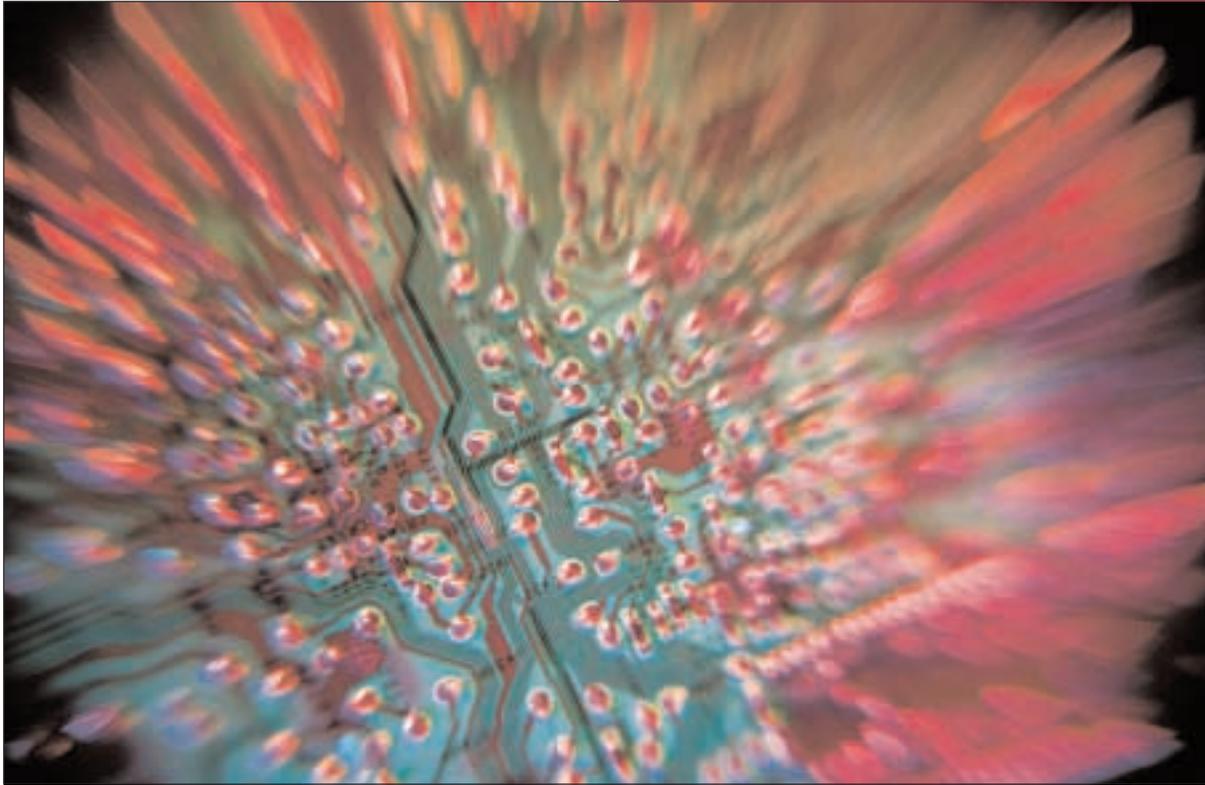


by Dr. Elinor Sloan



CANADA AND THE REVOLUTION IN MILITARY AFFAIRS: CURRENT RESPONSE AND FUTURE OPPORTUNITIES

One of the most important trends that will affect Canada's security and defence policy over the next two decades is the Revolution in Military Affairs (RMA). This term is defined as *a major change in the nature of warfare brought about by advances in military technology which, combined with dramatic changes in military doctrine and organizational concepts, fundamentally alter the character and conduct of military operations*. Advances in military technologies do not in themselves constitute an RMA; rather, a 'revolution' requires that new technologies lead to, or become reflected in, dramatic doctrinal and organizational change.

There have been many revolutions in military affairs over the course of history.¹ The current one

includes, but is not limited to, the following elements:²

Technology

- The application of precision force by launching precision-guided munitions;
- Achieving enhanced 'battlespace awareness' with advanced intelligence gathering, surveillance and reconnaissance assets. These may include advanced surveillance aircraft, unmanned aerial vehicles and satellites;
- Advanced Command, Control, Communications,

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Computers and Intelligence (C⁴I) processing capabilities; and

- Increased power projection capabilities as a result of low observable or 'stealth' technologies.

Doctrine

- Operations characterized by navies, armies and air forces (and in some cases the Marines) increasingly working together, i.e., 'jointness', and by militaries of different countries operating in coalition, i.e., combined operations, making interoperability among services and militaries especially important;
- More rapidly mobile and flexible ground forces that, while smaller, are still highly lethal;
- A long-term move away from manned aircraft to unmanned aircraft, especially for reconnaissance but also increasingly for combat; and
- A change in focus from warfare at sea to naval forces projecting power from the sea onto land in the context of littoral warfare.

Organization

- Smaller, more modular units that can be easily combined and tailored to specific tasks;
- More decentralized decision making as a result of increased situational awareness and battlespace control capabilities at lower echelons than was previously the case; and
- A move towards professional forces and more highly educated service personnel.

Although the current RMA is a United States (US)-led phenomenon, many of Canada's other close allies are already developing their own approaches.³ This article specifically discusses Canada and the Revolution in Military Affairs. It begins by looking at our response to date, examining the extent to which the concept is reflected in current Canadian defence policy, and outlining some of the measures Canada is already taking in the key technological and doctrinal/organizational areas of the RMA. It then sets out a way ahead, examining the contextual factors that will frame any Canadian approach to the RMA, their implications, and the opportunities the RMA presents to Canada and the Canadian Forces.

DEPARTMENTAL POLICY INITIATIVES

For several years the Department of National Defence (DND) and the Canadian Forces (CF) have been aware of the dramatic advances in military technologies that are 'revolutionizing' warfare. An examination of new technologies formed part of the 1994 *Defence White Paper* process, including a stated objective of having armed forces that can fight "alongside the best, against the best" is an implicit reference to advanced capabilities. Nonetheless, DND and the CF have only relatively recently begun to focus their attention on the RMA in its entirety and its implications for Canada. Work on this issue in DND's Directorate of Strategic Analysis provided part of the impetus for the Defence Management Committee's May 1998 direction that the Department develop a Canadian perspective on the RMA.

DND has already responded to this imperative with two high-level conferences. *Canadian Defence Beyond 2010* (November/December 1998) focused on the impact of the RMA on various CF and departmental activities, including operations, science and technology, materiel, human resources and the defence industry. A detailed *RMA Concept Paper* (May 1999) set out key conclusions and recommendations, one of which was to examine the tools for implementing the RMA. Accordingly, *Creating the Canadian Forces of 2020* (April 2000) looked at concept development and experimentation, and modeling and simulation to determine how they can best be used to validate future force structures. Conclusions and recommendations are to be captured in a Fall 2000 conference report.

Beginning in 1997, some of the vision statements of the Canadian military services began referring directly to the RMA. Both *Adjusting Course: A Naval Strategy for Canada* (1997) and *Canada's Army* (1998) discuss the technological aspects of the RMA, and touch on the likely doctrinal implications of these advances. More recently, several DND-wide defence policy documents have discussed RMA-related technologies and concepts. *Shaping the Future of the Canadian Forces: A Strategy for 2020* (June 1999) outlines a number of themes that will guide the future strategic direction of the Canadian Forces, many of which resonate with the RMA. *Defence Planning Guidance 2000* (August 1999) reflects CF 2020's vision and outlines several 'change objectives' that are consistent with the RMA.

Many of these elements are still aspirations for the future. Nonetheless, it is important to note that Canada and the Canadian Forces have already under-

taken a number of measures that are consistent with the RMA. A closer look at some of these is set out below.

RMA TECHNOLOGY

The CF has already invested in, or has plans to acquire, many RMA-related technologies. In 1996, the Air Force began equipping many of its CF-18 fighter aircraft with the capability to conduct precision bombing. Infrared sensors and laser designators were installed on the aircraft, and the Air Force took delivery of its first laser-guided precision-guided munitions. These measures meant that Canada was in a good position to take part in NATO's Operation "Allied Force" in and around Kosovo in the spring of 1999. Canadian fighters flew almost 700 combat sorties during the campaign, and dropped some 360 precision-guided bombs. The Air Force plans to increase its stocks of laser-guided bombs, and may in the future purchase precision munitions that are guided by the Global Positioning Satellite navigation system.

The Canadian Forces is also investing in advanced C⁴I capabilities. Canada is acquiring its first dedicated military satellite communications capability; a military communications payload to be flown on satellites of America's advanced EHF satellite system. MILSATCOM will provide secure data and voice communications for CF units worldwide. Meanwhile, the Navy is taking steps to improve its ability to control the battlespace by upgrading the satellite communications systems on its Iroquois-class *Trump* destroyers. The Army is taking a number of measures to 'digitize' the battlefield, for example, by acquiring the Iris Tactical Command, Control and Communications System.

A notable gap in the Canadian military's RMA technologies is in Intelligence Gathering, Surveillance and Reconnaissance (ISR) capabilities. Whereas many of Canada's allies are developing and fielding unmanned aerial vehicles for tactical and strategic ISR, Canada has deferred funding for an Unmanned Aerial Surveillance Target Acquisition System. Nor does the CF have any equivalent to the American airborne ground surveillance systems that Britain plans to acquire. And although RADARSAT I provides high-resolution satellite imagery of the ground, Canada does not have any similar military satellite surveillance system. The combination of all these factors means that in any operation, the CF, like many of our NATO allies, is almost entirely dependent on the US for its intelligence collecting, surveillance and reconnaissance information.

RMA DOCTRINE AND ORGANIZATIONAL CHANGES

The Canadian Forces is also taking measures that are consistent with the RMA's key doctrines, and these in turn are engendering some important organizational changes. For example, concrete steps to increase the 'jointness' of its forces have recently begun. One such step is the amalgamation of the 1st Canadian Division Headquarters in Kingston with the Joint Force Headquarters, to create the Canadian Joint Force Headquarters. Here the objective is to create "a deployable C⁴I organization capable of national command and logistic support at the operational level of war."⁴

Building on almost three decades of service integration, in the 1990s the CF began taking 'jointness' measures that go beyond institutional and bureaucratic change to touch on the operational dimension. Maritime Coordinated Operational Training exercises now incorporate elements of all three services, allowing them to practice their abilities to function cooperatively in a realistic international scenario. During the 1993 Somalia mission, an Auxiliary Oiler Replenishment ship supported the Canadian contingent by providing sealift from Canada for military equipment and supplies, and by acting as a floating headquarters. More recently, both the Air Force and, to a lesser extent, the Navy worked with the Army in response to the 1997 Manitoba flood and the 1998 Québec/Ontario ice storm.

Canada's response to the RMA's doctrinal trend of increased jointness must be tempered by its particular needs and its role in the world. For domestic operations, it is important that our services be able to work together. For overseas missions, however, it is almost inconceivable that Canada would operate on its own. In these situations, it will be far more important that its services focus on their ability to work with their Allied counterparts, especially US.

Canada is also focusing on creating the rapidly mobile yet still highly lethal ground force that figures centrally in RMA doctrine. In January 2000, the Minister of National Defence announced the CF's intention to establish "a combat-ready strike force to respond swiftly to global crises to prevent the loss of innocent life and strengthen Canada's influence with its allies."⁵ A parallel process is the Land Staff's vision of Canada's "Army of Tomorrow," which includes optimization for expeditionary operations; increased lethality using advanced sensors and precision systems; a modular composition; and optimiza-

tion for participation in joint and combined operations — the exact recipe for an RMA ground force.

Central to increasing the rapid deployment capability of Canada's ground forces is lighter, more mobile military equipment that still affords troops significant protection and has sufficiently lethal firepower to respond to mid- and high-intensity operational scenarios. To this end, the Canadian Army is in the process of rationalizing its fleet of armoured fighting vehicles, and shifting the balance from tracked to wheeled vehicles. For rapid deployability, the CF is also concentrating on acquiring strategic air and sea lift capabilities. One option for airlift may be to scale back the C-130 fleet and replace

focus has been on updating our CF-18s and looking at future options for new manned fighters. DND has spent US\$10 million to sign on as an 'informed partner' to America's stealth Joint Strike Fighter project. As such, Canada will be privy to information on the aircraft in its initial development stages, and could eventually choose the aircraft as a replacement for the CF-18.

Finally, the Navy has begun to change its focus from being an open ocean force, to one that can also conduct littoral operations in shallower, potentially more dangerous waters. An ALSC capability, in particular, will enable the Navy to support forces ashore. Nonetheless, the Navy has none of the major



US Navy photo

The launch of a *Tomahawk* cruise missile from an American warship: precision strike capability with an unmanned weapon carrier.

these aircraft with a fewer number of heavy transport planes, such as the C-17. For sealift, an important step is the Afloat Logistics and Sealift Capability (ALSC) project which entails designing a ship that would combine capabilities for fleet replenishment at sea, in-theatre support to joint forces ashore, and strategic lift for the Army.

Canada has not made any concrete moves towards a third RMA doctrinal area — unmanned combat using unmanned combat aerial vehicles. To date, the

tools for sea power projection onto land. Considering the utility of land attack cruise missiles in recent peace enforcement missions in Bosnia (1995) and Kosovo (1999), it may be useful for Canada to consider investing in such weapons. While the American *Tomahawk* cruise missile is considered out of the question because of cost, a feasible option may be the Standoff Land Attack Missile.

The foregoing is just a brief survey of some of the steps Canada is already taking to respond to the

technological, doctrinal and organizational imperatives of the RMA. In continuing to develop a Canadian approach to the RMA, policy makers may want to bear in mind a number of important contextual factors.

CONTEXTUAL FACTORS

Any starting point for a Canadian approach to the RMA must inevitably be the answer to the question, “What do we want our Forces to do?” The 1994 *Defence White Paper* spells out three roles for the Canadian Forces: the protection of Canada, the defence of North America in cooperation with the US, and contributing to international security. The first two can be taken as a given: it is inconceivable that they would not be fundamental components of future defence policy. The third, contributing to international security, is also an enduring feature of Canadian defence policy, but there has often been debate as to the exact meaning and content of the phrase. Differing views came out sharply during the 1994 hearings before the Special Joint Committee reviewing Canadian Foreign Policy, at the end of which the Committee recommended “a more specialized configuration for the Canadian Forces to better support peacekeeping operations.” The 1994 *Defence White Paper* argued instead for a multi-purpose, combat capable force that can respond to a range of operations, including not only peacekeeping and observer missions, but also enforcing the will of the international community and collective defence. It follows, then, that Canada will want to identify and invest in those elements of the RMA that are cross-suited to the spectrum of contingencies.⁶

The Canadian government has made a policy decision that it wants the Canadian Forces to be capable of responding to both high and low intensity tasks. And yet, justified or not, within the US military and defence community there is a perception that Canada has focused its defence policy largely on peacekeeping.⁷ America’s particular concern, not only with respect to Canada but also with regards to European members of NATO,⁸ is that in the overall spectrum of conflict, US allies may be focusing on the “lowest 50 percent and leaving the other (high-intensity) 50 percent to the United States.”⁹

Canada’s leading role in peacekeeping throughout the Cold War is no doubt a key source of this perception. More recently, it may also be due to Canada’s foreign policy focus on the concepts of ‘soft power’ and ‘human security’. But these concepts have not diminished the relevance of military



The F-117A *Nighthawk* stealth fighter, equipped with highly sophisticated navigation and attack systems, gives the US Air Force a unique low-risk, precision attack capability.

US Air Force photo

forces to maintaining international security. Foreign Minister Lloyd Axworthy made the link at the height of the Kosovo crisis: “[W]hen other means of addressing the threats have been exhausted, robust measures (including military action) may be needed to defend human security.”¹⁰

There is also a view among our allies, particularly the US but also NATO leaders, that Canada is not spending enough money on defence. A 1999 US military survey, conducted to assess the military strength of its allies, ranked Canada among a small group of countries doing “substantially less than their fair share” when it comes to military spending.¹¹ Similarly, NATO Secretary General Lord George Robertson has pressed Canada (and European members of NATO) to increase its defence spending.¹² In Fiscal Year 1999/2000, Canada contributed just 1.1 percent of its gross domestic product to defence, as compared to the NATO average of 2.1 percent, placing it second last in the Alliance, just ahead of Luxembourg.

That said, Canada’s defence budget ranks sixth among the 19 NATO countries in absolute terms. Moreover, any comparison of budgets must take into account how *effectively* the money is spent. Having a higher defence budget but spending much of it on a large conscript army is, for example, a poor use of funds in terms of developing capabilities that are relevant to today’s international security environment. Even the US has given Canada a positive rating for “essentially doing more with less” when it comes to contributing personnel to international peacekeeping operations.¹³

Nonetheless, reductions in defence spending appear to have had an impact on our ability to maintain our military capability. The 1998 *Report of the Auditor General on Equipping and Modernizing the Canadian Forces* stated that repeated budget cuts have had a serious impact on both the numbers of people in uniform and the state of capital equipment. A 1999 academic study of the Canadian Forces argued that the Army could no longer meet its White Paper goals, and that the Navy and Air Force were also at risk of losing the ability to meet their objectives.¹⁴ Indeed, a broad assessment would conclude that the Canadian Forces faces a substantial backlog of modernization projects, resulting in significant equipment obsolescence in the Army, and putting at risk the ability of the Navy and Air Force to ensure their future capabilities.

Countering these views, the Minister of National Defence has argued that Canada can meet its White Paper objectives.¹⁵ In 2000, Canada has accepted 65 percent of the NATO force goals assigned to it, placing it fourth or fifth in the Alliance. When it came to NATO's 1999 operation in and around Kosovo, Canada clearly demonstrated the ability to make a significant contribution to combat missions.

Notwithstanding this position, the US view is that Canada may be unable to provide a meaningful contribution to a future military operation if the circumstances are somewhat different from those that were presented in Kosovo. What if, for example, the NATO operation had not succeeded in its strategic objective of halting the Serb campaign in Kosovo and NATO had been obliged, as increasingly seemed likely the case in May 1999, to send in ground forces? Would Canada have been able to participate? Quite apart from the question of equipment, the US is concerned about the effect constrained budgets have had on the size of our forces and on the ability of the Canadian Forces to adequately train for combat operations.

IMPLICATIONS

Thus, Canada enters the RMA debate against the backdrop of a perception that it has focused its defence policy largely on peacekeeping, and a view among our closest allies that it is not spending enough money on defence. These perceptions and views, which are held both in NATO and in the Pentagon, are coupled with the unanswered question of whether or not substantially reduced defence spending and force reductions since the end of the Cold War have significantly diminished our forces' military capabilities. Why do these things matter?

Founded or unfounded, these perceptions and views could cause Canada to be increasingly marginalized in international forums. Already there is a sense amongst analysts that Canada's reduced military expenditures and, potentially, capabilities is resulting in declining international influence. They point, for example, to the omission in October 1999 of Canada from a United Nations list of members of the G-8 group of industrialized nations, and the fact that in November 1999 Canada was the only member of the G-8 excluded from a meeting discussing the future of Chechnya.

Any direct link between reduced military capability and declining international influence is intangible and difficult to prove. Nonetheless, that there is a link is recognized not only outside but inside government circles. "Because we cannot expect our political influence in global and regional security arrangements to be significantly out of proportion to our military contributions," the *1994 Defence White Paper* argues, "We must make the required investment in our armed forces." The *1994 Report of the Special Committee on Defence Policy* made the case even more strongly: "To withdraw militarily from the world community carries an automatic loss of influence [in multilateral forums]. *It would be naïve to think otherwise*" [original emphasis].

Beyond the intangible implications of declining military capabilities, there is the very concrete fact that investments in defence are needed to avoid operational marginalization. "[If Canada wants operational influence within a coalition/alliance, its forces must be capable of participating in a salient way. If Canada refuses to confront the RMA, it will be unable to protect Canadian forces deployed in coalition/alliance situations from misuse."¹⁶ Canada's armed forces were sufficiently interoperable with their American counterparts to play a meaningful role in Kosovo. In the future, this may not be the case. In the face of a US military that continues to pursue a high-tech RMA agenda, the challenge for Canada will be to ensure that its forces remain interoperable with those of our closest and most important ally.

Making a meaningful contribution involves more than ensuring interoperability. Canada must also endeavour to maintain a sufficient number of troops to form a combat relevant force, and to ensure that these forces are sustainable. For the latter, the US already has made it quietly known that it would not accept an army contribution to a high-intensity coalition operation that is smaller than a brigade.¹⁷ As for sustainability, this is one of the key areas of focus of

NATO's Defence Capabilities Initiative, NATO's practical implementation of the RMA, and is a primary area of US concern with respect to Canada's military capability.

THE RMA OPPORTUNITY

Against the backdrop of these contextual factors and implications, the RMA offers Canada a number of opportunities. Broadly speaking, the nature of the RMA is such that it has the potential to provide relatively greater benefits to small/medium powers, such as Canada, than to large powers like the US. This is because the RMA is changing the fundamental components of power. Previously the most important elements of a country's military potential were its population and the strength of its economy. Increasingly, it is the quality of its standing forces, as opposed to the population as a whole, and of its high-tech sector, as opposed to the economy as a whole, that will be the determining factors. In this sense, Canadian

policy makers should view the RMA as much an *opportunity* as a *challenge*. Whereas the large mass army of the Industrial era was out of reach for Canada, the smaller, more technologically capable force of the Information Age is well within the realm of possibility.

In more specific terms, the RMA offers Canada the opportunity to address the concerns noted above. In an era of restricted defence budgets, Canada is committed to maintaining the capability to respond to high- and low-intensity tasks. Selective investments in the RMA can enhance our ability to do both. Advanced C⁴I and ISR systems, for example, are highly relevant to the efficient conduct of operations at all points along the spectrum of conflict. Unmanned aerial vehicles for reconnaissance have proven their worth in a range of conflict scenarios, from the Gulf War to Kosovo to monitoring peace in Bosnia. Strategic lift is another good example of a

capability that is suited to both high- and low-intensity tasks, while precision-guided munitions are clearly relevant both to warfighting scenarios and to the peace enforcement aspects of peace support operations.

It follows that appropriate investments in the RMA can help correct the perception among our allies that Canada has decided to focus its defence policy largely on peacekeeping. They can also go a



The B-2 *Spirit* multi-role stealth bomber, capable of penetrating an enemy's most sophisticated air defences.

US Air Force photo

long way towards increasing the military capability of our forces. Indeed, "the RMA might well be the only way to get increased efficiency from the smaller forces planned since the end of the Cold War."¹⁸ Finally, selective and appropriate investments in the RMA can ensure that the Canadian Forces remains interoperable with its US counterpart, perhaps the key factor in avoiding operational marginalization without precluding the other side of the coin which is to maintain sufficient numbers of forces for sustainability. Both are needed to help stem any perceived or real political marginalization and, by extension, to ensure that the Canadian Forces can make a concrete contribution to the achievement of Canada's future global security objectives.

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US Air Force photo

The F-22 *Raptor*, an air-dominance fighter with 'reduced observability', is intended to be able to establish absolute control of the airspace over a battlefield and deliver precision ground attack weapons.

NOTES

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