CANADIAN NAVAL REVIEW

VOLUME 2, NUMBER 3 (FALL 2006)

The "Destroyer Myth" in Canadian Naval History

Transformation and Technology for Medium Navies (Part 2)

Shipbuilding and Industrial Preparedness

Its Own Worst Enemy: Ship Advocacy in the RCN, 1963-1964

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Photo: *Canadian Naval Review*, 2006.

The memorial to the men and women of Canada's maritime forces who gave their lives while on duty during the Cold War. The anchor came from HMCS ***Bonaventure****, Canada's last aircraft carrier which was paid off in 1970.*

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Are we overreacting to the Afghanistan casualties?

Photo: DND Combat Camera, Sgt. Denis Power

A LAV III of 1 PPCLI in Afghanistan in May 2006.

From the media coverage one might think that the Afghan mission is a national disaster. One could even be led to the view that the Canadian military has never sustained casualties on this level before. Both assumptions are very wrong! To understand this, we need to put the Afghan operation into a clearer perspective.

First, the mission itself. It is not a war fought under traditional criteria; the world has entered a new era where many of the previous concepts of the use of military force are no longer relevant. Afghanistan is not even a war that conforms to the principles of international humanitarian law. How can it when one of the belligerents is not a state or even a coherent national grouping? How can one reconcile the ruthless disdain for human life of suicide bombers with any concept of international law? Yet, those opposing the terrorists are expected to counter such barbarism within the framework of the law. This is tantamount to requiring the NATO forces to fight with one hand behind their backs. It is not surprising that there are casualties.

To claim, as some do, that "one man's terrorist is another's freedom fighter" is specious at best. Attempting to remove a government by violence and trying to destabilize a society by fear and intimidation are unacceptable actions. This is not just Western democracy imposing its will on the rest of the world, it is a basic principle of the international system in which we all live born out of centuries of destructive warfare and now enshrined in the UN Charter.

Photo: **Canadian Naval Review**, 2006

*The **Bonaventure** anchor.*

Internet image

A Canadian soldier in Afghanistan.

To this, add the basic principles of individual and collective rights and freedoms and the case against terrorism, as we are seeing in the Middle East and elsewhere, is hard to refute. The overarching question, as we are finding out, is "What to do about it?"

Some countries have the capability to address terrorism within their own borders and some have classified such actions as criminal acts and are dealing with them accordingly. Other countries, such as Afghanistan, do not have that capability and thus require the help of others to restore order and a concept of human decency. In some instances, intervention is necessary for the common good – simply because some situations arise where local instability has the potential to spread with far broader implications.

Second, the conduct of the mission. The responsibility to protect those unable to protect themselves and the related decision by a state or group of states to intervene are inherently difficult and laden with risk. Public criticism is the natural companion to such actions especially when things go wrong, take longer to accomplish than expected, or when lives are lost. This is Afghanistan.

When the Canadian government made the commitment to help Afghanistan – at the request of both the United Nations and NATO – it was understood that there would be casualties and this was made very clear to the Canadian people on repeated occasions by the Minister of National Defence and by the Chief of the Defence Staff. The problem is that there is no yardstick by which to measure success or failure. The so-called Taliban forces (who are really a multi-racial fedayeen sharing a common hatred of everything Western including the state of Israel) are not fighting by conventional means or even within the framework of international law. Their tactics, such as they are, are closer to those adopted in the twentieth century by guerillas and revolutionaries around the world, particularly in urban settings. We should not be surprised that efforts to counter them with tactics and weapons designed for open ground, highly mobile warfare are failing. This is a lesson being learned on a daily basis in Afghanistan and is now being accompanied by calls for more 'boots on the ground.'

Until sufficient numbers of soldiers are put on the ground in Afghanistan and a new strategy for systematically clearing the fedayeen from towns and villages is implemented, the war is not going to be won. Even then, those towns and villages have to be kept secure and the fedayeen kept out. This will take time and, unfortu-

nately, result in even more casualties. Those who call for Canadian and NATO withdrawal from Afghanistan do not understand the situation or the implication of such an action.

Third, are the casualties at an acceptable level? When governments commit forces to combat, the decision is made knowing that there will be casualties. For instance, when Mrs. Thatcher deployed the British military to the Falkland Islands in 1982 she established that 20 per cent was an acceptable casualty figure to regain control of the territory. We do not know what figure the Canadian government accepted in making the commitment to Afghanistan. And when Canada entered World War

Photo: DND Combat Camera

Lament for a misunderstood mission?

II, there was no 'exit strategy' other than the simple objective of defeating the German and Japanese aggressors. The war cost some 42,000 Canadian lives of which about 1,800 were lost at sea.

During the four years of the Korean conflict, 516 Canadian soldiers and sailors were killed. The number of people who lost their lives during UN-sponsored peacekeeping operations between 1956 and 1990 is over 100. And one could go on with statistics for operations in the Balkans and other 'peace' operations since the end of the Cold War.

To date, 42 Canadian soldiers have been killed in Afghanistan over a period of four years. That is an average of less than one a month. British and American losses over the same period are 40 and 339 respectively. By comparison, more than 2,700 people are killed on Canadian highways *every year*. And over 60 are killed per year while riding bicycles. Yet there is no comparable public outcry for the banishment of cars and bicycles in Canada.

The cover photo of this edition of the *Canadian Naval Review* shows the naval memorial to those members of the Canadian Forces who lost their lives at sea during the 40-year Cold War. These include the three sailors killed in Korea when HMCS *Iroquois* was hit by a North Korean shell, the crew of the *Argus* maritime patrol aircraft lost while on exercise in the Atlantic, the various naval aviators who were lost during carrier operations, the men killed during the 1969 fire aboard HMCS *Kootenay*, and all others who were lost at sea while on duty. In all, some 90 members of Canada's maritime forces gave their lives during the Cold War.

The anchor, from Canada's last aircraft carrier, HMCS *Bonaventure*, stands to remind us that military service at sea is not without risk. It is also a tribute to those who unselfishly gave their lives that Canada could remain free and not be intimidated by oppressive regimes.

The point about these statistics is simple: the military is not a risk-free occupation. Those who join do so knowing that they must accept a degree of risk and that they may be required to put their lives on the line under some circumstances. Those of us who have served in the military have done so under those expectations. And our families have invariably supported our service. Now, Canadian servicemen and women are being asked to accept the risks involved in bringing law and order to a troubled country, Afghanistan, which asked for our help.

Are the casualties acceptable? Although everyone would prefer that such operations be conducted without casualties, we must accept that casualties are a fact of military life and an unavoidable consequence of combat. That those lives have been given so that others can enjoy the same freedoms that we do is an acceptable price. Canadians have made such sacrifices many times before and without question. So why is Afghanistan different?

Peter T. Haydon

Bruce S. Oland Essay Competition Winner

The "Destroyer Myth" in Canadian Naval History

Commander Kenneth Hansen

The principle upon which the force structure plans of the Canadian Navy are based runs through all four of the strategic guidance documents issued since 1994. *The Naval Vision*, *Adjusting Course*, *Leadmark* and *Securing Canada's Ocean Frontiers* all make roughly the same claim: "[N]othing answers as many force employment calls as the modern destroyer or frigate."[1] This argument is based on the premise that a uniform fleet of medium-sized warships with general-purpose capabilities provides the government with the maximum degree of flexibility for a wide range of operational roles. Somehow, ships of the same size and configuration provide a 'fleet mix' that is more flexible and capable than a force of ships of several different types and sizes. Citing the demands of a large area of responsibility, a harsh maritime climate, and the need for a reasonable working environment for the crew and equipment, the documents all assert that only medium-sized warships are suitable for Canadian defence requirements.

A critical re-evaluation of the destroyer in Canadian naval force structure reveals several flaws in the logic of the Canadian Navy's strategic, operational and tactical reasoning.

In fact, the desire for destroyers as the foundation of the Canadian Navy goes back to the very first days of the service. Since 1910, the destroyer has grown rapidly from the 550-ton *River*-class to warships of between 4,000 and 8,000 tons today.[2] While plans for large ships, including aircraft carriers and cruisers, have come and gone (and come again), the Royal Canadian Navy (RCN) and Maritime Command have never wavered in their desire for destroyers. Seldom challenged in the popular literature, the force structure plans of the interwar RCN were vigorously criticized in Parliament and questioned by the First Sea Lord of the Admiralty, Admiral Sir Ernle Chatfield. A critical re-evaluation of the destroyer in Canadian naval force structure reveals several flaws in the logic of the Canadian Navy's strategic, operational and tactical reasoning. "The Destroyer Myth" is one of the least understood aspects of Canadian naval history.

Internet image

Rear-Admiral Walter Hose, Chief of the Canadian Naval Staff in the inter-war years (as a Commander).

The original fleet plan for the RCN involved a two-armed format. The first consisted of four 4,800-ton *Bristol*-class protected cruisers (second class) for distant patrol service, protection of trade and attacks on enemy commerce. The second comprised one 3,300-ton *Boadicea*-class protected cruiser (third class) and six *River*-class destroyers. They were intended for local patrols, defence of the approaches to Halifax, plus scouting and screening for the Royal Navy (RN) battle fleet. At Halifax, a single *Bristol*-class patrol cruiser would provide support for the short-range cruiser-destroyer flotilla. Importantly, the multiple roles dictated a force structure that was diversified but which could reinforce itself in vital areas.

The *River*-class destroyers were very short-legged: their endurance at economical speed (12 knots) on 130 tons

Internet image

HMS ***Londonderry****, a* ***Grimsby****-class sloop. This was the ship Admiralty recommended for Canada.*

of coal was only 2,000 miles, and at full power they could steam at 25 knots for only 12 to 15 hours (300 to 375 miles). Destroyers of this era were battle fleet assets, made dangerous to capital ships by their torpedoes. Their guns were intended only to deal with other ships of their type that screened the enemy's battle fleet. British destroyers had to remain small, manoeuvrable and swift to operate effectively with the fleet. While it is true that destroyers were employed in a wide diversity of tasks, fleet work carried the highest priority. Relegation to other tasks normally only occurred once obsolescence was obvious. Their secondary performance was often unimpressive compared to purpose-built ships.

Admiral of the Fleet Viscount John Jellicoe's report on Canadian naval requirements, submitted on 31 December 1919, made clear distinctions between the capabilities needed to support the British battle fleet, protect trade and defend ports. His recommendations for the type of ships required by the last two functions also called for a two-armed fleet format: three *Bristol*-class cruisers; and one flotilla leader and 12 destroyer torpedo craft, plus eight submarines with one support ship. He also recommended that vessels engaged in the protection of trade should have a very large radius of action.

On 12 May 1922, George P. Graham, Minister of Militia and Defence and Minister of the Naval Service in the Liberal government, announced to the House of Commons that the naval service should limit itself to training reservists and protecting Canadian marine resources. At that time, the RCN consisted of only three warships: the 3,500-ton *Arethusa*-class light cruiser *Aurora*; and the 1,000-ton *Thornycroft M*-class destroyers *Patriot* and *Patrician*. These were low-endurance ships designed for service in the North Sea and did not conform to the Graham's capability requirements. Instead, he proposed a small force comprised mainly of 450-ton patrol boats. Citing the Five Power Naval Limitation Treaty, concluded on 6 February 1922 at the International Conference on Naval Limitation at Washington, DC, the Liberal government decided to reduce the navy substantially. Commodore Walter Hose, Chief of Naval Staff (CNS), argued in favour of retaining the destroyers since they were "unambiguous warships" that would forestall the Official Opposition's criticism of the government's plans for what was derisively known as a "Five Trawler Navy."

Somehow, Commodore Hose's arguments were effective and Minister Graham never got the small-ship navy he sought. Despite the fact that the government's naval policy rejected any connection to high seas battle fleet operations, in a 1934 speech to the Conference of Defence Associates, the CNS said "destroyers are the very finest ship for defence or attack within our means." Although the Liberals' focus was on local defence and sovereignty patrols, the RCN was determined to forestall any attempt to reshape the navy into a navalised version of the Fisheries Protection Service – the dreaded "Tin Pot Navy." The selection of destroyers as the basis of Canada's interwar fleet had the effect of keeping the RCN relevant to the needs of the RN battle fleet, albeit at the lowest level of combat capability. There were, however, two types of purpose-built, unambiguous warships that could have been substituted for destroyers.

Although the Liberals' focus was on local defence and sovereignty patrols, the RCN was determined to forestall any attempt to reshape the navy into ... the dreaded "Tin Pot Navy."

Other navies used high endurance cruisers and sloops (or cutters) for patrol and sovereignty tasks. During a meeting held on 6 August 1936 between Admiral Chatfield and Prime Minister Mackenzie King, the admiral advised that the four 1,375-ton *C*-class destroyers requested for purchase by the RCN were getting older and, based on the defence requirements King had described to him, were not what Canada needed. Chatfield felt that a two-armed force of sloops supported by one or two cruisers was the ideal solution to both Canada's local defence and trade protection tasks. King said Canada

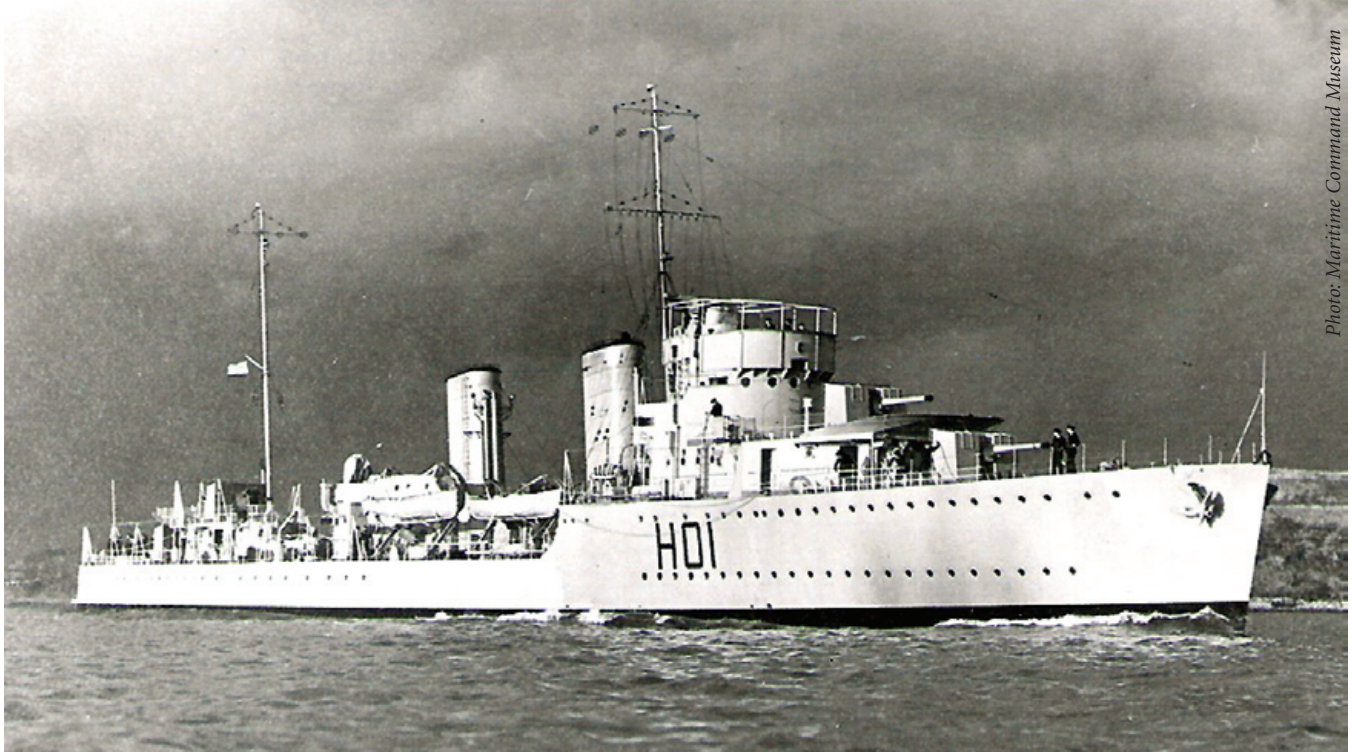


Photo: Maritime Command Museum

*HMCS **Saguenay**, one of the first new destroyers built for the RCN.*

was anxious also to have minesweepers and Chatfield explained that sloops were capable of local patrols, oceanic convoy escort and minesweeping. King enquired about building sloops in Canada and Chatfield assured him it would be possible with some technical assistance from the UK. Despite this advice, King accepted a recommendation by the CNS, Rear-Admiral (later Vice-Admiral) Percy Nelles, for the "Six Destroyer Programme," which he claimed was the minimum necessary naval force.

At half the cost of new fleet destroyers, and one-third the cost of a 2,000-ton *Tribal*-class destroyer, which interested Nelles greatly, the 990-ton *Grimsby*-class escort sloops should have raised some interest at least on the issue of economy. Escort sloops and the 815-ton *Halcyon*-class minesweeping sloops were considered but rejected by the RCN. Nelles and his staff pursued destroyers with unswerving determination, claiming they could counter the perceived threat of the day.

Since the Jellicoe Report, the anticipated naval threat to Canada was raids on trade and coastal facilities by Japanese, and later German, heavy warships and passenger liners converted to auxiliary cruisers. Occasional incursions by submarines were also considered possible. In fact, the threat from auxiliary cruisers was highly overstated. In 1934, Admiral Sir Herbert Richmond, a leading naval intellectual and perennial thorn-in-the-side to conventional authority, wrote *Sea Power in the Modern World* wherein he argued that converted merchant vessels were no match, or even a threat, for small warships. Sloops were viewed as more than adequate 'to give the law' to a converted merchant ship. Richmond dismissed destroyers as battle fleet assets and he called for small, long-range cruisers to be built in large numbers, supported by numerous small battleships. In effect, he was advocating for large sloops as part of a two-armed fleet plan.

... RCN torpedoes were expensive paper threats of defensive value only against uninformed politicians.

Traditional naval theory held that the torpedo armament of destroyers made them dangerous to major warships. In fact, the torpedo had been identified as an over-rated weapon as early as 1912. Destroyers had become too large to be effective torpedo carriers, making it difficult for them to achieve surprise or to penetrate the battle fleet's outer defensive screen. Beyond the relatively short range of 4,000 yards, gunfire had been shown to be demonstrably more accurate and destructive than torpedoes. By 1935, analysis indicated that surface-delivered torpedo attacks were overwhelmingly ineffective, even when launched by rigorously trained ships. Canadian interwar torpedo exercises during the 1930s were limited to once-yearly firings, sometimes conducted against non-manoeuvring, 10-knot targets. Under these circumstances, RCN torpedoes were expensive paper threats of defensive value only against uninformed politicians.

On 5 September 1936, the Canadian Joint Chiefs of Staff (JCS) recommended that within five years the navy should be increased from six to eight destroyers and also acquire a flotilla leader, plus four more minesweepers.

Admiral Percy Nelles, Chief of the Canadian Naval Staff from 1934 to 1944.

The naval threat was rated as sporadic hit-and-run raids by cruisers or submarines.[3] By June 1938, the JCS had revised its threat estimate upwards to include one or more German battle-cruisers of the *Scharnhorst*-class and one or more of the *Deutschland*-class armoured ships. In response, Admiral Nelles advocated for two homogeneous nine-ship flotillas of fleet destroyers. In May 1939, Liberal Minister of Defence Ian Mackenzie announced a new force structure goal of 18 destroyers. The plan drew criticism from the moment it was announced.

Conservative Member of Parliament G.C. MacNeil, speaking before the House of Commons Committee of Supply, dismembered the Minister's proposal, saying destroyers flotillas had little useful function apart from a battle fleet and were much more expensive than smaller escort ships.[4] The Opposition's attacks continued for several days. On 18 May, Minister Mackenzie finally admitted in a terse, one-sentence reply that the two-flotilla plan was the only proposal submitted to him by the naval staff.[5]

The Opposition could see clearly the inconsistency of a destroyer-based, single-armed force structure. But, Mackenzie, like Graham before him, was ignorant of naval theory and had nothing else to offer other than the assurances of the CNS. Without telling the truth to their political masters, Canadian naval leaders were preparing to engage in precisely the type of naval role that had been forbidden by a succession of Liberal governments. The fleet plan was not 'made-in-Canada' and Mackenzie King would not have been happy if he had known the truth.

The physical transformation of the destroyer to make it more suitable for the protection of trade role did not begin to take place until after the start of the Second World War. These changes included reductions in main gun and torpedo armaments to facilitate mounting heavier anti-submarine and anti-aircraft weaponry plus the sensors and direction equipment associated with the new weapons. In some cases, it also included the removal of one boiler room and its conversion to fuel oil tanks and accommodation spaces, which provided both increased human and steaming endurance at the cost of approximately half the total horsepower and roughly 20 per cent of maximum speed.

Although RCN interwar doctrine envisioned a free-ranging flotilla hunting down commerce raiders, Canadian destroyers found themselves committed to escorting convoys practically from the outset of the war. Meanwhile, enemy auxiliary cruisers hunted exclusively for solitary prey in remote areas and were pursued only by high-endurance cruiser groups. Pre-war notions of forming a Canadian 'striking force' vanished with the commencement of convoy operations. The much-anticipated threat from enemy heavy warships did materialize but subsequent events invalidated the destroyer as an effective answer to it.

In one sentence he shattered the validity of the Canadian destroyer-based force structure policy.

On 26 February 1941, while the battle-cruisers *Scharnhorst* and *Gneisenau* and the armoured ship *Scheer* were at sea and shortly after the heavy cruiser *Hipper* had broken up convoy SL-64S, the Canadian Cabinet War Committee discussed enemy surface operations. Admiral Nelles briefed the committee on the increasing naval threat and then made a remark that completely invalidated the RCN's destroyer-based fleet plan. He said "It should be borne in mind that at no time would Canada have been in a position to deal with a pocket battleship [i.e., armoured ship], even had we retained all our naval forces [in Canadian waters]."[6] In one sentence he shattered the validity of the Canadian destroyer-based force structure policy. The staggering truth of Nelles' admission was brought home forcefully during the next foray into the North Atlantic by German surface warships.

The most definitive condemnation of Canada's naval force structure came in 1941 during *Operation Rhine*. This operation was the one opportunity for Canadian destroyers to participate in the role they coveted the

HMCS ***Cayuga****, a* ***Tribal****-class destroyer built in Canada.*

most – the destruction of *Bismarck* in conjunction with the British battle fleet. HMC Ships *Saguenay* and *Assiniboine* were attached to British hunting forces and were poised to participate in the most dramatic fleet engagement during the Battle of the Atlantic. However, their low endurance prevented them from participating. *Saguenay* was detached from the Home Fleet battle group to refuel at Hvalfjord, Iceland, and could not rejoin in time for the action. *Assiniboine* was with the *Renown* battle group but had to be detached on 25 May 1941, also to refuel in Iceland.

When *Bismarck* was sunk on 27 May, the *Tribal*-class destroyers that did participate in the engagement were detached from a passing convoy, WS-8B. Even if *Saguenay* or *Assiniboine* had been one of Nelles' cherished *Tribals*, they would also have been forced to drop out of the pursuit for want of fuel. HMS *Punjab*, which was among the Home Fleet units sortied from Scapa Flow on 22 May, also had to retire to refuel in Iceland. Only convenient happenstance or cruiser-like endurance enabled a hand in the destruction of *Bismarck*.

If Admiral Nelles had been serious about developing a force structure to counter the threat of raids by major warships and auxiliary cruisers, he would have been forced to argue for a two-armed force structure comprised of patrol cruisers and sloops, not fleet destroyers. He was, however, unable to make a coherent, politically saleable argument for cruisers. Instead, he advocated for destroyers, since his professional pride would not allow him to accept settling for the lesser half of the traditional cruiser-sloop trade protection team. Nelles made his mark as CNS by steadfastly defending Commodore Hose's traditional claim that destroyers were "the smallest true fighting ships that could give the RCN independent striking power against a variety of threats, including submarines and surface commerce raiders." This belief was untrue. Left without effective governmental oversight, Nelles deliberately contravened defence policy guidelines and advanced his own vision for Canada's naval force structure.

The single-armed fleet plan of the interwar RCN was a failure. Incapable of countering commerce raids by enemy warships, too short-legged for escort of convoy operations, and plagued by weak anti-air armament, British destroyers failed the ultimate test of combat as the RCN's premier warships. The seeds of Admiral Nelles' ultimate demise were likely sown long before the RCN Equipment Crisis of 1942-43. His naval staff could not articulate a coherent argument for a force structure aligned to government policy or suited for Canadian defence requirements. They achieved their professional aim of keeping the navy relevant to battle fleet operations but failed their country.

Force structure planners should be aware that the history of the RCN shows that naval flexibility cannot be derived from a uniform fleet. While the Canadian destroyers and frigates of today represent the cruiser-sized ships that Admiral Nelles could not justify, high-endurance patrol craft are glaringly absent. Many competent authorities have recommended a two-armed force structure since the first days of the Canadian Navy. It is still valid today.

Notes

* For a full version of the essay with complete citations and references, contact *Canadian Naval Review*.

1. Maritime Command, *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark* (Ottawa, 2005), p. 39. See also: Maritime Command, *Adjusting Course: A Naval Strategy for Canada* (Ottawa, 1997), pp. 13, 33; Maritime Command, *Leadmark: The Navy's Strategy for 2020* (Ottawa, 2001), pp. 68, 70, 101; and Maritime Command, *The Naval Vision: Charting the Course for Canada's Maritime Forces into the 21st Century* (Ottawa, 1994), pp. 21-22.
2. For an analysis of the cruiser lineage of the *Halifax*-class patrol frigates, see Kenneth P. Hansen, "Kingsmill's Cruisers: The Cruiser Tradition in the Early Royal Canadian Navy," *The Northern Mariner*, Vol. XIII, No. 1 (January 2003), pp. 37-52.
3. Dominion of Canada, House of Commons Debates, 1938, Vol. II, 5 September 1936 (Ottawa: J.O. Patenaude, I.S.O. for King's Printer, 1938), pp. 1645-1651.
4. House of Commons Debates, 13 May 1939, IV, pp. 4016-4017.
5. House of Commons Debates, 18 May 1939, IV, p. 4282.
6. Minutes, Cabinet War Committee, "Defence of Canada," 26 February 1941, RG 2, Accession 7C, Volume 3, Reel C-4654, National Archives of Canada.

Commander Ken Hansen was the Chair of Maritime Studies at the Canadian Forces College in Toronto until this summer, when he assumed new duties as the Military Fellow with the Centre for Foreign Policy Studies at Dalhousie University in Halifax.

Transformation and Technology for Medium Navies – Part Two

Norman Friedman*

This is the second part of the keynote paper presented at a conference hosted by the Centre for Foreign Policy Studies, Dalhousie University, June 2006. Part One of the paper appeared in the ***Canadian Naval Review****, Vol. 2, No. 2 (Summer 2006).*

The most obvious reflection of transformation would be to adopt a new style of warfare. In recent years the US Department of Defense has sponsored numerous studies of past 'revolutions in military affairs,' which may be considered past attempts at transformation. Examples include the advent of carrier aviation and the rise of armoured warfare on land. In each case it was clear that a revolutionary shift entailed a new style of warfare involving new technology – in other words, new technology alone was not revolutionary. In the late 1990s the obvious candidate for the next style of warfare was 'network-centric warfare.' A related vision of warfare was expressed in *Joint Vision 2010*, as approved by the US Joint Chiefs of Staff.

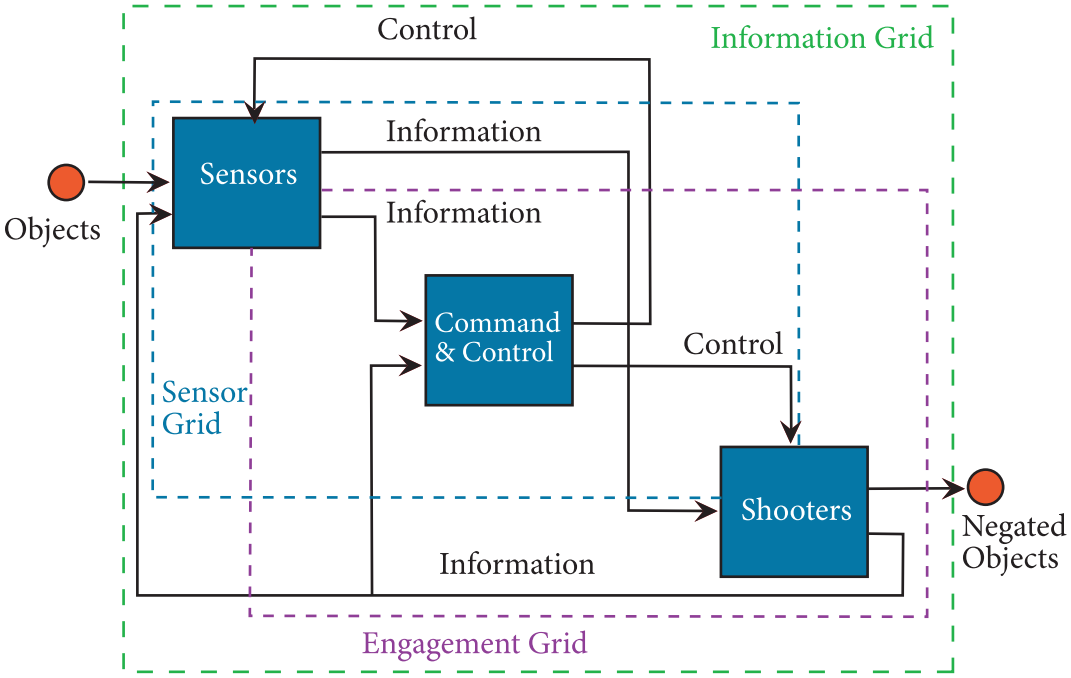
One of the earliest expositions of network-centric warfare included a graphic showing a mesh with the slogan "knowledge is the weapon – and the net delivers it." Cynics will observe that weapons typically kill, whereas knowledge, however shocking, only rarely does so. Knowledge is clearly an essential enabler for weapons that do kill. The important question is to what extent very precisely targeted weapons, exploiting better knowledge about an adversary, can be substituted for earlier weapons either employed en masse or with mass effect. The late Admiral Arthur Cebrowski, who invented the phrase network-centric warfare, pointed out that this was a much deeper question than might be imagined. We really know very little about how limited attacks affect an enemy. Past practice has generally emphasized attacks so overwhelming that they sufficed to crush an enemy. The problem becomes even more difficult when the enemy differs deeply from us in his way of thinking because he comes from a very foreign culture. Modern discussions of 'effects-based operations' are an attempt to deal with this issue (although they more properly should be called 'attempts to estimate the effects of planned operations').

Internet image

Vice-Admiral Arthur Cebrowski, the "father" of NCW.

A better description of the network-centric concept would make it an extension of the very familiar naval use of data-links to form and share a tactical picture. In fact, *network-centric* is probably a very poor description, and indeed this style of warfare should be called *picture-centric*, to show that the emphasis is on the tactical picture. That will be obvious to any naval officer who has fought his ship on the basis of the picture compiled in, and displayed in, his 'Combat Direction Centre' or Operations Room. The great development of the Cold War was to add data from external sensors to extend the picture far beyond the horizon. That was originally done to support attacks on distant surface ships using both aircraft and long-range cruise missiles (in the US Navy, for example, ocean surveillance data went to the fleet partly to support Tomahawk anti-ship missile targeting). The great challenge was to integrate time-late data from intelligence-type sensors, such as satellites, with the near real-time data from force sensors previously used for the picture. Issues, which remain relevant, included how far to trust the additional data and how to handle the omissions involved.

The current extension of this practice goes in two directions. One is towards far greater precision, so that weapons can be fired to hit the points indicated on the picture, without much or any additional fire control. This extension makes precision navigation much more important. A current US effort in this direction is the attempted development of precision anti-submarine



Cebrowski's concept for network-centric warfare.

warfare (ASW) tactics using a future ultra-lightweight torpedo (acceptable because it should not have to search a very large area). A second extension is towards land combat, which involves tactical pictures far more complex than those used at sea. On land, moreover, the shared over-the-horizon picture can make for radically different tactics, more like those used conventionally at sea, with dispersed battle groups cooperating but without a defined front line. Any such change should make smaller numbers more effective, but it also requires radical changes in logistics – and that requirement may make it difficult or impossible to gain the full theoretical value of the improved tactical picture.

The effect of the data-links is to allow a ship to look beyond the physical horizon. Longer-range weapons become usable, and it is possible to manoeuvre fires rather than platforms, at least to some extent. Forces can be allocated far more efficiently, at least in theory. It becomes much more useful to deploy sensors to help create the desired tactical picture. They need not be manned; a ship can expand her effective horizon using unmanned air, surface and underwater vehicles. Since personnel represent a major operating cost, it may be more attractive to use such craft than to increase the number of platforms.

None of this is as new as it may seem. Some navies, such as the Royal Navy, began to develop network-centric (actually picture-centric) concepts of operation soon after radio appeared, which made real-time remote command and control possible. Elsewhere I have argued that the British battle cruisers were conceived to be vectored against commerce raiders identified on the basis of a global intelligence system tied together by telegraph. They were attractive as a way of drastically reducing the investment in trade protection cruisers, as smaller numbers of very fast ships could be controlled by radio. This is an inference made from various British official statements of the time, but the intelligence connection made the operating concept itself quite secret. The point is that some form of picture-centricity has been present in naval operations for many decades. The common World War II ASW tactic of a creeping attack was also a sort of networked warfare, in that one ship in effect extended the sonar horizon of the attacker.

Initially the network-centric idea may have been attractive partly because information seemed cheap compared to weapons and munitions.

It is interesting that the then Royal Canadian Navy, which had specialized in ASW, pioneered the post-war digital combat system, with its data-link, in the form of an abortive system called DATAR. DATAR was connected with the successful US-led Link 11/NTDS system after a 1954 US conference (Lamplight) recommended that the US Navy adopt a digital system which could be connected with the SAGE digital strategic air defence network, so that continental air defence could be extended to sea-


Internet image

The fleet of the future.

ward. Because DATAR was the only existing digital naval system, the navy was told to experiment with it. The navy was already interested in analog systems for fleet air defence; analysis showed that DATAR or an equivalent would be far superior. That caused work to begin on Link 11 and NTDS. Ironically, the offshore radar pickets were never digitized. They were eliminated – because the threat switched to ballistic missiles – before a small-ship system suitable for them could be developed.

Initially the network-centric idea may have been attractive partly because information seemed cheap compared to weapons and munitions. However, it is now clear that creating useful tactical pictures is anything but simple or inexpensive. To mention only one issue, far more bandwidth is needed, and unless the laws of physics can be rewritten, there is only so much of it at any fixed price. Some very important questions have not been answered.

Network-centric warfare creates a targeting picture. That is exactly what is needed in naval warfare and in air defence, which is where existing networks arose. The difference is that the target is sometimes boarded rather than destroyed in maritime interdiction operations. In land warfare, however, there is another factor, a mass of manoeuvre which occupies territory either fleetingly or on a sustained basis. How should speed, firepower and mass be balanced off? How much of one equates to some of the other? It seems that we can never dispense with mass, but how much of it is needed? Similarly, we know that the shared picture will always be incomplete. Every percentage improvement in it (defined how?) costs resources. How much do we need? Remember that any such improvement is paid for in weapons and platforms. What is the basis for tradeoffs?

Another issue also arises on land. We do not really understand motivation in and around combat. What is it that causes an army unit to surrender? Not to fight in the first place? How important is the *appearance* of power, compared to the fact of combat power? It may well be true that a wide variety of small guided weapons can destroy a modern tank, but in many situations the impressive appearance of the tank may be much more important. In 1990, the US Marines deployed on the Kuwaiti border to deter the Iraqis from continuing their push beyond Kuwait to invade Saudi Arabia. To what extent was it more important for them to look powerful than actually to be effective against Iraqi forces or weapons?

For that matter, network-centric warfare requires knowledge. It is one thing to identify targets on a battlefield once a war has begun, when the rule is that enemy vehicles are all fair game. How often will we be in a pre-war or deterrent situation, when there are only potential targets? In that situation, a force in offensive posture may be quite vulnerable, because it cannot shoot first. Or do we want to adopt rules of engagement that are largely pre-emptive? What happens when we learn, from intel-

The ship of the future, an artist's impression of the DDX.

ligence sources that we should never want to disclose, that the enemy is about to attack? Do we fire first? Do we disperse beyond the border so that the enemy's initial attack will do minimal damage, using his first shots to justify our counter-strike?

In the post-Cold War world, it is difficult to imagine a single war that would be so important that otherwise unacceptable tactics are considered mandatory. Almost invariably the opinions of foreign populations matter enormously, and that in turn limits tactics. This element helps explain the current emphasis on precision attacks and on limiting collateral damage (hence, for example, the 250 lb small 'smart bomb' now in production).

Joint Vision 2010 envisaged a situation in which weapons could bypass an enemy's forces and attack his centre(s) of gravity, achieving decisive results. There were several assumptions inherent in this. One was that knowledge of the enemy's forces and target structure could be obtained remotely and circulated among widely-separated shooters. A second assumption was that stealth technology would make it possible to penetrate enemy defences at will. A third, unspoken assumption, was that there were decisive targets subject to destruction by a few precision weapons. Although *Joint Vision 2010* did not mention it, there was another means of defeating an enemy using precision weapons and knowledge. For many years the US military had been interested in a cyclical model of warfare developed by Colonel John Boyd, US Air Force (ret'd). Boyd thought that combat could be described as "the interaction of own and enemy OODA loops" – the loops of observation, orientation, decision and action. If one side could run its loop much faster than the other, the other side would ultimately suffer something like a nervous collapse. Boyd used to illustrate his theory with a very convincing lecture on how France fell so quickly in 1940, at the time a major military puzzle. Very good communications and long-range precision weapons could make for a very rapid OODA loop. Probably the most important point about both *Joint Vision 2010* and the Boyd theory was that neither required overwhelming numbers for success. In an expeditionary world, the locals will usually outnumber the attackers, and the question will generally be what the attackers can do to change that balance.

> *From a political point of view ... probably the most important conclusion is that the medium force is more, rather than less, important....*

All of this sounds like a prescription for vast spending on radical new technology, perhaps a new way in which a superpower can distance itself from all other countries. What is in it for a medium power with a medium-sized navy? Certainly such a country cannot imagine developing a wide range of entirely new technology in hopes that production will be marginally less expensive than replacing existing platforms and systems. Rather, a medium power will largely be a consumer of existing or planned technology, contributing some but not most of it. It will see the new concepts as a menu from which it can choose – if it configures its force to exploit the new technology.

Medium-size naval capability.

Photo: DND Combat Camera

An unmanned air vehicle in use in Afghanistan by the Canadian Army.

From a political point of view, which is the most important point of view for those financing the medium power's forces, probably the most important conclusion is that the medium force is more, rather than less, important – if it can exploit the new technology and fit into the integrated command and control system which the new combat concepts require. It seems vital that the new political situation be recognized sooner rather than later, as otherwise it will not be clear just how relevant the medium navy is.

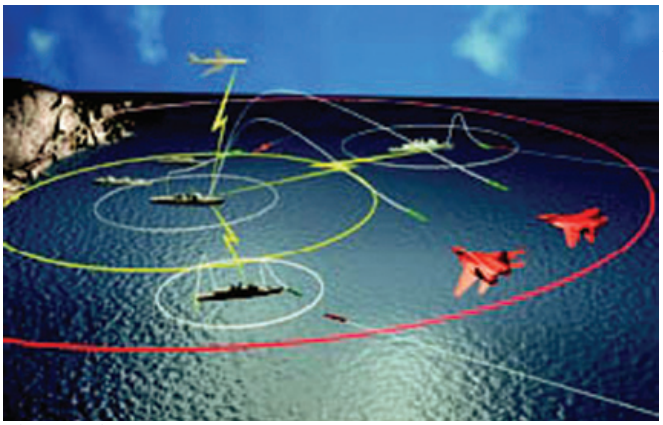
For example, the nature of ASW changes if the threat is a local shallow-water one raised by a few capable submarines, rather than the blue-water mass threat of the past. If the analysis in this paper is correct, then the near-term future of Western navies is in power projection. That includes the ability to land troops – probably not against opposition, but quite possibly on unprepared beaches – and to remove them quickly when necessary. It may well include the ability to support aircraft.

A key political question for the medium navy is what sort of missions it wants to be able to carry out. Ships are quite adaptable, so they often operate in ways not envisaged when they are designed. Even so, they have their limits. A frigate designed for ASW cannot easily project power, except by using its helicopter (in effect operating as a very small carrier). An air defence frigate can protect another ship projecting power, but cannot project power independently. Both ships can conduct maritime interdiction operations on an independent basis. Is the navy to make its mark by working with other ships in integrated formations, or by providing an independent task group?

From a technical point of view, three issues seem to be worth keeping in mind. One is the fleet's ability to exploit the command/control/information system being erected by the United States. If that system really extends the fleet's horizon in a very vital way, then unless it can be exploited, the fleet loses considerable, even vital, capability. For many countries working with the United States, there are important political barriers to such integration, involving shared sensitive information. Canada has the necessary political access, so any remaining barrier is technological. The ability to receive and use the information is substantially less expensive than the ability to gather and collate it.

A second technical issue is the exploitation of the new unmanned vehicles. There seems to be a real possibility, for example, that many carrier aircraft can ultimately be replaced by unmanned air vehicles. Doing so would drastically reduce the cost of carrier operations. For example, there would no longer be much need for proficiency flying. It might be much more acceptable to build aircraft as throw-away units, to be discarded rather than maintained on board ship. The real advantages of the carrier, in terms of its open architecture, would remain whether or not the aircraft on board were manned. Unmanned aircraft, moreover, may be able to provide a much more sustained presence over a battle area ashore, dramatically changing the character of air operations.

A third issue is the nature and quantity of precision munitions. At one time it was claimed that massed fires or weapons of mass effect (e.g., nuclear) were used only because precision could not be assured – if it could be assured, one precision bomb could replace a nuclear bomb. That was ludicrous, because mass has its own



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The network-centic concept.


Photo: Formation Imaging Atlantic

A Canadian frigate's operations room.


Photo: Formation Imaging Atlantic

Units of a typical naval task group.

quality, and nuclear mass has special psychological consequences. Even precision weapons are needed in quantity. For any navy, that raises issues of numbers on board ships and also of underway replenishment. Current surface combatants are very ill-adapted to replenishing their missiles at sea, and the next generation (e.g., DDX) does not seem much better. That puts carriers in a special position but it would be possible to design a future surface combatant better adapted to sustained (i.e., replenished) operations. The advent of long-range guns and particularly of rail guns may change the situation, because the ammunition in question would probably be easy to transfer at sea.

All three technologies – command and control/information systems, unmanned vehicles and precision munitions – are likely to change navies dramatically. The question for the medium navy is how to exploit them. Medium size means that such a navy cannot easily transform part of its force while retaining a large conventional force; it lacks the numbers. Of the items listed, the information end is relatively easy to implement, and is largely a political choice. The others are much more difficult to implement on board existing platforms. Other technologies advertised as transformational may have less impact. In particular, stealth is likely to lose capability to enemies sophisticated enough to buy better data processing or to network their own sensors. That matters because stealth has been the motivation for discarding existing hulls in favour of radically different designs. If it is not so very important, then it may pay to rebuild existing ships, or to buy further hulls of existing types.

Transformation means rethinking the existing balance of forces and the character of the services. The lesson of the US experience seems to be that unless there is transformation, existing forces will become unsupportable. Even massive increases in funding cannot save the existing force structure. The real message of the Joint Capabilities Integration and Development System (JCIDS) is that there may have to be re-balancing among the services.

If the basis of transformation is that the world has changed, the message seems to be that the world of the future will be substantially more expeditionary than the Cold War world. That should favour navies, which are the most mobile forces governments can wield. Navies offer sustained commitment when that is desired, and quick disengagement when it is not. They may be the only way to support friendly governments without the stress of inserting ground or ground-based air forces, and in future that may be more and more important. Medium navies are likely to be more, not less, important in such a world – if they are properly configured for it.

** All opinions expressed in this paper are the author's own, and should not necessarily be attributed to the US Navy or to any other organization with which he has been associated.*

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Shipbuilding and Industrial Preparedness

Vice-Admiral Peter Cairns (Ret'd)

Canada's shipbuilding industry is facing an unprecedented domestic demand for Canadian-built government and commercial ships. The navy forecast is for construction of three Joint Support Ships (JSS), eight *Orca*-class training vessels (in progress), up to 16 Single Class Surface Combatants (SCSC), and perhaps three armed icebreakers. Life Extension Programs (FELEX) for the 12 Canadian Patrol Frigates (CPF) and mid-life refits for the four *Victoria*-class submarines are also on the books. And, it is estimated that replacement of the coast guard fleet will involve up to 50 vessels over the next 10 to 15 years. This has led to inevitable questions about the capability, capacity, technical ability and skill levels of the industry and its people to meet the projected demand. This article will respond to these questions.

One cannot discuss the preparedness of the shipbuilding industry to meet the federal government's demands in isolation of Canada's shipbuilding policy, commercial requirements and ship repair demands. They are all part of the same whole and each is an important link in the industry chain. The interdependence is aptly alluded to in this passage from the Laws of the Navy, "On the strength of one link in the cable, Dependeth the might of the chain."

Background

Since World War II the ships of the Canadian Navy, with few exceptions, have been built in Canada. The *St. Laurent*-class destroyer escort, launched in 1951, represented the first purely Canadian design and build of a modern warship. *St. Laurent* was the first of 20 similar ships to enter service between 1955 and 1964. Nine of these ships were either constructed or retrofitted with a hangar and flight deck to become the first anti-submarine warfare (ASW) ships in the world to carry and operate their own heavy ASW helicopter. All these ships served their country well, and most were in commission in excess of 30 years.

As Table 1 illustrates, the four *Tribal*-class destroyers came into service in 1972-73. They were the first warships in the West to be completely gas turbine powered. Since their mid-life conversions they now fill the function of task group command ships and provide long-range anti-air warfare protection. Two ships are still serving some 34 years after they came into service. Our two operational support ships (AORs) came into service in 1969-70. At over 35 years of age they are expected to operate for another five to 10 years before they are replaced.

In the mid-1960s the navy experimented with Fast Hydrofoil Escorts and commissioned HMCS *Bras d'Or* in 1968. Trial speeds as high as 63 knots were recorded. But due to a lack of money *Bras d'Or* was taken out of service in 1971.

Between 1992 and 1997, 12 Canadian Patrol Frigates (CPF) entered service to replace the ancient *St. Laurent*-class ships. These state-of-the art vessels are considered to be at the leading edge of naval warship technology. They are rapidly approaching mid-life.

Table 1. Canada: Major Warship Construction

Ship Class	First Ship Laid Down	First Ship Launched	First Ship In Service	Last Ship Paid Off
St. Laurent	1949	1951	1955	1998
Tribal	1969	1970	1972	Still in service
Protecteur AOR	1967	1968	1969	Still in service
CPF	1987	1988	1992	Still in service

Table 1 clearly shows the gap between naval building programs in Canada – sometimes as long as 20-25 years. It seems obvious that one of the ways to deal with capacity and capability issues is simply to build more often.

The Commercial Link

What was the shipbuilding industry doing in the years between naval programs? The industry was competing quite well in the years up to 1986. All manner of vessels were built, including icebreakers and oil rigs. And, like every

Photo: *Canadian Naval Review* 2006

Halifax Shipyard.

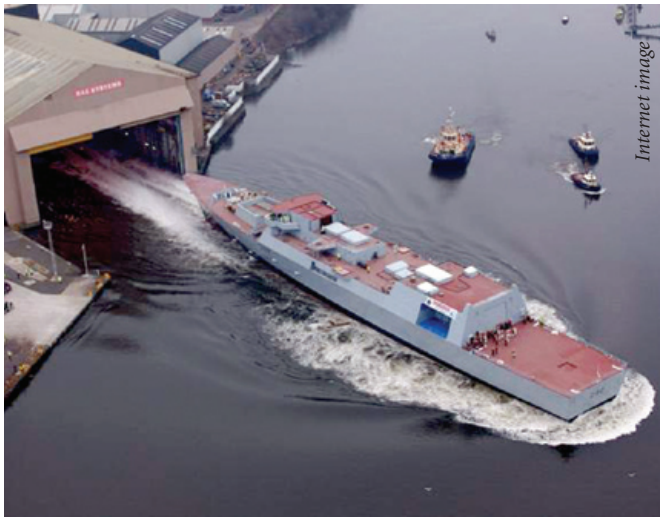
other shipbuilding state, Canada's shipbuilders received direct subsidies.

In 1986 all that changed. The government of Prime Minister Brian Mulroney rationalized the industry, thereby reducing its capacity by about 40%, and cancelled subsidies in anticipation of an Organisation for Economic Cooperation and Development (OECD) agreement on the elimination of subsidies worldwide. After the changes, the industry was left with a three-pronged policy:

1. Canadian owners who qualified and built their vessels in Canada were allowed accelerated capital cost allowance;
2. owners who wished to flag their ships Canadian and participate in the Canadian domestic trade were subject to a 25% duty on vessels imported into Canada; and
3. federal government fleets were to be constructed, converted, refitted and repaired in Canada.

These measures are still in effect today. Unfortunately, the OECD initiative to eliminate subsidies was never ratified and Canada's shipbuilders were left with what proved to be ineffective policies to compete in a highly-subsidized global shipbuilding industry. At the same time, Asian builders increased their capacity dramatically and global ship prices were driven to abnormally low levels – so low in fact that for a period in the 1990s they were below the costs North American and European shipbuilders paid for materials.

In 1994, Canada, the United States and Mexico entered into the North American Free Trade Agreement (NAFTA). While this agreement has been enthusiastically endorsed by Canada, it did not address the protectionist measures supporting the marine industry in the United States that are contained in the *Jones Act* (also known as the *Merchant Marine Act)*, passed in 1920. This legislation ensures that ships used in US domestic trade are owned, crewed, constructed and repaired in the United States. The failure of NAFTA to deal with the *Jones Act*



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*The 2006 launch of HMS **Daring**, the next generation of Royal Navy destroyers.*

effectively closed the US market to Canada's shipbuilders. The end result of all this was an unsubsidized Canadian industry fighting for survival in a subsidized market place in the West and facing vastly cheaper production costs among Asian builders.

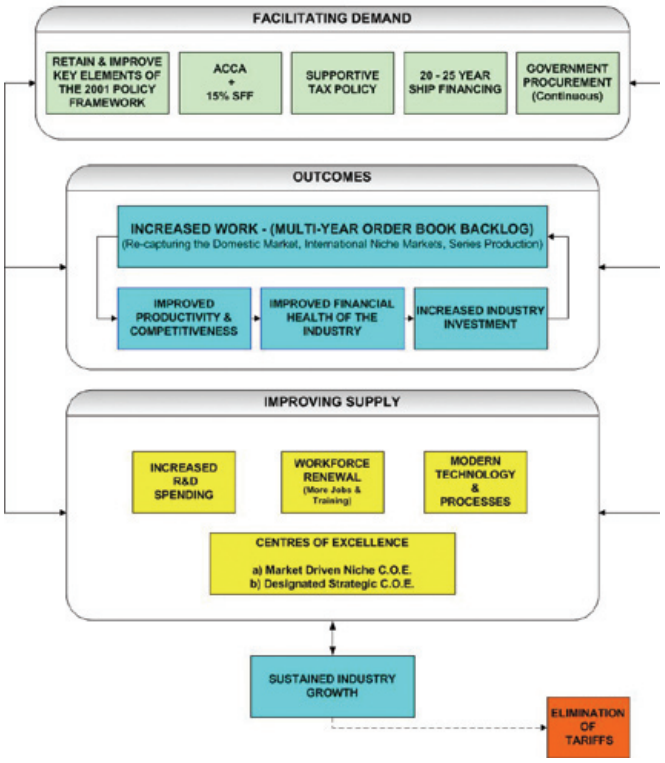
In 2000, then Industry Minister Brian Tobin commissioned the National Partnership Project (NPP). Involved in this was a committee consisting of four members who were charged with finding practical ways to anchor the industry in a real and sustainable long-term market, promote innovation, skills, productivity and competitiveness, and suggest practical enhancements to existing federal programs. The committee tabled its report – "Breaking Through" – in April 2001 and made 36 recommendations.[1] This report has become the foundation document for the shipbuilding industry. Of course the government did not address all of the recommendations in the report – indeed it addressed very few – but it did introduce just enough measures to give the industry some hope for the future.

Several years later, the government appointed another committee, the Shipbuilding and Industrial Marine Advisory Committee (SIMAC). The committee's report was issued in October 2005. The report is entitled "Recommendations to the Minister for a Shipbuilding, Industry Transformative Strategy for a Duty Free Environment," and was designed to assist the Canadian shipbuilding/repair and industrial marine industry to become self-sustaining and competitive, both domestically and in certain international niche markets.[2] The defeat of the Liberal government in January 2006, coupled with what appears to be a lack of interest in this file by the new government, raises doubts as to whether this strategy will be embraced.

A Strategy to Sustain the Shipbuilding Industry

A proposed strategy to build the base to sustain itself is outlined in Figure 1.

Figure 1. Shipbuilding Transformative Strategy



Source: The Shipbuilding and Industrial Marine Advisory Committee (SIMAC).

This strategy requires the federal government to kick-start the industry by facilitating demand. The strategy proposes the federal government look at five policy areas. First, retain and improve on the key elements of the 2001 Policy Framework. Second, combine the Canadian ship owner's Accelerated Capital Cost Allowance (ACCA) with the 15% Structured Financing Facility (SFF) program. At present the Canadian owner must choose between one or the other. The shortcomings of the SFF program are well documented. Third, adjust the tax policy to make it more supportive as has been done in other manufacturing industries. Fourth, investigate extended term financing for Canadians who build ships in Canada. This is common practice in several shipbuilding states. Last, implement government procurement policies that reduce the extreme cycles of government fleet renewal. This article will only discuss procurement

policy as it focuses directly on how the government, and particularly the navy, procures its ships.

For some time now the shipbuilding and industrial marine industry has been proposing a more continuous build strategy for the navy. Assuming a navy of 16 destroyer/frigate vessels, as it is constituted today, building one of these ships every two years would ensure no ship was ever older than 32 years (building a ship every 1.5 years would reduce the maximum age to 24 years). It would also provide considerable additional benefits to both the navy and the shipbuilding industry. The benefits would include:

- naval ships would be more modern and thus able to meet the changing demands of 21st century warfare;
- federal government outlays, the Department of National Defence (DND) budget and cash flows would be more predictable and manageable;
- the maritime defence industrial base would be maintained and strengthened;
- shipbuilding and industrial marine companies would be able to maintain and build on their highly trained and specialized workforce and leverage this expertise into commercial market opportunities (see Figure 2 for an indication of the learning curved involved in building ships);
- continuous work would lead to increased industry investment in research and development, new technology, new production processes, and workforce training and renewal;
- Canada would reap the economic and social benefits from the skilled jobs that would accrue;
- new designs and engineering changes would be iterative in nature; and
- production efficiencies would cause the cost per unit to decrease.

Adopting a continuous build program for naval ships in Canada would require a sea change in the acquisition culture in the government and the navy. The most important change is that it would require the government to look beyond its four-year mandate and adopt a non-partisan long-term strategy. It would not be easy but it is not impossible.

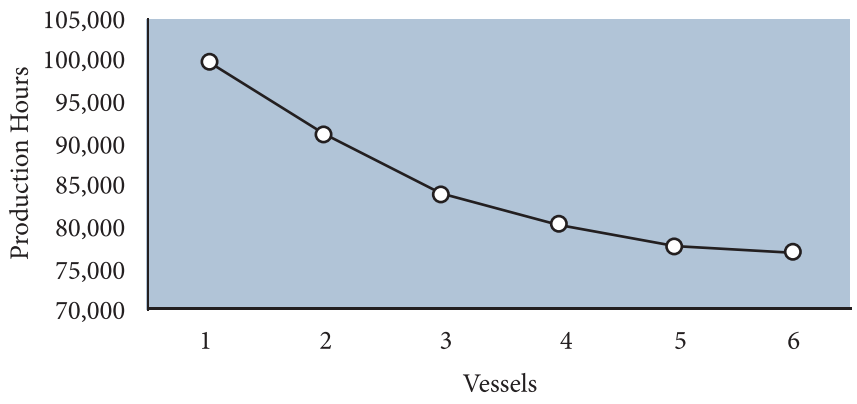
Interestingly, the Australian shipbuilder ASC Pty Ltd (formerly the Australian Submarine Corporation) put forward a similar proposal to its government, in a document entitled "Improving the Cost-Effectiveness of Naval Shipbuilding in Australia."[3] While similar in approach, its proposal goes a significant step further, with the aid of computer modeling, to show that the accepted wisdom of building a ship with a design life of 31 years is in fact the least cost-effective way to build a warship. The document shows that the last 15 years of a ship's life are inordinately expensive, given the high cost of replacing the weapons and sensors at mid-life, and the increase in maintenance costs of the machinery with every year the ship approaches its designed end of life. It recommends that the mid-life refit be eliminated and that Australian warships be replaced after 20 years. According to "Improving the Cost-Effectiveness of Naval Shipbuilding in Australia":

> Replacing naval ships after 20 rather than 31 years would increase the numbers of warships built by some 50 per cent. This approach would allow for extended ship acquisition programs that would routinely produce new vessels in the flatter sections of the learning curve. As a result the unit costs of shipbuilding would be substantially lower.[4]

The Demand for Ships-2006 to 2020

The demand for ships is real and it comes from all corners of the Canadian shipbuilding market – navy, coast guard, commercial fleets (including Great Lakes) and

Figure 2. Typical Shipbuilding Learning Curve for a Series of 6 Vessels
(with vessel #1 production hours = 100,000)



ferry fleets. Let us take a look at the demand and the value of the projects in demand. The commercial demand was calculated by a working group of the Shipbuilding and Industrial Marine Advisory Committee (SIMAC), and Public Works and Government Services Canada (PWGSC) provided figures for the government demand.[5] According to the calculations:

- the total combined demand for the period 2006-2020 is $8.6 billion;
- commercial demand is $2.8 billion including $1.0 billion over the next five years;
- the federal large vessel procurement demand – comprised of the Joint Support Ship program and ferries for Marine Atlantic – is $3.1 billion. The continuation of the Buy Canada Policy is key to this market segment;
- the other demands for vessels by the federal government/navy/coast guard is valued at $2.7 billion; and
- new business in the years 2016 to 2020 will be about $810 million.

Industrial Capacity

The shipbuilding industry has been operating at 30-35% capacity for some time now. For it to become healthy and remain that way it needs to operate at between 60-65% capacity. Maximum capacity has been calculated by Industry Canada in dollar terms as $1.4 billion per year. Figure 3 illustrates that the industry capacity is approached only in the years 2009 through 2011. You will notice that it is the federal large procurements that affect the industry capacity the most.

Not included in Figure 3 are three vessel programs: the Single Class Surface Combatant (SCSC); the affectionately nicknamed "Big Honking Ship" (a US *San Antonio*-type vessel); and armed heavy icebreakers. They were excluded from the demand analysis because it was considered too early in their development cycle to predict with any degree of accuracy. Were one of these programs to be given the go-ahead in the next five years, capacity and scheduling issues could arise, but on the information that is known at this time the government shipbuilding requirement looks manageable.

Production and Engineering: The building of the Joint Support Ship (JSS) will tax the production and engineering capabilities of Canadian yards. That said, however, it should be emphasized that the Canadian yards have more capability than is generally realized. Kiewit Offshore Services of Marystown, Newfoundland, has recently completed the engineering and outfitting for two 120,000 DWT Floating Production Storage and Offloading vessels (FPSO). The work done by Irving Shipbuilding's Halifax facility on the Eric Raude oil rig merited a

Figure 3. Projected Domestic Shipbuilding Demand in Canada 2006-2020

(Excluding contracts awarded in 2005)
($ - Millions in 2005 values)

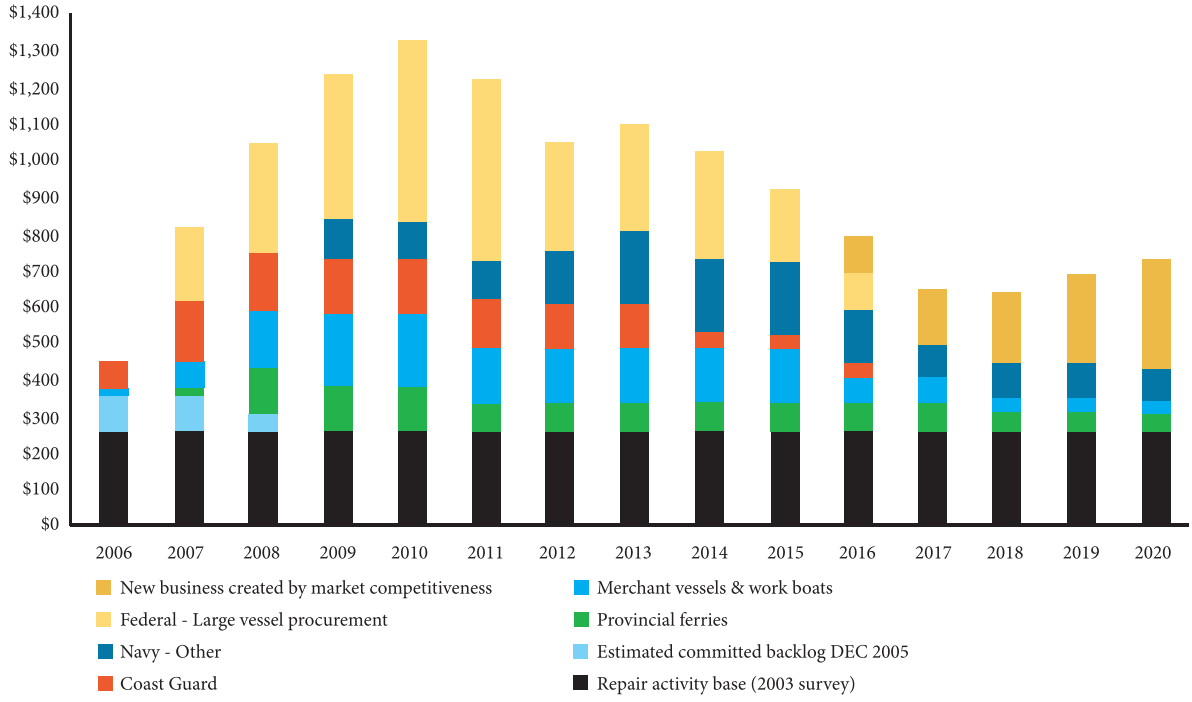


Photo: Saint John Shipbuilding

The stern section of HMCS ***Fredericton*** *being lowered into place at Saint John Shipbuilding Ltd.*

safety award from Exxon and a full-blown documentary on the Learning Channel. Both the Kiewit and Irving projects were on time and on budget.

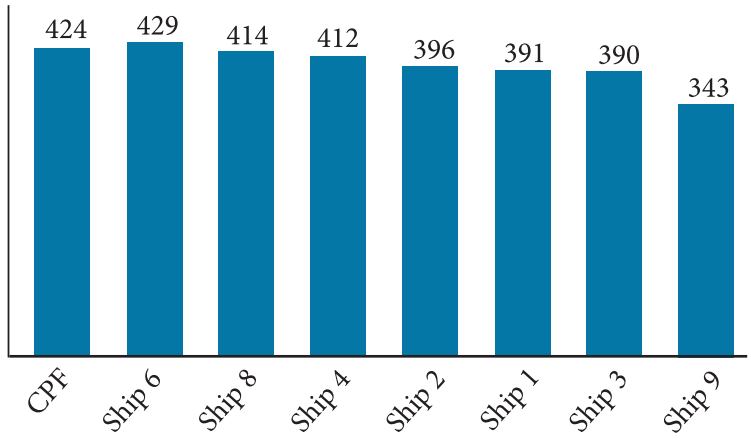
Washington Marine Group's (WMG) Victoria, British Columbia, shipyard has been selected as a preferred shipyard for refitting Holland America Cruise Ships. WMG has excellent planning capability. Cruise ship refits are about 21 days long and include the change of complete habitability modules, and inspections and repairs of hull openings and screws/pods, etc. The last refit done by WMG was completed in only 17 days, four days early, and employed some 2,000 persons working 24/7.

Each of the major yards has computer-aided design and manufacturing processes. Panels are cut and shaped automatically and joined by robotic welders. Each of the teams has European partners that will augment Canadian capabilities with expertise and transfers of technology. The partners will leave their Canadian counterparts in much better condition to tackle future projects.

Capital Investment and Research and Development (R&D): The 10 years prior to 2003 were years of low business volumes. They were also years in which several shipyards went out of business. At this stage the industry needs more emphasis on development than research. Defraying the cost of front-end engineering is crucial to being competitive. Given the forecast building demand, it is estimated that annual capital investment will increase to 5% of revenues from the 10-year average of 2%. Similarly, R&D will increase from 0.6% to 2% of revenues.[6]

Skilled Workers: The uncertain nature of shipbuilding in Canada calls for a varying mix of skills to meet a constantly changing workforce requirement. In 2003 direct employment was calculated at 3,800 full-time equivalent workers but income tax forms were issued to 6,520 workers. This means that 6,520 workers were required to cover off the skill requirements of the industry. It is safe to assume that less than half of these skilled workers received a paycheck for 52 weeks of work. This is not a comment on productivity or ability but only that some necessary skills cannot, presently, be used on a full-time basis. This

Figure 4. CPF Sailaway Cost Comparison with Frigates from Seven States ($M)



Design, facility, depot spares, PMO, documentation and training costs are not included in NATO sailaway costs.

Source: Department of National Defence Chief of Review Services, Report on Canadian Patrol Frigate Cost and Capability Comparison.

Figure 5. CPF Capability Comparison with 11 Frigates from Other States

Capability (Subsystem Groupings)	CPF	Ship 1	Ship 2	Ship 3	Ship 4	Ship 5	Ship 6	Ship 7	Ship 8	Ship 9	Ship 10	Ship 11
Multi-purpose roles												
Ranges, crew size												
Surface to surface weapons												
Air defence												
Sub-surface weapons												
Surface/sub-surface detection												
Close in defence												
System Integration												
Surviability												

CPF Superior CPF Equivalent CPF Inferior

Source: Department of National Defence Chief of Review Services, Report on Canadian Patrol Frigate Cost and Capability Comparison.

anomaly could be alleviated by increased overall levels of production such as a continuous build program could bring.

Another concern is whether there will be adequate numbers of skilled trades persons available to meet the anticipated demand. The average age of a shipyard worker is about 45 years. This is comparable to the other manufacturing sectors in Canada, North America and Europe. What sets shipbuilding apart is that only 6% of its workers are under age 25 as opposed to 13% in other Canadian manufacturing industries. The problem will be exacerbated by the demand for skilled workers in Alberta that is forecast to be about 100,000 over the next 10 years. Strong training and apprenticeship programs will be absolutely necessary. We have excellent training institutions in Canada that will have to be utilized to their fullest.

Cost and Delivery Schedule: It is difficult to believe that a warship can be constructed more cheaply in the United States or Europe than in Canada. Evidence suggests that the so-called premium the navy would pay to build in Canada may be largely illusory – i.e., that it would *not* be more expensive to build the ships in Canada. Part of the problem with making an accurate comparison of costs is trying to determine if costs are calculated the same way in different countries. There is evidence to suggest that they are not, so comparisons can be misleading. What is important to me, as a taxpayer, is that the benefits accrue to Canada. When you build offshore they do not. Figures 4 and 5 are charts done by the Chief of Review Services while conducting a cost comparison of the Canadian Patrol Frigate (CPF) with other NATO frigates.

As Figure 4 illustrates, the cost of the CPFs was higher than most of the other frigates. For the most part, however, the cost differential is less than 10% which for a program of this size is not of consequence. As well, a comparison of cost like this does not indicate the differences among the frigates. Figure 5 is a comparison of capability and it indicates that while the CPF may have been slightly more expensive it is clearly the most capable ship of the lot. The conclusion of the Chief of Review Services' study states "Our analysis indicates that the CPF is a world-class fighting ship and that, based on NATO costing conventions, the production cost for the last ship is reasonably competitive with other nations. The CPF exceeds the individual marine and combat characteristics of other ships in decidedly more instances than it is equivalent or falls short."

Figure 6. A Comparison of Design and Build Schedules

Ship	Country	Type	Length (m)	Weight[2] (no cargo) (tonnes)	Complexity	Duration[1]
Amsterdam	Netherlands	AOR	166	8,100	Less	47
Patiño	Spain	AOR	166	8,100	Less	42
Rotterdam	Netherlands	LPD	166	8,297	Similar	48
BAC	Spain	AOR	166	9,700	Less	63*
Berlin	Germany	AOR	173	9,800	Less	42
Galicia	Spain	LPD	160	11,870	Similar	33
ALSL	UK	LSD	176	12,800	Less	48
Johan de Witt	Netherlands	LPD	181	15,000	Similar	48*
Albion	UK	LPD	176	17,500	Similar	72
Wave Knight	UK	AOR	196	17,500	Less	73
Ocean	UK	LPH	203	20,250	Similar	64
JSS	***Canada***	***AOR(H)/AKR***	***210***	***22,000***		***51****
BPE	Spain	LHD	230	22,000	Similar	63*
LPD17	US	LPD	208	22,000	More	99+*
Fort Victoria	UK	AOR	203	24,600	Similar	75
T-AKE	US	AOR	210	30,000	Similar	58*

Notes: 1. Durations are from Design & Build Order to ship entering service
2. Weights are estimates based on best available information
* Assumes that the ship will be in service three (3) months after delivery

Source: Department of National Defence Chief of Review Services, Report on Canadian Patrol Frigate Cost and Capability Comparison.

There is also evidence to suggest that the delivery time for a JSS constructed in Canada would not be significantly different from that of other shipyards around the world building a roughly equivalent ship. Figure 6 is a comparison of design and build schedules. Once again there does not seem to be a significant advantage to building in another country.

Conclusion

As happened with the *St. Laurent*, the *Tribal* and the CPFs, Canada's shipbuilders are being questioned yet again, about their capability to meet the navy's requirements. They have always risen to the occasion in the past and they will do it again, but there has to be a better way.

The navy can no longer dock and repair its own ships – those days are gone. The navy needs industrial support. Likewise, the shipbuilding industry needs the work that the navy provides but it cannot survive on navy and coast guard repair work alone. Canadian shipbuilders need a reasonably level playing field so they can capture their fair share of the domestic commercial market. Talented young engineers, naval architects and technicians want to build ships. It is in building that they hone their professional skills, not in repair.

However, there is one fundamental question that needs to be urgently addressed. Do Canadians and the navy want a shipbuilding industry in Canada? If the answer is yes, then it is simply a matter of giving it a priority and getting on with it. If the answer is no or I don't know/I'm not sure, then the demise of a high-technology industry will not be long in coming.

We are presented with a once-in-a-lifetime opportunity to build a small, viable, self-sustaining shipbuilding industry in Canada. It won't come again!

Notes

1. National Partnership Project, "Breaking Through" (Ottawa: Government of Canada, 2001), p. 49.
2. Shipbuilding and Industrial Marine Advisory Committee (SIMAC), "Recommendations to the Minister of Industry for a Shipbuilding Industry Transformative Strategy for a Duty Free Environment" (Ottawa, 2005).
3. ASC Pty Ltd, "Improving the Cost-effectiveness of Naval Shipbuilding in Australia" (2006).
4. *Ibid.*, p. 23.
5. SIMAC, "Canada's Shipbuilding Industry is Here to Stay" (2005), pp. 6-9.
6. *Ibid.*, p. 28.

Vice-Admiral Peter Cairns (Ret'd) is currently President of the Shipbuilding Association of Canada.

Its Own Worst Enemy: Ship Advocacy in the RCN, 1963-1964*

Richard Mayne

Photo: DND/DHH, File 91/487

The General Purpose Frigate Program was first conceived in August 1960 and then cancelled by the Liberals in October 1963.

On 24 October 1963, the Minister of National Defence, Paul Hellyer, announced that he was cancelling the previous government's eight-ship General Purpose Frigate (GPF) Program. This ship had formed the basis of the Royal Canadian Navy's (RCN) force structure planning for over three years, and its termination was a devastating blow. Historians often use the GPF as the seminal event that triggered Hellyer's hostile relationship with the navy's senior staff. New research, however, suggests that internal bickering at the staff level – emanating from advocates who wanted the RCN to acquire either more aircraft carriers or a nuclear submarine program – actually played a significant role in sabotaging the GPF Program.

There were various ship classes – such as destroyers, aircraft carriers, nuclear submarines, or even the more exotic hydrofoil – that became 'pet projects' for staff officers who got attached, often emotionally so, to their preferred choice. These advocates actively pushed their concept in an attempt to ensure that the RCN acquired it. Competition between these individuals could be fierce, particularly when the navy faced drastic budget cuts. And that was exactly what happened to the GPF when the Liberal Party took over the government in April 1963.

Expensive social programs promised during the election campaign made extensive reductions to the military's budget inevitable. This created a cutthroat environment among the various advocates which, according to one staff officer's private correspondence, led to a seething and dangerously fragmented naval headquarters throughout 1963 and early 1964. But budgetary reductions were not the only factor that turned the advocates against one another. The government was also re-evaluating Canada's defence policy. Obviously, the roles the

Photo: DND/DHH, 81/520/8000, Box 192, file 13.

*Vice-Admiral H.S. Rayner (seen on the far right cheering at the commissioning of HMCS **Nipigon** on 30 May 1964) never got over the loss of the GPF.*

government saw the navy performing would mean certain ship classes would get emphasized over others.

> *This created a cutthroat environment among the various advocates which ... led to a seething and dangerously fragmented naval headquarters throughout 1963 and early 1964.*

In mid-August 1963, Hellyer told the Chairman of the Chiefs of Staff, Air Chief Marshal Frank Miller, that he had a particular vision for the Canadian military – what he called Mobile Force. At that time Hellyer gave Miller only a sketchy idea of what this meant, telling him that it "is basically an air transportable fighting unit which could be airlifted with its equipment for quick deployment anywhere in the world."[1] Providing sea lift for this force was not the minister's idea. Instead, advocates within the navy of obtaining aircraft carriers saw this role as an opportunity to use Hellyer's vision to their advantage.

The Chief of the Naval Staff (CNS), Vice-Admiral H.S. Rayner, was less than enthusiastic about acquiring ships for a sea lift role. Rayner wanted to build a specialized anti-submarine force of enlarged helicopter-carrying destroyers (DDH) protected by GPFs (the latter would also add a small measure of versatility to the fleet). Worried that Rayner had no intention of replacing the RCN's current carrier, HMCS *Bonaventure*, with another similar vessel, the top naval aviation advocate, Commodore A.B.F. Fraser-Harris, recognized that the Mobile Force concept was his best chance to secure this platform's future. The idea of Mobile Force allowed Fraser-Harris to advance an impressive fleet of carriers consisting of the smaller *Iwo Jimas* (which would carry the troops and helicopters) as well as the larger *Essex*-class that would provide aircraft for area air defence and strike support. His argument was that the aircraft carrier was the only vessel that could contribute to both the limited war Mobile Force and anti-submarine warfare (ASW) roles. In the end, the future composition of the RCN came down to a choice among a destroyer force specializing in ASW, an amphibious fleet centred on the *Iwo Jima*-class ships, or a combination of both.

Photo: DND/DHH, BIOG H

Paul Hellyer, the Liberal Defence Minister, actually had allies within the navy who supported his decision to cancel the GPF.

> *Firm direction was required to help the navy navigate around the differing factions, and that was something Rayner did not provide.*

Those who supported a destroyer-based navy had some powerful arguments against the *Iwo Jima* and *Essex* plan. The pattern of Canadian peacekeeping missions by now established made it extremely unlikely that Canada would ever get involved in a war situation requiring a serious

Photo: DND/DHH

*With HMCS **Margaree** and three **Prestonian**-class frigates in the foreground, USS **Iwo Jima** arrives for a port visit to Esquimalt, BC, on 4 November 1961. Some officers wanted to make the image of a Canadian **Iwo Jima** rounding Duntze Head a reality.*

level of firepower or sophistication. Only a Korean War type of scenario could justify the *Essex* and *Iwo Jimas* and even a cursory reading of the new Liberal government suggested that it did not want Canadians involved in international conflicts and potential quagmires. That meant Canadian peacekeepers would disembark through unopposed port landings, and according to Rayner the current fleet could easily cope with this type of sea lift.

Rayner had other objections as well. Shopping for expensive carriers made no sense at a time when the government was threatening to drastically reduce the military's budget. How the navy was going to afford both new destroyers and aircraft carriers for limited war and anti-submarine operations was the key question that had yet been asked. For the advocates of destroyers, the answer was simple – the navy could do one task or the other well but not both. Supporting the Mobile Force role would adversely affect the RCN's primary commitment to NATO and for Rayner that led to an awkward scenario. Presumably, a limited war could precipitate heightened global tensions between the superpowers; and there was simply no way that the carrier-borne ASW helicopters could be committed to a search for submarines in the North Atlantic if the *Iwo Jimas* were off attempting to contain a war somewhere else. Moreover, unless the government was willing to pay for this dual-purpose fleet, the navy had few options but to specialize in ASW. Rayner understood this all too well. Advocates of adopting carriers, however, continued to sell their platform on the basis of its ability to contribute to both limited war and ASW operations.

Firm direction was required to help the navy navigate around the differing factions, and that was something Rayner did not provide. The discussion over Mobile Force provided a forum to reopen a capability debate that most thought the GPF had shut. In fairness to Rayner, Mobile Force had put him in a difficult situation. Ignoring the minister's interest in limited wars risked the possibility that the navy would be left behind if Canadian defence policy suddenly shifted in this direction. There was no crystal ball at naval headquarters to say that the current incarnation of Mobile Force would stall at the planning phase, and therefore Rayner had little choice but to hedge his bets. Moreover, challenging a ministerial directive at a time when the government was in the process of cutting budgets was not smart politics. From that perspective, therefore, Rayner did the right thing by forming an ad hoc study group to look into force structure under the chairmanship of Commodore H.G. Burchell.

Burchell was a good choice to head this committee. He was fair and understood the dangers that the growing factionalism in the RCN posed to the navy and its planned programs. As he noted in February 1963:

> It is important that the creditability of programmes approved by requisite authorities in the RCN should not be compromised by loose talk, no matter how sincere the individual and/or his expert views. There is a time to express one's views and when that time is past I do not wish staff to participate in the generation of "red-herrings."[2]

This warning was well founded. If the GPF Program was to have any chance of surviving the government's proposed cuts, it needed the unqualified support of the entire staff organization. Rear-Admiral J.V. Brock had foreseen this. While serving as the Vice-Chief of the Naval Staff he had warned all the advocates in early January 1963 that the decision to build the GPF was final and that changes to the concept would not be tolerated. His message was clear – debate and discussion was welcome while the staff was in the planning stage, but nothing was more likely to scrub an established program than dissension in the ranks. Burchell totally agreed with Brock's approach. In his view "every member equally has a duty

to support the majority situation," and that "once action is underway on an approved project anything less than full support is sabotage."[3] Yet this was exactly what some elements within the navy were doing to the GPF.

Hellyer's memoirs suggest that fears of being tied down by what he saw as an ill-conceived Conservative government program made the decision to cancel the GPF a relatively easy one. New evidence, however, shows that the minister had second thoughts. One of his key advisors, R.J. Sutherland, wrote a powerful report on the GPF concept arguing that it was the best platform to meet the RCN's needs.[4] While this gave the minister a moment of pause, it was Rayner's defence of the program that led Hellyer to reconsider. Indeed, the CNS made a good case. Canada's allies were asking the RCN to provide more escorts rather than carriers, and to sweeten the deal the CNS was willing to cut the program in half. That appeared to have had the biggest impact on Hellyer. Apparently Hellyer felt he ought to cut back on the program but politically this was difficult to do. Shifting defence dollars to social programs would make it difficult to keep the GPF alive, but Rayner's four-ship program meant that it was no longer impossible.

The story of how an embittered ex-naval officer named James Plomer publicly attacked the GPF as "a wasteful navy program" in both the media and a parliamentary committee is a well-told tale. What is less known, however, is that there were some advocates of nuclear submarines and aircraft carriers who were willing to take advantage of the chaos created by Plomer's charges to push their own agendas. In particular, Commander E. Gigg, who was perhaps the most vocal advocate of nuclear submarines, saw the GPF's potential demise as a ray of hope for his platform. Believing that the money from the GPF could be re-invested into nuclear submarines, Gigg argued that the navy was trying to cram so many capabilities into a destroyer design that it could not perform any one specific task well. He also claimed that the GPF was too slow to deal with Soviet nuclear submarines, and criticized the fact that it did not carry a Sea King helicopter. His final criticism was that the GPF's anti-aircraft missiles were inadequate. Almost word for word, the minister would use all of these arguments to justify the GPF's cancellation.

What Gigg felt the RCN needed to combat the air and ASW threats was a combination of nuclear submarines and carriers. Gigg's arguments put Fraser-Harris in a

Photo: Naval Historical Center, NH97545.

*The nuclear-powered **Thresher**-class – the ultimate desire of submarine advocates at Naval Headquarters.*

difficult position. Gigg was making a powerful case for the *Iwo Jimas* that Fraser-Harris wanted his superiors to hear, but Gigg was also disparaging the same GPFs that Fraser-Harris needed as screens and picket ships for his Mobile Force carrier task group. The result was that Fraser-Harris did not directly sabotage the GPF but neither did he defend it, other than saying that it was "unwise for the Navy to indulge in such a strenuous assault" on the program.[5] Instead, he concentrated all his efforts on getting the minister to accept the carriers and that meant he could not be bogged down in what he saw as a futile attempt to save a dying program.

This was where the balance between competing sets of advocates could turn into a bizarre game of shifting alliances and power struggles.

Fraser-Harris was indeed walking a thin line. Gigg's specific arguments against the GPF were counter-productive to a ship type that Fraser-Harris would later want resuscitated. This was where the balance between competing sets of advocates could turn into a bizarre game of shifting alliances and power struggles. As a submarine patron, Gigg's goal was to make room for a nuclear submarine program through the cancellation of the GPF. Of course, the danger to Fraser-Harris' position was that Gigg's arguments might be so persuasive to the minister that he would not support any future guided-missile destroyer concepts at all. It was a risk Fraser-Harris was willing to take. But that attitude ensured that the GPF was not defended properly.

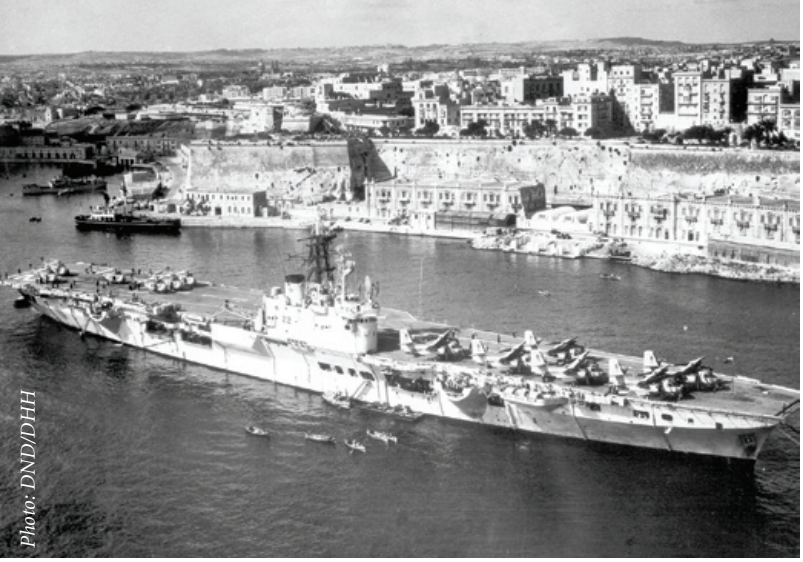


Photo: DND/DHH

*The inability of naval aviation advocates to secure a replacement for HMCS **Bonaventure** – pictured here in Grand Harbour, Valetta, Malta – ensured that she was the RCN's last carrier.*

Hellyer was under tremendous pressure from the Prime Minister to reduce costs, and as a result he saw little reason to stand up for a program that did not even enjoy universal support within the navy. By late September, after over five months of consideration, Hellyer made up his mind. He would not share that decision for another three weeks, and so Rayner had no idea that the GPF had already been terminated when he defended the program to a special parliamentary group investigating defence policy (the Sauvé Committee) in early October.

It was clear to most observers that the CNS was unprepared for his appearance before the committee. In fact, the Director of Shipbuilding Branch, Jack Rutledge, and his team at the Department of Defence Production could not understand why it appeared that they were the only ones who were mounting an energetic defence of the program. The answer was that some factions within the navy were willing to let the GPF go. Simply put, the men responsible for providing Rayner with the advice and information required to defend the GPF from Plomer's charges were all on Fraser-Harris' staff, and therefore it should not be surprising that the file on this matter shows a total lack of staff work.

Photo: DND/DHH

*The future of naval aviation in the RCN, the helicopter-carrying destroyer (DDH), HMCS **Ottawa**.*

Advocates of particular ships or policies have been around throughout the RCN's history and they have played a crucial role in helping it acquire specific platforms, but the GPF stands as an illustration of the dangers the navy faces when it fails to present a united message to its political leaders. The CNS should have had the last word on what programs would be championed to the minister. Various ship advocates not only robbed Rayner of this opportunity, but they also helped lay the groundwork for the GPF Program's cancellation.

The outcome of pushing various concepts was that none of them succeeded – the GPF Program was terminated, the *Bonaventure* was not replaced, and the nuclear submarine never got beyond the planning stage. Left without a cohesive procurement strategy the RCN's future force structure was thrown into a state of chaos and confusion for well over a year, resulting in a fleet replacement program that many officers considered less than satisfactory. And it is for that reason that one of the RCN's top technical officers, Rear-Admiral Sam Davis, noted in 1964 that the navy had become "its own worst enemy" which had no option after the GPF but to take "any carrot which may be dangled by our Political masters."[6]

Notes

* This article is the product of ongoing research conducted for the Official History of the RCN, 1945-68. The author would like to thank his boss, Michael Whitby, as well as the entire naval team for their assistance. Any views expressed (or errors made) are the author's.

1. Minister to Chiefs of Staff Committee, 27 August 1963, and Mobile Force Study of Composition and Cost, Terms of Reference, Library and Archives Canada (hereafter LAC), RG 24 Vol. 21811, CSC 2447:1.
2. DGFE to Staff, 15 February 1963, LAC, RG 24, Accession 1983-84/167, Box 493, 1700-DGFE, vol. 2.
3. *Ibid*.
4. Sutherland's GPF Study should not be confused with his larger and better known ad hoc report on Canadian defence policy.
5. ACNS (A&W) to VCNS, 4 September 1963, Report by Commander E. Gigg, DHH, 120.009 (D19).
6. S. Mathwin Davis to ACNS (A&W), Constructive Thoughts – in despair, 13 March 1964, DHH, 79/246, File 78A.

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Making Waves

Why Not a Naval Peace Support Role off Lebanon?

David Sweeney

In a recent interview with Sharon Hobson, the Chief of the Defence Staff General Rick Hillier, spoke of offering tools to further Canadian government foreign policy initiatives.

While Canadian boots on the ground, for many reasons, was clearly not a good option in south Lebanon, one has to consider it to be a lost opportunity not to have used one of the other items in the national "toolbox." Perhaps General Hillier is unaware of the utility of naval forces for this type of operation, including offshore patrol to enforce a potential peace agreement? Was the Prime Minister, or his Cabinet, advised that Canada could play an important role in stabilizing peace efforts by sending a warship? I suspect not!

During the recent Lebanese conflict, a blockade by Israeli naval forces prevented all but officially recognized foreign vessels from entering and leaving the coastal area, as Israel was concerned that weapons and personnel might be smuggled in by sea to reinforce Hezbollah. The Israelis ensured that the sea-borne evacuation of non-combatants was by naval forces or government-chartered civilian ferries. The latter was the case with the evacuation of Canadian passport-holders as Canada had no naval vessels in the area – although three ships had been standing by in Halifax in case they were required.

Just imagine the future possibilities when Canada has a Joint Support Ship (JSS) or indeed a 'Big Honking Ship.' Much was made in the media (I believe unfairly) of the lack of organization by Foreign Affairs to conduct the biggest sea-borne evacuation of Canadians since Dunkirk. Dispatching a warship even from far away ports such as Halifax would give planners time to sort through their options and make better preparations such as providing motion sickness medication and extra water to the evacuees on board the chartered ferries. But just as importantly, it sends an immediate signal that we are doing something.

It is interesting to note the extent of the Royal Navy (RN) involvement. Six vessels were dispatched to Lebanon to rescue stranded Britons, and their use proved to be very timely and effective, underscoring to many the flexibility that maritime forces give to their governments in time of crisis. It allowed the British Ministry of Defence to promote a growing theme in its public communications – i.e., that an aircraft carrier is an "important enabler of foreign policy. No other platform provides the flexibility, power projection capability or command and control facilities of an aircraft carrier." A similar comment could surely be made regarding the 'Big Honking Ship.'

I found it fascinating to read this Reuters news item of 18 August:

> Germany Offers Sea, Border Patrols in Lebanon
>
> Germany pledged on Aug. 17 to provide police, customs agents, aircraft and ships to a UN peacekeeping force in Lebanon to prevent arms from flowing into the country by land from Syria or by sea.
>
> "Today I was in a position to offer a rather substantive maritime component which is so encompassing that it could patrol and secure the whole of the Lebanese coast to make sure that no weapons or other related materials get into Lebanon," German UN Ambassador Thomas Matussek said.

And 8 September in the *National Post*:

> "The naval blockade will continue until the international naval force is in place," said a spokeswoman from Mr. Olmert's office [the Israeli Prime Minister]. A senior government official said the lifting of naval restrictions would depend on the arrival of the international force in Lebanon's territorial waters.

Our political and military leadership must understand that you don't necessarily have to provide boots on the ground in order to make an important contribution to peace and stability, and they should in the future be ready to employ the best tool in the toolbox, which just may be the flexibility of maritime forces.

Answer the $%^& Phone!*

Dave Perry

The Canadian Navy has a public relations problem. A bad one. With relatively few exceptions, Canadians and Canadian decision-makers do not understand what the navy does, has done, or can do. At the same time, what little the public knows is often negative or inaccurate, as

naval personnel regularly declare with great distress. For readers of *CNR*, this must surely be seen as problematic, particularly given the high level of visibility (for good or bad) currently enjoyed by the Canadian Army, and the new 'army-centric' focus of the Canadian Forces (CF). Setting aside the negative comments about the current mission to Afghanistan, the public and decision-makers can at least turn on the news and gain a rough understanding of what their army does for them on a daily basis. Aside from a few coastal city inhabitants occasionally watching ships sail into and out of port, the same cannot be said with any certainty about the navy.

Why Canadians remain ignorant about their navy is no doubt due to a complicated mix of factors including, but not limited to, the following: antipathy towards the CF in general; the navy's location on either coast, largely away from most Canadians; the low visibility of naval operations far from shore; the complexity of military matters in general; and media coverage that is infrequent and often superficial, probably as a result of the other aforementioned factors.

Are any of these things the navy's fault? No. Should the navy, in an ideal world, need to address these issues? No. Nonetheless, most of these factors seem unlikely to change in the near future. The navy thus seems faced with two options. Option one is to do nothing, and hope that the current situation improves. Meanwhile, Canadians remain ignorant, and naval personnel feel undervalued and misunderstood. Option two is for the navy to acknowledge the current reality, and that it is unlikely to change, and attempt to do something about it.

What can the navy do? For starters, efforts to reach out to the public should be continued and given added weight. Efforts to increase community awareness in Canadian cities through charity work or sponsorship of amateur sports will help raise the navy's profile. Systemic efforts like the oft-discussed "Operation Connection" will no doubt help as well, if properly executed. (Despite living in a naval city, however, I have yet to feel any such 'connection.') Another opportunity the navy might have to help educate the public is to *seek out* opportunities to send naval personnel to Canadian universities, public schools, etc., to talk to young people about what the navy does. I stress the need to target youth, because the most frequently discussed exploits of the navy – other than the recent naval participation in the campaign against land-locked Afghanistan as part of the 'war on terrorism' – date to World War II and the Battle of the Atlantic. While these exploits were heroic, a bit of "what have you done for me lately?" is needed.

Aside from such efforts, perhaps the single greatest area in which the navy might be proactive is public relations (PR). While I have no great body of evidence to back up my claims that navy PR needs work, some personal experience and discussions with naval personnel indicate this is the case. My first indication that the navy's PR needed work came following the *Chicoutimi* incident. Not the fire and tragic death itself, which was assuredly blown far out of proportion by hysterical reporters, although confusing initial statements about the severity of the fire no doubt fueled the problem, but rather how navy Public Affairs personnel dealt with the aftermath. A mere four days before the disabled *Chicoutimi* returned to Halifax I was shocked to hear from navy Public Affairs officials that they had not yet determined a press strategy for how they would handle the vessel's return to port, and were "not sure that it would be a big deal." Needless to say it was front page news. Public Affairs seemed unable and unprepared to handle what was most assuredly the single greatest public relations problem in recent memory.

A few weeks later, I had occasion to discuss this with a long-serving naval officer, and thought to ask him if he had ever worked with public affairs. "No, I work for a living," was his reply. This is symbolic of opinions frequently repeated elsewhere that Public Affairs is viewed with some disdain within the navy itself, and is certainly not viewed as a venue for career advancement.

Finally, I had occasion recently to call the naval Public Affairs office on a matter of mutual interest. I called three separate numbers, was greeted by three separate voicemails, and received one response, roughly 36 hours later. Now, taken on its own, this might only suggest that calls of little apparent importance are ignored so that the pressing inquiries of reporters can be answered with great swiftness. However, at a recent conference involving defence matters in Nova Scotia, local newspapermen lamented the inability of naval Public Affairs officials to return phone calls in time to meet print deadlines. This is perhaps the most pressing issue – the bad press the navy receives should, one hopes, be the failure of the reporter in question to get the facts right, and not an *inability* on the part of said reporter to have an informed officer set them straight.

How might navy PR be fixed? One answer might be to outsource much of the work. Hire a reputable PR firm to help the navy construct campaigns and frame public statements and interviews in a way that an average TV viewer will un-

derstand. Such a company would no doubt explain that, to the layperson, much of what the navy does is complicated, and that it's difficult for the average reporter, with the exception of the few who routinely cover military matters, to understand naval operations. (And we shouldn't criticize them for this – how many people in uniform could write an informed article about a similarly complex issue, such as federal-provincial tax transfers?) Have someone in uniform available to shape and deliver the message, but leave it to professionals to help bridge the gap between naval complexity and common understanding.

A few things could be done in-house. First, without knowing the complex inner working of the organization, this outsider would suggest a good start might be to make public relations a priority. Although additional moneys that go to PR will no doubt come at the expense of other, worthy causes, think of it as an investment in future budget battles if the navy can successfully make the public, and in turn decision-makers, more aware of the capabilities and value of Canada's naval forces. Furthermore, make good work in the Public Affairs offices a way for good people to get promoted, and encourage the best and brightest to work there. While this will no doubt require immense changes to naval culture, perhaps it could be made part of the ongoing CF transformation?

Second, come up with terms that describe what the navy is doing that the general public can understand. The total abolition of acronyms, as difficult as it might be, from the naval PR lexicon, would be a good start. Furthermore realize that terms like "sea presence" and "flexible response" are vacuous, and as likely to make eyes glaze over as "the fiscal imbalance."

Third, find the people in the navy with the most dangerous, arduous and visually interesting position, and have them do the interviews. While dress whites look good in file photos, someone boarding a ship in full combat gear, or emerging from the water, clad in black scuba gear with a knife in their teeth would significantly increase the navy's 'cool' factor.

Fourth, have someone answer the #$%@ phones.

In the early 1950s Samuel P. Huntington wrote of the US Navy that the crisis in confidence it faced came down to not being able to answer one question, "What function do you perform which obligates society to assume responsibility for your maintenance?"

In Response to Michael Young

Ken Hansen

In his commentary in *Canadian Naval Review* (Vol. 2, No. 2 (Summer 2006)), Michael Young, who I respect professionally and like personally, contradicts himself several times by acknowledging that the Canadian Patrol Frigates (CPFs) were built principally for anti-submarine warfare and had their main armament reduced to enhance their anti-air warfare capabilities making them ineffective in naval fire support, yet claims that they turned into "superb general purpose warships." This is exactly the kind of nonsensical hyperbole that distorts accurate assessment of current naval capabilities.

I read all of the Statements of Requirement for the Patrol Frigate and Tribal Update and Modernization Projects, as well as many other related documents in preparation for writing an article on Canadian naval fire support, which appeared in the Autumn 2000 issue of *Canadian Military Journal* (*CMJ*). While many sections of the documents are still classified 'secret,' the basic requirements were completely unclassified. In these sections was a clear dichotomy between the characteristics required for domestic sovereignty missions, and those necessary to meet out-of-area NATO alliance operations. The documents clearly indicated that long-range, long-duration operations were contemplated that would call for higher levels of endurance than those previously demanded by traditional employment in the Canadian Atlantic area. Clearly, the growth in the CPF was the product of non-traditional operational requirements.

In my *CMJ* article, I quoted US Marine Corps doctrine, saying, "Contrary to the conventional notion of what fire support is supposed to accomplish, the greatest value of naval firepower is not physical destruction but rather the confusion and the dislocation that it causes. The new concept of fire support is not to physically destroy the enemy, but through the *selective* application of suppressive firepower to create manoeuvre opportunities which contribute further to the enemy's shock and disruption." To postulate a scenario that pits Canadian warships bouncing 5-inch rounds off of enemy battle

tanks misses the whole point of the modern concepts of manoeuvre warfare and plays into the hands of nay-sayers who delight in claiming that the Canadian Navy has little of value to offer in joint warfare scenarios. Nothing could be further from the truth.

In my Spring 2005 article in this journal, I quoted Milan Vego who writes, "far from emphasizing the extreme case of amphibious assault against defended beachheads, traditional naval support roles in expeditionary warfare most commonly involve cover, administrative support and supply operations." The CPFs are too large to venture inshore, where the threat can be difficult to discern and where reaction times are short, and yet are too small to mount the weapons and long-range sensors that make it possible for them to stand-off and support joint operations from a safer distance. Clearly, this is not the definition of "superb general purpose warships" that will meet all of the needs of the Canadian Forces in the new security environment. While the history and requirements of the Cold War made the CPFs good at some things, they are woefully deficient in other roles.

The American, British and Dutch Navies, to name only three, are rapidly changing the force structure of their fleets to make them more effective at inshore operations, by acquiring smaller warships for direct-fire and administrative support, at the expense of their offshore, indirect support capabilities. These inshore ships are also double-tasked to handle domestic sovereignty missions: why is this so hard to grasp?

I have to thank Mike Young though, as his repost to my commentary is the perfect introduction to my article entitled "The Destroy Myth in Canadian Naval History," appearing in this issue of *CNR*. If his first response is any indication, we should have a lively debate in the pages of *CNR* very soon.

Learning from the Australians?
Peter Haydon

Although on the other side of the world to us, Australia and the Royal Australian Navy (RAN) in particular have much in common with Canada. Both countries are early products of European settlement enriched in later years by wider migration, both are member of the Commonwealth with parallel military origins in the British Imperial defence system. Yet, while still sharing many interests and values, the two countries have matured and become industrialized in very different ways.

In strategic terms the countries are vastly different. Canada is geographically and economically tied to the United States, yet is always trying to remain an independent actor on the world stage. Australia on the other hand is a regional power with security concerns in Southeast Asia and necessarily sets its own strategic agenda. Unlike New Zealand, once described flippantly as "a strategic dagger pointed at the heart of Antarctica," Australia needs a national strategy broad enough in scope to take in all the potential and real problems of a pretty tough neighbourhood.

Much of the maritime dimension of that strategy falls under the purview of the RAN's Sea Power Centre (http://www.navy.gov.au/spc/) which has a broad mandate that also draws in doctrine and naval history. The Centre publishes widely including a superb periodic online newsletter, *Semaphore*, that looks at everything from the significance of the Battle of Trafalgar to technical innovation to naval case studies. Those who are not aware of these newsletters, should be!

An October 2005 *Semaphore* takes a close look at the strategic importance of Australian ports. They are much further along in their planning for joint operations "from the sea" than the Canadian military and under a very different strategic setting but their thoughts and concerns about ports to support those operations apply to the Canadian situation.

Like Canada, Australia sees itself as a maritime state with an economy highly dependent on shipping. Unlike Canada, which does most of its trade with the United States, virtually all of Australia's trade is with the "outside world." Its ports are thus seen as major contributors to the national economy and also crucial to the defence of the country. The problem the Australians have identified is that with busy ports military contingency operations will have to vie for space with the container ships.

For Australia, the strategic requirement is stated simply, "The relative importance of individual ports to the Australian Defence Force (ADF) will be determined by the location, nature and duration of each contingency, plus the nature and tempo of normal peacetime operations including activities supporting border protection in Australia's north. The RAN's strategic planning assumes continued access to those commercial ports that contain

naval bases, and seeks to ensure access to other northern commercial port facilities needed to support forward-deployed assets." What this comes down to is that the ADF has recognized that not only does it need access to port facilities to load and off-load response forces in national security situations but it also needs to have access for training at all levels. Contingency plans need to be practised if they are to be credible.

With Canada's new plans for deployable joint task forces – whether manifested in the new Joint Support Ships or the "big, honking ship" – and with a mind to the future security of our own north, it is not unlikely that the military will need priority access to commercial ports for tactical loading and unloading, as well for training. The issues of how these new joint formations will be tactically loaded aboard ship and who will be responsible for doing it have already been raised (see Amphion, "Military Sea Lift," *CNR*, Summer 2005) but the overall problem is much broader as the sensible Australian approach shows.

If Canada is really serious about moving up on the strategic ladder to a new concept of deployable joint task force, then perhaps some of the related contingency plans should be developed. As those who understand Canada's port organization know, the military would be very wrong in thinking that it can merely walk into a port and say, "I'm taking that jetty over for the next month!" The shippers would have something to say about that.

It is not enough to make grand plans for new capabilities – to be useful they have to be made to work in reality.

Comment

Rowland C. Marshall

The following is a letter sent to Vice-Admiral Drew Robertson, CMM, CD, Chief of the Maritime Staff, and subsequently forwarded to the ***Canadian Naval Review****.*

Dear Sir,

Some remarks in praise of the *Canadian Naval Review*. The quality of printing, text and colour photographic reproduction is excellent, the whole journal is carefully proofed and edited with a focus on timely articles, while providing a place for articles of a historical character. The variety of articles published helps to show something of the range of challenges faced by the navy, and something of the calibre of personnel and equipment, along with the excellent tactical and technical responses devised.

Of course the navy, often in conjunction with the other elements of the Canadian Forces, has published and continues to publish well-produced magazines, newspapers and booklets. They contribute positively to maintaining communications between the levels and branches of the Services. They help in morale building and, importantly, with public relations.

The *Canadian Naval Review* helps in some of these ways, certainly, but this publication also fills a special space where intelligent, interested people of any rank, in and out of the service, plus academics and knowledgeable people connected with the sea, can submit articles or join in reasoned discussion within its covers. For many years bright people in the Service have expressed opinions in support of this kind of journal.

CNR connects the long naval memory, very much alive in all ranks, with people contending with current issues, and with those casting ahead with what appear to be more theoretical perspectives. With respect to the latter, one may recall the names of a few individuals in the German, French and British forces who attempted to build up new doctrine for the use of tanks in future wars, after World War I. Unfortunately, a better hearing was given to these theorists by the Germans.

It is good that the Canadian Naval Service is providing a forum for outside-the-box thinking, and some of this rather original thinking arises from people who are working hard to do their regular duties well, and that is a good thing.

Thank you for your thoughtful attention. Best wishes for the navy.

Plain Talk: All's Fair in War?

Sharon Hobson

"Right now, there are no plans to send tanks to Afghanistan." That was the response given to two reporters on 22 August 2006, when they inquired at Land Force headquarters about information they had separately picked up from non-commissioned members that tanks would be joining the 2,300 Canadian troops in Afghanistan.

The spokesperson went on to explain that yes, there were indeed tanks being used for training in Wainwright, but it was just a case of soldiers keeping up their skills. The Chief of the Land Staff, Lieutenant-General Andrew Leslie "wants to do some battlegroup-level training. He wants the infantry and the tankers to continue practising their cooperation, but the group doing their training for Afghanistan are not going to be working with the tanks."

Photo: DND Combat Camer

Defence Minister O'Connor and CDS, General Rick Hillier.

Two weeks later, the army came clean. Yes, in fact the tanks were being readied for Afghanistan. They were just waiting for a government order to go. Then, on Friday, 15 September, the Chief of the Defence Staff, General Rick Hillier, announced that the order had been given and up to 15 tanks would be sent to join the Canadian troops in Afghanistan.

In other words, the army spokesperson lied. Or, at the very least, he played semantics. There was no "plan" to send tanks to Afghanistan because the government had not yet given the go-ahead. But the point was, everything was being readied so that the tanks and soldiers could be deployed at a moment's notice.

Who, exactly, was responsible for the lie – the public affairs officer (PAO), the officer the PAO consulted, a senior officer, his civilian bosses, the Minister's office – doesn't really matter. The point is, the media was deliberately given wrong information.

This is certainly contrary to what Hillier was promising to the Standing Committee on National Defence and Veterans Affairs a year ago. At its 19 May 2005 meeting, Hillier was asked by Bloc Québecois MP Claude Bachand about DND's "culture of secrecy." Hillier responded, "Sir, there's no culture of secrecy in any organization that I've ever been a part of, and certainly not in any I've commanded, and my reply to you is that there is not going to be in this one."

Does war excuse lying?

How does he square that with the army's response to the question about tanks going to Afghanistan? The real question here seems to be "is it ever acceptable for the military to lie to the media?" A good friend – a naval officer – once told me he would always tell me the truth, "unless it's war, and then I'd lie to you in a heartbeat."

So does war excuse lying? During times of national emergency, when one state (or allied states) openly wages war against another, it is tempting – and even possible – to make a case for lying to the media. Certainly, no rational person would argue that the allies should have been truthful about their plans for the invasion of France in June 1944, or Iraq in February 1991. To do so would have


Internet image

A Leopard tank.

put thousands of lives in danger.

But even if a case could be made for lying in wartime, how would that principle (an ironic use of the word) be applied in today's conflicts? When does a military operation cross the line from peace support to war?

Governments often go to great lengths to avoid saying that the conflict in which they are involved is a war, with all its nasty, aggressive connotations. As recently as 30 May, Defence Minister Gordon O'Connor was asked by the parliamentary committee about the war in Afghanistan, and he replied, "I don't categorize this as a war." He said, "We are there in Afghanistan to support the legitimate government and create a stable environment to reduce the activity of the various insurgent groups … to try to create some stability for that government and at the same time try to build up their army and their police force."

He went on to point out that "the military has to conduct a range of activities.… We have to conduct operations where we engage [the insurgents] with firepower, or whatever we require to engage them." He said, "I don't consider this a war. War to me would be…." Significantly, he chose not to define it. Instead he concluded with "I just don't consider this as war."

He must have been surprised, then, when just prior to Hillier's announcement about the tanks, Prime Minister Stephen Harper gave an interview in which he admitted "the fact of the matter is we are engaged in a war in Afghanistan." It's not clear what changed between May and September to cause Harper and his caucus to change labels. The number of Canadian soldiers deployed remained the same, as had the stated reason for being in Afghanistan. Perhaps 'war' is defined by the number of casualties suffered?

Even with the government's admission that Canada is at war, does this mean that it is now acceptable to lie? Are we into the realm of relative ethics? The short answer is no – lying is never acceptable. There are ways to answer a question without resorting to lying. The obvious one is to give some form of "no comment." Journalists may try to infer the truth from a "no comment," but the onus is still on the reporter to show the evidence.

But was that one lie about the tanks so wrong? Did anyone – other than the two aforementioned reporters – even notice it? No one may have noticed, but that isn't the point. Lying to the media about anything is wrong. First and foremost, lying is wrong because the media's job is to inform the public, so to lie to a reporter is to lie to Canadians. A lie is indicative of an arrogant, paternalistic attitude and it taints the whole profession of arms. Politicians may obfuscate, mislead and lie, but we expect the military to behave honourably. The military exists to protect Canada, Canadians and everything we hold dear – which includes the values of honesty and integrity. We expect the military to exemplify those same values.

And, in this particular case, what was the point of the lie? Was there an operational reason for not admitting that the deployment of tanks was being considered, and a tank squadron was being prepared, just in case? Is it possible to sneak tanks into Afghanistan and into combat


Internet image

A Canadian LAV – not good enough for Afghanistan?

against the Taliban? Is it wrong for the military to prepare contingency plans? Or did the army just not want to appear to be pre-empting a political decision?

The latter would seem most likely. So much of the dissembling that has gone on in DND has, at its base, a political component. That's not to say that the politicians are directing the military to lie, but rather that the military appears to be censoring itself in order to avoid a potential political temper tantrum.

Regardless of the rationale for it, lying is never acceptable. It destroys credibility and trust – two resources critically needed in peacetime, and even more so in wartime. A lie is a short-sighted response to an awkward question, but the damage is long term and absolute. No one trusts a liar.

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

Warships for the 21st Century

Doug Thomas

This is an exciting time for those who track innovative concepts in designing, manning and operating new warships. In this short essay I will provide an overview of some truly revolutionary developments and in future articles I will provide more specific details about some of these ships and ideas.

As Peter Haydon stated in his Summer 2006 editorial, there is a big difference between a basic patrol vessel – one that can "float and move" but has limited fighting capability – and a multi-purpose, combat-capable frigate or destroyer. Our *Iroquois*-class command and control/anti-air warfare (C^2/AAW) destroyers were extensively modernized during the 1990s but now, at 33-34 years of age, are overdue for replacement. The *Halifax*-class frigates are relatively new and versatile vessels, and will be updated over the next 10 years to ensure their utility throughout their service lives. However, warships now in the planning stage and under construction better reflect today's changing roles and the demands of littoral/coastal operations, rather than the open-ocean focus of the past.

Littoral operations will frequently mean patrolling in shallow waters within visual range of the coast. Planners must anticipate a broad range of threats, including seamines, quiet diesel-electric submarines, small fast-attack craft, and shore batteries of anti-ship missiles and artillery. In order to counter these hazards, the design and equipment fit of modern ships is changing significantly. Some new features include: drastic reduction of acoustic, radar and heat signatures to reduce vulnerability to detection and attack; fixed planar (flat) radar and other sensor arrays on composite superstructures rather than today's rotating surveillance antennae on masts for ease of maintenance and increased range; and the operation of unmanned aerial, surface and underwater vehicles (UAV, USV, UUV) to greatly improve the situational awareness and combat-effectiveness of parent vessels.

In the field of gunnery, the emphasis has changed from countering other large surface combatants to supporting marines and soldiers in the mission area. Rocket-assisted, precision-guided projectiles are being perfected for 5" (127 mm) and 6.1" (155 mm) naval guns that will greatly enhance the ability to provide fire support to operations ashore – increasing the effective range of these weapons by a factor of 5 or 6 times (to 60-80 nautical miles), and providing pinpoint accuracy! In the future it is anticipated that huge quantities of electrical power will be needed for rail gun, laser, directed-energy and particle beam weapons which will supplement and perhaps eventually replace today's guns and missiles.

On the engineering front, we will see increasing use of Integrated Power Supply (IPS) or Integrated Electric Drive. This concept employs a number of generators, usually gas turbine and diesel powered, to produce electricity that can propel the ship by providing power to electric motors (move), be sent to weapons and sensors (fight) or, more likely, some combination of the two. Electric drive permits generators to be distributed around the ship rather than concentrated below the waterline as in a traditional engine room. Propeller shafts that today require precise alignment can be replaced with electric cables carrying energy to motors and propulsion pods (combined motor and rudder in an external pod). These developments will also greatly improve the ability of a damaged ship to remain afloat, move and continue to fight.

Another trend in modern warships is to drastically reduce the size of the crew compared to previous generations of vessels, while providing greater capability. When I was on exchange with the Royal Navy in 1977, I sailed in the guided-missile destroyer HMS *Glamorgan* during an exercise. Her crew was 470 officers and men. HMS *Daring*, the first of a new class of ships designed to perform the same area-air defence/command and control role, was launched in February 2006. This is a ship of similar size to *Glamorgan* but with much-enhanced capabilities. *Daring*'s crew will be 187, plus provision for embarking special teams or a task group commander and his staff.

During the 1990s, the US Navy's DD-21 project envisaged manning a 14,000 tonne warship with a crew of just 95, plus an air detachment to operate and maintain manned helicopters and UAVs. This objective might have been too ambitious – DD-21 and its successor DD(X) were not built – but the designs led to the DDG-1000 *Zumwalt*-class destroyer, which is expected to have a crew of between 125-175 when it arrives on the waterfront by 2015. This reduction is being achieved through a number of measures and technologies, including: the automation of weapons, sensors, fire-fighting/damage control and propulsion/electrical-generation machinery; reducing the number of crew specializations by selecting and training sailors so that they can each perform

Artist's impression of the LCS.

Artist's impression of the LM LCS.

Artist's impression of HMS ***Daring***.

a number of related tasks; moving some administrative and support positions ashore or to a 'mother' ship; and relocating some functions, such as defect diagnosis and intelligence analysis, to headquarters potentially half the world away through the use of satellite communications and computer links. These and other ideas will greatly reduce personnel costs over the life of new warships, and might permit more of the internal volume of such ships to be devoted to additional missiles and ammunition, fuel and rations, in turn permitting longer endurance without returning to base.

Eventually though, sailors need R&R and quality time with their loved ones. The US Navy is trialling an idea termed "sea swap," whereby a replacement crew is trained in home waters in a particular type of ship, and then flown to a distant area to relieve the crew of a similar vessel. Sea swap may reduce the size of the US surface combatant fleet by 30-35 per cent, compared to what would have been required if ships were deployed from North America. Studies indicate that over an 18-month period, a single ship, with three rotating crews – each deployed for six months – could provide 100 more sea-days in the mission area compared to three ships, each sailing from North America for six months.

Today's ships have extended service lives compared to those of previous generations. There are a number of reasons for this, in particular computer-aided design, cathodic protection of hulls, and the ease of replacing gas turbine or diesel engines rather than 're-bricking boilers' as was required when refitting ships with steam propulsion. Certainly pre-outfitting or modular construction, whereby entire sections of a ship are built with all of their equipment installed in the controlled environment of an assembly hall away from the outside building slip or dock, should also contribute to longevity. Individual completed sections, some of which could weigh over 1,000 tonnes, are then installed on the ship by huge cranes.

Continuing with the theme of modularity, it makes sense to think about future sensor and weapon updates while designs are being developed and before ships are constructed. This could improve the ability of a navy to keep pace with technological change, replace defective components, and/or rapidly reconfigure vessels for changing missions. Modular anti-submarine warfare, gunnery and mine countermeasures equipments are readily changed in Blohm & Voss-designed MEKO frigates, as an example of this approach. These vessels are capable of exchanging payload modules within a matter of hours, using weapons and other non-permanent equipment packaged in standardized containers with identical dimensions, deck fittings and electrical and electronic interfaces. Such mission systems are also used in Danish *Stanflex* patrol boats and are an important enabling feature in the concept of operations for the Littoral Combat Ship (LCS), now in volume production (up to 55-60 ships) for the US Navy.

Some, if not all, of the ideas outlined in this article are being considered for Canada's surface fleet replacement program – the Single Class Surface Combatant (SCSC). SCSC is intended to replace both the four *Iroquois*-class destroyers and the 12 *Halifax*-class frigates commencing in the next decade. This program may deliver a total of 18 ships. Four to six of them would likely be C^2/AAW platforms to replace the aging but still very useful *Iroquois*-class destroyers, and the remainder would be versatile general-purpose frigates. All the SCSCs will have a common hull and propulsion system. This will achieve economies of scale in construction, maintenance and in the training of personnel. Unique communications, sensor and weapon systems will differentiate the function of these ships. I anticipate crew size to be approximately 180 for the more complex C^2/AAW variant, versus 300 for the current *Iroquois*-class.

In conclusion, modern frigates and destroyers will continue to be essential for maritime security roles. It is possible to employ emerging technology and crewing concepts to enhance their capability while significantly reducing through-life costs and perhaps also reducing the number of ships required. However, before decision-makers say "Right, we'll cut the Navy in half, and relieve the crews on station!" I hope they remember that Canada borders on three oceans, has the longest coastline of any nation on Earth, and has a requirement for both the 'home game' and the 'away game.' They should also remember that our fleet numbers have already dipped perilously low. Presence is an important role for naval vessels, whether in our own waters or abroad in support of international missions. When it comes to paying for our national maritime insurance policy – the navy – it is important to remember that quantity has a quality all its own.

Book Reviews

Winning the Un-War: A New Strategy for the War on Terrorism, by Charles Peña. Virginia: Potomac Books, 2006, 240 pages, hardcover, indexed, $27.95, ISBN 1-57488-965-6.

Reviewed by Dave Perry

In this slim volume, Charles Peña, a senior fellow with the Coalition for Realistic Foreign Policy, outlines a new strategy for the 'Global War on Terrorism' that acknowledges the role American foreign policy plays in fueling Islamist terrorism. After first establishing that Al-Qaeda alone represents the only true threat to American security, Peña decries the folly of trying to fight a 'war' against terrorism writ large. Rather, he argues American national security strategy should be based on a three-pronged approach of: (1) dismantling and degrading Al-Qaeda; (2) establishing a new US foreign policy that doesn't needlessly create more terrorists; and (3) bolstering homeland security. While not offering any groundbreaking original work, this book serves as a useful amalgam of counter-terrorism strategy and national security policy that will be of interest to readers concerned about the prosecution of the war on terrorism.

Relying heavily on the work of other terrorism experts and public statements by Bush administration officials, Peña details how the American national security community has refused to acknowledge the true motives of Al-Qaeda. As he states, while Al-Qaeda may dislike American freedoms and culture, it is the American 'occupation' of the lands of Islam and support for apostate Islamic regimes that ultimately makes Al-Qaeda attractive to disenchanted Muslims worldwide.

Reviewing the welltrodden body of evidence that contends Saddam Hussein's Iraq was neither a threat to American security nor involved in 9/11, Peña contends the war was a serious mistake and diversion from Al-Qaeda. Thus, the war in Iraq represents the type of unnecessary commitment and distraction (others include the forward deployment of US troops in Europe and Asia, NATO, support for Israel, Egypt and Saudi Arabia, and the promotion of democracy abroad) of which America must rid itself in order to free up the resources necessary to properly combat Al-Qaeda. Citing worldwide anti-Americanism and Al-Qaeda's strategic objectives he further argues that policy-makers must realize "the United States needs to stop meddling in the internal affairs of countries and regions around the world, except where they directly affect US national security interests."

Having rid itself of such encumbrances, Peña counsels that the US military should retool itself to face Al-Qaeda by dropping its Cold War force posture, while nonetheless reiterating the oft-stated line that counter-terrorism is primarily a job for intelligence and law enforcement. Citing the lack of conventional military threat, he calls for the United States to adopt a "balancer of last resort" strategy that would halve the number of active-duty personnel and cancel a multitude of hi-tech platforms including the *Virginia*-class attack submarines and DD(X) destroyers, while ultimately relying on America's nuclear deterrent. The resultant multi-billion dollar savings could then be invested in tools more suitable to combatting Al-Qaeda like unmanned aerial vehicles, special operations forces (SOF) and language skills. While recognizing that Al-Qaeda's networked structure will make it exceedingly difficult to 'out kill' the terrorists, he argues discrete SOF missions against specific targets should be vigorously pursued wherever Al-Qaeda exists (i.e., Afghanistan, Pakistan, Somalia and Yemen) but conventional military efforts against regimes (the 'Axis of Evil') avoided. Finally, the author calls for further – upwards of $40 billion – increases to homeland security focusing on America's nuclear facilities, hydroelectric dams and defending the civilian airliner fleet from threat of shoulder-launched missiles.

Peña's recognition of the role American foreign policy plays in shaping the views and actions of Al-Qaeda and his acknowledgement that the very act of killing terrorists may, paradoxically, engender further support for terrorist activity are welcome doses of reality. However, while his three-pronged approach has a certain inherent logic, it rests on the assumption that Al-Qaeda is the one and only threat facing the United States today, and that combatting it must, therefore, drive all other security policy considerations. Readers who find this assumption dubious, or who are more inclined to recognize the value of a multi-dimensional foreign policy, will find Peña's book lacking.

Furthermore, although he acknowledges the difficulty in balancing the need to cooperate with such 'apostates' as Pakistani President Pervez Musharraf and the enmity such cooperation will foster in the Islamist population, he offers few concrete proposals for striking an appropriate balance. Ultimately, this book offers a frank appraisal of the 'root causes' of Al-Qaeda terrorism, but provides policy solutions that seem rather unworkable in practice.

The Search for WMD: Non-Proliferation, Intelligence and Pre-emption in the New Security Environment, edited by Graham F. Walker, Halifax, NS: The Centre for Foreign Policy Studies, 2006, 406 pages, soft cover, $25.00(Cdn)/$21.50(US).

Reviewed by Josh Barber

Fifteen years ago the Cold War ended and with its end fears of mutual assured destruction have faded from public consciousness. Yet worries about weapons of mass destruction (WMD) still dominate the headlines. There are growing concerns about Iran's potential nuclear ambitions, and rumblings about North Korea's potential nuclear capabilities married to its ballistic missile developments. Controversy over whether Saddam Hussein's Iraq was or was not developing WMD remains prominent in media and academic discussion. And there are recurrent nightmare scenarios of what might happen if jihadist terrorists obtained WMD. In today's strategic environment this book would appear to be most timely.

The Search for WMD is the third in Dalhousie's Centre for Foreign Policy Studies' "Issues and Debates" series. As with the previous monographs, the book is based on a central "issue" paper which lays out the theme for the debate and is followed by 24 responses to ideas raised in that paper. This format is intended to provide a comprehensive forum of exchange between international experts on the chosen topic. Editor Graham Walker has certainly done an admirable job in soliciting inputs from a variety of internationally recognized academic and media experts. It encompasses a broad diversity of opinions but, deliberately, provides no conclusions since these are left to the reader to determine.

This book is very much a primer on the subject of proliferation of nuclear weapons. The focus is on the academic and policy debates surrounding the effectiveness of formal mechanisms of control – such as the Nuclear Non-Proliferation Treaty, among others – established by the international community to prevent the proliferation of nuclear weapons to states other than the recognized nuclear powers. Despite the title, there is little or no reference to other types of WMD such as chemical or biological weapons. Proliferation of chemical or biological weapons is much harder to detect or control than nuclear weapons since the underlying technologies needed to create and store them are much simpler – some biological weapons could literally be produced in a bathtub while constituents of many chemical weapons are legitimately-produced industrial chemicals. The book concentrates almost solely on prevention of nuclear-weapon proliferation in a state-based regime. Despite the international terrorist threat that dominates the present security environment, there is little discussion about preventing proliferation to non-state actors. Nor is there any description of what is meant by WMD and what their implications are since it assumes the readership is already well informed on these subjects.

In a book of this scope, with some 25 different papers, it is not possible to review each individual paper so I will touch on a couple of highlights. The central "issue" paper is written by Michael Friend, a writer on US foreign policy issues who formerly served in the Pentagon as an expert on non-proliferation policy. His paper focuses on the issue of Saddam Hussein's Iraq, in particular whether the international non-proliferation regime imposed on Iraq after 1991 was successful and the success (failure?) of intelligence in determining whether Saddam was evading the control regime or not.

Intelligence attempts to obtain an understanding of an opponent's *capabilities* and his *intentions* in order to determine the nature and extent of the threat he poses. Normally, determining an understanding of capabilities is more straightforward since capabilities are usually tangible whereas understanding intentions is usually very difficult. Ironically, in Saddam's case his (ultimate) intention to obtain WMD at some future date was reasonably clear; what was not clear was whether he actually possessed the capability to develop nuclear WMD. This latter remains unresolved three years after the US invasion and occupation of Iraq.

Was this a failure of intelligence? Friend makes a valid point that intelligence is rarely conclusive since it is, after all, a best-informed estimate and advice to decision-makers of what *might* happen – especially with regard to intentions. In Friend's view the debacle surrounding Iraq/WMD has left intelligence doubly discredited: not only did it fail to find conclusive evidence of any Iraqi WMD capability but it was also apparently manipulated by political decision-makers to serve their own pre-determined intentions. In future any "intelligence" will be treated much more skeptically both by decision-makers and the general public.

Friend concludes that the absence of WMD in Iraq meant that the internationally-imposed non-proliferation regime worked – in that case – but that for any non-proliferation process to work it must be backed by a credible determination of the international community

to use armed force if necessary against rogue states and actors to prevent proliferation.

The chapters in this book respond to these propositions in a variety of ways. The nature of this book means that it becomes very repetitive if read from cover to cover as each author in turn addresses the "issue" paper. The book is much better suited for dipping into on a selective basis rather than attempting to read it in its entirety.

As an Intelligence Officer I was most interested in the half dozen papers that addressed issues related to intelligence policy. Of these, the article by Philip Davies, from Brunel University's Centre for Intelligence and Security Studies, entitled, "Discredited or Betrayed?: British Intelligence, Iraq, and Weapons of Mass Destruction" is truly outstanding. It provides a detailed review of the British intelligence process and the internal debates that went on in an effort to obtain a common assessment of Iraq's capabilities and intentions. It was clear that the available intelligence was below the standard necessary to justify armed intervention in Iraq and that most of the intelligence provided to decision-makers was heavily qualified by caveats and well-identified uncertainties. It appears, however, that senior decision-makers, for whatever reasons, chose to ignore or suppress these qualifiers. Thus the question becomes, was this a "failure" of intelligence, or was it a failure of decision-making? Davies' article should be read by any intelligence professional seeking to gain a greater understanding on the uses – and abuses – of intelligence at the strategic level.

A minor point, perhaps, but I started the book with a criticism of its cover. The cover is dominated by a photograph of a dramatic mushroom cloud explosion – clearly implied to be a nuclear explosion. In fact, the photograph is of the eruption of Mount Pinatubo in 1991. While this may, ironically, reflect that Mother Nature can inflict as much or more catastrophic destruction as any man-made WMD, given the subject of this book, the cover really should be more honest and show a true nuclear explosion.

Overall, this volume would be of most interest to political scientists and students of international relations with an interest in issues concerning international treaties and control regimes. For them this book would be a very useful survey of a variety of views on the role and efficacy of such mechanisms in promoting international stability. A few articles will be of specific interest to intelligence professionals.

Legal Tender?

Anonymous

Many years ago on a cold and stormy morning, the Royal Canadian Navy sailed out of Halifax Harbour bound for Brazil and Argentina with a few stops in between. This was to be the annual winter training cruise during which the ships and their crews escaped the inhospitable North Atlantic waters for a few weeks to conduct basic training in the warmer climes of the South Atlantic and the Caribbean. There were frigates, submarines, destroyers, the brand new fleet support ship, HMCS *Provider*, and the aircraft carrier HMCS *Bonaventure*.

The visit to San Juan, Puerto Rico, passed without significant incident. The visit by a handful of destroyers to Bridgetown, Barbados, with the enticements of Harry's Bar and general 'fun in the sun' on the local beaches, went off without too many problems – well, except for two intrepid sailors who met up with some girls from Toronto at beach-front bar and failed to make it back to ship in time to sail to the next port. They returned later at another port, were duly punished, served their time, and eventually returned to the ship again and still with smiles on their faces.

It was during our fuelling stop in Recife, Brazil, when things came unglued for our ship. Topping up the fuel tanks with 'Bunker C crude' took longer than expected. Not only was the quality of the fuel very poor but it was also full of foreign bodies that needed to be filtered out. There was even one story that a stoker found a rat swimming in the stuff and had to fish it out – brave rat, braver stoker!

Shore leave of a few hours was granted to some of the sailors who wanted to 'stretch their legs.' All was quiet for a while. Then a lone sailor came running back to the ship and quickly went through the mess decks calling for Canadian Tire money. Apparently, the bar and house of entertainment that he and his colleagues had found did not recognize legal Canadian tender but happily took Canadian Tire money. A good time was had by all, including the owner and the employees of the bar, the bill was paid, and the sailors returned to their ship.

Several days later the ship received a telegram from the Canadian Ambassador to Brazil advising the Captain that his sailors had spent some $500.00 in Canadian Tire money which the bank in Recife had – oddly enough – refused to accept as legal tender. Apparently the owner of the bar was not too happy about this.

Within minutes of the telegram being presented to the Captain, a rather red-faced sailor appeared at the Captain's side with a fist full of real Canadian money. Apparently the telegram had been held back for a few moments while the money was gathered. As soon as the problem became known, the sailors were quick to react; the hat was passed around, and the fist full of dollars given to the Captain was far more than needed to pay off the bad debt.

The money was transferred to the bar-keeper along with a generous tip. The Ambassador was satisfied that Canadian honour had been restored. No more was said. However, the Daily Orders for the next port contained a short notice which stated "Canadian money is to be exchanged for local currency before going ashore."

CANADIAN NAVAL REVIEW

2nd Annual Bruce S. Oland Essay Competition

First Prize $1,000

Second Prize $500

Third Prize $250

The top three essays will be published in the *Canadian Naval Review*. (Other non-winning essays may also be considered for publication subject to editorial review.)

Submission deadline is 31 May 2007.

Competition Subjects:

1. **How relevant is the Canadian Navy today?**
2. **Does Canada take its maritime responsibility seriously enough?**
3. **Who can and who should enforce Canada's ocean policy?**

Photo: ***Canadian Naval Review*** *2006*

Commodore Bruce Oland presents Commander Ken Hansen with his prize for winning the Bruce S. Oland Essay Competition for 2006.

Competition Rules:

1. All essays must address some aspect of one of the topics listed above.
2. All essays must be original material. They must not have been submitted or published elsewhere.
3. Essays are to be no longer than 3,000 words. The judges reserve the right to reject essays that exceed the stipulated length. Graphics are acceptable on a limited basis.
4. Essays must contain appropriate citations in any acceptable format. Citations, however, should not be excessive.
5. There is a limit of one submission per author.
6. Authors should put the title only on manuscripts. Names, addresses, phone numbers and email addresses should appear on a separate cover page.
7. The decision of the judges is final. The essays will be judged anonymously – at no point during the judging process will the judges know who the authors are. The essays will be judged in a two-stage process. First they will be assessed and shortlisted by the CNR Editorial Board, and then a panel of three independent judges will pick the winners from the short list.

Please submit electronic copies of entries to naval.review@dal.ca by the submission deadline. Entrants will be notified of the decision within two months of the submission deadline.

In March 2006, HMCS *Windsor* teamed up with some Canadian Army "Pathfinders" in Exercise Joint Express in St. Margaret's Bay, NS, to practice covert launch and recovery. This is one of the many capabilities that a submarine can provide for joint operations.

Photos: MCpl Colin Kelly, Formation Imaging Atlantic.