

Archived Content

Information identified as archived on the Web is for reference, research or record-keeping purposes. It has not been altered or updated after the date of archiving. Web pages that are archived on the Web are not subject to the Government of Canada Web Standards.

As per the [Communications Policy of the Government of Canada](#), you can request alternate formats on the "[Contact Us](#)" page.

Information archivée dans le Web

Information archivée dans le Web à des fins de consultation, de recherche ou de tenue de documents. Cette dernière n'a aucunement été modifiée ni mise à jour depuis sa date de mise en archive. Les pages archivées dans le Web ne sont pas assujetties aux normes qui s'appliquent aux sites Web du gouvernement du Canada.

Conformément à la [Politique de communication du gouvernement du Canada](#), vous pouvez demander de recevoir cette information dans tout autre format de rechange à la page « [Contactez-nous](#) ».

CANADIAN FORCES COLLEGE / COLLÈGE DES FORCES CANADIENNES

AMSC 7 / CSEM 7

**FROM PENTOMIC DIVISIONS TO CANADA'S ARMY OF
TOMORROW: A STUDY ON TRANSFORMATION**

By/par

Colonel Denis Brazeau, OMM, CD

October 2004

This paper was written by a student attending the Canadian Forces College in fulfillment of one of the requirements of the Course of Studies. The paper is a scholastic document, and thus contains facts and opinions that the author alone considered appropriate and correct for the subject. It does not necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence. This paper may not be released, quoted or copied except with the express permission of the Canadian Department of National Defence.

La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le ministère de la Défense nationale du Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse dr35477 112.80228 Tm(eu3

Abstract

Since the late 1990s, transformations have been sweeping through most militaries as they attempt to be more modern and relevant. However, transformation is not new. The advent of nuclear weapons at the end of the Second World War followed by an arms race with the Soviet Union was a strong incentive for the US Army to transform in order to maintain relevancy under the overall strategy of massive retaliation. In the mid 1950s, it resulted in the transformation of the triangular divisions into a five battle-group division aptly named the “pentomic” division. Ultimately, the process failed because of its lack of flexibility and single focus.

Similarly, the end of the Cold War and the technological paradigm based on information dominance demonstrates a strong parallel with the 1950s that warrants a closer look albeit from a Canadian Army perspective. Indeed, while the jury is still out on the prospect for Canadian Army success, the findings relating to structure, technology, doctrine, training and jointness may resonate with other small or medium-sized powers in their own attempt at transformation. For them and for Canada, failure may come at a higher price than the United States simply because they do not possess the redundancy to tolerate even a partial failure. Their analysis is thus of interest although the real measure of success can only be assessed on future battlefields.

Introduction

According to modern theorists of war, we are in or on the verge of a great historic transformation. Even the most casual observer can attest to the speed and breadth of change that have affected many aspects of our lives in the past few years. The decade of the 1950's also witnessed profound change not the least being the introduction of atomic and thermonuclear weapons. These weapons created fear and uncertainty and they were a catalyst for a fundamental change in the type of warfare facing the United States. The American Army responded by restructuring its divisions in order to be able to fight on the nuclear battlefield.

In many respects, this unsettling period has relevancy today because of the similarities between the 1950s and the 1990s in seeking to cope with these important changes. This essay will examine the strategic context and explore the transformation that occurred within the United States Army in the 1950s and within the Canadian Army today. The main aim of this paper is to compare both transformations and to identify findings for further study with an overall objective of improving the ongoing Canadian Army transformation effort in terms of structure, technology, doctrine, training and jointness.

To accomplish this, the essay will set the scene by defining transformation and the diffusion of innovation. It will then provide the context of the strategy devised by Eisenhower to deal with the proliferation of nuclear armaments following the Korean conflict until 1959. The background leading to the United States Army's decision to implement "pentomic" divisions and more specifically the different studies dealing with the new nuclear battlefield will be considered. A review of the structure and characteristics of the pentomic divisions will complete this part of the essay.

We will then examine the strategic context for the Canadian Army transformation. Specifically, we shall study how the Canadian Army sought to recast itself from a European-centric Cold War force to a strategically relevant and tactically decisive

medium-weight force.¹ The essay will amplify the activities and conditions affecting the Canadian Army during the 1990s, namely the reduction of the armed forces in the context of greater efficiencies, the NATO expansion and the new paradigms related to the information age, globalization and economic interdependency. We will then use the five combat functions construct to examine the proposed changes. The training framework and the reason behind the use of an interim model will complete this part.

The essay will then compare the lessons learned in the creation and demise of the pentomic division with current Canadian Army transformation in the following domains: funding, technology, flexibility, training and experimentation and finally cultural issues. Specific findings will be derived from this comparison followed by concluding remarks.

Transformation

To say that the Army as an institution is engaged in transformation illustrates the strong perception that fundamental change in the strategic, operational and/or tactical context of warfare has occurred. It is worthwhile to understand the reasons behind such an effort as it may provide some interesting insights on the process and its chances of success. The Canadian Forces defines transformation as follows:

In the military context, transformation is a process of strategic re-orientation in response to changed circumstances, designed to make substantial changes in the nation's armed forces to ensure their continued effectiveness and relevance.²

For a military organization, it may include the development of new warfighting concepts, the reorganization of structures, the introduction of new doctrine and tactics,

¹ *Advancing with Purpose: The Army Strategy*; (Ottawa: Department of National Defence, 2002) available from <http://www.army.forces.gc.ca/strategy/English/resourcestrat.asp>; Internet; accessed 12 September 2004, 13.

² *2003-2004 Report on Plans and Priorities* (Ottawa, Minister of National Defence, 2003), available from http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/ddm/rpp/rpp_e.asp; 15.

the modification of training and the improvement of support.³ It may also include new means of integrating technology, a recurring theme especially prevalent in American thinking. Historically, the importance of integrating technologies has been amply demonstrated. Transformation seeks to maintain relevancy by keeping up with allies, or more importantly, with potential opponents.

There seems to be common agreement that the introduction of nuclear weapons from 1945 onwards was “revolutionary”. The current trends based on network centric warfare, information dominance and effects based operations are too recent to warrant such a label.⁴ However, one cannot deny the wave of transformations currently “infecting” many countries. Chris C. Demchak listed in April 1997 a total of sixty-eight nations that had embarked on the modernization of their armed forces.⁵ He further remarked that neither security threats nor internal economic pressures were forcing states to change their militaries. Nor did coercive diplomacy and dependence on a superpower explain the rapid spread of the “modern force” paradigm that was sweeping through countries with vastly different resources and threat environments. Rather, it was simply because this new form was perceived as legitimate and modern.⁶

Finally, the diffusion of innovation as an expression of transformation is much more rapid today. Information is much more affordable, it has broad commercial applications and it faces almost no restriction.⁷ Hence, the urge to transform is widespread.

³ Jeffrey A. Isaacson, Christopher Layne and John Arquilla, *Predicting Military Innovation*. (Santa Monica: RAND Arroyo Center Documented Briefing, 1999), 8.

⁴ Emily O. Goldman and Leslie C. Eliason. *The Diffusion of Military Technology and Ideas*. (Stanford, California: Stanford University Press, 2003), 371. Other attributes of current trends include dominant maneuver, precision engagement, focused logistics and full-dimensional force protection as defined in the US Joint Vision 2010 and 2020.

⁵ *Ibid.*, 309.

⁶ *Ibid.*, 308.

⁷ *Ibid.*, 312.

Strategic context in the nuclear age 1953-1959

The detonation of atomic weapons in the closing days of the Second World War signaled not only the dawning of a new era but also the accession of the United States to an unparalleled status on the world stage. Both the American and Canadian economies benefited directly from the war effort with the added bonus of avoiding destruction of their infrastructure.

However, this preeminent American position was short-lived. An intense ideological conflict erupted against the Soviet Union and the Communists. The Soviet Union kept large standing conventional forces in Central and Eastern Europe that prompted the creation of a new alliance, the North Atlantic Treaty Organization. Furthermore, Mao's victory and establishment of the People's Republic of China on October 1st 1949, the so-called loss of China and the Korean conflict in June 1950 profoundly disturbed the Americans. Finally, the Soviet Union was intent in closing the nuclear weapons gap as rapidly as possible through any means at its disposal.

This challenge was magnified by the development of the H-bomb. As early as November 1, 1952, the Americans had tested a "non-deliverable" 10 megaton H-bomb in the South Pacific with deliverability achieved in early 1954. The Soviets had tested a similar device in August of 1953 followed by a true H-bomb in November 1955 with a yield of about 60 megatons.⁸

When Eisenhower came to power in January 1953, his foreign policy, dubbed the "New Look" called for a greater involvement in overseas affairs.⁹ Eisenhower was intent on protecting the American economy by reducing significantly the military budget. He also realized that the rough nuclear parity with the Soviet Union meant that any escalating war would bring about unacceptable destruction. His experience as a former

⁸ Roger Hillsman, *From Nuclear Strategy to a world without war*. (Westport, Connecticut: Praeger, 1999.), 45.

⁹ Campbell Craig, *Destroying the Village. Eisenhower and the Thermonuclear War*. New York: (Columbia University Press, 1998.), 41.

military commander, who had witnessed firsthand the destruction of war, convinced him that his overall aim should be to avoid nuclear war at any cost.

The new policy was described in a speech given by his secretary of state, John Foster Dulles in January 1954. Dulles said the United States would no longer meet aggression on the same terms that the aggression had been made. Indeed, it was widely understood that any attack made with conventional forces, such as that in Korea, would be met by air power armed with nuclear weapons and that the response might be on Moscow or Peking rather than at the point of attack.¹⁰ This American basic security policy was encapsulated in the term “massive retaliation”.

Although this policy was hotly debated throughout the Eisenhower years, there can be no doubt that he was unwavering in his intent of eliminating any strategy other than one that would automatically escalate into thermonuclear war and that he would be ready to launch the bombers when the moment came.¹¹

Background to the United States Army transformation

General Ridgway, Army Chief of Staff from August 1953 to June 1955, was under pressure from the Defence Department to field smaller units to fulfill the Administration’s objective of reducing military expenditures. He noted that divisions had increased firepower and capabilities but were larger and less mobile than their World War II counterparts. He directed a study to make divisions more mobile, more flexible and less vulnerable to atomic attack. Ironically, the end-result, the Atomic Field Army was in fact a larger organization.

Ridgway also clashed with Eisenhower as the new National Security Policy was being translated into budget share and force levels. This opposition continued right up until he was finally “eased into retirement” in June 1955. Ridgway’s disagreement

¹⁰ Roger Hilsman, 34.

¹¹ Campbell Craig, 67.

concerned mainly the efficacy of massive retaliation. He contended that these policies were inconsistent with America's traditional religious and moral principles. He warned against allowing military advisers to become politicized and co-opted by civilian officials with little appreciation of the soldier's role, the refusal to abandon the Army's traditional conception of warfare in order to accommodate enthusiastic theorists having little or no responsibility for the consequences of following the courses of action they advocated.¹²

When General Maxwell D. Taylor became Chief of Staff, he was initially more amenable to these changes but he was also critical of the merits of massive retaliation. He halted the Ridgway studies. However, another study completed by the Army War College in December 1955 proposed a completely air transportable 8,600 man division, the precursor to the pentomic division which we will now examine.¹³

US Army transformation – the pentomic division

The advent of tactical and strategic nuclear weapons meant that the traditional triangular divisions needed increased survivability and sustainability on the new battlefield. The new divisions had to be able to fight and defeat the enemy in both the nuclear and conventional modes with a structure that could account for the worst-case scenario. They also had to minimize the effects of the other side's nuclear capability.¹⁴

The new division fulfilled the operational imperatives linked to survivability through dispersal, flexibility, mobility and firepower.¹⁵ Survivability meant that the division must disperse both laterally and in depth to avoid destruction. Flexibility was tied to the ability of the division to concentrate, strike and disperse. Mobility was a key

¹² A. J. Bacevich A.J. and Lawrence F. Kaplan. *Generals vs. the President*. A Center for Strategic Education Case Study. (Washington D.C.: John Hopkins University), 13.

¹³ John B. Wilson, *Maneuver and Firepower: The Evolution of Divisions and Separate Brigades*. (Washington, D.C.: Center of Military History, Army Lineage Series, 1998.), 264-271. The Army War College study was entitled "Doctrinal and Organizational Concepts for Atomic-Nonatomic Army during the Period 1960-1970" which had the short title of PENTANA.

¹⁴ A. J. Bacevich, *The Pentomic Era: The U.S. Army between Korea and Vietnam*. (Washington D.C.: National Defence University Press, 1986), 66.

¹⁵ Lieutenant Colonel M.R. Dabros, "*The Influence of Nuclear Weapons Technology on Conventional Force Development: The U.S. Army Pentomic Era, 1953-1961*", (Master's thesis RMC, 2000), 9.

operational requirement because forces needed to concentrate rapidly, exploit atomic fires and disperse to offset the possibility of offering a target worthy of nuclear engagement. Conceptually, this division solved the policy issue since it addressed the American and NATO preoccupation with numerical inferiority in Europe by providing both a deterrent and an economy of force effect.

The new division as outlined by Taylor in October 1956 was called the pentomic division as it included five self-sustainable battle groups with five companies of five platoons. The battle groups were smaller than a regiment but larger than a battalion. Each battle group had a headquarters and service company and its own heavy mortar battery.¹⁶ This division came in three types: airborne, infantry and armoured. In terms of strength, the infantry division was reduced from 17,700 soldiers to about 14,000 with most of the reduction coming from the elimination of the battalion command level.¹⁷ However, attempts to increase mobility, by having more helicopters for the airborne divisions as an example, were not sufficient to achieve that objective. Firepower was provided by mortar, artillery (105 and 155mm) and by Honest John nuclear rockets.¹⁸

Since nuclear weapons would blast through the enemy front, there was no need to maneuver but simply to exploit by attacking in column using rapid movement. In the defensive mode, the units would apply area defence or islands of resistance fighting independent battles.¹⁹

In fact, the pentomic division was relying on firepower as its main attribute. The great leap in nuclear firepower was not supported by adequate mobility which negated the possibility of any true maneuver. The logistic support was inadequate since it was supposed to be provided by a large support base outside the division.²⁰ The

¹⁶ A. J. Bacevich, 105.

¹⁷ Combat Studies Institute. *Sixty Years of Reorganizing for Combat: A Historical Trend Analysis, CSI Report No. 14.* (Fort Leavenworth, Kansas, January 2000) available from <http://www-cgsc.army.mil/csi/research/writing/BCTConceptPaper.asp>; Internet; accessed 21 September 2004.

¹⁸ A. J. Bacevich, 108.

¹⁹ *Ibid.*, 118.

²⁰ Major Robert A. Doughty, *The Evolution of U.S. Army Tactical Doctrine, 1946-76.* (Fort Leavenworth, Kansas: Leavenworth Papers, No. 1, August 1979), 17.

communications equipment did not provide for the necessary command and control for dispersed operations. Psychologically, the individual soldier was now operating in relatively small unit actions with limited means of communicating and presumably with a rational fear of the true capabilities of nuclear weapons. It was felt that conditioning during training and increased reliance on small unit leaders would be required.²¹

In the hope of securing its share of the budget allocations and to put to good use the firepower at its disposal, the Army developed a niche related to rockets and guided missiles. In one aspect, it had to do with space exploration that showcased Army proficiency. In a purely military sense, it had to do with the development of long-range attack missiles and air defence against enemy bombers carrying nuclear bombs. It did so despite sustained opposition elsewhere in the Defence Department and from the Air Force. Despite the successes of the Army programmes, the Air Force eventually obtained permission to field the Intermediate Range Ballistic Missile while the Army kept the ground-based Air Defence role.²²

The application of the new concepts and the delineation between the Army's Air Defence and the Air Force IRBM roles resulted in a significant reduction in the Army's strength from 1,597, 000 in 1952 to 889,000 by 1959 and its budget shrank from \$17,453M to \$9,533M. The Air Force's budget went from \$15,085M to \$19,249M during the same period.²³ To be fair, one must also take into account the perceived Soviet threat caused by the so-called bomber and missile gap to fully explain the increased Air force budget.

The pentomic division was never tested in combat. Its smaller size never achieved strategic mobility because the Eisenhower administration emphasized nuclear

²¹ John P. Rose, *The Evolution of U.S. Army Nuclear Doctrine, 1945-1980*. (Boulder, Colorado: Westview Press, 1980), 68-69.

²² A. J. Bacevich, *The Pentomic Era: The U.S. Army between Korea and Vietnam*. (Washington D.C.: National Defence University Press, 1986), 73-88. In terms of successes, the Redstone IRBM could travel to 3,000 miles in 1956; Explorer I achieved orbit as the first American satellite in January 1958 and the Army had developed the NIKE Hercules in 1956 as an air defence weapon.

²³ A. J. Bacevich and Lawrence F. Kaplan. *Generals vs. the President*. A Center for Strategic Education Case Study. (Washington D.C.: John Hopkins University), Document 2.

deterrence not flexibility. It was not therefore willing to build airlift at the expense of the Strategic Air Command. The lack of communications equipment and tactical mobility did not help. It was rapidly overcome by events and by 1961, the Army reverted to triangular divisions.²⁴ In short, the technology lagged behind the doctrine, and strategic concepts raced ahead of tactical realities.²⁵ We will now explore the context, the background and the Canadian Army transformation.

Strategic context in the post Cold War era 1989-2002

The fall of the Berlin Wall in November 1989 and the end of the Cold War ushered in a major change in the international context. It unshackled powerful dormant forces that pushed the international system to evolve into a multi-polar and more amorphous entity. The advent of the third wave, the information age, as predicted by the Tofflers was also coming into its own.²⁶ Whether we are witnessing deep power struggles sparking instability and often violent conflict between nations because of their different levels of development resulting from this advent is difficult to ascertain.²⁷

The result was an interconnected world and a global economy bent on outsourcing its goods and services to cheaper-producing countries that depended on free trade for success. One of the corollaries was that countries with ready cash could now gain access to a wide spectrum of military capabilities.²⁸ The demise of the Soviet bloc also increased the risk of proliferation of weapons of mass destruction to rogue states or anarcho-terrorists.

²⁴ Colonel Robert D. Snyder, “*Déjà Vu All Over Again: What Can Be Learned from Army Transformation 1953-1964?*” (National War College thesis, 2004); available from <http://www.ndu.edu/nwc/writing/AY04/eoyawards.htm>; Internet; accessed 15 September 2004, 5.

²⁵ Major Robert A. Doughty, 19.

²⁶ Alvin and Heidi Toffler, “*What is the Third Wave?*”; available from <http://www.toffler.com/thethirdwave/default.shtml>; Internet, accessed 19 October 2004.

²⁷ Steven Metz, “A wake for Clausewitz: Toward a Philosophy of 21st Century Warfare”. *Parameters*, Winter 1994-1995, 126-132.

²⁸ Eliot A. Cohen, “A Revolution in Warfare”. *Foreign Affairs* March/April 1996. vol 75, 43.

The effect of the media and their immediacy projected humanitarian crises and their effects directly into our consciousness. Non-intervention could not be sustained in the face of the visual horrors of ethnic cleansing in the Balkans, the famine in Somalia, the genocide in Rwanda, the suffering in Haiti or the Taliban's desecration/depredations in Afghanistan.²⁹

Within the NATO alliance, it signaled intervention outside its original area of operation and its progressive enlargement to maintain relevancy without antagonizing and isolating Russia. This was partly achieved by its inclusion in the G8 in 1998, thus recognizing its special status.³⁰

On the other hand, the United Nations failed with spectacular results throughout the decade.³¹ As a conduit for international action, it remained dependent on the will of its stronger member states to intervene, with very mixed results.

In Canada, the government was intent on cashing in on a possible peace dividend by reducing significantly its armed forces. However, the dual track of military reductions coupled with international instability created extreme tensions within the Canadian Forces to cope with these new conflicts. In all, the 1990s was a decade of profound change characterized by unpredictability, complexity and risks.

Background to Canadian Army transformation

The Canadian Army was rather late in understanding the winds of change in the geopolitical landscape. Firstly, it was dealing with a 1987 White Paper that was out of touch with reality. This created confusion. Except for airfield protection, the Army did

²⁹ See this Agence France Presse article dated March 1, 2001, *Afghan Taliban begin destruction of ancient Buddha statues*, available from <http://www.commondreams.org/headlines01/0301-04.htm>.

³⁰ Heidi Ullrich, *Effective or Defective? The G8 and Multilateral Trade Negotiations*. Essay delivered at the 2004 Annual Meeting of the International Studies Association Montreal, Canada March 17 – March 20, 2004; available from <http://g7.utoronto.ca/scholar/ullrich-isa2004.doc>; Internet; accessed 1 Oct 2004.

³¹ One need only to recall the 1993 mission in Somalia, the 1994 genocide in Rwanda, the 1995 massacre in Srebrenica and the first weapons inspector pullout of Iraq in 1998. See the internet site at <http://www.pbs.org/wnet/un/timeline/timeline5.html>; accessed 1 Oct 2004.

not participate in the first Gulf War. However, it was involved in the Oka crisis in the fall of 1990 and in setting up four new Area commands in 1991 and 1992.

Coincidentally, in the absence of a coherent defence policy, the closure of the bases in Germany sent a paradoxical signal of the government's intentions concerning international commitments. This was understandable because prosperity was being jeopardized by a huge accumulated governmental debt.³²

While the White Paper of 1994 espoused the idea of multi-purpose combat-capable forces, it also directed a 32% reduction in the strength of its armed forces. It called for multilateral operations to be conducted anywhere in the world under UN or NATO auspices.³³

Throughout the decade, the Army was involved in operations throughout the world, particularly in Cambodia, the Balkans, Haiti, Africa and in East-Timor. Somalia was of particular significance to the Army as it struggled with the consequences of an incident resulting in the death of a Somali teenager at the hands of Canadian soldiers during an interrogation in Belen Huet in March 1993. The end-result was the disbandment of the Canadian Airborne Regiment two years later. It also generated discussions about a crisis in leadership. It saw the introduction of business management practices and re-engineering efforts. Lastly, the Army implemented the Management Command and Control Restructure Team's main recommendation by moving its headquarters to Ottawa in 1996.

³² Canada's debt to GDP ration reached a peak with 36 cents out of every federal revenue dollar going to pay interest on the debt. *The 1999 Budget: Maintaining Sound Economic and Fiscal Management* (Ottawa, Privy Council Office); available from http://www.pco-bcp.gc.ca/default.asp?Language=E&Page=pmarchive&Sub=FactSheets&Doc=fact_sh19990216936_e.htm; Internet; accessed 1 Oct 2004.

³³ *1994 Defence White Paper* (Ottawa: Canada Communications Group, 1994), 38 and 46.

The professional military debates about the possibility of a Revolution in Military Affairs in the United States began to stir belated interest with senior Canadian officers. It was the subject of a concept paper that made key recommendations in May 1999.³⁴

Attempts had been made between 1997 and early 2000 to conduct a fundamental review of its strategy. However, these efforts fell short of expectations. It took the appointment of LGen Mike Jeffery as Chief Land Staff in the summer 2000 to launch a concerted effort at transformation by way of a new strategy. The “Army Strategic Refocus” was followed by five strategic planning sessions with broad participation from within the Army.

The study used Strategy 2020 as its fundamental start point. For the purpose of this study, three objectives under the over-arching multi-purpose combat capability stood out:

Modernization: field a viable and affordable force structure trained and equipped to generate advanced combat capabilities that target leading-edge doctrine and technologies relevant to the battle space of the 21st century;

Global deployability: Enhance the combat preparedness, global deployability and sustainability of our forces; and

Interoperability: Strengthen our military to military relationships with our principal allies, ensuring interoperable forces, doctrine and C4I (Command, control, communications, computer, intelligence).³⁵

Modernization was a given, although the qualification of “viable” and “affordable” considerably limited the scope for renewal. Global deployability implied

³⁴ *Canadian Defence Beyond 2010: The Way Ahead an RMA Concept Paper*, (Ottawa: Department of National Defence, 31 May 1999); available from http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/dda/rma/wayahead/intro_e.asp; Internet; accessed 14 September 2004.

³⁵ *Advancing with Purpose: The Army Strategy*; (Ottawa: Department of National Defence), available from <http://www.army.forces.gc.ca/strategy/English/resourcestrat.asp>; Internet; accessed 12 September 2004, 10.

the acquisition of strategic lift capabilities that Canada could hardly afford short of a major conflict. The other option was reliance on its allies in Europe

to see of "act" e

theism

at the new structure would organize the of the (m) Tj11.97729 0 0 121948.17089 53.620039 Tm(a) Tj11.9772

of sovereignty respected ally in a

ht resources could be the on mm ca it (a) Tj11.97729 0 0 1214 .591817543.359489 Tml plans in re (a) Tj11.97729 0 0 122708

then go under brigades and brigade groups. However, one of the three brigade-groups headquarters was more robust since it was used as the experimental test-bed for digitization.

The “sense” function would benefit by changing two of the three armoured regiments to reconnaissance regiments and by eventually developing an Intelligence, Surveillance, Target Acquisition and Reconnaissance capability. Presumably, this would reinforce our ability to conduct reconnaissance to achieve “full” knowledge of the enemy’s whereabouts.

For the combat function of “act”, the plan assumed considerable risk by transferring capabilities (pioneers and mortars) from the infantry to the engineers and the artillery respectively. The number of direct and indirect fire platforms would also be reduced. Once fielded, these systems would have better precision and range. It sought to reduce mass by concentrating all heavy tracked vehicles (tanks, howitzers and heavy engineer vehicles) to units in Alberta albeit at a much lower readiness level. The TOW under armour (but not the TOW systems themselves) would also move from the infantry battalions to a single infantry unit in the west. In effect, it was accepting asymmetry at both the unit and formation level.

The units would be based on Tactically Self Sufficient Units that represented task-tailored capability packages.³⁹ The idea was that these “packages” or modules could plug and play into any other higher formation whether Canadian or from another ally, presumably the United States.

Both the “shield” and “sustain” combat functions required more work to be done. “Shield” included force protection afforded by military engineers through their mobility, counter-mobility and general engineer tasks as well as air defense, electronic warfare, nuclear, biological and chemical defense and lastly military police. “Sustain” sought to clarify the close and general support that needed to be provided firstly in the context of

³⁹ *Advancing with Purpose: The Army Strategy.*, 20.

other Canadian Forces and Department of National Defense initiatives and secondly while improving the depth, flexibility and range of combat service support to the Army.

Finally, the Army implemented a three-year training and operation framework based on three phases of equal duration: reconstitution, training and employment. The units in the reconstitution phase only conduct low-level training and have access to minimal numbers of combat vehicles. The units in the training phase go through a complete training ramp-up and they have access to the full complement of combat vehicles. The units in the employment phase are either deployed or they maintain their currency in anticipation of a potential deployment. A Canadian Manoeuvre Training Centre (CMTC) similar to the American National Training Centre in California will be created. Unfortunately, only four of the twelve battle groups will be able to train there on a yearly basis.⁴⁰

Because of the current resource difficulties, it was envisaged that an interim force model out to five years would be put in place. This model would be an intermediate step required to lay a firm foundation for the true transformation to occur from today's Army to the Army of Tomorrow in the year 2012.⁴¹ Let us now analyze and compare in more detail the similarities and the differences between the American and Canadian experience in transformation. This will set the stage in articulating the pertinent findings that may have relevancy to the ongoing Canadian Army implementation of its strategy.

Funding issues

Eisenhower wanted to protect the American way of life and its economy. One of the main thrust of his "New Look" policy was the reduction in defence spending. For this reason and because of competing demands from the Air Force, the pentomic division was introduced with promises of new capabilities in communication, mobility and support that never materialized. Similarly, the end of the Cold War promised a peace

⁴⁰ The issue of the affordability of training more than four battle groups on a yearly basis was raised on several occasions during Army-level meetings in 2003 and 2004.

⁴¹ *Advancing with Purpose: The Army Strategy*, 9.

dividend coupled with a significant slashing in defence outlays in order to cut the Canadian government's debt. As the situation improved throughout the 1990s, defense

precision, raising the profile of technology as a panacea to counter friction and to lift the fog of war.⁴²

This American propensity to focus on technology should be heeded. As Colonel Snyder warned, the United States Army during the 1950s allowed its pursuit of technology to drive the development of doctrine and organizations rather than first developing operational concepts to direct the pursuit of appropriate technologies.⁴³ The complexity and confusion created by war could, in the author's opinion, never be mastered even with supposedly omnipotent weapons and unblinking intelligence. Information dominance may provide a clearer picture of the situation on the ground but it is unlikely to be able to predict the future nor determine the intent of an opponent.

Flexibility

The pentomic division had strategic mobility because it was air-transportable. These divisions could punch through enemy lines by the use of tactical nuclear firepower without the necessity to actually maneuver on the battlefield. They had to be flexible with the ability to concentrate, strike and disperse as essential elements to its survivability on a nuclear battlefield. However, the pentomic division structures did not permit those divisions to be truly useful against a non-nuclear enemy because they escalated too quickly into a nuclear exchange.

The Canadian Army requires new capabilities that have yet to be fielded. With precision fires and near-perfect intelligence, it could attack and destroy the enemy's critical centers of gravity. Its use of "Tactical Self Supporting Units" and plug and play capability meant that it could also concentrate, strike and disperse at will. By using an eight wheel lightly armoured common chassis rather than the heavier tracks for its combat vehicles, the Canadian Army enhanced its deployability. However, the

⁴² I have used the expression "lifting the fog of war" from Admiral Owen's book of the same title. There is a good account of Admiral Owen's role in pursuing RMA within the United States in the essay *Transformation of the Canadian Forces: Is Aerospace Power Relevant?*, an NSSC5 paper written by J.L. Christian Carrier in June 2003.

⁴³ "Déjà Vu All Over Again: What Can Be Learned from Army Transformation 1953-1964?", 9.

sustainability of any deployed force as well as the availability of limited lift assets to deliver even this leaner Army remain a source of concern.

The turmoil and dislocation created by changes in the internal structures of Canadian battalions and regiments, in effect within the core of the fighting elements, cannot be understated. Granted, the changes are part of the risk taken to provide the internal flexibility for the Army to transform. However, once a capability is lost or reduced, it is very difficult to regain. The battalions and regiments have proven their worth in battles. The new structures have yet to be tested in combat situations.

On the other hand, the Canadian Army proposal recognizes the nature of complex terrain and the presence of both conventional and unconventional enemies. It accepts the full spectrum of conflict throughout the continuum of operations ranging from search and rescue to humanitarian relief to peace support operations to collective defence. The proposal understands the necessity of a cultural shift based on formal professional education as well as a full-fledged lesson learned process based on operations, our allies' combat experiences, experimentation, simulation and exercises. Furthermore, it can count on a Canadian soldier that has proven time and again his mental agility and his professionalism when faced with complex situations.

Training and experimentation

The training carried out during the 1950s permitted a tiered readiness within the United States Army whereby some divisions were at a higher manning level than others creating a sense of “haves” and “have nots” that was detrimental to the Army as a whole.⁴⁴ The current Canadian construct with the creation of the CMTC will take three years to train the Army's twelve battalion groups. Will the Canadian Army be able to create a synergistic training effect over such a long cycle without creating a sense of “haves” and “have nots”? With the current personnel disruption within units, the unforeseen operational deployments and the injection of new priorities from other

⁴⁴ Colonel Robert D. Snyder, 10.

quarters, it is difficult to ascertain whether the cycle is workable or not. This also has an impact on command positions. The Canadian Army has been unable to offer three year tours for their Commanding Officers and only with great difficulty, gives two years at the company/squadron/battery and at platoon/troop levels. The mismatch between the training cycle and command tour lengths will create officers without battle-group hands-on experience.

The US Army used experimentation and demonstrations to prove the validity of the pentomic division. In fact, these tests were closely controlled demonstrations to convince outsiders of their usefulness rather than to evaluate doctrine and equipment. In the Canadian context, we are still striving to put in place an interim model. Except for the digitization of command and control in one brigade-group headquarters, true experimentation in the field has not occurred because the Canadian Army cannot afford to transform only part of its force for testing while keeping its other commitments extant.

Cultural issues

Canadian transformation is very much influenced by current American efforts. The Canadian Forces and all three environments have shamelessly borrowed American doctrine and terminology despite subtle cultural differences, variances in scope and diverging technologies. The Americans failed in their transformation effort in the 1950s and early 1960s because its pentomic divisions were ill-suited for the most prevalent conflicts of that era, counter-insurgencies and wars of liberation from colonial powers . There is no guarantee they will not fail again. In that sense, the Canadian Army must be prudent in maintaining its unique approach to warfare.

As the Canadian Army progresses to the “Army of Tomorrow”, it must continue to challenge the assumptions upon which the strategy is based. As an example, although the process underpinning the transformation effort was completed prior to the 11 September 2001 attacks against the United States, LGen Jeffery admitted that we need to

invest time and effort in understanding the issues.⁴⁵ In the rush to implement the strategy (and we do need to move forward quickly), we must constantly challenge these assumptions. In that regard, the Army has recently established a four-part capability development process and it has challenged Army Generals within the Land Staff to get personally involved.⁴⁶ Their continued involvement will be a key to its eventual success.

As we have seen, there were serious disagreements between the United States Army leadership and the Administration over its strategy of massive retaliation that impacted significantly on the advent of the pentomic division. For the Canadian Army, the new structure was developed in the absence of a Defence Policy Review and guided by generalities falling out of *Strategy 2020*. More importantly, it was admitted in Army circles that the Army did not receive complete support from the most senior Canadian Forces leadership although M. John McCallum, Minister of National Defence in 2002 and 2003 supported the process.⁴⁷

Within the new paradigm, the Army must seek a leadership role in the joint arena. What Army systems are relevant to the joint capabilities of the Canadian Forces? Are there systems that are useful for both the Army and the Navy or the Air Force? Where overlaps exist, the Canadian Forces must support the effort. If not, it may have no choice but to find a more specialized niche to remain relevant.

Findings

The study of the American transformation of the 1950s and the current Canadian Army process has provided a better understanding of the obstacles and the challenges that need to be met. Specifically, we have seen the importance for Canada to develop its own doctrine to take into account our cultural biases and our unique way of war. This will be enhanced by resisting against quick-fix technological answers and by continuing to invest

⁴⁵ *Towards the Brave New World: Canada's Army in the 21st Century*. (Kingston, Ont.: Director of Land Strategic Concepts) 2003, viii.

⁴⁶ *Ibid.*, 123. The four part capability development process are: conceive, design, build and manage.

⁴⁷ The support from the former Minister of National Defence was widely discussed within the Army when the strategy was launched in 2002.

in our intellectual brain-trust. We should review the number of systems to be fielded in order to provide a potent force for Canada and for our allies. If we cannot, we should balance very carefully the requirements of quality versus quantity.

The Canadian Army must be very wary of transferring capabilities between its combat arms to generate the necessary interim model positions. As suggested earlier, if the Canadian Forces agree with the transformation process, it should support it by generating these positions from its overall structure and not only from Army positions.

Maximum use of experimentation needs to be carried out to confirm the validity of the new structures as implementation progresses. In this regard, the new capability development process should continue to be nurtured and vigorously applied as it injects important feedback in the iterative process of transformation.

We require a flexible training framework that can accommodate inevitable changes in tasks and priorities. Ideally, the CMTC should train six battle groups yearly to provide command hands-on experience right up to the battle-group level. Finally, joint capabilities must be fast-tracked and harmonized with Army transformation as well as with the other environments' own efforts in this regard. Overlaps between the environments must be seen as opportunities for exploitation for the benefit of the Canadian Forces as a whole. In this regard, a top-down process is required.

Conclusion

After reviewing in detail the particular context of the 1950s and the 1990s, we have discerned similarities that warranted a closer look at the conditions that have contributed to the demise of the pentomic divisions. An examination of the Canadian context and a review of the structure and systems that will be fielded for the Interim Model and the “Army of Tomorrow” have provided insights that should be heeded if we are to maintain the transformation of the Army firmly on its tracks.

Funding, technology, flexibility, training and experimentation and finally cultural issues all had a role to play in both transformation efforts. They should be reviewed for further consideration. Furthermore, as alluded to earlier, the integration of transformation at the Navy, Army and Air Force and at the Canadian Forces level should be harmonized and synchronized to draw a roadmap for change that is affordable, realistic and that will add value for Canada as a nation. Canada wants to be relevant. It can only achieve this if its forces are strategically relevant to fulfill their part within the overall mandate.

Multi-purpose forces can work in a combined, joint and inter-agency mode. They can also succeed in conventional wars and against an unconventional enemy even in complex terrain. In that sense, the Canadian Army strategy is aiming in the right direction and it probably only requires a change in scope combined with some adjustments to succeed. LGen Jeffery stated that we won't get the future right. He further added that our objective must be to avoid getting it seriously wrong.⁴⁸ I would add that the future is now and that Canada, the Canadian Forces and the Canadian Army have no choice but to get it right.

⁴⁸Ibid., ix..

BIBLIOGRAPHY

1. Agence France Presse. *Afghan Taliban begin destruction of ancient Buddha statues*, March 1, 2001 available from <http://www.commondreams.org/headlines01/0301-04.htm>; Internet; accessed 1 Oct 2004.
2. Bacevich A.J. *The Pentomic Era: The U.S. Army between Korea and Vietnam*. Washington D.C.: National Defense University Press, 1986.
3. Bacevich A.J. and Lawrence F. Kaplan. *Generals vs. the President*. A Center for Strategic Education Case Study. Washington D.C.: John Hopkins University.
4. Beckhard, Richard and Reuben T. Harris. *Organizational Transitions: Managing Complex Change*. 2nd ed. Don Mills: Addison-Wesley Publishing Company, 1987.
5. Bottome, Edgar M. *The Balance of Terror: A guide to the Arms Race*. Boston: Beacon Press, 1971.
6. Canada. Department of National Defence. *1994 Defence White Paper*. Ottawa: Canada Communications Group, 1994.
7. Canada, Department of National Defence. *Advancing with Purpose: The Army Strategy*; available from <http://www.army.forces.gc.ca/strategy/English/resourcestrat.asp>; Internet; accessed 12 September 2004.
8. Canada, Department of National Defence. *A Time for Transformation, Annual Report of the Chief of the Defence Staff 2002-2003*, 10 June 2003; available from http://www.cds.forces.gc.ca/pubs/anrpt2003/intro_e.asp; Internet; accessed 14 September 2004.

9. Canada, Department of National Defence. *Canadian Defence Beyond 2010: The Way Ahead an RMA Concept Paper*, 31 May 1999; available from http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/dda/rma/wayahead/intro_e.asp; Internet; accessed 14 September 2004.
10. Canada, Department of National Defence. *Canadian Forces Strategic Operating Concept*, Draft 4.4 21 May 2004 – For CDS Review.
11. Canada, Department of National Defence. *Minister's speech: Speaking Notes for The Honourable David Pratt, P.C., M.P. Minister of National Defence For an Appearance before The Standing Committee on National Defence and Veterans Affairs (SCONDVA)*. April 1, 2004, available from http://www.forces.gc.ca/site/newsroom/view_news_e.asp?id=1340; Internet, accessed 16 September 2004.
12. Canada, Department of National Defence. *Shaping the Future of the Canadian Forces: A Strategy for 2020*, 9 September 1999; available from http://www.cds.forces.gc.ca/pubs/strategy2k/intro_e.asp; Internet; accessed 13 September 2004.
13. Canada, Department of National Defence. *Towards the Brave New World: Canada's Army in the 21st Century*. Kingston, Ont.: Director of Land Strategic Concepts, 2003.
14. Canada, Privy Council Office. *The 1999 Budget: Maintaining Sound Economic and Fiscal Management*; available from http://www.pco-bcp.gc.ca/default.asp?Language=E&Page=pmarchive&Sub=FactSheets&Doc=fact_sh19990216936_e.htm; Internet; accessed 1 Oct 2004.
15. Canada. Privy Council Office, *Securing an open Society: Canada's National Security Policy*. April 2004; available from http://wps.cfc.dnd.ca/index_e.html; Internet; accessed 12 September 2004.

16. Carrier, Christian J.L. *Transformation of the Canadian Forces: Is Aerospace Power Relevant?* NSSC 5 Paper, Canadian Forces College, Toronto, ON, Canada, June 2003.
17. Cohen, Eliot A. "A Revolution in Warfare". *Foreign Affairs* March/April 1996. vol 75.
18. Craig, Campbell. *Destroying the Village. Eisenhower and the Thermonuclear War*. New York: Columbia University Press, 1998.
19. Dabros, Lieutenant Colonel M.R. "*The Influence of Nuclear Weapons Technology on Conventional Force Development : The U.S. Army Pentomic Era, 1953-1961*", Master's thesis RMC, 2000.
20. Dockrill, Saki. *Eisenhower's New-Look national Security Policy, 1953-1961*. New York: Macmillan Press Ltd, 1996.
21. Doughty, Major Robert A. *The Evolution of U.S. Army Tactical Doctrine, 1946-76*. Fort Leavenworth, Kansas: Leavenworth Papers, No. 1, August 1979.
22. Goldman, Emily O. and Leslie C. Elias on. *The Diffusion of Military Technology and Ideas*. Stanford, California: Stanford University Press, 2003.
23. Hillsman, Roger. *From Nuclear Strategy to a world without war*. Westport, Connecticut: Praeger, 1999.
24. Isaacson, Jeffrey. A., Christopher Layne and John Arquilla. *Predicting Military Innovation*. Santa Monica: RAND Arroyo Center Documented Briefing, 1999.
25. Leversedge, Colonel T.F.J. *Alternate Strategic Vectors for Canada's Air Force*. NSSC 6 Paper, Canadian Forces College, Toronto, ON, Canada, May 2004.

26. Metz, Steven. "A wake for Clausewitz: Toward a Philosophy of 21st Century Warfare". *Parameters*, Winter 1994-1995 : 126-132.
27. Mitchell, Paul T., "Programme de transformation des Forces Armées Canadiennes : L'influence intégrale." *Revue militaire canadienne*, Hiver 2003-2004: 55-62.
28. Murray, Williamson and Allan R. Millet, *Military Innovation in the Interwar Period*. New York: Cambridge University Press, 1996.
29. Rose, John P. *The Evolution of U.S. Army Nuclear Doctrine, 1945-1980*. Boulder, Colorado: Westview Press, 1980.
30. Snyder, Colonel Robert D. "Déjà Vu All Over Again: What Can Be Learned from Army Transformation 1953-1964?" National War College thesis, 2004; available from <http://www.ndu.edu/nwc/writing/AY04/eoyawards.htm>; Internet; accessed 15 September 2004.
31. Toffler, Alvin and Heidi Toffler, "What is the Third Wave?" available from <http://www.toffler.com/thethirdwave/default.shtml>; Internet, accessed 19 October 2004.
32. Ullrich, Heidi, *Effective or Defective? The G8 and Multilateral Trade Negotiations*. Essay delivered at the 2004 Annual Meeting of the International Studies Association Montreal, Canada March 17 – March 20, 2004; available from <http://g7.utoronto.ca/scholar/ullrich-isa2004.doc>; Internet; accessed 1 Oct 2004.
33. Wilson, John B. *Maneuver and Firepower: The Evolution of Divisions and Separate Brigades*. Washington, D.C.: Center of Military History, Army Lineage Series, 1998.