



Military Transformation: Key Aspects and Canadian Approaches

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EXECUTIVE SUMMARY

What is the meaning of military transformation? How is Canada responding? This paper provides a brief historical view of military transformation, identifies a framework for understanding transformation, and examines Canada's approach in each area. It argues that Canada has taken steps with regard to a number of discrete areas associated with military transformation. But in Canada, military transformation has come to be associated with initiatives that were launched in the 2005 Defence Policy Statement. They include the creation of a Standing Contingency Task Force for the rapid deployment of military force abroad, a changed command structure to reflect an increased focus on defending the homeland, and greater strength in the area of special operations forces. Progress in these specific areas has been challenged by ongoing operational commitments. From this perspective the overall picture is one of "transformation on hold," as Canada continues to determine its future course in Afghanistan.

RÉSUMÉ

Que veut dire l'expression « transformation militaire » ? Comment le Canada réagit-il ? Ce document donne un bref aperçu historique de la transformation militaire, identifie un cadre qui permet de comprendre la transformation et examine l'approche du Canada dans chacun de secteurs. Il soutient que le Canada a pris des mesures dans un certain nombre de domaines séparés associés à la transformation militaire. Mais, au Canada, la transformation militaire a fini par être associée à des initiatives qui avaient été lancées dans l'Énoncé de la politique de défense de 2005. Elles comprennent la création d'une Force opérationnelle permanente de contingence pour le déploiement rapide d'une force militaire à l'étranger, une structure de commandement modifiée de façon à refléter l'accent accru mis sur la défense du territoire intérieur et un effectif plus important dans le domaine des forces d'opération spéciales. Le progrès dans ces domaines spécifiques a été éprouvé par les engagements opérationnels en cours. De ce point de vue, le tableau d'ensemble en est un de « transformation en suspens », alors que le Canada continue à déterminer sa démarche future en Afghanistan.

INTRODUCTION

What is the meaning of military transformation? How is Canada responding? Military transformation is only the latest in a list of interrelated terminologies that have appeared over the past few decades to describe changes underway in Western militaries. The progression began with the Military Technical Revolution (MTR) of the 1980s and early 1990s, then proceeded to the Revolution in Military Affairs (RMA) in the mid and late 1990s, and finally made the rhetorical transition to military transformation around the turn of the century and especially after Donald Rumsfeld became Secretary of Defense in early 2001. In the post-9/11 period, perspectives on what comprises military transformation have been numerous and varied among scholars and policymakers. Explicitly or implicitly they have ranged from narrow views on how technology has impacted warfare, to broader ideas on the need to bring together technological, doctrinal, and organizational change, to still more expansive outlooks on how military transformation can help militaries adapt to the security challenges that have become apparent in the wake of Afghanistan and Iraq.

Although the literature is replete with individual views as to what comprises military transformation, no attempt has been made to integrate these viewpoints into an overall framework. Moreover, the transformation literature is almost exclusively American and focuses on the United States military as its "case study." The meaning of transformation as applied to the case of Canada is a major gap in the literature. This paper provides a brief historical view of military transformation before identifying the several understandings among members of the defence community as to what comprises transformation. It then examines Canada's approach in each of these areas. Finally, it draws conclusions as to the degree to which Canada is achieving the military transformation of the Canadian Forces.

MILITARY TRANSFORMATION: THE HISTORICAL BACKDROP

The Military-Technical Revolution

It is impossible to say exactly when contemporary efforts to transform military forces began. The United States, for example, first deployed precision-guided munitions decades ago, during the Vietnam War. Nonetheless, some scholars have dated the origins of military transformation to advances in military technologies in the United States in the late 1970s and 1980s. At that time, the United States sought to "offset" the Soviet Union's quantitative advantage in numbers of soldiers and amount of military equipment with qualitative, technological advances. Capabilities were pursued in the areas of command, control and communications, intelligence and surveillance sensors, and precision guided munitions. These technologies, which along with others collectively made up the MTR, were displayed in dramatic fashion during the 1991 Gulf War. But it was not long before Pentagon thinkers, looking at historical precedent, argued the U.S. military had to go beyond the MTR to look more broadly at the accompanying doctrinal and organizational changes that were necessary before there could be revolutionary change. In 1993 the Office of Net Assessment introduced the term "revolution in military affairs" to highlight the fact that the developments underway encompassed much more than military technology.

The Revolution in Military Affairs

The RMA was a predominant term in U.S. military and defence policy circles during the mid and late 1990s and continues to be used to a certain extent in Europe. Although there was no definitive statement as to what comprised the RMA it is possible to identify those technological, doctrinal and organizational concepts that were/are most often associated with the RMA. Military technologies centre on those that were first developed as part of the

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¹ James R. Blaker, *Understanding the Revolution in Military Affairs* (Washington, DC: Progressive Policy Institute, January 1997), p. 4.

² See William Perry, "Desert Storm and Deterrence," Foreign Affairs 70, no. 4 (Fall 1991).

offset strategy, and then made their campaign debut in the 1991 Gulf War. They include advances in precision-guided munitions (PGMs); intelligence gathering, surveillance and reconnaissance (ISR); and command, control, communications, computing and intelligence processing (C4I). These categories of military capability have subsequently advanced significantly, as was made evident during the 1999 military intervention in and around Kosovo, the 2001-02 war in Afghanistan, and the 2003 war in Iraq.

Throughout the 1990s a number of military doctrines were also put forward as being part of the RMA. The overarching theme was a need to make the shift from the massive, heavy, armies of the Cold War, to lighter, more deployable "expeditionary" armies that would go to operational theatres around the world. Rapid deployability would be facilitated in part through the application of new technologies to make military platforms lighter. The use of precision-guided munitions for things like artillery also lessened the load because their greater effectiveness meant that military forces, at least theoretically, were not reliant on as much ammunition as had previously been the case. Deployability would also be assisted by—indeed would be dependent on—the existence of strategic lift and especially strategic airlift.

Mobility on the battlefield was another key doctrinal tenet of the RMA. Military operations, it was argued, would be characterized by highly dispersed forces facing no front line of "enemy" combatants. Soldiers would have to be able to move quickly to respond to rapidly changing situations. Battlefield mobility would be facilitated by the use of medium- or heavy-lift helicopters and, in some cases, combat helicopters, as well as the lighter ground force platforms noted earlier because these could move more quickly around the battlefield than Cold War-era tanks.

The RMA also included the air force doctrinal concepts of precision force and standoff force projection. This would be accomplished through a combination of precision guided munitions, strategic bombers, unmanned aerial vehicles, as well as naval vessels and aircraft that could launch precision munitions. Stealth or low-observable technology in military platforms would also be important for achieving standoff force projection. At the same time, the combination of precision weapons and unmanned aerial vehicles foresaw the emergence of a new air force doctrine of unmanned combat.

One of the most important doctrinal tenets of the RMA was the emphasis on increased jointness, or the ability of the navy, army and air force to operate together. The RMA foresaw a seamless battlefield in which all military services would contribute to the achievement of a military objective.

Finally, the RMA coincided with an important shift in naval doctrine from blue water, open ocean warfare to littoral combat and the projection of naval power from sea onto land, as navies—like all the military services—adapted to the new military environment of the post-Cold War era. This shift was facilitated by the application of precision force technology and was a reflection of an overarching doctrinal change among navies and air forces in which their primary mission became to support the activity of friendly ground forces and target adversary ground forces, as opposed to battling other navies or air forces.

RMA organizational changes centred on the creation of smaller units (but not necessarily smaller overall force size) made up of more highly qualified, trained, and educated soldiers, sailors and airmen. Forces were to be divided up into more mobile and agile units that could be tailored and brought together for specific kinds of missions. Personnel would need to be as high-tech savvy as their equipment, and to be deployable beyond a nation's borders. Because conscript armies could not readily do this, a central organizational change associated with the RMA was a shift from to all-volunteer or professional armies. In America's case, this shift actually took place after Vietnam, well before the RMA took hold.

But the French move to an all-volunteer force, for example, was carried out in the five years after 1996.

Military transformation

In the late 1990s members of the U.S. defence community began to speak less of a revolution in military affairs and more of military transformation, or simply "transformation." The name change reflected a desire to more accurately capture the nature of the developments underway. The notion of revolutionary change had indicated a definitive endstate, or a point at which the change had been accomplished. Military transformation, by contrast, captures the idea of ongoing change. "Change management in the 1990s was leading us to an end-state," noted a high-ranking Canadian officer at NATO's Allied Command Transformation in 2006, "Today, transformation sees no end-state—just a constant spiral to greater capabilities."

At the same time, transformation is more than modernization. Modernization is in the realm of evolutionary change and it involves incremental upgrades through which an organization tries to improve its ability to do what it is already doing.4 Transformation, by contrast, contains within it the idea of a discontinuous increase in capability along the lines of, but less ambitious than, the "discontinuous leap" in military effectiveness previously associated with revolutions in military affairs. Transformation is not about doing the same things better, notes the same Canadian officer, "it is about doing better things."6

One understanding of military transformation sees it as conceptually similar to, if not interchangeable with, the RMA, including all of the RMA's technological, doctrinal and organizational components as enunciated during the 1990s. For this understanding, explicitly or implicitly, the only thing that has changed is the name. Some scholars and policy makers explicitly equate the RMA with military transformation. Others give descriptions of military transformation that echo earlier RMA discussions in that they centre on the development of expeditionary military forces with increased mobility, deployability, adaptability and flexibility; forces that use advanced information technologies and operate jointly; forces that operate in terms of dispersed or non-linear military operations; smaller ground force units; fewer casualties; and, the use of precision-force at standoff distances.8

A second understanding of transformation is emerging in the wake of the ongoing insurgencies in Iraq and Afghanistan which proposes to "transform transformation" or move to the "next stage of transformation" to address the types of challenges faced by Western militaries in those countries. This understanding, like that of the RMA before it, centres on a narrower "how we fight" approach to transformation, but at the same time it recognizes that "transformation is not a static doctrine. It has itself been transforming since the attacks of 11

⁷ See, for example, William Owens, "The Once and Future Revolution in Military Affairs," *Joint Force Quarterly* 31 (Summer 2002), p. 55; Stephen J. Cimbala, "Transformation in Concept and Policy," Joint Force Quarterly 38 (Summer 2005), p. 29; and, Thomas X. Hammes, "War Evolves into the Fourth Generation," Contemporary Security Policy 26, no. 2 (August 2005), p. 189.

See, for example, Andrew Krepinevich, "The Army and Land Warfare: Transforming Legions," Joint Force Quarterly 32 (Autumn 2002), p. 77; and, Richard D. Hooker, et al., "Getting Transformation Right," Joint Force Quarterly 38 (Summer 2005), pp. 21 & 27.

Mark Joyce, "Transforming Transformation: American Trends and Transatlantic Implications," RUSI Newsbrief 24, no. 7 (July 2004). ¹⁰ Max Boot, "The Struggle to Transform the Military," *Foreign Affairs* 84, no. 2 (March/April 2005).

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³ J.O. Michel Maisonneuve, "NATO's Allied Command Transformation: A Permanent Multinational Coalition's Change Agent." On Track 11, no. 2 (Summer 2006), p. 13.

Ian Roxborough, "From Revolution to Transformation: The State of the Field," Joint Force Quarterly 32, (Autumn 2002), p. 68; and, Office of Force Transformation, Military Transformation: A Strategic Approach (Washington, D.C.: Department of Defense, Fall 2003), p. 8.

National Defense Panel, Transforming Defense: National Security in the 21st Century (Washington, D.C., December 1997), p. 57.

⁶ Maisonneuve, p. 14.

September 2001,"¹¹ most notably to incorporate lessons learned on the battlefields of Afghanistan and Iraq.

The changing parameters of the "how we fight" component of transformation include a number of important areas. One is an increased emphasis on special operations forces (SOF). Once used sparingly, since 2001 SOF have become important components of military missions. The growing role of SOF is a response to the unconventional nature of the threats Western militaries are facing in the contemporary security environment.

Other aspects of transformation's changing parameters include counter-insurgency capabilities and the ability to carry out stability and reconstruction operations. Today, with coalition forces in Afghanistan and Iraq facing asymmetric and unconventional foes in the form of roadside bombs and suicide bombers, transformation must account for a whole new set of military challenges. Indeed, for some observers real military transformation is looming in irregular warfare—and this form of warfare is ill suited to the high-tech underpinnings of the revolution in military affairs. The requirement is for counter-insurgency missions, operations in urban environments and the development of new military concepts that can help protect against and detect suicide bombers. At the same time, a greater number of "boots on the ground" is needed for nation building. Operations in Iraq and Afghanistan have revealed that successful military campaigns must be quickly followed by civil reconstruction to solidify local support.

Challenges lie ahead in reconciling the RMA and "transforming transformation" components of military transformation. Some of the changes associated with the original RMA are relevant to the missions the United States and its allies are carrying out in Iraq and Afghanistan. The organizational shift to more expeditionary forces, for example, is relevant to most contemporary operations, and advances in C4ISR are arguably equally important across the range of military missions. But other changes advanced by the RMA component of transformation are largely irrelevant to—or worse, incompatible with—the counterinsurgency missions associated with transforming transformation. Satellite-guided weapons, for example, can do little against low-tech improvised explosive devices and rocket-propelled grenades in the often-dense urban areas of counterinsurgency work.

Special operations forces and unconventional and irregular warfare are linked to wider ideas about Fourth Generation Warfare (4GW). This concept had its origins in a seminal 1989 article by William S. Lind and his colleagues that argued modern warfare had gone through three generations of war in which the battlefield had become ever more dispersed, and was now entering a fourth generation where there are no definable boundaries between the military battlefield and the civilian and political sphere. Fourth generation warfare, scholars argue, is a modern form of insurgency in which the "battlefield" is the whole of the enemy's society and the goal is to collapse the enemy internally, rather than physically destroying him.¹³ Terrorism is a good example of 4GW, argues Lind, because, in its extreme, "It attempts to bypass the enemy's military entirely and strike directly at its homeland."¹⁴ In this context, an increased attention to homeland defence is an important part of contemporary military transformation efforts. Indeed, one of the most important facets of a wider understanding of military transformation is that it involves an integrated approach to security that encompasses measures abroad and measures at home.

⁴ Ibid., p. 8.

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¹¹ James Bergeron, "Transformation and the Future of 'Berlin Plus'," *RUSI Journal* 149, no. 5 (October 2004), p. 38.

¹² Roxborough, p. 70.

William S. Lind, et al., "The Changing Face of War: Into the Fourth Generation," *Military Review* (October 1989), pp. 5 & 8.

Like the RMA before it, there is no consensus as to what comprises military transformation. The perspective taken in this paper is that it refers to the range of transformation understandings discussed earlier. Military transformation is in part a change from the cumbersome "in place" armies of the Cold War, to the more agile and deployable expeditionary forces of the post-Cold War and post-9/11 eras, and it includes many aspects of what used to be called the revolution in military affairs. Military transformation must also account for further changes in "how we fight"—the requirements for which first emerged in the 1990s with the NATO mission in the Balkans, but have been highlighted repeatedly in the post-9/11 era. Indeed, "It is the very persistence of such missions that is forcing a broader understanding of what transformation means." Stabilization and reconstruction operations, counter-insurgency missions, and special operations forces have become central to military transformation, and are generally captured by the phrase "transforming transformation." Finally, military transformation includes still wider understandings of transformation, most notably in the case of Canada, homeland defence. 16

CANADA

Canada is driven to transform its military forces for two distinct yet inter-related reasons. The first is to take the measures that are necessary to build a military force appropriate for addressing contemporary threats. The second is to be in a position to contribute to international peace and security through its long standing tradition of multilateral engagement. But Canada lives in a peaceful area of the world and has good relations with its giant neighbour. Many Canadians, in fact, feel there is very little threat to the country. Canada's geopolitical position is such that Canadian governments have had the luxury of being able to cut defence spending as part of any cost cutting exercise. As a result, investments in defence depend to a significant degree on the platform of the political party in power and the personal preferences of the Prime Minister and his leading ministers. It is the degree to which these players want to expend their political will on making the case for Canada to take an active role in the world, and to maintain the necessary military forces for that role, that determines investments in defence and ultimately advancements in military transformation.

In 1994 the Canadian government released a defence white paper that called for the maintenance of a force that could fight "alongside the best, against the best" in military operations around the world. But budgetary pressures meant that much of the document was never implemented. Over the next several years the individual military services released a number of vision statements, all of which implicitly or explicitly outlined goals that were consistent with the RMA component of military transformation, but again many of these ideas were not backed up with sufficient government funding. These trends began to change post-9/11, especially with the arrival of a new Prime Minister in 2003. Defence budgets started to increase and in 2005 the liberal government released a Defence Policy Statement (DPS) which promised to rebuild the Canadian Forces (CF). But the change in government in 2006 meant that a defence capability plan designed to implement the statement was never approved, and it also called into question the status of the DPS. The result is that Canada has neither a defence policy nor a defence capability plan officially approved by the current conservative government-although a new defence strategy could be released at any time. Nonetheless, because since late 2003 both the liberals and conservatives have been generally in favour of a strong CF, some measures have been taken in all of the RMA, transforming transformation, and wider aspects of military transformation.

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¹⁵ Bergeron, p. 44.

¹⁶ The United States also includes such things as a New Triad for deterrence, changes in overseas base posture, and unhindered access to space as part of military transformation. See my *Military Transformation: A Reference Handbook* (Westport, CT: Praeger Publishers, March 2008). This paper focuses on elements of military transformation that are directly relevant to Canada.

RMA aspects of military transformation

Canada's advanced intelligence, surveillance and reconnaissance capabilities include a growing focus on unmanned aerial vehicles (UAVs). In recent years the Canadian Army has acquired two battlefield UAV systems for the Afghanistan mission, Sperwer tactical UAVs and Skylark mini-UAVs. The Sperwer UAVs, in particular, have been highly valuable for transmitting information about enemy movements back to commanders on the ground. But they have their shortcomings, most notably their limited endurance. For this reason, the Canadian Air Force plans to purchase more than a dozen medium or high-altitude UAVs early in the coming decade. These new UAVs, which are being examined under the Joint Unmanned Surveillance and Target Acquisition System program, will have important battlefield roles, but they could also be used in conjunction with Aurora maritime surveillance planes, or their replacement, ¹⁷ to patrol Canadian territory. As an interim step, Canada plans to acquire aerial drones with an ISR capability that would enable the platform both to track insurgents on the ground, and direct precision-guided munitions launched from Canada's army howitzers or CF-18 fighters. 18 In this context the UAVs—which are being acquired under the Joint Airborne ISR Capability (JAIC) project and are expected to be delivered sometime in 2009 for operational deployment overseas-will provide support to the Army and Special Forces. The Canadian Navy, too, has begun to think about UAVs. It is looking at whether Canada's frigates could carry, launch, and recover UAVs, and may also be considering fitting UAVs on its new Arctic Patrol Vessels (see later). Additionally, Canada's CF-18s are being upgraded with new targeting pods that will allow the aircraft to track enemy aircraft and enemy formations on the ground.

At the most strategic ISR level, Canada is experimenting with a ground moving target indicator capability in space. Under project Polar Epsilon the Canadian Forces will have a military payload on the commercial earth-imaging satellite, RADARSAT II, launched in December 2007 and expected to be operational in 2008. The satellite will keep watch on Canada's polar region, providing 3-meter resolution imagery of ships or low-flying aircraft, and it will also conduct an experiment to see if objects can be indirectly tracked from space by comparing their location from one satellite pass to the next. Beyond this, Canada is taking steps to have access to nearly instant, in-theatre, commercial satellite imagery. Under the Joint Space Support Project the Air Force is developing a mobile antenna and receiver terminal, deployable by C-130 Hercules, which can download satellite imagery for use in mission planning, tactical reconnaissance, target acquisition and battle damage assessment.

All three of Canada's services are pursuing advanced command and control capabilities. The Canadian Navy is already highly interoperable with that of the United States, having worked closely with the U.S. Navy throughout the Cold War and beyond. Canadian naval vessels have been upgraded with the link 16 data link, and they are capable of being integrated seamlessly into U.S. carrier battle groups. Canada's Air Force has historically been somewhat less interoperable with that of the United States, despite decades of working with the U.S. Air Force through NORAD. But its CF-18s have now been upgraded with link 16, allowing secure communications between Canadian and American fighters. The Canadian Army is pursuing a network centric capability through its Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) program. Approved in 2003, the ISTAR program is developing an integrated, interoperable ISTAR capability that is linking together all battlefield platforms, including the UAVs. Under its Land Command Support System program the Army is also pursuing a capability to integrate information from the navy and air force—the recognized maritime picture and the recognized air picture—into its own systems. The goal is to create a joint picture of the battlespace to include maritime, land and air

¹⁷ In December 2007, the Department of National Defence announced it would proceed with upgrades to 10 of its 18 Auroras, while at the same time considering the purchase of a successor aircraft for delivery late next decade. Possible contenders include America's Possible contenders include Possible con

⁸ David Pugliese, "Military Aims to Spend Millions on Unmanned Attack Aircraft," Ottawa Citizen, 21 July 2007.

assets. Finally, Canada will receive its first dedicated military satellite communication capability in 2010 by virtue of having bought some dedicated channels on America's Advanced Extremely High Frequency (AEHF) satellite system.

The Canadian Forces is taking measures to make its units both rapidly deployable to theatre and highly mobile in theatre. It has purchased four C-17 strategic transporters, with all four to be in service by the end of 2008. These aircraft will be able to transport even Canada's heaviest military equipment, the Leopard II tanks, to overseas crises. Canada is also replacing its ageing fleet of C130 Hercules tactical lift planes with 17 C-130J Hercules', having chosen this aircraft over the A400M air transporter. The deployability of Canada's forces will also be enhanced by the acquisition of three multi-role Joint Support Ships (see later) that, among other things, will have sealift capacity for vehicles and troops and will therefore reduce Canada's reliance on chartered sealift.

In 2005 Canada announced plans to increase the deployability of Canada's forces to trouble spots around the world through the creation of a standing contingency task force (SCTF) organized under a single integrated combat command. Based in Halifax, the SCTF would be made up of navy, army, and air force elements, as well as special operations forces, that would be ready to deploy anywhere in the world with 10 days notice. Missions would involve things like sending troops ashore to secure a failing state. Central to this vision was the lease or acquisition of one or two amphibious assault ships, designed for transporting thousands of troops along with their heavy equipment. Outfitted with troop-carrying helicopters, such ships are meant to land troops and equipment on a heavily defended shore. Amphibious ships would also allow the SCTF to be pre-positioned near a crisis area.

In 2006 the CF conducted exercises with an American amphibious assault ship to develop the necessary skills. In addition, Sea King maritime helicopters were modified to carry troops as an interim solution to provide airlift for the SCTF, and the CF began examining whether the Sea King's replacement, the Sikorsky Cyclone H-92, could be configured for a potential troop transport role. The force was to have had an initial operating capability by 2007, but budgetary pressures as a result of the Afghanistan deployment have delayed this vision by several years—at least until after the 2010 Olympics in Vancouver, where the CF is set to play a significant security role. Some would suggest that the SCTF vision is actually dead, but naval officials have expressed a more nuanced view: "While development of the [SCTF] was placed recently in abeyance...conceptual development continues at a more modest level at the Canadian Forces Maritime Warfare Centre." 19

In the late 1990s the Army began a process of making its forces more deployable to theatre by replacing heavy main battle tanks with lighter, wheeled equipment like the Light Armoured Vehicle (LAV) III and the Coyote reconnaissance vehicle. In 2003 it also announced plans to purchase the Stryker Mobile Gun System, which would have led to an armed force that mirrored America's Stryker brigade combat teams. But the conflict in Afghanistan, where Canada is heavily engaged, has revealed the need for heavy armour to protect its troops. In fall 2006, Canadians carrying out combat operations against the Taliban in Afghanistan as part of the NATO mission there were surprised to encounter a "semi-conventional" enemy with dug-in lines of defences. Commanders had already begun requesting tracked vehicles after wheeled platforms like the LAV III repeatedly became bogged down in the rough terrain. The combined result was that Canada deployed its Cold War era main battle tanks to Afghanistan and also leased Leopard II tanks from Germany. In a significant reversal of position, the Canadian government has indicated it will cancel the Mobile Gun System and purchase up to 100 Leopard IIs from the Dutch. In the longer term, Canada's army plans to

²⁰ Graeme Smith, "Conquering Canadians Take Stock," *Toronto Globe and Mail*, 13 September 2006.

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¹⁹ Captain (Navy) Serge Bertrand, Maritime Staff Chief of Staff, "Canadian Forces Transformation & the Navy," *Naval Forces*, Special Issue 2007, p. 26.

pursue a Family of Future Combat Vehicles which, like America's Future Combat System of vehicles and Britain's Future Rapid Effects System, strive to include platforms that are comparatively light (approximately 20 tons) but still have the survivability of a tank.

For increased battlefield mobility, in 2006 the CF announced plans to buy 16 troop-carrying helicopters, probably the Chinook. Helicopter transport on the battlefield is a critical capability shortfall for Canada, which for a decade and a half has had no troop lift helicopters appropriate to combat situations and has therefore been dependent on its allies for battlefield mobility in places like Afghanistan. Military officials hope the helicopters will begin arriving by 2012, but a contract has yet to be finalized and so it is unclear whether this will be achieved. Nonetheless, because the helicopters would likely be used in combat roles, consideration is already being given as to how to provide for their protection. Unlike many of its allies, Canada has no current plans to purchase an armed combat helicopter like the Apache or Eurocopter Tiger, but it is considering an armed escort or reconnaissance helicopter designed not as an attack helicopter but rather to protect the Chinooks (it is unclear why the Apache or Tiger are not being considered, but cost is likely a major factor). Finally, to reduce weight and improve mobility the Army has deployed new battlefield artillery, the air portable M777 Howitzer, armed with Excalibur GPS-guided artillery rounds.

In the Air Force doctrinal area of standoff precision force, Canada has taken a number of important steps. Its CF-18 Hornet fighter aircraft date to the 1980s but these have been subject to significant upgrades over the years. In 1999 the Canadian Air Force was able to make a significant contribution to Operation Allied Force in and around Kosovo because its CF-18s had been equipped with laser-guided weapons. The 2005 Defence Policy Statement further signalled moving these aircraft, which were originally Cold War air-to-air fighters, to a ground attack role. The associated upgrades, to be completed in 2008, include state of the art targeting pods (noted earlier) that will allow weapons to change direction mid-flight, hitting targets that have moved, and Enhanced Paveway 2 kits that will transform the CF-18's Mk82 "dumb" bombs into satellite guided precision weapons.

Yet no amount of upgrades can reverse the fact that the CF-18s' airframes will come to the end of their operational life around 2020. Canada has participated in, and contributed financially to, the U.S. Joint Strike Fighter program for some years and it is likely that this will be its future generation strike aircraft. One possibility that has been put forward is to purchase 80 Joint Strike Fighters, with delivery to begin in 2016.²¹ A firm decision does not have to be made until 2012; until then Canada's New Generation Fighter Capability office will be determining exact requirements, including a possible mix of manned and unmanned strike aircraft.

It follows that Canada has begun to think about acquiring an unmanned combat capability in the form of unmanned combat aerial vehicles (UCAVs). Unmanned combat is a relatively new type of warfare, having made its debut in Afghanistan in the fall of 2001 when America's Predator UAVs were fitted with Hellfire precision-guided munitions. In 2007 the United States deployed the first UCAV that had been developed from the beginning as a combat platform, the Predator B or Reaper. The Department of National Defence had originally planned, in 2007, on sole-source purchasing the Predator B, but this was rejected by the government and the CF is now examining a possible combat role for UAVs in the context of the JAIC project noted earlier. Not only will this aerial drone be able to direct precision-munitions launched from other platforms, but it may also have the ability to launch weapons itself.

In 2006 Canada announced the acquisition of three Joint Support Ships, with the first to arrive in 2012. These ships will greatly enhance Canada's capabilities in a key naval doctrinal area associated with military transformation: support to forces ashore. Designed to

²¹ David Pugliese, "New Office to Assess Canada's Fighter Needs," *Defense News*, 18 June 2007, p. 12.

function as a Joint Task Force Headquarters in conflict areas where it may be impossible to establish a headquarters ashore, the Joint Support Ships will provide command and control capabilities for directing deployed ground forces. In addition, the ships will have a roll-on roll-off capability for cargo, enabling them to unload in places where there are no modern port facilities. Each ship will also be equipped with three or four maritime helicopters for transporting forces and cargo ashore. To this end, Canada's aging Sea King maritime helicopters are being replaced with almost 30 new Sikorsky H92 Cyclone helicopters, with the first to begin arriving in 2008.

Ever since precision strike from sea onto land was proven useful in the Balkan wars of the mid-1990s, when U.S. warships launched satellite-guided *Tomahawk* cruise missiles at Bosnian Serb targets, Canada's naval leadership has been arguing for some sort of land strike capability. The 2005 defence policy document was the first to indicate government support for a precision sea-to-land attack capability, stating that the CF would acquire weapons systems that would enable surface ships to support and protect forces ashore. Current plans are for Canada's frigates to be armed, between 2010 and 2017, with upgraded Harpoon anti-ship missiles that will also have a limited land or coastal target suppression capability. Although this capability would clearly not be useful for addressing conflicts in land-locked countries (like Afghanistan), they would likely be relevant to other future scenarios as they have been in the past.

The Defence Policy Statement of 2005 set in motion one of the most significant military reorganizational efforts in Canadian history. In place of a military force structured around the three traditional services, Canada has established four combined commands, one of which is Canadian Expeditionary Forces Command, or CEFCOM. This command is responsible for all of Canada's international operations, with the exception of those controlled directly by Special Operations Command (see later). Previously, all operations, both domestic and international, were directed by a single person, the Deputy Chief of Defence Staff (DCDS). "The distinction between the new and old construct is that there is a commander accountable to the Chief of Defence Staff for ...delivering effects on operations outside the country," notes Lieutenant General Michel Gauthier, Commander of CEFCOM, "That's quite different from the days where we effectively had a senior staff officer at headquarters who had many preoccupations, one of which was international operations."²³

The goal behind this dramatic reorganization was both to boost the expeditionary capability of the CF and to enhance its ability to respond to domestic requirements. Questions have been raised, however, as to how useful or effective the reorganizational effort has been. With responsibility for CF operations divided among three commanders—those for each of Expeditionary Forces, Canada, and Special Operations Command—it can be difficult to prioritise resources. Should the available Hercules transport aircraft be allocated to Canada Command to fight forest fires in British Columbia, or to Expeditionary Forces Command to ferry supplies into Afghanistan? These sorts of decisions, which under the previous organization would have been made by the DCDS, must now filter up to an increasingly pressed Chief of Defence Staff.

Changes associated with "transforming transformation"

Canada has taken some steps to respond to the requirements of "transforming transformation." In recognition of the growing role of manpower-intense stabilization and reconstruction missions, beginning in 2005 the Canadian government committed to increasing the size of the Canadian Forces for the first time since the post-Cold War cuts of the 1990s. The Martin government sought to increase the CF by 5,000 troops while the

Interview, Defense News, 10 December 2007, p. 22.

²² They are: Expeditionary Forces Command, Special Operations Command, Canada Command and Operational Support Command.

Harper government, when it entered office, raised this figure to 12,000, for a total force level goal of 75,000 CF personnel. But the costs of Canada's ongoing commitment to Afghanistan, as well as the purchase of new equipment, have forced the government to scale back this vision. The revised projected regular force level is 68,000 troops by about 2012. At the same time, the original objective of 35,000 reserve members has been changed to 26,000 troops by 2012. The CF has yet to make significant progress towards either of these goals.

Canada, like the United States and Britain, has begun to incorporate counterinsurgency operations into its official military doctrine. In 2007 it published its first ever counterinsurgency manual to give troops and their commanders insight into how to fight wars against insurgents and win the support of the population. These insights will be, and are already being, incorporated into its mission in Afghanistan, where Canadian troops have seen a dramatic shift in Taliban tactics. In contrast to the almost conventional force CF soldiers faced in the fall of 2006, the Taliban has now adopted guerrilla warfare tactics, melting into the civilian population and spreading itself over a wider area of territory. This has constrained the utility of the firepower provided by tanks and artillery and placed a much greater demand on intelligence gathering.

Some of Canada's most notable "transforming transformation" activities have been in the area of special operations forces. In 2006 the CF created a Special Operations Command to integrate four special forces formations: Joint Task Force 2, Canada's longstanding special operations force which has doubled in size since 9/11; a Joint Nuclear, Biological and Chemical Defence Company that has its antecedents in the Cold War but was significantly enhanced post-9/11; a new "tier 2" Canadian Special Operations Regiment (CSOR) that is being formed and trained to support JTF 2; and, an aviation squadron of Griffon helicopters that has been reassigned to provide dedicated special operations aviation support, and that will eventually be equipped with Canada's new battlefield troop lift helicopters. Original plans called for CSOR to number some 750 troops, and Special Operations Command to comprise about 2,300 troops overall by the end of this decade. But JTF2 and CSOR draw their forces primarily from the ranks of the Army, and the Army itself is severely stretched as a result of the Afghanistan mission. As a result, the complete Special Operations expansion, like the establishment of the SCTF, is unlikely to be achieved until well into the coming decade.

Forming the tier 2 CSOR to support the "tier 1" JTF 2 will make Canada's special forces more interoperable with those of its allies, most of which already have tier 2 and even tier 3 SOFs. The CSOR can best be compared to the U.S. Army's Green Berets and Rangers. The unit is being trained with the same communications requirements, weapons, tactics and procedures as American, British and Australian tier 2 Special Forces to ensure it can work within a coalition special operations setting.²⁴

Canada's expansion in its Special Forces capability is linked to new homeland defence roles associated with a wider perspective on military transformation. Indeed, while Expeditionary

Wider aspects of military transformation

Forces Command is dedicated to overseas operations and Canada Command (see later) is concerned exclusively with defending the homeland, Special Operations Command has responsibilities in both the domestic and overseas realms. To this end, the military is prepositioning Special Forces equipment at sites around the country to facilitate a quicker response to a terror attack, and it is also considering the creation of a Special Forces unit based on the West Coast to deal with maritime threats like coastal disasters. Beyond this, the CF has developed a force employment structure for the purposes of mobilizing elements of Canada's existing conventional land force reserves in six major Canadian cities in the

²⁴ Commander Canadian Special Operations Regiment as quoted in David Pugliese, "New Canadian Force Ready for Action While Training," *Defense News*, 5 June 2006, p. 11.

event of a crisis. Under the plan, a lead unit has been designated in each city that would form the headquarters of a response force. This unit would coordinate pulling together elements that have been pre-identified in the cities' other reserve units to make up the remainder of the response force.

The idea behind the creation of Canada Command in 2006, which is dedicated to the military defence of the country, was to have a single locus of authority for responding to a domestic emergency. As is the case with the United States and its Northern Command, created in 2002, this is the first time Canada has had such a command. Previously, forces were structured for overseas operations and whenever there was a need for a domestic operation, the force was put together on an ad hoc basis. As part of the new organization the CF has created six regional headquarters across the country, each of which integrates navy, army and air force assets with the goal of quick responses to crises. As is the case with Northern Command, Canada Command includes within its area of responsibility both military-led missions for the defence of North America and support to civilian lead agencies, such as Public Safety Canada, for homeland security missions. It is meant to be the country's primary point of contact with Northern Command for the defence of North America.

But there are issues yet to be resolved. Recent reports have indicated that Canada Command, like the SCTF and CSOR, has felt the impact of Canada's ongoing contribution to the ISAF mission in Afghanistan. Resources have been diverted to that mission which otherwise would have been allocated to these new organizations, setting back or constraining their full implementation. In addition, how Canada Command relates to the pre-existing North American Aerospace Defence Command (NORAD) has not yet been fully worked out (in the United States, the Commander of Northern Command is simply double-hatted as the commander of NORAD).

One area of homeland defence that has received much rhetorical, and to a certain extent concrete, attention under the Conservative government is the Arctic. With evidence growing that the Arctic will become ice-free through a significant portion of the year in the not-too-distant future, several countries that border the Arctic have increased their claims to the Arctic seabed, which may hold substantial oil and gas deposits. Canada also has the added concern about the potential environmental damage of ships traversing the Northwest Passage as this becomes a viable shipping route.

The necessity is clearly for a greater ability to demonstrate Canadian sovereignty in the north and to be able to patrol Arctic waters. To these ends, Canada has announced the construction of a deep-water port and refuelling station in Nanisivik, Nunavut; the establishment of a CF Arctic Training Centre for the Army in Resolute Bay, Nunavut; an increase in size of the Canadian Rangers; and the acquisition, beginning around 2013, of six to eight Arctic Patrol Vessels. These vessels, which are to be armed, will be very different from the armed ice breakers the Conservatives had originally promised during the 2005-06 election. They will be able to go through "fresh ice" of about one meter thick and therefore represent an increase in Canada's current capabilities—none of the Navy's current vessels are ice capable. But the requirement for a year-round ice breaking capability has not gone away, and indeed will likely increase. The acquisition of the Arctic Patrol Vessels makes most sense if some agency of the Canadian government also receives one or two new icebreakers to replace the current Coast Guard fleet, which dates to the late 1960s.

CONCLUSION

Military transformation is only the latest terminology to describe changes underway, and aspirations for change, in Western military forces. In the United States the term most definitely entered common usage among members of the defence community after the Bush administration came to power, although it can be traced back even earlier. Military transformation has been used to describe a range of phenomena, from elements associated with the revolution in military affairs, to new requirements that have emerged as a result of protracted warfare in Iraq and Afghanistan, to still broader perspectives that integrate measures at home and those abroad.

In Canada, military transformation has come to be associated with initiatives that were launched comparatively recently, in the 2005 Defence Policy Statement. More specifically, three areas stand out as those against which the degree to which the CF has achieved military transformation can be assessed: the creation of a Standing Contingency Task Force for the rapid deployment of military force abroad—a central aspect of what used to be called the RMA; a changed command structure to reflect an increased focus on defending the homeland—a reflection of the post-9/11 environment; and, greater strength in the area of special operations forces—a key response to the counterinsurgency requirements that have become apparent in recent years. The CF's progress in each of these areas, as indicated earlier, has been challenged by ongoing operational commitments. Canada has taken steps with regard to a number of discrete areas associated with military transformation, including the acquisition of ISR, C4I, and precision strike technology, and the promise or delivery of platforms that will facilitate rapid deployability to theatre, mobility in theatre, littoral operations, and homeland defence. But the overall picture remains one of "transformation on hold." as Canada continues to determine its future course in Afghanistan.

²⁵ Some would date it to the Report of the National Defense Panel, December 1997.

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