's nuclear deterrence posture is also changing with the



Chinese navy special forces train on the deck of DDG-171 Haikou during transit to the Gulf of Aden.

transition from one first-generation nuclear-powered ballistic missile submarine (SSBN), which was armed with the relatively short-range JL-1 submarine-launched ballistic missiles (SLBMs) and never conducted a deterrent patrol, to perhaps as many as five *Jin*-class SSBNs built and building, each armed with 12 much more sophisticated JL-2 SLBMs. This will diversify China's nuclear deterrent and further enhance its survivability.

China has 54 attack submarines as well, and has nearly doubled the number of patrols by this force last year, surpassing Russia but still far behind the United States. A report, based on declassified information provided by US naval intelligence, says Chinese attack submarines conducted 12 patrols in 2008, compared to seven in 2007, two in 2006 and none in 2005. The patrols may have been carried out by just the most modern and capable types of submarines in the Chinese fleet, the report says, noting that new nuclear-powered *Shang*-class attack submarines are replacing the aging *Han*-class.

Anti-Piracy Operations

A Chinese naval task group arrived in the Gulf of Aden in January 2009 on a landmark mission to protect the country's shipping from Somali pirates. The task group promptly escorted its first four vessels – Chinese merchant vessels, including one from Hong Kong, the Xinhua news agency said in a dispatch filed from aboard the destroyer *Wuhan*. The naval task force marked China's first potential combat mission beyond its territorial waters in centuries. The naval force then prepared to escort a further 11 Chinese ships planning to navigate the pirate-infested waters off Somalia.



The Chinese naval fleet, including two destroyers and a supply ship from the South China Sea Fleet, sets sail for the waters off Somalia for escort duty against piracy, December 2008.

The task group was deployed in response to an escalation of pirate attacks on merchant ships, including Chinese vessels, plying the crucial shipping route linking Asia and Europe. The missile-armed destroyers DDG-171 *Haikou* and DDG-169 *Wuhan*, and the supply ship *Weishanhu*,

are among China's most sophisticated ships and have all entered service recently. Although it was stated that they would "operate alongside other international warships patrolling the area near the Gulf of Aden," to date their role has been to protect their own merchant ships.

The intention is that after a three-month deployment, these ships will be replaced by another task group, depending on decisions by the United Nations Security Council and the situation at the time, reports have said. China has said its warships will investigate any suspected pirate vessels, and approach them and demand that they show their relevant documents and certificates. The two embarked helicopters accompanying the flotilla will be employed during such tasks.

To many observers of Chinese foreign policy, the decision to deploy an out-of-area naval task group appears to break from Beijing's low-profile international policy and marks a departure from its strenuous effort to downplay the recent growth of its military power. Does this deployment to Africa represent a watershed in China's security policy? Will the Gulf of Aden operation change China's policy and behaviour in maritime affairs in East Asia?

To this observer, it seems that the PLAN is a force in its ascendancy; an organization which is exploring its boundaries and possible future contributions as a tool of Chinese national and foreign policy. It will be instrumental in supporting China's claim to resource wealth from the bottom of the South China Sea.

The year 2009 is set to become a watershed in the PLAN's development into a force capable of long-distance, multi-pronged power projection. Even as three ultra-modern naval vessels are steaming around the Gulf of Aden on an 'anti-piracy mission,' the Ministry of National Defense (MND) has indirectly admitted that the country is building aircraft carriers, and the ex-Russian aircraft carrier *Varyag* may well figure in those plans.



*Carrier *Shi Lang* alongside in China, February 2009.*

Book Reviews

Fading Victory: The Diary of Admiral Matome Ugaki 1941-1945, edited by Donald M. Goldstein and Katherine V. Dillon, translated by Masataka Chihaya, Annapolis: Naval Institute Press, 1991/republished 2008, 731 pages, US\$35.95 (soft cover), ISBN 978-1-59114-324-6.

Reviewed by Lieutenant-Colonel Peter J. Williams

Translated memoirs of Japanese combatants from the Second World War are comparatively rare; those of their senior commanders even more so. Thus, it comes as a double privilege that we can read the diaries of the man who for a great part of the war was Chief of Staff to Admiral Isoroku Yamamoto, Commander-in-Chief of the Japanese Combined Fleet. This book was last published in 1991 and so has been out of print for some time. Thus we are very fortunate that the Naval Institute Press decided to reprint this volume in 2008 so it is now available, once again, to a wide readership.

After serving as Chief of Staff to Admiral Yamamoto, Admiral Ugaki subsequently served as Commander of the 1st Battleship Division and as Commander 5th Air Fleet, his final appointment. On 15 August 1945 he took off on what was to prove his last mission, leaving a note to his staff which read, "Having a dream, I will go up into the sky." He was never seen again, and it is generally assumed that his plane was shot down while attacking the US fleet. The diaries end with this mission.

The diaries begin in October 1941 a month before Japan launches the Pearl Harbor attack. Like his chief, Yamamoto, Ugaki is somewhat fatalistic about the impending war, noting even after the Striking Force has departed for the Hawaiian Islands that, "[w]hat is to be will be. We have to let the situation run its course."

Far from coming across as merely Yamamoto's *eminence grise* and a faceless staff officer, the diaries show Ugaki to be a thoughtful man. Notwithstanding that he was Chief of Staff of a mighty fleet, Ugaki's entries will resonate with staff chiefs the world over as his time is taken up not only with operational planning for major actions but also more sensitive issues such as posthumous promotions for officers killed at Pearl Harbor.

It is his analysis of the major naval actions of the war which are at the heart of this highly engaging book. While he is extremely pleased with the results of the first attack, he is very critical of the carrier commander, Admiral

Chuichi Nagumo, for failing to launch a second strike. To this frustration is added the lack of success of the Coral Sea operation, where Ugaki comments that, "a dream of great success has been shattered." Within months the Combined Fleet suffers the additional blow of the loss of four of its carriers at Midway, and in the wake of this disaster Ugaki writes an extensive and highly critical After Action Review, highlighting potential breaches in operational security, lack of reconnaissance and faulty deployments.

As the war progresses, Ugaki adopts a much more fatalistic tone. On the day he assumes command of his battleship division, and boards his flagship *Nagato*, he notes, "my admiral's flag was hoisted, thus making this ship my place of death." Fatalism turns to defiance as the outcome of the war becomes more obvious. In response to the atomic bombing of Hiroshima he states that, "[w]e must think of some countermeasures against it immediately and at the same time, I wish we could create the same bomb." When news of Japan's intended surrender reaches him, he vows to fight on, and ultimately leads a suicide mission at Okinawa.

Throughout the diaries, Admiral Ugaki's entries are supplemented with additional detail by the editors so as to put the various entries within a wider context. The editors researched the subject deeply and the bibliography has a useful range of both primary and secondary sources, the former including interviews with several Japanese and American commanders. The book lacks maps so for those unfamiliar with the course of the Pacific campaign, prior reference to some of the bibliographical entries may prove useful. As for the diaries themselves, while they provide a wealth of information and analysis from the perspective of a senior Japanese commander, one would have liked to see more analysis of Yamamoto himself, by the man who would have been closest to him.

In the modern information era, diaries are relatively uncommon. Instead, we are forced to rely on blogs and other sources on the internet. At a time when the Canadian Forces are experiencing their highest operational tempo in decades, this is somewhat concerning for the future historian hoping to analyse our current campaigns from the perspective of our many senior commanders who have led forces during this turbulent time. One hopes that in the decades ahead, when classified documents related to our campaigns in Afghanistan, the Arabian Sea and elsewhere are made public, these documents will be supplemented by the lively, personal entries of those who, like Ugaki, decided to put pen to paper. This book is strongly recommended. 🍷

Chinese Junks on the Pacific: Views from a Different Deck, by Hans K. Van Tilburg, Gainesville, Florida: University Press of Florida, New Perspectives on Maritime History and Nautical Archaeology Series, 2007, 272 pages, diagrams, photos, references, ISBN 978-0-8130-3053-1.

Reviewed by Ann Griffiths

In the past decade we have been exposed on an almost-daily basis to reports of extraordinary growth in China. The economic miracle is of course a bit dented right now as exports to the West (particularly the United States) screech to a halt, but there is a clear sense that any disruption will be temporary, that China is on the A-team to stay.

Of particular interest to the Canadian naval community is the growth of Chinese military capabilities at sea. *Chinese Junks in the Pacific* is not about modern Chinese naval policy but it is about the traditions and culture underlying it. The book has its roots in the author's PhD dissertation (and his MA thesis) at the University of Hawaii, and the author, Hans Konrad Van Tilburg, appears to be well qualified to examine and analyse maritime traditions.

As the Chinese update their navy and become a credible blue-water presence, there is increased interest in the history of the navy – especially Admiral Zheng He and Chinese armadas of the 15th century. Van Tilburg points out that although there are many historical records of Chinese society over hundreds of years, there are few systematic accounts of Chinese naval traditions and technology. This, he notes, is because unlike in the West, Chinese seafaring voyages historically were private ventures – i.e., a family or small group making its economic livelihood at sea – and so the state paid little attention, except for occasionally trying to tax the activity. The other reason for the lack of historical accounts is that seafaring people were until very recently illiterate and therefore few records of their voyages or their shipbuilding methods survive.

The author claims to have two basic tasks in the book: (1) to explore the physical construction and history of 10 particular junks that crossed the Pacific to North America; and (2) to interpret the historical context of the transpacific journeys. In order to accomplish these tasks the book knits together a number of threads. First, it tells the story of 10 junks that were sailed across the Pacific in the early 20th century to the United States and Canada. The author describes the junks, their history, their voyage across the Pacific and their fate in North America. These junks travelled to North America not on Chinese initiative but because American entrepreneurs wanted to use

them as paying attractions, particularly in amusement parks – which says something about Western appreciation of Chinese nautical traditions. Second, the book analyses the specifications and operation of these oceangoing junks (as opposed to inland or riverine junks). The book provides diagrams, photos and some of the specifications of the vessels. Third, the author looks at the historical and cultural environment in which the junks were received in North America. The junks were condescendingly viewed as “curiosities,” or “bizarre objects of fancy” or simply amusing examples of an unsophisticated Chinese culture, and not studied on a systematic basis by either the academic or the naval communities.

Chinese Junks in the Pacific provides an excellent source for naval historians or people interested in Chinese maritime history and relations with the West. The author includes photos, diagrams, extensive citations and bibliographical references, and even a glossary of Chinese nautical terms. Oddly enough, however, the book does not provide maps illustrating the voyages of these ships across the Pacific. After reading this book, not only will readers know the origin of the word ‘junk,’ they will know something of the historical place of them in Chinese society, the different versions and construction, and the perception of them in the West in the early 20th century. Perhaps from this basis, readers will be able to move on to understanding Chinese maritime projects in the 21st century. 🍵

Positioning Navies for the Future, edited by Jack McCaffrie, Sea Power Centre, Australia, 2006, 272 pages, ISBN 1-920831339.

Reviewed by Dave Mugridge

With this highly readable account of its 2004 Conference, the Sea Power Center – Australia conspicuously delivers in its mission to promote an understanding of sea power and its application to Australia's national defence interests. Like many conference proceedings there are good and bad aspects but by and large Commodore McCaffrie has presented the reader with a thought-provoking account of the arguments raised. If read and digested, this work could do much to alleviate contemporary governmental ‘sea blindness’ but ultimately will count for little as I believe its target political audience will remain myopically focused on what they see are enduring land campaigns. Were this book ever to make it to Ottawa and the Department of National Defence in particular, it should make uncomfortable reading for those who took arms against the Joint Support Ship or those who believe we can realistically pull back from the jaws of the Taliban in 2011.

Perhaps a copy delivered to the Member of Parliament for Central Nova might just set the hares running and would definitely provide some thought-provoking reading for the local man in the Cabinet!

It would be disingenuous to focus on those articles which failed to fan the fires of interest because this book is no curate's egg, instead it is a robust Australian Shiraz which may occasionally deliver an affront to the purist's palate but it remains highly consumable to an appreciative general audience. For me the value of this book is that it records the proceedings of a conference now some four years old but the majority of its findings and recommendations have stood the test of time. This speaks volumes for both the academic rigour of its contributors, and the investment and development of maritime strategy by the broad church of Australians who recognize the value of a navy in the triple crown of defence in the realm of national security.

The book is logically laid out, allowing readers to grasp the more general arguments pertaining to sea power and maritime strategy before turning their focus to more specific and detailed operational aspects. The North American or European reader should not be put off by its Southeast Asian regional bias because within its pages there are many apposite arguments which translate directly across to the likes of Canada, the United States or UK. The scene is extremely well set by the symbiotic contributions of both Vice-Admiral Chris Ritchie and Dr. Christian

Reus-Smit. When read together they capture the common ground between academic and military practitioner but also illustrate the healthy differences between the two camps with honesty and mutual understanding.

This conference successfully captured the modern challenges faced by all those with an interest in delivering effective maritime security. Within its pages we can see the panorama of storm clouds ranging from fleet-on-fleet action, through piracy and organized crime to fishery protection. These challenges are well documented and could convince the most skeptical members of the reading public were they to read them. But therein lies the rub – this book's likely sales figures also illustrate why the maritime lobby needs to come out fighting with all the noise of a Las Vegas championship fight otherwise nobody will ever know of its value. For too long the arguments raised by this book have been delivered in a manner more fitting the silent submarine service than the punch of a well-executed naval fire support mission.

My final thought is that the next time junior officers require educating over the intrinsic value of their chosen career or contemplate life as a better paid civilian then ask them to read Lee Cordner's article in this book ("Does Australia need a Maritime Strategy?") and see if the light of truth dawns for them. By convincing the next generation of war-fighting seafarers of their value, we hand on the proud legacy of our own predecessors who gave more than just words for the cause of maritime security. 🍷

The Centre for Foreign Policy Studies at Dalhousie University is pleased to announce the 20th Annual Maritime Security Conference.

Interoperability: Achieving Maritime Security under the North American Free Trade Agreement

**11-12 June 2009
Halifax, Nova Scotia**

Canadian, American and Mexican perspectives on regional maritime security will be examined within seven themes – borders, climate change, crime, energy security, security forces, technology and transportation.

The conference will investigate the prospects for interoperability by addressing three questions:

- Where are the differences in perspective among the three NAFTA countries?
- What institutional alignment exists and where are there differences?
- What are the best practices for achieving effective cooperation arrangements?

For additional information or to register, see the Centre's website at www.cfps.dal.ca or contact Commander Ken Hansen, Defence Fellow, Centre for Foreign Policy Studies, ken.hansen@dal.ca.

Radar at the Ready

Jacqui Good



HMCS Sackville conducting 13-gun salute in the stream during the funeral for Rear-Admiral Robert Timbrell.

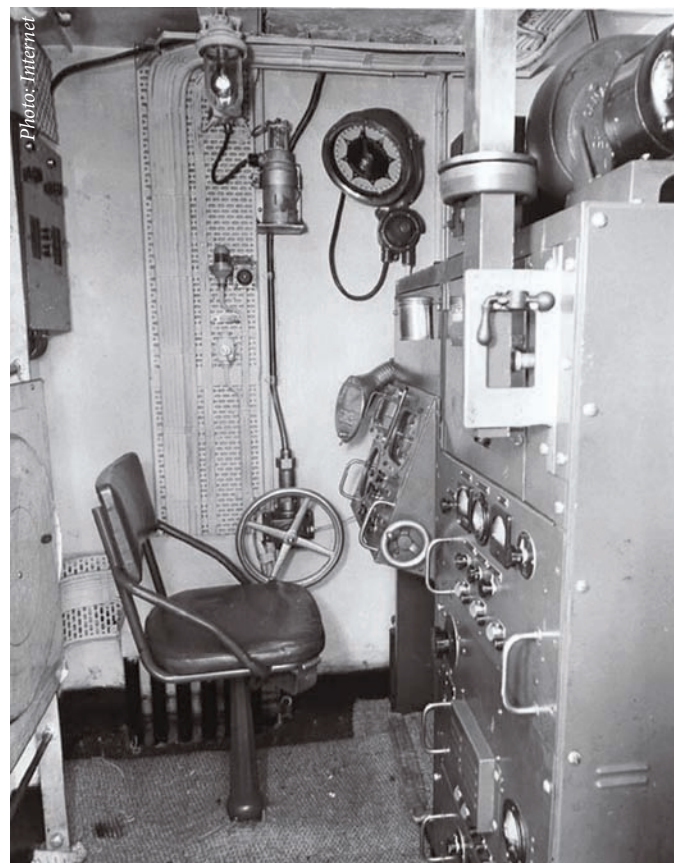
HMCS *Sackville*, as Canada's naval memorial, is a floating museum. The ship has been reconfigured to reflect life at sea in 1944 during the Battle of the Atlantic. There are uniformed mannequins in the mess, lifting cups of coffee to their lips. Others are taking a nap in hammocks slung above the table. Sometimes there are live actors offering tours of the corvette and singing "Roll along, Wavy Navy." Guests are invited to take a turn at the wheel, clamber up and down ladders, check out the engine room and take aim with the guns. Restoration of original equipment is an ongoing project.

And now, everyone who visits *Sackville* can see and learn about the Type 271 radar. That's "the set that won the war at sea," according to James Lamb in his classic tale, "On the Triangle Run."

Radar was invented in Britain in 1936 by Sir Robert Watson-Watt and by 1940 was being used successfully against the Luftwaffe. At the outbreak of the war no Canadian ships were equipped with radar. And when Canadian-designed radar sets did arrive on ships like *Sackville*, they were very rudimentary (producing a blip rather like a heart monitor). It was often difficult to tell whether that blip was a trawler, an iceberg or an enemy submarine. This problem was amplified by the fog banks and rough seas of the North Atlantic.

After a series of frustrating encounters with U-boats, Canadian captains wanted to get their hands on a new British development which used shorter wavelengths than the Canadian version. The 271 radar was the best of its kind in 1942 and significantly improved the odds of a corvette finding and sinking an enemy submarine. An early model was installed in *Sackville* in Londonderry, Northern Ireland, late in 1942.

Sackville's original equipment is long gone, but a similar piece of equipment was discovered in a warehouse about 25 years ago. Hugh MacPherson, a member of the Canadian Naval Memorial Trust, made it his cause to bring the radar back to life. The Royal Navy Radar Museum in Britain provided valuable research and even a copy of an operator's manual. When the display was unveiled in



The infamous Surface Warning 1st Canadian (SW1C) radar in 1941 was considered by many as a menace.



Sackville's Type 271 radar lantern was usually covered while the ship was alongside as a security measure to prevent enemy agents from obtaining its dimensions to determine its operating frequency.

June 2008, Lieutenant-Commander Bill Legg, RN (Ret'd), the Curator of the Royal Navy's Museum of Radar and Communications located in HMS *Collingwood*, was pleased to have helped. He also provided some colourful commentary for a CBC radio documentary.

For the actual work of restoration, Hugh MacPherson approached Cobham Tracking and Locating, headquartered in Dartmouth, Nova Scotia. To his delight, the company signed on immediately. The company is involved in the development, design and manufacture of electronic tracking and locating equipment, primarily used in law enforcement and search and rescue.

Cobham engineers cleaned up the old radar – replacing, refurbishing and polishing – until the set looked like it had just arrived from the manufacturer. Then they tackled the complicated task of creating a display that explains how radar works and how this set would have looked under war-time conditions. A short audio narrative was synchronized to the display, featuring two World War Two veterans, Guy Oulette and Sid Gould (also from the Trust) in their roles as radar operators.

It's worth noting that while the initial radar development was British, some of the finest operators were Canadian. The Royal Air Force had snapped up most British-trained radar operators so the National Research Council in Ottawa collaborated with the University of Toronto



Newly restored Type 271 radar onboard HMCS Sackville.

to train a group of engineers and physicists who were then sent to Britain. During the course of the war, 140 Canadians were trained and loaned to the Royal Navy. Their reputation was so high that one Captain famously signalled after being sent a British officer, "Why cannot I get a proper Radar Officer, a Canadian!"

Both Cobham Tracking and Locating and the Royal Navy Radar Museum are being recognized with plaques aboard *Sackville*. Their collaboration is exactly the kind of thing that Canada's National Naval Memorial needs as it works toward creating a museum full of interactive, educational adventures.

So, having succeeded with the radar, Hugh MacPherson is already talking to another firm about restoring the ship's sonar equipment. And then, there's the radio room.... 📻

Jacqui Good is the publicity chair for the Canadian Naval Memorial Trust.

Have you joined the discussion yet?

Visit *Broadsides*, our online forum, and join the discussion about the navy, oceans, security and defence, maritime policy, and everything else. Visit <http://naval.review.cfps.dal.ca/forum.php>.



2009 Canadian Naval Review Essay Competition

Last chance to Submit

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

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

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

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

Submissions for the 2009 CNR Essay Competition must be submitted to the Editor via email (naval.review@dal.ca), by 30 June 2009. Essays are not to exceed 3,500 words. Longer submissions will be penalized in the adjudication process. All submissions must be in electronic format and any accompanying photographs, images, or other graphics and tables must also be included as a separate file. Photographs obtained from the Internet are not acceptable unless submitted in high-definition format.

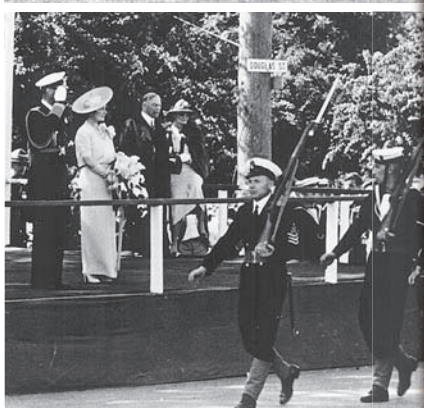
All four prize-winning essays will be published in CNR.

Peter Mitchell Essay Competition 2009

The Sea Power Centre – Australia (SPC-A) is conducting the 2009 Peter Mitchell Essay Competition, which is open to all sailors and officers of British Commonwealth navies of commander rank and below. Details of the competition, prizes and acceptable format can be found at www.navy.gov.au/spc, and enquiries should be directed to seapower.centre@defence.gov.au. The topics for the 2009 competition are:

- Is there a better alternative to the current rank structure used by navies?
- How might the current global financial crisis have an impact on the future of navies?
- What is the potential impact on international shipping, trade routes and the naval protection of shipping if the Arctic Northwest Passage is increasingly ice free?
- How might naval cooperation, either bilaterally or multilaterally, lessen tensions?

Essays can be any length up to a maximum of 3,500 words. Entries are to be received at the SPC-A by no later than 28 October 2009.



The current Maritime Command Queen's Colour, originally presented in 1979, is being replaced after 30 years of service. In a ceremony to be presided over by a representative of Her Majesty the Queen, a replacement Colour will be presented to the Navy on 27 June 2009 in Halifax. During the ceremony, to be held on the historic Garrison Grounds, the old Colour will be retired and the new Colour presented and consecrated. This event is an historic milestone in our history and represents the fourth time that our Sovereign's Colour has been presented to our navy.

Colours are traditionally recognized as a unit's most prized possession. They are presented personally by the Sovereign or Governor General, or by a person designated to act on the Sovereign's behalf. Historically, they provided a rallying point for the unit on the battlefield. Today, while they are no longer carried into action or even a theatre of war, Colours are a visible symbol of loyalty to our Sovereign, to the service and to Canada.

