The Canadian Army Journal

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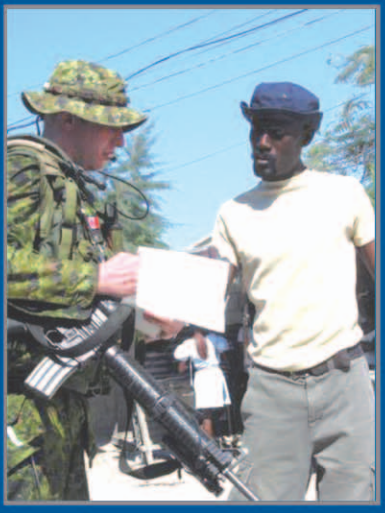

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FROM THE NEW MANAGING EDITOR

By Major Andrew B. Godefroy, CD, Ph.D.

I was both pleased and saddened to learn that Major Ted Dillenberg was hanging up his beret after over thirty years of service in uniform. I was pleased to have the honour of joining the ranks of those who have served as Managing Editor of the *Army Doctrine Training Bulletin* and *The Canadian Army Journal*. I was very saddened, however, to see Ted go. Although his time with the CAJ was brief, I want to thank Ted for his tremendous efforts and wish him the best in all of his future endeavours. I hope to see him become a regular contributor to the journal he helped build and know that he will keep a close eye on me as I take up the advance from here on.

As with Majors Grodzinski, Schreiber and Dillenberg, my intent is also to continue the improvement of the quality of intellectual discourse within the Canadian Army. Serving as a primary mechanism for this discourse, *The Canadian Army Journal* will continue as a focal point of educated debate, constructive criticism and informed opinion. Within these pages, you can expect to see a wide variety of relevant topics exploring and examining the past, present and future of the Canadian Army. In addition, the journal will seek to inform its readers of interesting developments in the armies of both its allies and its adversaries, providing a broad spectrum of topics in every journal.

This issue continues our coverage on recent operations in Afghanistan with two excellent articles, one by Lieutenant-Colonel Banks and the other by Lieutenant-Colonel Thurrot and Lieutenant Bailey. This is followed by an in-depth examination of remote sensing in urban operations by Mr. Fred Cameron and two further articles examining strategy and tactics from unique perspectives. Finally, Lieutenant-Colonel Robert Williams provides an historical lesson in success through his encouraging examination of the 85th Canadian Infantry Battalion at Vimy Ridge.

The book review section this month includes a plentiful examination of the "what ifs?" of war. Of the two review essays, the first, written by yours truly (and submitted before joining as managing editor!), examines the history of Canadian Army speculative fiction. This is followed by Lieutenant-Colonel P.J. Williams' excellent examination of three American war-gaming novels and a review of early American war plans by Mr. Andrew Young. Finally, two reviews examining Canadian military history join the ranks, giving us a healthy dose of potential future reading to choose from.

Aside from articles and reviews, this issue continues to report the latest developments from the various directorates within the Army, as well as including a new section that will examine emerging technological trends. Finally, the Stand Up Table continues to provide a forum for informed opinion and healthy debate, but it needs your input to remain so.

If you want to participate directly in shaping the Canadian Army, write an article or opinion piece and let your voice be heard. Do not be afraid to engage in debate, separate your ego from your words, and prepare to repel boarders. I remind you that this journal is yours, and its success depends on your participation. Thank you for your support and for the privilege of serving as your managing editor.

A PART OF OUR HERITAGE

HISTORICAL PERSPECTIVES

By Captain Steve Nolan

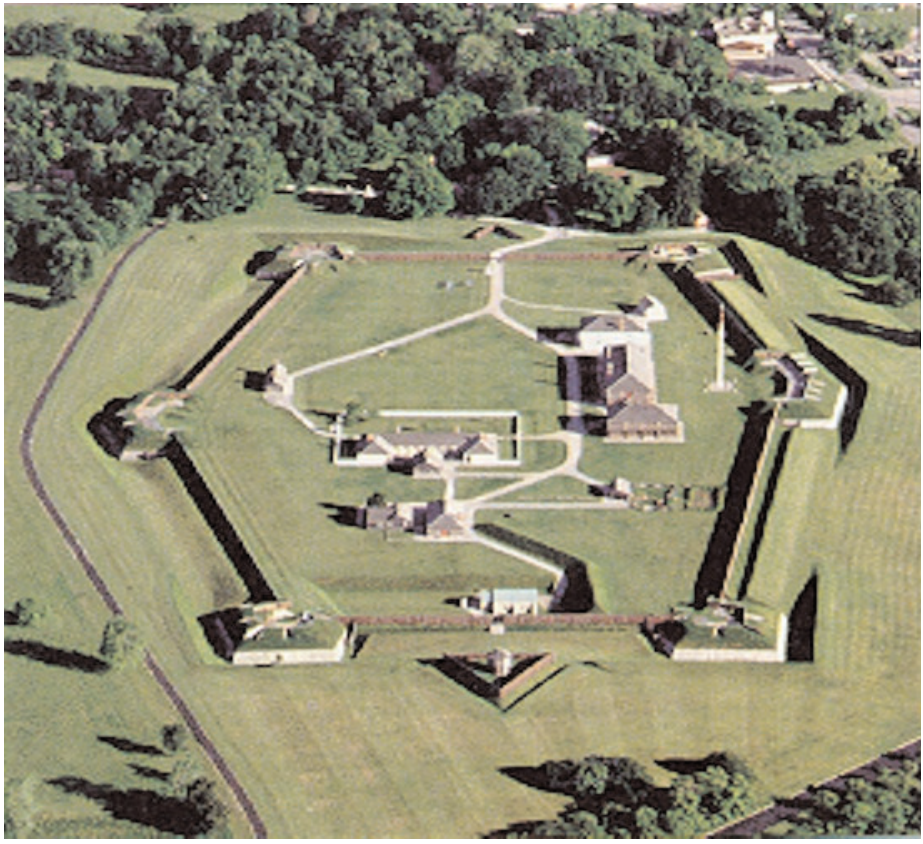


Figure 1: Fort George, Niagara-on-the-Lake, Ont.

I would like to take this opportunity to introduce a new format and direction for the *Part of Our Heritage* piece that appears routinely in the CAJ. In past issues this segment consisted primarily of pictures of old uniforms or photos of historical events with very brief explanations of the events.

The new direction for *Part of Our Heritage* will deal with a Canadian historical event and contextualize it to bring relevance to the reader. It has often been said that there are numerous lessons of military history that are valuable and valid to a modern professional study of warfare. Yet far too often the context—and thus the lesson to be learned—is lost because of the dry way that historical events are reported. Critical thinking and analysis of an event is essential to spark thought and open debate on the

actions and decisions of the past. This new format seeks to encourage further that analysis and debate.

It is with this aim of greater relevance in mind that we begin a brief examination of the installation of Fort George, which is located in Niagara-on-the-Lake, Ontario, a town near Niagara Falls. The fort was a key location in Upper Canada and was significant to the outcome of the War of 1812. An aerial view of the fort is shown in Figure 1: Fort George, Niagara-on-the-Lake, Ont.

Under the Treaty of Paris (1783) the British were required to hand over Fort Niagara to the newly independent United States. See Figure 2: Fort Niagara, Youngstown, NY, USA. In order to maintain their hold on the commercial activities of the Great Lakes the British built Fort George. This fort was built under the watchful eye of the enemy, the American forces then stationed across the river in upstate New York. Fort George was positioned to secure the key commercial and logistical route of Upper Canada, the Niagara River. The British recognized the strategic importance of the Niagara River, however.

Figure 2: Fort Niagara, Youngstown, NY USA

Fort George offered imposing control over the entrance to the Niagara River. However, in 1812, control of the river was not the fort's primary concern; its focus became the increasing threat of war from the American side of the river. The position that was chosen for the fort back in the 1780's was woefully exposed to the enemy and poorly sited to engage this threat. For example, of the numerous cannon positions in Fort George, only two of them could engage the enemy fortification across the river. The American position at Fort Niagara on the other hand, controlled the entrance to

the bay where Lake Ontario and the Niagara River meet. As well, Fort Niagara could control the key anchorage in the region giving it joint strategic relevance. Fort George's deficiencies were quickly exposed on May 25th 1813, when it was destroyed by gunfire from Fort Niagara. The British forces abandoned the remains of the fort and retreated towards Stoney Creek. The Americans occupied the town, rebuilt the fort and remained in Upper Canada for several months.

Eventually the forces of Upper Canada repelled the invaders and Fort George was considered a minor loss in a war that was eventually won by the British. The incident was one time during the war, however, when the eventual outcome was in question and stronger defence by Fort George might have ended the war sooner.

Is the lesson to point your guns at the enemy? As I see it, in most cases this is a sound idea; however this is not the main lesson to be learned in this example. The British built Fort George to influence the commerce at the mouth of the river and it did this very well. However, the commanders of the era suffered from what might be called "a lack of vision". They positioned the fort to be tactically decisive—it could protect the mouth of the river- yet because Fort George was not in a position to dominate the key terrain, naval routes and enemy emplacements, they also positioned it to be strategically irrelevant. The trade-off appears to have favoured securing commerce and logistics sites while sacrificing the ability to affect strategic outcomes.

As 21st century warfare moves away from large-scale conventional war towards the non-linear asymmetric warfare of recent conflicts, the emplacement of defendable, secure and strategically relevant camps is becoming increasingly important. The parallel to the early years of Canadian history is quite apparent—military fortifications extending in a vast network across large tracts of land, all placed in potentially hostile territory with vulnerable lines of communication—it could be Upper Canada or more recently Bosnia, Kosovo or Afghanistan. There are numerous factors influencing the emplacement of Canadian Camps. The need to be close to certain towns or key transportation nodes, or even the need to maintain a presence in certain locations could be valid considerations. Ensuring that a camp can defend itself and not become a modern repeat of Fort George should be primary amongst them.

The current fort is an impressive replica of the original, reconstructed in the exact location during the 1930's using the original blueprints. Fort George is operated by Parks Canada and located in Niagara-on-the-Lake, Ontario. It is open to the public from 1 April to 31 October, yearly. It offers informative and interesting tours that give a good sense of the location's historical significance as well as some insight into the conduct of warfare during The War of 1812, and yes, there is a military discount.

More information exists on the Fort George website at http://www.niagara.com/~parkscan/default.html

DIRECTORATE OF ARMY DOCTRINE UPDATE: TERMINOLOGY—SECURE OR SECURE?

By Lieutenant-Colonel S.D. McCluskey

If a commander is ordered to secure a building does it mean, "to gain possession of a position or terrain feature, with or without force, and to make such disposition as will prevent, as far as possible, its destruction or loss by enemy action?"[1] or does it mean to take out a ten-year lease on the building with an option to buy? If you guessed the latter, immediately seek another vocation. If you guessed the former, read on. Enough of the sophomoric attempt to pique your interest; the aims of this article are to inform you and seek your participation in the terminology process. Why is any of this important to military professionals?

It is important because understanding the lexicon of our profession requires precision terminology. On operations, young men and women step into harm's way in order to accomplish the tasks that they have been assigned. We owe it to them to ensure that our lexicon is widely understood and consistent. We accomplish the "widely understood" part of our obligation through efforts to ensure that doctrine contains only approved terms and definitions. Consistency, however, is more difficult to achieve. The ever-increasing pace of vocabulary change is due to the rapid evolution of global military transformation and evolving technologies. Terms like "non line of sight" and "beyond line of sight" became relevant when technologies began to permit targeting in these situations. Consequently, they are important because soldiers will need to understand their connotations and how each is to be applied in a theatre of operations.

It would be difficult enough if the Army only had to achieve terminology concordance within the Canadian Forces, but in fact it needs to do much more. The Canadian Army operates within coalitions and will continue to do so well into the future. Imagine the ramifications if the definitions of militarily-applicable terms varied from one NATO nation or coalition partner to another. Understandably, the Army shares a variety of authorized terminology databases and resources. To assist users who find themselves struggling for a term or a definition, the following resources are available:

Defence Terminology Bank (DTB)

The DTB is a tool managed by the NDHQ Directorate of Enterprise Architecture (DEA) in support of the Defence Terminology Program. The database is not completely populated; however, the ultimate goal is that this database will contain all CF terminology. http://img.mil.ca/terminology/.

Termium Plus

This tool is managed by the federal Translation Bureau and it supports a database for all terminology used/shared by federal government departments. It is a good tool, but users must appreciate that they will need to distinguish military from civilian terms. http://termiumplus.translationbureau.gc.ca/tpv2Show/termiumplus.html?lang=e2.

Army Terminology Repertoire (ATR)

The ATR is a tool managed by the Directorate of Army Doctrine Terminology Coordinator (DAD TC) and serves as a database of terms reviewed and supported by the Army Terminology Panel (ATP) and is the working directory to store evolving Army terminology. http://lfdts.army.mil.ca/dad/Terminology/term.asp?tree=sections&subtree=ATB.

NATO AAP 6

This is the database of approved NATO terms and definitions. Arms specific NATO AAPs also exist. http://www.nato.int/docu/stanag/aap006/aap6.htm.

Concise Oxford Dictionary (COD)

The COD is the default source for all definitions. If the required definitions do not exist in the COD or exist but are sufficiently ambiguous then definitions for the required terms are crafted for the appropriate terminology database.

Extant doctrine

Our extant doctrine contains terms and definitions that are not always included in a database. These terms are sometimes included in a glossary of terms.

Equally important as using these resources for approved terms and definitions is your participation in the terminology clarification process. Do you see terms being used by different people with apparently different meanings? Does this cause frustration and confusion? Support the process and provide them with the approved definition. If an approved definition does not exist then propose one. Submit your recommended term and definition with supporting rationale to the Director of Army Doctrine Terminology Coordinator, Ms Thérèse Lessard (lessard.tl@forces.gc.ca), Director General Land Capability Development (DGLCD). Subsequently, the Army Terminology Panel, chaired by myself and comprised of a half dozen or more LCols, several linguists and terminologists, will give serious consideration to all proposals and, if merited, seek the approval of DGLCD. Once approved the terms and definitions will be included in our Army Terminology Repertoire (ATR). Words and their usage affect our lives and those of our subordinates, so do a service for our Army: be one who adds clarity, not one who sows confusion.

END NOTES

1 NATO AAP 6, http://www.nato.int/docu/stanag/aap006/en/2004-s-e.pdf, 21 Jan 05.

DIRECTORATE OF LAND STRATEGIC CONCEPTS UPDATE: CRISIS IN ZEFRA

By Mr. Regan Reshke

In 2003 the Directorate of Land Strategic Concepts (DLSC) published *Future Force: Concepts for Future Army Capabilities* as part of its omnibus project aimed at providing recommendations on conceptual army development through to the year 2025. Last year DLSC prepared a companion publication to Future Force designed to further articulate and visualize concepts and themes explored in this publication.

The companion volume, *Crisis in Zefra*, is a fictional narrative written to illustrate emerging concepts and technologies that could become part of Canada's Army of the future. Set in 2025, the story follows what starts out as a routine patrol mission through the streets of war-torn Zefra, but the situation quickly degrades into a "three-block war."

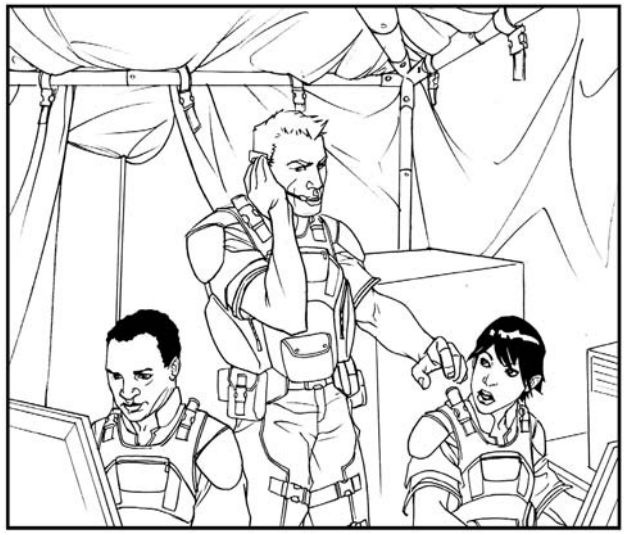
The aim of this publication is to stimulate both interest and debate on the conceptual development of Canada's Army. Readers are encouraged to refer to the Canadian Army publication *Future Force* when reading *Crisis in Zefra*, although it is not required to enjoy this publication.

Crisis in Zefra merely presents a fictional scenario and should not be quoted as an authoritative source for any detail of policy, doctrine, technique or procedure in the Canadian Army. Below is a short excerpt from this upcoming release:

> *At the same time as a warning indicator flashed across his Head Mounted Display, Sergeant Campbell heard a voice, "Patrol, be advised that the threat assessment has*

increased to level three." The voice wasn't Warrant Officer Desai's, but that of a Command computer located at Canadian Task Force Zefra Headquarters (CTFZHQ). The same message would be flashing out to every other patrol simultaneously.

Corporal Blackmore was speaking but Sergeant Campbell waved him silent. "What's up?"



"Recon shows heightened activity," said the computer. "Be alert to friendlies leaving your vicinity and anyone else arriving." Campbell frowned and turned to look behind the vehicle. Two sweating men were carrying a load of boards across the street amid the usual swirl of burkas and long modest dresses. Everything looked normal.

"Patrol, dismount," he ordered. "We'll take it on foot from here."

Campbell reached for the door handle-

And back at Ops, Warrant Desai's eyes widened as the mission aerostat's profile signature software found a match. "Sergeant!" she began-

As the figure of a man above the patrol holding a shoulder-mounted grenade launcher reared up next to a chimney-

And Campbell's HMD flickered. His eyes interpreted the flicker as a shape diving on him from the upper left so he instinctively ducked, and then there was light and noise everywhere and the dashboard came up and hit him in the face.

About the Author ...

Mr. Regan Reshke is the science and technology advisor for the Directorate of Land Strategic Concepts, Director General Land Capability Development.

THREE-BLOCK WARRIORS LEARNING FROM US INFANTRY TACTICAL LEADERSHIP IN AFGHANISTAN

By Lieutenant-Colonel Dave Banks, CD

"I don't believe in talking about 'winning hearts and minds.' We'll probably never really do that. But we can earn their trust, and we have to. Without that, our mission is impossible."

–US Army infantry officer, southern Afghanistan, January 2005.

"Semper Gumby"

–US Marine infantry squad leader, southern Afghanistan, January 2005.

FOREWORD FROM THE AUTHOR…

I owe a debt of gratitude to the commander, officers, NCOs and soldiers of Combined Joint Task Force 76, in particular to those serving in the infantry battalions of Task Forces THUNDER and BRONCO. Despite being engaged in a demanding and busy operation of huge scope, one which has seen a number of their comrades killed or injured, they made time for me and my questions. At no time was I ever made to feel like that bane of all field commanders, the "military tourist." The answers and opinions these leaders offered me were frank, insightful and freely given.

The work of preparing this article reminded me once again of that universal brotherhood of soldiers, especially those of us in the infantry. Whether active Army, Army National Guard or Marines, I found much in these men that Canadian soldiers would readily identify with. It was a great honour to share some time with them. This is their story. I hope I have told it well.

INTRODUCTION

All armies will change for better or for worse. Some change in time to successfully meet the challenges that confront them; others do not. Caught in the midst of our own Army Transformation after a decade of intense operational tempo, Canadian soldiers know this all too well. Other armies recognize it too. The US military is changing as you read this, and I had the good fortune to be able to observe one crucible of these changes at close hand. From August 2004 until February 2005 I was employed as ISAF's Land Liaison Officer to Combined Joint Task Force 76 (CJTF76), the US-led coalition force conducting Operation ENDURING FREEDOM (OEF) in Afghanistan. After a few weeks in the headquarters, listening to reports and looking at maps, I began to suspect that the soldiers of CJTF76, particularly the infantry junior leaders assigned to the regional brigade task forces (TFs), were developing innovative methods to tackle the operational challenges facing them, and developing these methods in a way that merits the attention of all other armies, not least our own.

Bank, LCol Dave, 'Three Block Warriors Learning from US Infantry Tactical Leadership in Afghanistan' Canadian Army Journal Vol. 8.1 (Winter 2005), 10-23.

For too long, many of us in the Canadian Army have regarded the US military as a force better known for its massive, tightly synchronized operations based upon high technology, overwhelming firepower and sheer mass than for its development of unique, innovational low-level solutions to tactical problems when resources are limited and conditions unique and demanding of thinking "outside the box." Many of the operations taken in stride daily by conventional US light infantry units in Afghanistan are those we might assume would be done only by US SOF or Ranger elements. We would be quite wrong to make such an assumption, as I found out.

The purpose of this article is to relate to Canadian soldiers just how the junior infantry leaders of CJTF76 have achieved operational success in a manner that should shatter some dearly held, but very misguided, ideas about our allies to the south. I believe that, as an infantry-based force, and one whose commander has now focused us squarely on preparing for the "Three-Block War" (3BW) instead of the Cold War, the Canadian Army would do well to pay close attention to what has happened in the hills and valleys of southeastern Afghanistan. What can we learn?

METHODOLOGY

To prepare this article, I spoke with approximately fifty infantry officers and NCOs at squad, platoon and company level from two of CJTF76's regional task forces: TF THUNDER in the northern and eastern portion of the area of operations (AO), and TF BRONCO in the south. I was given generous access to soldiers with current experience in the full range of operations that CJTF76 was engaging in: combat, stability and support operations (SASOs) and "nation building / humanitarian." In other words, true three-block warriors.

Many of the operations taken in stride daily by conventional US light infantry units in Afghanistan are those we might assume would be done only by US SOF or Ranger elements. We would be quite wrong to make such an assumption, as I found out

While I cannot claim statistical accuracy, I believe that what these men had to say is indicative. Although our conversations were based on a set of prepared questions, they were free ranging and refreshingly candid. In the beginning, I had originally thought to subdivide this article into separate sections on the experiences of the Army Reserve National Guard (ARNG), the active Army and the US Marine Corps (USMC). Partway through the interview process, I realized that the observations and opinions of these officers and NCOs were so consistent, across component and even TF boundaries, that such a division would make no sense. Instead, I have presented my findings under the headings of "Officers" and "NCOs." Even then, there are threads of commonality and concurrence linking the two sections.

THE SITUATION

On its arrival in Afghanistan in early 2004, 25 Infantry Division (Light) (-), the core force of CJTF76, found itself extensively engaged in "kinetic" operations, either specifically combat or "hard" SASO. The focus was clearly on the enemy forces—Al Qaeda, Taleban, HiG—and on establishing conditions of physical security. This was obviously

the third or "warfighting" block of the 3BW construct. By the time I arrived in August of 2004, great successes had been achieved in limiting the freedom of action and the area of influence of the enemy, and an increasing emphasis was being placed on the other two blocks: lower-intensity or "soft" SASO and humanitarian or even "nation building" operations. At the same time, combat operations were ongoing on an "as required" basis.

As I completed this article, the commander of CJTF76 had already long ago announced that OEF was moving into a phase in which it had become crucial to fight only those opponents who needed to be fought, to marginalize others and to begin the process of returning the remainder to normal civil life through a reconciliation process. Underlying this guidance was the need to develop the "Afghan capacity": the ability of the Afghan people to govern themselves, to develop their own solutions and to manage their implementation with less and less dependence on the forces of OEF. The focus had shifted to the Afghan people, in many cases with Afghan security forces leading or participating in operations. Implementing this guidance placed the emphasis of the soldiers of OEF on blocks one and two. However, nothing in war is ever quite so neat as all that, and as the officers and NCOs frequently explained to me, transition from one block to another could occur suddenly and not necessarily in a sequential manner.

Like the Canadian Army, the US Army and the USMC pride themselves on having a backbone of capable, professional NCOs

In order to execute its mission in Afghanistan, CJTF76 deployed two manoeuvre brigades, each of three light infantry battalions with supporting elements. These battalions were drawn from the active Army, the ARNG and the USMC. The size of AOs covered by these brigades gives some indication of the challenges they faced. Task Force THUNDER's AO was roughly 750 km on its long axis NE to SW, and approximately 450 km NW to SE. The terrain in this AO varied from broad upland plain to extremely rough alpine areas of massive elevation. Task Force BRONCO's AO spanned approximately 800 km NE to SW by about 400 km NW to SE. The terrain in this AO ranged from very mountainous in the NE to desert plains in the vicinity of Kandahar. A third regional task force, based on a light cavalry squadron, covered western Afghanistan against the Iranian border.

THE NCOS

Like the Canadian Army, the US Army and the USMC pride themselves on having a backbone of capable, professional NCOs. In operations such as those being carried out under OEF, the NCOs, in particular the squad leaders (equivalent to our section commander) and the platoon sergeants (equivalent to our platoon warrant officer) are linchpins in the system: they are the leadership "rubber" that meets the Afghan "road."

While US NCOs are generally somewhat younger than their Canadian Regular Force Army counterparts, and in some cases not quite as broadly trained in a formal "school" sense, the ones I spoke to lacked nothing in terms of operational experience, self-confidence or ingenuity. They perceived their roles as leaders and trainers clearly, and in most cases, they demonstrated a clear understanding of the "big picture" as well as of the consequences of their actions to the success of OEF. They understood, whether

through training or inherently, how the concept of effects-based operations worked and the importance of their actions in it.

The great majority of squad leaders I spoke to related impressive examples of the degree of autonomy required of them. The feature that struck me first was the geographic dispersal involved in their operations. Squads are often working at distances of 5-30 km from their platoon headquarters. One squad leader described conducting a task 125 km from his platoon commander, which his peers commented was a thing not unheard of. Several squad leaders related that they might in turn break their squads down into teams, with these sub-elements then operating out of their sight.

In all these situations, the squad leaders reported that while they could normally (but not always) communicate[1] with their platoon commanders, immediate decisions fell to them on the spot. They did not have the luxury (nor perhaps the constraint…) of their officer being a few hundred metres away. In all cases, these NCOs were quite comfortable with this autonomy, and one group of squad leaders told me that they felt they could do more still, given the chance.

Along with this autonomy produced by dispersion came the responsibility for larger and more diverse organizations than most squad leaders believed they had been formally trained for. All NCOs told me that it was very common to conduct patrols with attachments of all sorts, sometimes to the point that they were leading more attached personnel than their own organic strength. These attached elements might include:

- civil affairs, i.e., civil-military cooperation (CIMIC) pers;
- psychological operations (PSYOPS) pers;
- information operations (IO) pers;
- forward observation officers (FOOs);
- forward air controllers (FACs);
- combat engineers;
- explosive ordnance disposal (EOD);
- military police;
- support weapon teams (MG squad, anti-armour squad);
- Afghan National Army (the regular army) and Afghan Militia Forces (local forces);
- Afghan National Police (equivalent to RCMP); and
- National Directorate of Security (similar to US FBI).

Importantly, these young squad leaders were quite clear that despite all these attached personnel, they remained "the boss" of their operation, a further example of the autonomy accorded to the squad-level NCO. While operating at a considerable distance from their immediate commanders, with a number of diverse attachments

under their control, the squad leaders often faced a third challenge that required considerable freedom of action on their parts: the ever-changing nature of their task.

Universally, squad leaders described situations in which they departed their forward operating base (FOB) to conduct a particular type of mission, let's say a "snap" vehicle check point (VCP)—clearly a second block operation. En route to the area of the task, they might come under contact,[2] requiring an instant transition to kinetic operations (which they equated to the third block). Recovering from the contact, the patrol would carry on but find itself in a village where humanitarian aid was clearly needed, and duly administered, bringing the squad leader and his men to the first block. Completing their humanitarian aid distribution, they would finally carry out their VCP task.

This rapid transition from one block to another is a feature of OEF even at this mature stage of operations and will probably remain so for some time. To lead effectively at his level under these conditions, the squad leader definitely requires a degree of autonomy. My impression was that the NCOs I spoke to had it and knew how to use it.

Concurrent with this autonomy was a sense of responsibility much in keeping with a professional NCO corps. All appeared to understand the concept of the "strategic corporal" (although some had not heard the term) and were able to explain to me in clear terms how important the consequences of their actions were to the overall success of OEF. Foremost among these consequences was the reaction of the Afghan people to their operational techniques: all the NCOs concurred in the opinion that a squad leader needed a solid understanding of local culture and, if possible, language as well. Interestingly, most felt that their pre-deployment training in these areas had been inadequate—a comment that we frequently hear in our own Army as well.

To lead effectively at his level under these conditions, the squad leader definitely requires a degree of autonomy

Further to the issue of language and cultural training was the statement, also widely concurred with, that a squad leader needed an interpreter, or at least reliable access to one. Two examples (among others) were given to support this. In one case, a squad leader related a situation in which his platoon commander took the only available interpreter into a meeting with local authorities, leaving the security squad leader and his men on watch outside. As they stood out in the street, locals (especially children) approached and attempted to communicate with them. Without an interpreter, this was next to impossible. This example resonated wherever I related it. All agreed that valuable HUMINT was likely being lost in this manner as well as sterling opportunities to build connections with locals.

In the second case, a squad leader described the serious difficulties in trying to conduct a cordon and search task or a VCP without an interpreter on hand. In this case, the issues were less the "soft" type related above but more the need to avoid danger and possibly fatal misunderstandings. Once again, his peers across the TF agreed regardless of cap badge.

The question of what sort of training was needed to be an effective squad leader in OEF provoked more diverse responses but, once again, not without a certain consistency. In general, the NCOs felt that while their formal "schoolhouse" training as well as their pre-deployment training had given them a sound basis from which to operate successfully, there were a number of areas that required greater emphasis. I found it interesting to note that the NCOs were, in general, far more approving of the value of their previous training than were the officers (see below). This tends to suggest that the current system for training infantry NCOs in the US Army and USMC is at least basically sound and certainly imparts some useful tools and traits.

Common to almost all the responses was the importance of training a squad leader to be as flexible and adaptive as possible, simply because there was no way of knowing what challenge might be faced next. One Marine NCO used the term "*Semper Gumby*," a saying we know too well in our Army. A number of NCOs commented that they needed to have more training scenarios that realistically recreated the uncertainty and confusion they had to contend with, in other words, there was a feeling that in some cases training situations were too stereotyped and insufficiently challenging. This need for flexibility appears to fit well with the autonomous nature of the job. One Army NCO stated that he now held his Ranger qualification in high esteem, whereas previously he had doubted that he would ever really make use of the skills he had learned on that course.

Another consistent view was the observation that all ranks, right down to the most junior private soldier, needed to display a higher level of awareness and initiative than might normally be the case in conventional operations. A Marine squad leader expressed it by saying that he required all his men to be "on their game" at all times and to be capable on their own of "turning the volume up or down." By this he meant that he relied on his men to know what sort of action or reaction each situation required—things might develop too quickly for him to be able to explain everything to them. A number of squad leaders commented on the importance of their subordinates being able to assume leadership positions in an emergency, including the need for privates to be ready to command the squad. Several stated that they actively worked to develop this ability in their soldiers.

I found it interesting to note that the NCOs were, in general, far more approving of the value of their previous training than were the officers

Since all the NCOs I spoke with were from light infantry organizations that had been adapted to conduct mounted operations (normally with high mobility multipurpose vehicles-wheeled [HMMWVs]), it was no surprise that there was great consistency in the recommendations related to the use of vehicles. There was unanimous agreement that all squad and platoon members needed to be able to drive whatever type of vehicle was being used, to be effective signalers with all issued communications systems and to be able to fire all mounted weapons (these generally include the M240, the Mk19 ASW and the .50 cal heavy machine-gun). Those soldiers in "hard" driver positions needed to have additional maintenance training in order to keep the heavily used vehicles serviceable and to be able to do running repairs when the squad or

platoon was operating at a long distance from unit maintenance and recovery resources. One NCO stated that in his platoon, he now had several infantry soldiers, with improvised toolboxes, fulfilling the role of "platoon mechanics."

As well as the business of operating the various vehicles and equipment found in their organizations, the squad leaders were quite vocal in insisting that more and more realistic mounted operations training was needed. In particular they singled out counter ambush and counter improvised explosive device (IED) drills (sometimes a pretty fine distinction, as ambushes are often initiated by the triggering of an IED), actions on coming under effective fire (as opposed to an ambush) and drills in the event of a vehicle rollover (not uncommon on the terrible roads of Afghanistan). Several NCOs mentioned that there was a need for very realistic ambush ranges or "lanes," in which all the sights, sounds and sudden confusion of an ambush were simulated. One squad leader suggested that simmunition might be used to replicate the "plinking" of small arms rounds off the skin of the up-armoured HMMVW—often one of the first indications of an ambush.

Another consistent view was the observation that all ranks, right down to the most junior private soldier, needed to display a higher level of awareness and initiative than might normally be the case in conventional operations

While (surprisingly!) we did not get into a detailed discussion of infantry tactics, one squad leader (well supported by his fellows) stated that given the elusive nature of the enemy, it was a mistake to rely constantly on the use of flanking attacks. He offered that during the time required to develop the flanking and press home the assault, the enemy would more than likely slip away. He claimed that it was sometimes better to put in a hasty frontal, with heavy fire support, accepting the advantages of shock and speed over the risk of entering the enemy's most likely field of fire. This is an observation we might do well to consider in our own tactical training.

On a related note, a number of NCOs commented on the importance of live fire training as preparation for an operation such as OEF. While they recognized the value of the Multiple Integrated Laser Engagement System (MILES) battlefield offered at Joint Readiness Training Center (JRTC) Fort Polk, they were equally clear that nothing replaces live fire training. This parallels similar discussion in our own army, particularly as we approach the opening of Canadian Manoeuvre Training Centre (CMTC) at Wainwright in the near future.

Other skill sets that were identified by NCOs as essential included:

- Training in the use of non-lethal force techniques, such as asp batons, in dealing with disorderly situations, as opposed to using a rifle butt or resorting to lethal force. This observation echoes a debate familiar in our own Army: that of the proper role and means of non-lethal force in operations. One squad leader recommended the use of a training vignette in which a humanitarian aid distribution operation becomes a disorderly crowd scene, forcing the squad leader to correctly assess the situation and apply the appropriate level of force.

- The ability for squad leaders to call down and to adjust indirect fire and close air support (CAS).

♦ The importance of all ranks being able to rapidly assess a situation, then correctly use the available communications gear to make a timely, concise and accurate report to higher HQ. The NCOs pointed out that not only were such reports vital in themselves, but they also tended to keep higher HQ "off your back." Every Canadian infantry leader can identify with the problem of the "sponge"-like higher HQ, always demanding just one more thing while you're trying to fight a battle.

♦ The importance of a robust lifesaving capability at squad and platoon level. There was universal agreement (much as in our own infantry) that every soldier must be a well-trained combat lifesaver, that at least one soldier per squad should be trained to emergency medical technician (EMT) standard and that one medic per platoon was an absolute requirement not a luxury. In common with many of their Canadian infantry comrades, these NCOs were also clear that morphine needed to be at squad or, at the very furthest away, platoon level not locked up back with the unit medical station or the company medic.

♦ Civil affairs (CIMIC) training was rated surprisingly high by these combat leaders. By civil affairs, the NCOs meant the important business of building a strong, trust-based relationship with locals, through fair and firm actions as well as by judicious humanitarian operations. Most of them had done joint patrols with CA teams, so they were quite familiar with the functions of the civil affairs branch at the lower levels. This viewpoint might be favourably contrasted against the attitudes of some Canadian combat arms leaders, who seem to view CIMIC as an unnecessary appurtenance or a way to employ reservists.

♦ HUMINT training; in particular the ability to do what several NCOs described as "basic questioning and analysis." This suggestion will probably inflame purists in the intelligence world, but it must be appreciated that it is driven both by the dispersed nature of the operations these NCOs were conducting along with the sometimes fleeting nature of opportunities to gather HUMINT.

♦ The value of active Army NCO trainers, with current theatre experience, being involved in an ARNG infantry unit's pre-deployment training. While this may be a practice elsewhere in the US Army, the particular ARNG unit I visited had not had this benefit, and its NCOs stated that it was sorely missed. Unlike the Canadian Army reserve, there are no active Army personnel on the strength of the ARNG at unit level; full-time billets are filled by ARNG personnel on active service, much like our Class B reserve duty. However, speaking from my own perspective as COS of an Army reserve brigade that has contributed soldiers for several overseas missions, I can fully sympathize with the need for adequate regular Army training support, particularly when mounting time is short.

Finally, and perhaps most significantly of all, I was struck by the frequency with which the NCOs, squad leaders and platoon sergeants alike mentioned the importance of trust in their subordinates. They were quite adamant about this human trait. The dispersed, unpredictable nature of the operations, the rugged terrain and harsh climate and the alien culture all placed added demands and stresses on the squad members, making trust between ranks that much more important. Several NCOs discussed different ways to build this trust (which they acknowledged had to be a two-way street), and many expressed that they had great trust in their men, even to the most

junior soldier. A USMC squad leader summed it up when he told me: "My men know their jobs, and they want to do them. You just have to let 'em."

THE OFFICERS

My discussions with officers were focused on platoon and company commanders, although I was able to speak to a few holding other appointments. A US infantry rifle platoon is normally commanded by a second-lieutenant (2Lt) with approximately the same experience level and training as his Canadian equivalent. The US Lt is normally employed as the executive officer of a company (equivalent to our company 2IC). An infantry company is commanded by a Capt, who mostly appeared to me to be about the same age as our company 2ICs. Again, training is roughly similar. It goes without saying, however, that the level of combat experience is now considerably higher in the US military than it is in our own, much offsetting the relative youthfulness of these officers.

My overall impression was that these officers, while thoroughly dedicated and professional, were much more critical of their previous formal training than were the NCOs. While most agreed that their "schoolhouse" training had given them a good basic toolbox, there was a widely voiced concern that it was becoming outdated or, as one officer said, "one war behind." Some said their formal training was too heavily focused on lessons learned from Korea or Vietnam, while several stated that SASO was only being paid lip service in formal training.

Given the very dispersed and unpredictable nature of their operations, one officer stated that "sometimes intent is all you have to go on."

The AOs assigned to some of these officers were staggering in size when compared to "doctrinal frontages": one company commander reported an AO of 5600 sq km, while several platoon commanders stated that they had spent days at a time at a distance of 25-30 kms or more from company HQ, with squad patrols radiating out well beyond that. In one case, even the commanding officer of headquarters company (equivalent to our OC administration company) stated that his company had been assigned an AO, in which he conducted patrols using his support soldiers.

Much as in the case of the NCOs, the officers had become well adapted to a high degree of autonomy, under which the importance of higher commander's intent had assumed much greater dimensions than they had ever imagined. Relying on intent was mentioned to me on a number of occasions, and one officer commented that all ranks needed to understand intent two up. Given the very dispersed and unpredictable nature of their operations, one officer stated that "sometimes intent is all you have to go on."

One aspect of their experiences that I found surprising was the degree of responsibility for planning of operations accorded to platoon commanders, to a great extent because of the dispersed nature of their operations. One platoon commander stated that he was "his own S-3" (equivalent to operations officer)[3]. He described gathering intelligence from local sources, then planning within the higher intent he had been

given. Once the concept of operations was developed, he then carried out his own coordination with other US military and non-military agencies, as well as Afghan National Army (ANA) / Afghan National Police (ANP) / National Directorate of Security (NDS). He would then lead the operation himself, often with attached elements of various types (see above for typical attachments). He stressed that while he was accountable to his company commander, he was responsible (and expected) to make decisions on the spot. Further to this, the sizes of organization commanded by these young officers often reached considerable proportions: one subaltern described commanding an operation of 60 personnel (of various types), while another mentioned an operation 90 strong.

With respect to the issue of intelligence at this level of operations, I was interested to note the huge importance that leaders placed on HUMINT as opposed to other types of intelligence. Officers and NCOs alike stressed the need to collect and analyze HUMINT at the lowest possible level. Apparently, HUMINT is readily available from locals of all descriptions, provided that the leader has a good relationship with them as well as a capable translator. In fact, the respect for locally acquired HUMINT was so high that one officer (to the approval of his peers) commented with words to the effect of: "most of the Intel that comes from higher is not much use to us." This is possibly an exaggeration, but it serves to point out that even in a force as well-endowed with the complete range of sophisticated collection systems as CJTF76 clearly was (including an impressive reach-back to other sources), tactical leaders still placed great reliance on information that they and their soldiers had gathered themselves. This observation is further linked to the importance that the officers placed on understanding the locals and building a relationship of trust with them. One experienced officer, somewhat more senior than the rest, when asked what he felt his greatest leadership challenge was, said words to the effect of: "I don't believe in talking about 'winning hearts and minds.' We'll probably never really do that. But we can earn their trust, and we have to. Without that, our mission is impossible."

Officers clearly demonstrated their understanding of effects based operations

Time after time, the importance of good relations with locals, even to the point of making profuse apologies for relatively minor issues, was emphasized by the officers I spoke with. Instrumental to establishing this good relationship were respect for local customs and sensitivities, the ability to speak at least some words in Pashto or Dari and the creation of trust. Politeness and patience were accorded great importance. Once the locals felt that the US forces could be trusted, they would begin to provide information leading to the discovery of caches, to the arrest of enemy operatives or to the frustration of plans such as IED emplacement. Without trust, none of these things might ever be revealed.

Officers clearly demonstrated their understanding of effects based operations. They all grasped the consequences of their actions, in particular the bad after-effects of unnecessarily aggressive search techniques. The "soft knock" technique to cordon and search was gradually replacing the "hard knock" approach, although resort to the latter was swiftly available if required. This observation resonates well with our own

experiences in the Federal Republic of Yugoslavia (FRY), Somalia and most recently Kabul. However (again much like our own concerns), one officer admitted to wondering if too much reliance on "soft knock" operations vice "hard knock" or even "kinetic" operations was not in effect ceding ground to the enemy by allowing them too much freedom of action amongst the populace. He was the only officer who voiced this concern (although it certainly appeared to be a valid one), which led me to the conclusion that the majority of officers embraced the "hearts and minds" approach, even if some of them did not want to call it that.

The business of building a strong relationship with locals was clearly placing unforeseen demands on these junior officers, although they appeared to have risen well to the meet the demands. More than one officer stated that sometimes he "felt like [he] was the mayor." The commander of a reconnaissance platoon[4] described himself as having to interact constantly with the locals and as wearing "many hats: civil affairs, ETT [embedded training team], local police…"

Most platoon leaders had participated in, or led, village meetings, some of which grew to large size. The majority related that there was a strong expectation on the part of the locals that the US officer could "do anything" in terms of satisfying their needs. Accordingly, these officers had learned to be cautious in appearing to make promises or commitments and seemed to be well aware of the danger of being taken advantage of. When I related some of my own similar experiences in FRY, there was immediate recognition around the table.

The issue of mission-specific training generated enthusiastic discussion, with many recommendations being identical to those made by the NCOs. A summary of the points raised by the officers includes:

♦ The need to train officers to function under conditions of chaos and uncertainty. Training scenarios must be unpredictable rather than "checklist" or "stereotyped." A number of officers commented on the degree to which "grey areas" or uncertainty were features of their operations.

♦ The requirement to train light infantry officers to conduct mounted operations. All recognized that moving from the more familiar "foot borne" role to motorized operations (particularly in the dispersed and unpredictable conditions they were faced with) had confronted them with challenges they had not thought of. Most said that much more emphasis was required on mounted patrolling and ambush drills.

♦ The importance of platoon leaders being ready to deal with local authorities on contentious issues, to lead meetings and to interact with locals on a number of levels.

♦ The need to strike a better balance in training between conventional combat and SASO. While all agreed that combat training provides an absolutely necessary basis for all other skills, there was a widespread feeling that more SASO training was required in the "schoolhouse" setting. This, of course, directly parallels the same argument in our own army, with the proponents of "warfighter" and "peacekeeper" training engaged over just where the saw-off should be in the always-limited formal course time.

♦ The importance of officers at platoon and company level understanding the maintenance and supply systems as they function in a battalion was mentioned on several occasions. Clearly, this need is driven by two factors: the dispersal of sub-elements far from the battalion support elements and the unfamiliar burden of being fully motorized.

In leaving the officers, I want to highlight a particularly reassuring trait: the degree of respect these officers manifested for their NCOs. While I believe the officers spoke frankly with me and did not fail to point out weaknesses where they saw them, they never once expressed the slightest reservation about the qualities or abilities of their NCOs. A number explicitly stated that they placed great trust in their NCOs, and almost all related the conduct of operations that evidently could not have been successful were it not for able NCOs who could function with minimum supervision. This faith in their noncommissioned leaders would be readily recognized and shared by Canadian platoon and company commanders and points out the "force multiplier" value of a professional NCO corps.

SO WHAT?

While all of these revelations about our US brethren and their operations in Afghanistan are certainly interesting, what value might they hold for us? After all, we are a much smaller army (the deployable portion of our army being smaller than CJTF76 itself), our traditions and practices are quite different from those of either the US Army or Marines, and, just at the moment, we are not directly involved in a warfighting operation. So what?

I believe that the experiences of the infantry soldiers of CJTF76 can serve as a validation for some of our own beliefs about what is important in preparing our Army for 3BW, as our commander has directed us to do. They can equally serve as warnings to us not to become complacent. We do not "have the corner" on small unit operations. There are many observations and recommendations I could make, but I will focus on only a few.

On the positive side, as small and (relatively) impoverished as we might think ourselves, it appears that we are not far off the mark in some areas. We have long believed in the vital importance of the independent-thinking, experienced and well-trained NCO, especially in the section commander role in these types of operations. Based on the experiences of US infantry leaders in Afghanistan, we are correct in this belief, but we must be cautious not to rest on our laurels. We need to keep working on the development of our NCOs, to ensure that they remain well trained and confident in command. We probably need to vary their training, both formal and unit, to introduce more elements of uncertainty and unfamiliarity and to strengthen their ability to command and control larger and more diverse elements.

Further to our favour, we have always been practitioners of the idea that our soldier, particularly (but not exclusively) our infantry soldier, must be a broadly trained and versatile individual. A product of our very small size, I am sure it has been a force multiplier for us. Cross-training, or training in several sub-specialties, has deep roots in our Army. As our US friends have found, it is of vital importance, particular in the 3BW environment. No doubt we will see more of it formalized in their Army. We

need to avoid or reverse any trend that narrows the skill sets of our soldiers, particularly those of our NCOs.

Finally, our small size, low funding and inability to rely on mass or crushing firepower have always driven us to concentrate on training at the lower end of the tactical scale. Without doubt, we have done well in that arena. Indeed, it has probably been a great contributor to the NCO qualities I mentioned above. The CJTF76 experience of great and unforeseen demands being placed upon companies and platoons indicates to me that we need to maintain that focus. Recent moves in our Army Transformation have made it clear that we will formalize this emphasis on sub-unit operations, as future deployed task forces will be built up "plug and play" from selected companies, squadrons and batteries. The ability of these sub-units to train together prior to deployment may be limited, so the better trained, more cohesive and more self-sufficient they are, the better.

With respect to our junior officers, I echo my comment above concerning NCOs. After having spoken to the officers of CJTF76, I believe that, as much as possible, we need to move away from "checklist" type training tasks for our junior officers and emphasize the ability to come up with working solutions in confusing and unclear circumstances, with the emphasis on the effectiveness and practicality of the solution, rather than on procedure. I recall going through Army Staff College in the early 1990s and being told by the DS that what the college was really interested in was teaching "process" and that the likelihood of success of any student solution was secondary. To me, that approach to training leaders verges on irrelevance, if not negligence. What matters is whether or not a plan works within commander's intent—period. While officer training can put the tools in the leader's toolbox, that must be regarded as a very basic first step. Whether in the later stages of the school of arm or branch, or in unit training, we need to demand that our junior officers function effectively in conditions of chaos,[5] "grey areas," and confront them with situations in which they cannot rely totally on "the book" nor turn to their company commander for guidance.

We have always been practitioners of the idea that our soldier, particularly (but not exclusively) our infantry soldier, must be a broadly trained and versatile individual

Company commanders, in their turn, should be taught to be comfortable with extreme dispersion, such that their platoons and even their sections are functioning autonomously for lengthy periods. Given the strong concentration of years of experience that exist in a Canadian company HQ,[6] this should not be difficult. In fact, some of our recent overseas operations in FRY and elsewhere have contributed to our ability to achieve this.

Perhaps taking a page from the book of the interwar German Reichsheer, we need to work harder on ensuring that all ranks, including private soldiers, are confident in taking command at least one level above their own. Although we certainly preach this concept, it will probably not be until we see the "leader slaughter" on the laser battlefield at CMTC that we will realize how important this capacity is on operations.

Finally, the experiences of the infantry leaders of CJTF76 have pointed out the timeless importance of human traits such as flexibility, the ability to understand and respect other human beings (without letting one's guard down), willingness to innovate and, perhaps most basic of all, trust. It is surely significant that the infantry soldiers of a military force as large, powerful and technologically advanced as that of the United States not only have not forgotten the value of these traits, they swear by them. And so should we.

About the Author…

Lieutenant-Colonel Dave Banks (PPCLI) is presently serving as Chief of Staff of 38 Canadian Brigade Group, headquartered in Winnipeg, Manitoba. He served on Op ATHENA from August 2004 until February 2005 as the ISAF Land Liaison Officer to CJTF76.

END NOTES

1. Situational awareness in companies and at battalion is maintained by means of a combination of tactical radio, tactical satellite phone, commercial satellite phone and the use of Blue Force Tracker (although not all vehicles in a platoon are equipped with BFT).
2. It could be argued to what extent "coming under contact" constitutes a transition to the third block. However, if you are the one being shot at and commanding the counter action, that is a fairly academic argument.
3. Actually a senior NCO, whose comments are included here because he was employed in a platoon commander role.
4. Some cynics might say we already have the chaos part down.
5. Considering rank and years of service, considerably more than most US companies.

OPERATIONS APOLLO AND ATHENA: A BREAK FROM SUSTAINMENT DOCTRINE

By Lieutenant-Colonel C.C. Thurrott and Captain R.A. Bailey

INTRODUCTION

Since the commencement of the international campaign against terrorism, Canada launched two land force missions to the war-torn country of Afghanistan. The first was part of Operation (Op) APOLLO and deployed in November of 2001. This comprised of 750 soldiers of the 3rd Battalion, Princess Patricia's Canadian Light Infantry Battle Group (3 PPCLI BG). A forward support group (FSG), comprised of personnel from 1 Service Battalion (1 Svc Bn), was deployed to provide combat service support (CSS). This force deployed to Kandahar, Afghanistan, and became an integral part of Task Force (TF) Rakkasan, an American formation built around the 187th Brigade Combat Team. As part of the TF, the BG's tasks ranged from providing local defence of the airfield in which they were situated to combat missions in the rugged countryside of Afghanistan.

The second mission to Afghanistan was Canada's contribution to the International Security Assistance Force (ISAF) in Kabul, Afghanistan—Op ATHENA. The original force of approximately 1900 soldiers deployed from Canadian Forces Base (CFB) Petawawa in August of 2003 and comprised of the 3rd Battalion, The Royal Canadian Regiment Battalion Group (3 RCR Bn Gp), a national support element (NSE) generated by 2 Service Battalion (2 Svc Bn) (with augmentation from across 2 Canadian mechanized Brigade Group [2 CMBG]), a national command element (NCE), and specific personnel tasked to both ISAF HQ and the Kabul Multinational Brigade (KMNB). This mission has since been taken over by similar organizations out of 5 CMBG. The role of ISAF is to provide security for the Capital region of Afghanistan until such time the Afghan Transitional Authority is able to build a national security structure.

The sustainment models that were developed and employed on Ops APOLLO and ATHENA warrant examination by all professional logisticians in order to illustrate the use of non-doctrinal approaches to sustaining military operations. A tenet of the design process was that flexible thought might yield flexible response. The sustainment process outlined in B-GL-300-004/FP-001 *Land Force Sustainment* provides a clear and easily understood system that describes the projection of materiel and services from the national resource capability to the deployed soldier[1]. However, a conflict may arise between understanding the doctrine and implementing this process in a non-contiguous multinational environment. The sustainment paradigms supporting CF personnel in Afghanistan in 2001 and 2003 are excellent examples.

This article will discuss the sustainment concepts utilized and the factors that directly influenced the design of these models. In the situation of Op APOLLO and Op ATHENA, the lack of theatre level support structures, an almost complete reliance on a tenuous air bridge for sustainment, deployment to an austere environment, and the

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operation within a multinational context where common supply sourcing was non-existent, posed a unique set of problems that required a very non-traditional approach. An operational imperative added the complexity of minimizing the number of personnel deployed forward into Afghanistan.

OP APOLLO

With the decision to incorporate a Canadian BG into TF Rakkasan of Operation ENDURING FREEDOM, the challenge was to devise a sustainment concept that would permit a deployed Canadian BG to operate while embedded within an American formation. The major challenges facing this deployment and its sustainment were the distance from Canada, the lack of support structures within the region, and the reliance on an air bridge of dual nationality.

Integrated Lines of Communication

With the conduct of the strategic and operational reconnaissance completed, it became apparent that Canada would be unable to project sustainment into the area on its own. Thus, for the first time in its history, the decision was made to activate the Canada-United States integrated lines of communication (CANUS ILOC). The CANUS ILOC plan is an agreement between Canada and the United States dating back to 1979 to share strategic sustainment channels. In this case, since the Canadian BG was embedded within an American formation, the use of American strategic sustainment assets would ensure the delivery of Canadian unique items to the deployed force.

The ILOC pipeline originated on the eastern seaboard of the United States and ran through a series of transfer points, finally terminating in Camp Snoopy, an American installation located in a Gulf State. It was the responsibility of 4 Canadian Forces Movement Control Unit (4 CFMCU) through the use of ILOC and strategic lines of communication (SLOC) detachments located in both Montreal, Quebec, and Dover, Maryland, to ensure that all materiel originating from Canadian sources was delivered to the mouth of the pipeline. This was accomplished through the use of ground transport from Montreal to Delaware as the majority of materiel was sourced through 3 Canadian Support Group (3 CSG). Located within the American installation at Camp Snoopy was a SLOC detachment, responsible for the reception and onward movement of all supplies emerging from the ILOC pipeline. The use of the ILOC channel was augmented by a weekly sustainment flight originating at CFB Trenton and terminating in Camp Mirage, located in a neighbouring Gulf State.

The challenge was to devise a sustainment concept that would permit a deployed Canadian BG to operate while embedded within an American formation

Another concern inherent in the use of the ILOC pipeline was the stationing of Canadian soldiers in the American installation at Camp Snoopy, the end of the ILOC pipeline. As no formal memorandum of understanding (MOU) existed with the host nation, Canadian troops became unable to re-enter the country when they left for leave or military tasking. This was a serious issue as it called into question the ability of the detachment to operate effectively on a continual basis.

Support Base

Camp Mirage was generated as the theatre support base (TSB) for the Canadian contingent of Combined Joint Task Force 180 (CJTF-180). Over a three-month period a series of small self-contained units deployed to this location. The unique facet of this deployment was that each unit deployed self-sufficiently with a very specific purpose. The units/detachments in Camp Mirage included a strategic airlift detachment (SAL det), a tactical airlift detachment (TAL det), a long range maritime patrol aircraft unit, and a fleet logistics site (FLS). In defining the support concept for the 3 PPCLI BG embedded within TF Rakkasan, the units of major importance were the SAL and the TAL dets. The SAL det was responsible for the reception of the weekly sustainment flight via CC-150 Polaris. This sustainment flight brought all materiel not pulled through the ILOC pipeline directly to Camp Mirage. The TAL det had a multifunctional mission. Given these assets were tasked to CJTF-180, they were not dedicated to the support of the Canadian units deployed in Kandahar. When available, they would be tasked for the movement of ILOC materiel from Camp Snoopy to Camp Mirage and then the onward transportation of all requested materiel into Kandahar. As no supplies were pre-positioned or pushed forward for the deployed formation to draw against, for the deployed land formation, Camp Mirage was truly a staging base, not a supporting base. Instead, as will be seen again in the sustainment of Op ATHENA, all materiel requests were routed to the home nation and pulled from stocks held nationally, less of course those able to be procured locally in the host nation of Camp Mirage.

Op APOLLO set the stage for a sustainment concept of a large deployment completely reliant upon an air bridge

Op APOLLO set the stage for a sustainment concept of a large deployment completely reliant upon an air bridge. The movement of materiel through two distinct lines of communication (i.e., ILOC, SLOC) directly into an active combat environment is a relatively new concept to Canadian deployed operations.

Another unique, though not necessarily beneficial, aspect of Op APOLLO was the location of the NCE. Tasked with directing overall operational logistics support, the NCE was co-located with the headquarters United States Central Command (HQ USCENTCOM) in Tampa, Florida. This enabled it to have an excellent view of all logistics operations in the theatre. With the stand-up of the national support unit (NSU) in Camp Mirage, and the establishment of the movement control centre (MCC) and material management centre (MMC), the NCE had almost total visibility on all supplies moving along the lines of communication, although visibility of stocks actually sitting on Canadian airfields remained a significant challenge.

Tactical Level Replenishment

At the tactical level, Op APOLLO also rejected a traditional approach. Initially, the 3 PPCLI BG deployed with an integral administration company, and as a whole, was supported by a FSG. It became evident over the course of the deployment, mostly due to manning issues, that this system of replenishment could be better conducted under one organization. This resulted in the creation of a CSS company as part of the BG. It should be noted that ownership of CSS assets was never a concern since both the FSG

and then the new CSS company were always under the operational command (OPCOM) of the 3 PPCLI BG. The melding of integral support (IS), close support (CS) and limited general support (GS) capabilities will be further explored in the creation on the sustainment concept for Op ATHENA.

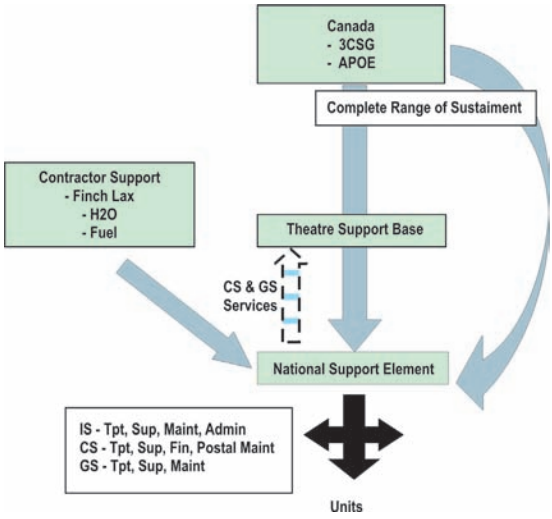

Figure 1: Op Athena Replenishment Diagram

OP ATHENA

In the context of the ISAF, into which Task Force Kabul (TFK) deployed under Op ATHENA, neither the support structures nor lead nation concept were implemented or available. Without the local availability of commonly sourced supplies, the complete range of sustainment was required to be sourced from the home nation. This resulted in direct sustainment from Canada to the tactical level. Rather than pushing materiel and services forward through a system of support bases and units, most materiel (less fuel, fresh rations and limited local purchase orders [LPO]) was demanded through the CF Supply System (CFSS) from the mission area, and was then drawn from the applicable Canadian source. The requested materiel was then shipped to the airport of embarkation (APOE), CFB Trenton, where 8 Wing employed two different methods for onward movement. The first would see 8 Wing utilizing strategic airlift assets (CC-150) for sustainment flights to Camp Mirage, the TSB for Op ATHENA, where it would be broken down for transport via the TAL det employing CC-130 Hercules aircraft into the Kabul Afghanistan International Airport (KAIA). The second method utilized Antonov (AN) 124 Condor and Ilyushin (IL) 76 Candid freighter aircraft chartered through J4 Logistics, which flew directly to KAIA from the APOE. For each method, the NSE was responsible for the reception and onward distribution of the material. This is illustrated in Figure 1.

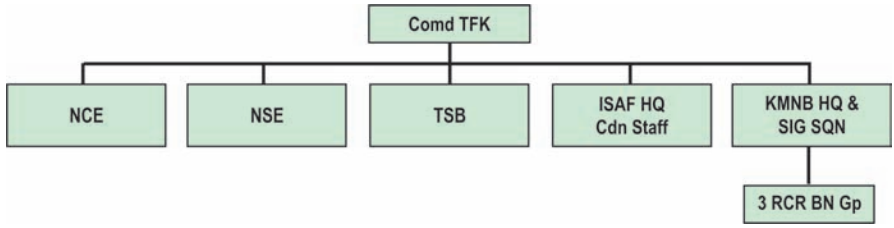

Figure 2: Command Relationships for Op Athena

Support Base

Although TFK employed Camp Mirage as the TSB, this title is misleading as to its actual function. Previously indicated, Camp Mirage did not hold forwardly projected stocks of supplies that TFK drew from, as one would assume. Instead, Camp Mirage can only

be considered a way station along the SLOC where the materiel brought into theatre via CC-150 Polaris aircraft was transferred from strategic to tactical airlift assets for onward transmittal to KAIA. Ideally, this was where the NCE should have been located, vice its actual site in the theatre of operations. This again was different than the model employed for Op APOLLO, where the NCE was located in Tampa, Florida at HQ USCENTCOM. An additional break from doctrine is evident in that the TSB is not only part of the TF it supports, but itself is supported by elements of the TF, namely the NSE as shown in Figures 1 and 2.

			Camp Warehouse	Camp Julien							
		ISAF HQ	KMNB HQ & Sig Sqn	NCE	NSE	Bn Gp	ISTAR	LGB	MP Pl	HSS	ASIC
Dependencies	Land Maintenance	NSE	NSE Det	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE
	Transport	NSE	NSE Det (VIP Pool)	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE
	Supply (IS)	NSE	Integral	NSE	NSE	Integral	NSE	NSE	NSE	NSE	NSE
	Supply (CS & GS)	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE
	Movement	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE
	Land Command and Information System (LCIS)	HQ & Sig Sqn		HQ & Sig Sqn							
	Personnel Support	NSE	Integral	NSE	Integral	Integral	NSE	NSE	NSE	NSE	NSE
	Financial Support	NSE	Integral	NSE	Integral	NSE	NSE	NSE	NSE	NSE	NSE
	Postal Services	NSE	NSE	NSE	NSE	Integral	NSE	NSE	NSE	NSE	NSE
	Engineer Services	-	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE	NSE

Table 1—Op ATHENA Support Dependencies

Tactical Level Sustainment

A non-traditional approach was employed when designing the structure of the units deployed on Op ATHENA Rotation 0. The result of this approach was a centralization of support organizations under a streamlined NSE. The support dependencies detailed in Table 1 demonstrate that the NSE provided IS, CS and limited GS support to almost every organization that formed TFK.

This differs greatly from the doctrinal approach to tactical level sustainment practised by the CF. The driving factors that influenced this approach included the structure of the KMNB, the co-location of almost all mission elements, the threat, force protection, and the critical personnel limitations imposed on the TF.

The KMNB was the primary military formation that the ISAF employed to carry out its mandate. It differed from the Canadian BG, as it had no inherent logistical support capabilities. Instead, it was an amalgamation of 22 national contingents, and each contingent had developed their own sustainment concept. There did not exist a lead nation as defined in B-GL-300-004/FP-001 *Land Force Sustainment*[2], although this role had been adopted between the German contingent and some of the smaller contingents that occupy Camp Warehouse, specifically in the provision of water, fuel, fresh rations and for camp infrastructure. This impacted upon the support given to Canadian sub-units deployed as Brigade resources such as the Intelligence, Surveillance, Target Acquisition and Reconnaissance Company (ISTAR Coy), the Light Gun Battery (LGB) and the Military Police Platoon (MP Pl). These organizations required complete support from the TF vice just Canadian specific items. It must be

noted that ISAF, under the command of NATO, continues to examine multinational joint logistics as a way ahead.

The co-location of almost all of the mission elements at Camp Julien influenced the support concept. With both infrastructure and real estate at a premium, it made little sense to have multiple integral support organizations spread throughout the camp. For supply functions, only the 3 RCR Bn Gp, KMNB HQ & Signals Squadron, and the NSE retained a quartermaster stores with all additional units and sub-units and individual personnel (e.g., Canadian staff at ISAF HQ) falling under the NSE for integral support. As a result, the NSE Quartermaster was responsible for in excess of 1100 soldiers. In regards to land equipment management, the NSE Maintenance Platoon contained all TFK maintenance resources and provided all levels of support with no single unit retaining integral assets. This decision was also based upon the co-location of all elements and the decision to recover all casualties back to the security of the camp, as compared to the doctrinal approach of maximizing in situ repairs. The Land Communication and Information System (LCIS) maintenance resources were owned completely by the KMNB HQ & Signals Squadron. With the deployment of close to 400 soldiers to Camp Warehouse, the decision was made to deploy detachments of NSE maintenance and transportation personnel to that location.

As is the case for all missions, the Canadian methodology of building force structures—to start with a blank table of organization and equipment (TO&E) then build up[3]—compels the Commander to effectively balance personnel distribution between manoeuvre troops, support arms and combat service support. The TO&E for Op ATHENA effected a centralization of CSS personnel, which reduced the overall number of personnel required to support the command and control of logistical activities. This removal of redundant chains of command resulted in greater numbers of both combat arms and CSS soldiers available for the mission. This also removed duplication in the requirement for specialized qualifications, tooling, equipment, spare parts and infrastructure. The downside of this centralization will be discussed below in the section dealing with the challenges faced.

CHALLENGES

The reliance on an extended air bridge for almost all sustainment activities brought into play a new set of risks that required extensive planning to mitigate. The primary concern was the use of KAIA as the primary airport of disembarkation (APOD). This facility lacked the ability to land aircraft in poor visibility or during the hours of darkness. In addition, the location of the airport within the boundaries of the city made it susceptible to the fluctuating security situation, periodically resulting in its unavailability. In order to combat potential risks, contingency plans were developed and put into place to utilize another airport.

The austere environs of Afghanistan placed a strain on the ability to locally obtain the provision of goods and services. Traditionally, local procurement is conducted in areas where the provision is possible and secure. Initial attempts at local procurement met with failure and resulted in the requirement to process demands through 3 CSG and establish a Local Procurement Office (LPO) based out of Camp Mirage. The LPO detachment of the NSE was able to procure demanded material at a much faster rate with reduced shipping requirements. These goods were brought into the theatre of operations via the TAL det with greater speed than could be provided from Canada.

Once the security situation improved in Kabul, the LPO function was made available through the use of a civilian firm, and subsequently, was able to provide 20% of all LPO requirements. As the security situation in Kabul continues to improve, an increased ability to conduct local purchase is anticipated.

The radical reorganization and centralization of the tactical sustainment concept imposed the greatest set of challenges faced in the mission. The removal of integral assets, especially maintenance, generated a grave concern by the unit commanding officers, other than the CO NSE, as they would no longer be able to determine the priorities to support their operations. This was now the responsibility of a single chain of command and required superb coordination between the various units. The advantage of this concept, however, was visible in its ability to rapidly deploy task-tailored detachments to support operations. In this regard, the greater the flexibility that this system would allow was an essential part of the success of the tactical sustainment concept.

CONCLUSION

The sustainment paradigm designed and executed for Op APOLLO and Op ATHENA was both new and radically different from what doctrine dictates. It is an excellent example of applying creativity to sustainment, and demonstrated the need to avoid blind adherence to textbook solutions. The concept continued to evolve from its inception and became more efficient with each modification. Although we train for war, and are organized for peace, when we deploy in support of multinational, non-contiguous peace support operations, often we must return to the drawing table to create a task-tailored sustainment concept that encompasses all risks, constraints and limitations that the new theatre generates.

About the Authors ...

Lieutenant-Colonel Christopher Thurrott is an Army logistician who graduated from Dalhousie University, the Canadian Land Force Command and Staff College, and the Canadian Forces Command and Staff College. He has held numerous appointments in 1, 2 and 4 Service Battalions, 1 and 2 Canadian Mechanized Brigade Group Headquarters, 1 Canadian Division Headquarters (Forward)), and J4 Logistics. He has commanded 2 Service Battalion and the Operation ATHENA National Support Element, Task Force Kabul (Afghanistan), on its initial Deployment. His international experience also includes UN and NATO missions in Bosnia-Herzegovina, Cambodia, Norway, and Cyprus.

Captain Robert Bailey is a logistics officer who graduated from the University of Guelph with a Bachelor of Arts in History. Starting his career in the Primary Reserve in 1991, he transferred to the Regular Force and was commissioned in 2001. Since joining the Regular Force, he has served with 2 Service Battalion. His operational experience includes Operation PALLADIUM Rotation 3 and Operation ATHENA Rotation 0.

END NOTES

1. Canada. Department of National Defence, B-GL-300-004/FP-001 *Land Force Sustainment* (Kingston: Directorate of Army Doctrine, 1999), p. 13, para 2.
2. Ibid., p. 78.
3. Note that this differs greatly from the American system of starting with a formation, then peeling away the elements that are not required.

REMOTE SENSING, GEOGRAPHIC INFORMATION SYSTEMS, AND OPERATIONAL RESEARCH IN URBAN OPERATIONS

By Mr. Fred Cameron

ABSTRACT

In recent years there have been dramatic improvements in remote sensing technologies and geographic information systems to support the analysis of urban operations. Operational research tools, like war games and simulations, have demonstrated deficiencies in several important aspects. Many tools from remote sensing and geographic information systems should permit improvement in the military operational research community's ability to support the military component in urban operations.

INTRODUCTION

The issue of urban operations for the military has considerable history. Recently, Western coalitions have had to contend with Kabul, Baghdad, Basra, Monrovia, Priština and Sarajevo. During the Second World War, the Canadian Army had to deal with Hong Kong in 1941, Ortona in 1944, and a number of other urban operations in Northwest Europe in 1944-45.

Within the discipline of operational research, one should be aware that one of the earliest applications of science on the urban battlefield was the collaboration between King Hieron II and Archimedes for the defence of the city of Syracuse against Marcellus and his Roman legions in 212 BC.

As one might anticipate, from a military operation that was largely under the control of a mathematician, Archimedes' plans and devices defeated Marcellus and seemed about to save Syracuse. But when Archimedes' fellow citizens were celebrating at a religious festival, the Romans penetrated the walls through subterfuge and massacred much of the population.

HISTORICAL CONTEXT

Geographic analysis of urban terrain is not new in the operational research realm. As part of the development of the "American, Canadian, Australian and British Urban Game"(ACABUG), Richard Ellefsen undertook a study of classification of urban terrain (Ellefsen 1987). He initiated this work while at the United States Army Training and Doctrine Command (TRADOC) Studies and Analysis Activity (now the TRADOC Analysis Centre, White Sands Missile Range, New Mexico). The work was completed under a contract to support the American, British, Canadian and Australian Armies' Standardization Program (ABCA). For Ellefsen, this activity was an extension of an earlier study in 1973 sponsored by the Advanced Research Projects Agency (ARPA),

the predecessor to the Defense Advanced Research Projects Agency (DARPA).

Ellefsen's project included a number of aspects:

- Taxonomy and procedures for the classification of zones within urban terrain;
- An assessment of urban construction techniques, both in structures and in materials;
- The use of available overhead imagery from a selection of 13 world cities and from a variety of regions and cultural areas; and
- Visits to 12 of the 13 cities to compare the results to "ground truth."

In his book, Ellefsen includes a tutorial on the history of urban construction covering both structures and materials. He asserts that choices in building design and construction are generally driven by local economics at the time, especially the price of land and of materials. With this knowledge, it is much easier to assess what forms of buildings may be anticipated in an unfamiliar city.

The cities were selected from a variety of regions, and represented several cultures and climates:

- Helsinki, Finland;
- Braunschweig and Stuttgart, Germany;
- Vienna, Austria;
- Athens-Piraeus, Greece;
- Beirut, Lebanon;
- Tel Aviv-Yafo, Israel;
- Tunis, Tunisia;
- Kuala Lumpur, Malaysia;
- Colombo, Sri Lanka;
- San Jose, Costa Rica;
- Panama City-Balboa, Panama; and
- Caracas, Venezuela.

The study reported by Ellefsen must be commended in two respects. Firstly, it included a variety of cities, though not by "random sampling," to be sure. But acknowledging certain constraints, the approach was still able to identify differences across regions and cultures. Secondly, Ellefsen visited 12 of the 13 cities to develop a comparison between the classifications by overhead imagery with the "ground truth," a critical aspect of such a study.

Moreover, Ellefsen focused largely on building structures to determine the classification zones within a city. He described the important issue of transportation corridors through urban areas, but limited his discussion to describing the unique features of the

corridors associated with each of the zones. Later material (US Army 2002) includes a more rigorous framework for discussing street patterns and their potential effects on urban operations.

Ellefsen's methods and findings have endured into current times, and provide a worthy legacy from which further concepts can develop. In particular, the approach and many of the results found in his earlier urban terrain zone classification, have subsequently been used in the development of doctrine for operations in an urban environment (US Army 2002) and (Joint Chiefs 2002).

By way of illustration, the taxonomy used by Ellefsen follows:

A—Attached
A1—Core area
A2—Apartments/hotels, core periphery
A3—Apartments/row houses
A4—Industrial/storage, full urban form
A5—Old commercial ribbons
A9—Old core, vestigial

Do—Detached, Open-set
Do1—Shopping centers
Do2—Apartments, < 75% ground coverage
Do3—Houses, < 75% ground coverage
Do4—Industrial/storage, truck related
Do5—New commercial ribbons
Do6—Administrative cultural

Dc—Detached, Close-set
Dc1—Urban redeveloped core area
Dc2—Apartments, > 75% ground coverage
Dc3—Houses, > 75% ground coverage
Dc4—Industrial/storage
Dc5—Outer city
Dc7—Engulfed agricultural village
Dc8—Shanty towns

Others
ON—Open Space, not built upon
OW—Open Space, wooded, not built upon
Do31—Leased garden areas with small structures

More modern classification efforts, e.g., the NATO DIGEST standard, resemble Ellefsen's work, but are much more elaborate.

MILITARY DOCTRINE

In recent years there has been a renewed interest from military organizations in urban operations, e.g., (ALLC 2002), (US Army 2002) and (Joint Chiefs 2002). One aspect that all sources reinforce is the need to better understand how cities operate. At the fundamental level, the military must develop an improved understanding of the nature of urban terrain.

In particular, doctrine from the US Army, US Marine Corps and Joint Forces build on several Ellefsen terrain classification studies. The technologies that are becoming available in remote sensing (RS) and geographic information systems (GIS) are reaching a point where they can make substantial contributions to improved understanding of urban terrain. These new capabilities go far beyond the tools that were available to Richard Ellefsen two decades ago.

REMOTE SENSING

Overhead imagery from airborne cameras has been used for terrain analysis for nearly a century. More recently, space borne sensors have added to the repertoire of data sources. There have been significant extensions to the spectral coverage of these in recent years, especially with the introduction of multi-spectral and hyper-spectral cameras. But two quickly developing airborne remote sensing technologies have recently been applied to the collection of elevation data from urban areas: light detection and ranging (LiDAR), and interferometeric synthetic aperture radar (IFSAR). These two technologies come together in a prototype collection platform flying under the US Army's Rapid Terrain Visualization (RTV) project (RTV 2003).

LiDAR is based on scanning a series of laser pulses across terrain from below an over-flying aircraft. The direction of the outgoing pulse is known with considerable accuracy from differential global positioning system (GPS) and inertial sensors. The returned energy can be processed to determine the distance to any intervening target. Multiple returns can be processed from an individual pulse. The distance to the first obstruction, e.g., the top of a tree canopy, and to the last obstruction, e.g., the ground, can provide additional information not usually available from other sensor systems. The LiDAR data can be processed into a dense three-dimensional (3D) "point cloud" of the terrain under the sensor. By taking the difference between the two "point clouds," one from first pulses and the other from last pulses, some idea of tree coverage may be inferred. Note that this depiction presumes that any partial obstruction is from foliage, but it may not always be the case.

The technologies that are becoming available in remote sensing (RS) and geographic information systems (GIS) are reaching a point where they can make substantial contributions to improved understanding of urban terrain

The second technology, IFSAR, uses synthetic aperture techniques with a pair of receiver antennas mounted symmetrically about the vertical axis and the platform's centre line. The phase difference between the returned signals at the two antennas can be processed to determine the angle of the response relative to the vertical axis. The Doppler characteristics of returned signals can be processed to determine the angle of the response relative to the flight path. This provides the 3D angle of a returned signal. IFSAR techniques also provide a "point cloud."

As shown in the table below, LiDAR and IFSAR share some characteristics, e.g., both can be used in daylight and at night. IFSAR can provide Level III (10 m) and Level IV (3 m) resolution. In general, LiDAR has greater resolution to Level V digital terrain

Characteristics		
	LiDAR	**IFSAR**
Flight Altitude	2000 m above ground level	6000 m above ground level
Swath Width	540 m	Level III: 1600 m Level IV: 630 m
Flight Speed	140 knots	180 knots
Collection Rate	25 sq. km per hour	Level III: 50 sq. km per hourLevel IV: 25 sq. km per hour
Processing Rate	3 hrs processing per 1 hr flight	Real-time onboard processing
Time	Day or night	Day or night
Weather	No clouds, minimal precipitation	No limitations
Source: Turner and Moscoco, 2002		

elevation data (1 m resolution or better). The flight path for LiDAR is typically at a lower elevation than for IFSAR. Although IFSAR's resolution is poorer than for LiDAR, it is not as restricted in terms of weather conditions.

Due to demands from the civilian market for improving the performance characteristics of LiDAR and IFSAR, one can anticipate that the processing time for LiDAR, and potentially the resolution of IFSAR, will continue to progress.

These two sensor techniques provide a 3D data set of elevations over an urban area. Meanwhile, improvements in multi-spectral and hyper-spectral imagery permit the characterization of the textures of the rooftops and walls, as well as inferences of the land cover from the spectral signatures.

LAND COVER, LAND USE, AND LAND EXPLOITATION

In the civilian community, "land cover" and "land use" are familiar terms (Donnay et al. 2001). Overhead imagery is used first to determine "land cover"—a characterization of what is on a specified area of the ground. Often, each pixel of an overhead image is characterized individually for its "land cover." If adjacent pixels seem to have the same cover, they may all be designated the same; hence, areas of vegetation can be discerned from a group of green pixels.

"Land use" requires more analysis, and generally includes some inferences from the land cover in the vicinity. Thus, the "use" of a multi-story feature of regular geometry with asphalt around it might be classified as a "commercial building." Another cluster of pixels with the same land cover might be classified as "apartment building." Recently, many innovative techniques have been proposed for classifying both the land cover and land use for urban analysis for civilian purposes (Donnay et al. 2001).

Classifying terrain data from urban areas for military purposes can exploit the innovations in the civilian realm. But for military operations, a further stage of classification seems appropriate—"land exploitation." This would identify how the urban terrain, represented by some appropriate cluster of pixels, could be exploited (Harrap and Lim 2003).

The classification of "land exploitation" may have to be conducted several times, with different objectives each time. In his work, Luc Pigeon points out that in most military

settings different components of a military force will bring with them different points of view as to what constitutes an exploitable feature (Pigeon 2002). For example, "planning for snipers positioning might require a spatial accuracy of 1 meter with a high level of textures" and "blast damage assessment analysis should require a medium-high spatial accuracy, a low level or an absence of textures, and a high level of details for target attributes related to physical composition (e.g., wood, concrete, glass)." The concerns of the communities will differ, the land-use characteristics of interest will be different, and impressions of what is exploitable will also be different. This is without considering intelligence staffs that will want to deal with many of the same issues, but from an opponent's point of view. And an opponent's view of exploitable features might be drastically different from that of friendly forces.

Other work points out how semantics of the urban terrain may be used to determine land use (Donnay et al. 2001). This idea is taken further in many respects when pointed out how, in the context of military urban operations, semantics can inform both land use and land exploitation (Harrap and Lim 2003).

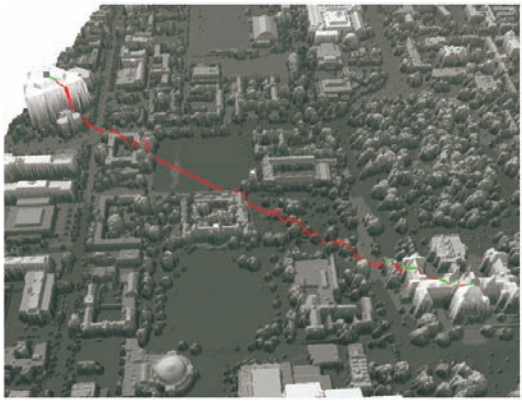

Figure 1: Line of Sight (Harrap and Lim 2003)

GEOGRAPHIC INFORMATION SYSTEMS

Commercial geographic information systems (GIS) are now in widespread use by military topographic teams. For example, Capability Interoperability Demonstration (CID) BOREALIS conducted by ABCA in June 2002 demonstrated considerable interoperability of GIS software across potential coalition partners.

The topographic teams from the five participating nations (to include New Zealand) demonstrated considerable interoperability because they all used commercial products from ESRI, a world leader in GIS software and technology.

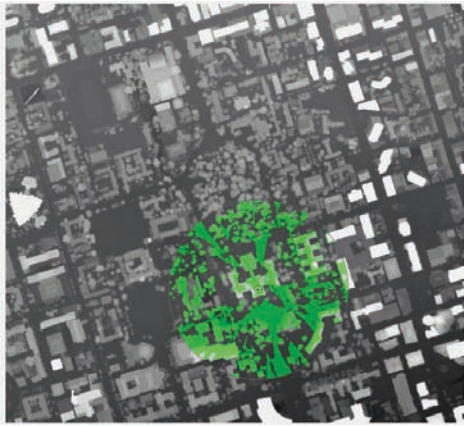

Figure 1: View Area in Green (Harrap and Lim 2003)

Furthermore, commercial GIS have been extended with add-ons for military applications. As an illustration of current capabilities, Figure 1 shows the use of LiDAR data from central Toronto in ArcGIS with the "Military Analyst" add-on. Along a potential line of sight running from the upper left to the lower right, locations that are visible are shown in green, and locations that are obstructed are shown in red. The data was provided by the Optech Company (see www.optech.on.ca).

Figure 2, based on the same data, shows the viewing area (in green) centred from the top of the Ontario legislature building.

Both illustrations were developed using the Military Analyst extensions to ArcView 8, an ESRI commercial product (see www.esri.com).

CANADIAN ARMY WAR GAMES AND SIMULATIONS

The preceding issues were raised in the context of military formations and units. But the issues-and the consequent paraphernalia for dealing with them-must be shared with the military operational research community. Whatever a military component may have to deal with, its operational research analysts will be required to study. Amongst the paraphernalia of military operational research, war games and simulations are crucial.

For operational research studies, available Canadian war game and simulation tools include Janus, JCATS, CAEn and the OneSAF line of products. These accommodate urban features up to a point. CAEn, for example, has the capability to represent a few buildings and small forces, say company strength. However, it is unsuitable for representing larger forces or more extensive urban areas, although these are now available in JCATS and OneSAF.

Most of the more complicated models used in Canadian military operational research originate with American developers. The US Army and the US Marine Corps have had an initiative to assess their modelling and simulation ability to support the analysis of urban operations (MOUT-FACT 2003). Due to the close connection developed through the sharing of models and simulations, the findings of the US review will influence the Canadian assessment of its own modelling abilities.

The US review included four models: Combat XXI, IUSS, OneSAF, and AIMS. The US Army Materiel Studies and Analysis Activity (AMSAA) recently published a series of white papers that assessed the Army's current models and their ability to represent operations in an urban area. In force-on-force simulations, evaluations were made in the areas of search and target acquisition, mobility, direct fire, indirect fire, wide area surveillance, and tactical communications. The study revealed weaknesses in the models in meeting the six aspects for urban operations (Crino 2002). A significant effort has since been underway to determine priorities for improvements and to resolve deficiencies.

Through recent initiatives, such as the Source for Environmental Representation and Interchange (SEDRIS) (see www.sedris.com), computer-based models will gain the ability to more easily incorporate digital terrain data from many sources. This will include urban terrain. The domains of remote sensing, geographic information systems, and military modelling, are gaining more means of sharing digital terrain at the same time that there is some urgency to improving the analytical tools.

The Canadian Army's operational research community has considerable interest in the AMSAA assessment of models, in innovations in studying urban terrain, and in protocols that permit the rapid sharing of digital urban terrain. There has been substantial collaboration between the US Army and the Canadian military operational research communities on model development, and this will continue to focus on improving the models of interest for urban operations.

URBAN OPERATIONS SUMMITS

The operational research communities of US Army and the US Marine Corps have held four "summits" in recent years as venues for exchanges on the simulation of urban environments and operations. One primary objective is to overcome deficiencies identified in the earlier assessment (Crino 2002). Material from the summit held in January 2005 is available through the MOUT-FACT website.

The Department of National Defence (DND) was invited and has participated in the summits since 2003. This has given the Canadian operational analysis community information on US programmes to include rapid terrain visualization, radio propagation in urban areas, and the measurement of line-of-sight ranges in populated areas. Other Canadian organizations have also participated (e.g., Object Raku Technology, see www.objectraku.com). Collaborations that emerge from these summits will continue to provide DND with improved capabilities to analyze operations in urban environments.

CONCLUSIONS

The capabilities of remote sensing systems, as contributors to the collection of data on urban terrain for military operations, have improved dramatically in recent years. This is evident in sensors like LiDAR and IFSAR. Other sensors not covered here, like multi-spectral and hyper-spectral cameras, are also showing promise.

Geographic information systems have also reached a level of sophistication where they have considerable capabilities for depicting urban terrain. Their use has been widespread in a number of coalition partners, including the Geomatics Support Teams that deployed with the Canadian brigade headquarters and the Canadian Forces Joint Operations Group to Afghanistan. Various add-on packages, such commercial GIS software, can provide very sophisticated and militarily significant analyses.

Deficiencies in model and simulation support of operational research analysis for urban operations have become apparent. Many of the initiatives to deal with these deficiencies can benefit from the advances in remote sensing and geographic information systems. Operational research analysts from DND are monitoring a wide variety of activities in this regime.

Military personnel need to know more about urban areas and how the populations interact with their environment. With improvements in operational research methods to deal with urban environments, practitioners will have the ability to provide the necessary analysis to support their military colleagues.

About the Author...

In 1974 Mr Fred Cameron joined what was then the Defence Research Board as an operational research analyst. He has had assignments as an operational research advisor on the staffs at the NORAD Regional Headquarters in North Bay and at the Maritime Forces Pacific Headquarters in Esquimalt. He had a tour in Europe with the predecessor to the NATO Consultation, Command and Control Agency (NC3A). In 1997 Mr Cameron was posted to Kingston to provide operational research for the Land Staff. He is currently the Operational Research Advisor to the Director General Land Capability Development.

CAVALRY CHARGING PANZERS: AN EVALUATION OF LEADERSHIP DOCTRINE IN THE CANADIAN ARMY

By Major Tod Strickland

INTRODUCTION

On 1 September 1939, German armoured columns swiftly struck deep into Poland. Facing them the Poles mustered a force of eleven cavalry brigades, forty infantry divisions and approximately 1,000 lightly armed "tankettes" and armoured cars.[1] With little more than courage and lances, the troopers of the 18th Uhlan Regiment gained the distinction of mounting one of the final cavalry charges of modern warfare against several German armoured cars and tanks in the area of Krojanty.[2] The Poles were slaughtered. There are several reasons that this action took place, but foremost among them is the fact that the Poles did not realize the lessons of the First World War and had not developed, or copied, a doctrine of mechanized combat. Simply put, in the twenty-one years since the close of World War I they had allowed their doctrine to become outdated.

Doctrine forms the intellectual and theoretical basis for the actions of an army. All professional military organizations rely on doctrine to standardize how activities are conducted. This allows different units, which may be unfamiliar with one another, to work together based on a common frame of reference. With this in mind, in 1998 the Commander of Land Force Command (LFC) released a keystone document entitled *Canada's Army: We Stand On Guard for Thee*. This publication forms the doctrinal basis for all activities, including leadership, within Canada's Army. Prior to this, direction concerning leadership within LFC had been articulated by a series of publications, such as Leadership in Land Combat[3] and *The Professional Officer*,[4] dating back to 1973.[5]

The promulgation of the new Army keystone document was timely, as the past decade had been very intense for LFC. Since 1990, the Canadian Army has sustained an incredible operational tempo with members deployed to Africa, the Balkans, the Mediterranean, South East Asia, the South Pacific and many other locales.[6] These operations presented many new challenges for Canadian military commanders to face: the impact of women serving in the combat arms overseas, regular and reserve force mixtures, re-roling of armoured and artillery units to perform traditional infantry tasks to name but a few.

Unfortunately, this time period was also laden with disciplinary problems, scandals and suicides all of which became public and combined to form a seeming crisis in morale. Some might suggest that this is nothing more than a problem that should be expected during such a period of increased deployment; but what if this is not the case? What if the problem is ingrained as part, or because, of the Army's leadership doctrine? Moreover, there is the critical question of whether or not the Canadian Army has successfully met the challenges posed during this time frame of increased operational tempo. More to the point, have we modified our leadership doctrine to reflect the lessons that were learned?

LEADERSHIP DOCTRINE OF LAND FORCE COMMAND

Doctrine has been defined by military scholar Paul Johnston as material that is "written down…for dissemination throughout an army [with] the usual intention being…to instruct and standardize."[7] Johnston also added that it "is meant to form behavior—specifically, the behavior of armies in battle."[8] The former Officer Commanding 2 Commando, the Canadian Airborne Regiment, Major J.W. Hammond insists:

> *Leadership doctrine is critical for any military force. It outlines the basic concepts of leadership the organization intends to teach, promote, believe and practice. Any organization looking to maintain the highest standards of leadership had better start with a clear vision of just what leadership is.*[9]

Doctrine normally takes three distinct forms. The first is that of sanctioned publications and manuals. In the case of LFC, these include the seminal work *Canada's Army*,[10] *The Professional Officer*,[11] *Leadership in Land Combat*,[12] *Command*[13] and the *Junior Leaders Manual*.[14] These books combine to form the basic institutional knowledge for instruction and practical application of leadership within the Army. However, they are liberally supplemented by various documents that are periodically issued by commanders and their staffs to clarify pertinent issues. Documents such as *Chief of Defence Staff* (CDS) *Guidance to Commanding Officers*[15] and *Shaping the Future of Canadian Defence*[16] fall into this second category of periodic instructions.

The third, and final, component of LFC's leadership doctrine is made up of written intellectual discourse, published in the variety of corps and professional journals (i.e., *The Infantry Journal*, *The Army Doctrine and Training Bulletin* [now *The Canadian Army Journal*], and *The Canadian Military Journal*) within the Canadian Forces (CF). The articles published in these journals are an essential part of maintaining the doctrine's continued relevance. Professional writings can and should serve as the first means of incorporating lessons learned while conducting operations. Doctrine should not be static, but rather a living and constantly evolving library of information. It is rightly viewed as the physical embodiment of an organization's professional culture and knowledge. It is now appropriate to examine each of these elements in turn.

The foundation for all leadership doctrine within LFC, since 1998, rests upon *Canada's Army*. The book clearly affirms that among its three purposes is the establishment of "the doctrinal foundation for the professional competency of all ranks in the army, and… the basic source document for all instruction and training to that end."[17] Naturally this one volume cannot be expected to completely cover the topic by itself, and it is when one moves to the secondary publications that problems become immediately apparent.[18]

Firstly, the supporting manuals are extremely dated. Presently LFC is relying on an understanding of leadership, in *The Professional Officer* and the *Junior Leader's Manual*, which are fast approaching thirty years of age. That they are antiquated is secondary to the fact that they both fail to capitalize on the explosion of leadership studies that took place between their publication in 1973 and the present day.

Similarly, *Leadership in Land Combat* is rooted in the Cold War and tactical doctrine that was in existence when it was written. As our tactical doctrine shifted from attrition to

manoeuvrist in approach, it is reasonable to expect that how our commanders lead would have to change, to some degree, as well. This is not reflected in this document. Instead, the book discusses a leader's roles (using an approach similar to that of Henry Mintzeberg) that would be more appropriately considered facets of command. This approach might be negated somewhat, if the publication analyzed recent combat experiences, at that time the Falkland Islands War or the Arab-Israeli Wars, and the challenges commanders faced in leading their soldiers on the battlefield. Sadly, this is not included.[19] Instead of truly discussing leadership in combat, it seems to focus on management of problems.[20]

A third result of the dated nature of the doctrine is the fact that it does not address the challenges that the 1990s posed to LFC. There is no discussion on the leadership of females (or by females),[21] on how the "re-roling"[22] of different units impacts on the exercise of leadership, or on how exercising leadership is affected by peacekeeping. Furthermore, it is apparent that LFC does not seem to be familiar with the evolving discussions on leadership, examining the myriad of changes that have resulted from the societal evolution of the 1990s.[23] Additionally, LFC has yet to address how to lead in an atmosphere of increased public transparency and how to balance the demands placed on commanders by an increased awareness of "Quality of Life."

A fourth, and final, result of the dated nature of LFC's leadership doctrine is the fact that it is no longer an accurate reflection of the soldiers that are recruited into Canada's Army. *Leadership in Land Combat* is quite clear in discussing the idea that leadership is affected by the leader, the followers (the soldiers) and the situation that they are in. Yet, this book's discussion of the soldier[24] is rooted in the industrial age and does not reflect that the Army is taking in recruits from the information age. The average recruit joining the CF was ten years old when the Gulf War was taking place. As a result, upon enrolment the recruit's perceptions of combat are a reflection of the 100-hour war. Contrast this with the fact that the recruit joining in 1988, was raised during the closing portion of the Cold War, and probably expected to go to war, at some point, in Western Europe. LFC's leadership doctrine should accurately reflect the realities of who Canadian soldiers are: either male or female, drawn from a diverse segment of society, and quite possibly as well-educated as the officer or non-commissioned officer (NCO) who commands them.

As our tactical doctrine shifted from attrition to manoeuvrist in approach, it is reasonable to expect that how our commanders lead would have to change, to some degree, as well

The sphere of ethics and morals is a second area where our leadership doctrine may be appropriately judged to be lacking. One characteristic that all of the manuals, with the possible exception of *Canada's Army*, share is their complete lack of any discussion on the topic. *Canada's Army* is very articulate in pronouncing that LFC is to follow the military ethos articulated by the CF. Specifically, the fundamental values are to be "integrity, courage, loyalty, selflessness and self-discipline."[25] To this, the LFC document adds the four precepts of "duty, integrity, discipline and honour."[26] However, as good as these ideals are, there are problems.

Firstly, the values and precepts given by *Canada's Army* do not accurately reflect the Statement of Defence Ethics that was articulated in 1996. The "ethical obligations" of "honesty, diligence, fairness and responsibility"[27] have been completely omitted. Being that LFC is subordinate to the CF, these four obligations should have, at the very least, received mention.

Secondly, the values that are detailed within *Canada's Army* are not those found in *Canadian Military Ethos*.[28] This could be corrected quite easily through the inclusion of the statement of *Canadian Military Ethos* within the book. Additionally, it seems that the values articulated are not being subscribed to. This is best demonstrated by examining the recently published *JAG (Judge Advocate General) Certification Training Package for Presiding Officers*.[29] Here the military ethos is summarized as "Duty, Obedience to Authority, Subordination to those in authority, Enforcement of Discipline" and "Welfare of Subordinates."[30]

That there is a wide discrepancy regarding the *Canadian Military Ethos* is surprising. Some differences are expected, as the ethos should be continuously evolving with Canadian society. What is amazing, however, is that the articulated ethos has not been supported by other documents within LFC and the CF in general. This is slightly ironic considering that the existence of Canada's Army can be traced directly to LFC's operations in Somalia in 1992-93. The commissioners who waded through the mountain of testimony and evidence declared, "a failure of military values lies at the heart of the Somalia experience."[31] Because of this, both the military and political authorities felt that it was important to rewrite and restate what Canadian military values were. *Canada's Army* was LFC's response.

To further illustrate how *Canadian Military Ethos* and *Canada's Army* contradict one another one need only examine the priorities that are placed on loyalty. *Canadian Military Ethos* states that "it is essential for all members to clearly display loyalty, first to the country, then to the group, and finally to each member of the chain of command, both senior and junior to them, before taking thought for themselves."[32] This is not reflected in *Canada's Army*, which, in discussing "duty," defines it as "loyalty [extending] to superiors, peers and subordinates alike."[33] There is no mention of loyalty to the nation. This glaringly contradicts the very ethos that *Canada's Army* is supposed to uphold. Further, to expect equal amounts of loyalty to exist in all directions, implied in the use of the word "alike," is unrealistic.

Almost all of the publications limit their discussions on ethics to placing a strong emphasis on integrity. This, according to one text, can be explained as "always doing what is right."[34] How to judge what is meant by "right" is not explained, and warrants discussion along the lines of the that detailed by Sam Sarkesian. The formal doctrine sanctioned by LFC simply has nothing approaching a discussion on the ethics of means vice the ethics of purpose. This is an extremely serious oversight, particularly when one judges why the Canadian public's perception of their army was degraded during the 1990s. It was not a result of army units failing at their missions, but rather the manner in which the missions were being conducted.

That the leadership doctrine does not address the method in which missions are completed is of vital importance. One of the few references to honesty, integrity or

morals included in *Leadership in Land Combat* is part of a list of "Do[']s and Don'ts for Leaders". Leaders are directed to "Be forthright and honest with your men."[35] This is not wrong, however, it does not address the fact that Canadian military leaders should be expected to use ethical means in the pursuit of an ethical purpose. A better statement might be that used by Colonel Jim Selbie while in command of the Canadian Contingent in Bosnia in 1996. His "motto," passed at nearly every Commander's Conference, was to "Do the right thing, and do the thing right." Although it may sound trite, and requires definition of what "right" is, at least these nine words delineate this commander's approach to the ethics of the task at hand.

Ethics are not universal, nor is there consensus on what "right" and "wrong" really are. Upbringing, culture, religion, personal experience and a myriad of other factors influence perceptions of these two concepts. LFC needs to devote as much energy to the subject of ethics as it does to command if it expects leaders to be able to function in accord with the expectations given in *Canada's Army*.

The third area where a problem exists is how the formal doctrine treats the specific area of leadership. Within *Canada's Army*, the first mention of the subject falls under the topic of military virtues,[36] along with the moral and physical components of the Army. Leadership is detailed as one of the moral components[37] and articulated as "an art"[38] specifically: "the way of influencing human behaviour in order to accomplish a mission in the manner desired by the leader."[39] This is a 20th Century "transactional" definition,[40] which is not conducive to "transformational" leadership. The validity of this definition certainly warrants questioning. Many scholars and military commanders disagree with the definition. Major James Hammond has written that it "contradicts widely accepted concepts of freedom of action, directive control or empowerment. It also directly contradicts the advice of most successful leaders."[41]

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One of the supporting publications, *Command*, defines leadership differently than *Canada's Army*. Specifically, it is given as "the projection of personality and character to get soldiers to do what is required of them."[42] This too is an inadequate definition, particularly when measured against others that have been developed. It is autocratic, leader centric (to the point of exclusion of the follower), and lacks any comment on the morals of leadership. Additionally, the fact that there is no concurrence on a definition of what leadership is within the two pillars of LFC's doctrine indicates a lack of understanding on the topic.[43]

A further problem is that the Army apparently does not comprehend the relationship between leadership and management. The only exception to this may be found in *Command*, which articulates: "Although the terms command, leadership, control and management are closely related; it must be clear that military leadership does not equate to military management, and is wholly different from business management."[44] Management is then defined as "the use of a range of techniques to enhance the planning, organization and execution of operations, logistics, administration and procurement."[45] Among the definitions of management examined, this is quite possibly the most succinct and effective definition that was found.[46]

This distinction, though, is not reflected in the other leadership publications being used to teach new leaders within the Army. Indeed, within *The Professional Officer* there is no mention of the fact that management is an important tool that the leader can draw on to assist in mission accomplishment. At the same time, while claiming to discuss leadership, it cites "incentives to performance."[47] This is transactional leadership, which can be described as akin to management. It may get the task completed, and it is important, but it is certainly not transformational leadership.

Additional evidence of confusion between management and leadership can be found in *Leadership in Land Combat*, which touches on the relationship between the two in a cursory manner. Aside from a definition of the terms it does not address the differences between the concepts or how they relate. Rather, while discussing the roles that the combat leader can be expected to perform (including "personal counselling, health discipline…records…quarters…pay…equipment maintenance and supply"),[48] it articulates traditional management functions under the guise of a leadership activity. These are important, but they are not leadership. More appropriately, the fulfilment of these tasks is expected of a commander (who uses both leadership and management to accomplish tasks). The difference may appear to be a matter of semantics, but it is critical that it be understood that leader, commander and manager are each different roles. This publication asserts a difference, then goes on to disregard it, contributing directly to the confusion between the spheres of command, leadership and management.

There are several other problems associated with the leadership doctrine. The first is an over reliance on "example" as a means to exercise leadership

There are several other problems associated with the leadership doctrine. The first is an over reliance on "example" as a means to exercise leadership. All of the publications recognize that it is a critical element of leadership (which may be true), but they fail to mention several points. The most obvious is that leaders copy the examples that are set for them. It, therefore, becomes imperative that potential leaders select an appropriate example to emulate; this in itself can be problematic. A second related point is that on the modern battlefield it can be very difficult to set a physical example, as there may be some distance between a commander and the soldiers under their command. Modern armies have moved beyond the point where a battalion commander, in battle, is visible to all the soldiers in his unit. The concept of setting the example needs to be broadened to include the idea of a leader enhancing his visibility and becoming known by those he is leading.

The lack of any reference to, or understanding of, transformational leadership is a larger issue. This, admittedly, is related to the fact that much of the presently sanctioned doctrine is over twenty-five years old. The CF has now decided that transformational leadership will be used in the accomplishment of their objectives.[49] This places LFC in the position of having to use a model that most of its commanders have never been taught. Unless they have pursued the subject independently, the majority will have no knowledge of the concept.

The last major problem with the sanctioned leadership doctrine relates to the idea of the military being classed as a profession, and the need to build a body of corporate

knowledge. Within LFC, this responsibility, particularly regarding leadership, seems to have been forgotten. The clearest evidence of this can be found by examining the Army Lessons Learned Centre (ALLC) Post Exercise (PXR) and Post Operational (POR) reports.[50] These reports are essentially lists of questions that those who conduct activities are to answer in order for the ALLC to gather any lessons that were learned. The topic of leadership is not even mentioned. Being that the stated first duty of an officer is to lead, this topic should be central to the efforts of ALLC,[51] and certainly warrants inclusion.

In general then, the formal, sanctioned leadership doctrine of LFC can be described as wanting. It does not reflect prevailing academic opinion, it is dated, and often times, it is contradictory. Additionally, as an institution, there seems to be little effort in correcting the existing material. However, the sanctioned doctrine is but one part of the body of knowledge and cannot be judged in isolation. This raises the issue of periodic instructions.

Although a far more current reflection of prevalent academic opinion than sanctioned publications, there are several problems within the periodic instructions concerning leadership issued by LFC and the CF. The first weakness is that any discussion of ethics is conducted totally separately from that of leadership. Secondly, aside from *Shaping the Future of Canadian Defence: A Strategy for 2020*, the CDS, the CF and LFC do not seem willing to state which school of thought they expect their commanders to use. A third flaw in the periodic guidance is the limited distribution that it seems to receive. Additionally, the topic of leadership is not even being discussed in the majority of the periodic instructions that are being issued. Lastly, although not specifically concerned with leadership, the CF discourse on ethics demonstrates some fundamental flaws. The best example of these faults can be read by examining the *CDS (Chief of Defence Staff) Guidance to Commanding Officers*[52] and the products of the ALLC.

Within the CDS Guidance there are discussions on a wide variety of issues, including both leadership and ethics. But the relationship between the two spheres does not receive the focus it should. Rather the two are treated separately, implying that ethics is not an integral part of leadership. The union of the two is only mentioned in the ethics chapter, which notes, "The link between leadership effectiveness and ethics is direct."[53] The sentiment is correct, but it is in the wrong place. All students of leadership should be taught that ethics is an integral part of the subject, without being referred to a supporting document.

The *CDS Guidance* contains a wealth of information specifically devoted to definitions, theories and approaches to leadership, but it does not include a clearly stated preference from the CDS, the CF or LFC. The theories of Joseph Rost and James MacGregor Burns do stand out above those of their colleagues, but they lack any official endorsement. Some might argue this is a benefit, as the lack of sanction serves to allow commanders to choose means and leadership styles that they feel appropriate. However, this argument is short-sighted, and does not acknowledge that although different approaches may be beneficial, they need to be based on one common standard—doctrine. If the doctrine does not articulate the preferred methods, it cannot serve its purpose.

The *CDS Guidance* also demonstrates a third fault with the periodic instructions, specifically their limited distribution. Compared to the other components of LFC's leadership doctrine, this document is quite good, and should be considered to replace the antiquated publications that it is intended to supplement. However, by limiting its distribution to commanding officers (CO), many of those who could benefit from the information it contains are left to do without.[54] A final fault, which dwarfs the others, is that much of the periodic instruction on leadership originating within LFC does not concern leadership.

This is exemplified in the pages of the ALLC publication Dispatches. Of the nine volumes published between 1994 and 2003, only one issue attempted to examine leadership. Unfortunately, this issue entitled *Lessons Learned—Leadership in a Mixed Gender Environment*[55] did not truly consider the topic. Instead, this document can be more accurately described as covering gender issues. "Harassment, Sexual Misconduct and Personal Relationships, Physical Fitness, and Health Considerations"[56] are all discussed, but they do not form the realm of leadership. Leadership oriented topics that could have been examined by this pamphlet should have included building trust in a mixed gender unit, differences in how men and women communicate, and issues that female commanders have had to resolve in leading men. These were left untreated. Similarly, the ALLC's treatment of the subject of re-roling[57] shows very little concern for the exercise of leadership. In fact, there is only one paragraph devoted to the subject. The discourse on the subject of leadership produced by the ALLC, although well intentioned, clearly demonstrates that, at an institutional level, the Canadian Army has not learned, or captured, any lessons concerning leadership through its conduct of operations in the 1990s.

It is also evident that the CF's outlook on ethics has fundamental flaws in its understanding of the concept. This is demonstrated in the ethics section (Chapter 3) of the *CDS Guidance*, where there are at least three major faults. The first is the complete omission of any discussion regarding the ethics of purpose and the ethics of content. This is glaring and must be corrected. The second is that the chapter does not acknowledge that the ethics of an individual and those of an organization may be in conflict. Instead, it opts to state: "To be an effective leader, the entire spectrum of values that you hold must be compatible with each other."[58] At the very least it should offer guidance on how to reconcile that there might be differences between the values that are held in high regard by the organization and those of the individuals that form it.

A third problem is the fact that it treats ethics in the language of management. This is demonstrated by the fact that the chapter deals with ethics under the heading of "Global and Industrial Trends"[59] and "Liability and Accountability Trends."[60] When these two sections are examined, it is reminiscent of a management seminar in risk avoidance. In order to emphasize the fact that ethics is a required element within leaders, the topic should be discussed in terms of philosophy. Some might suggest that this is adequately stated in the "Statement of Defence Ethics,"[61] wherein it Affirms: "We give precedence to ethical principles and obligations in our decisions and actions."[62] Yet, what are the ethical principles that are being subscribed to? Are we to follow the idea of a "categorical imperative,"[63] the utilitarian ideas of John Stuart Mill,[64] or perhaps adopt those detailed by Friedrich Nietzsche?[65] Clearly, what the CF

asserts concerning ethics is too vague. Moreover, LFC needs to clearly specify the moral foundations that its members are to adopt and which the Army's socialization apparatus needs to enforce.

These failings in the periodic instructions, concerning leadership and ethics, could be placed aside if the third doctrinal sphere, that of intellectual discourse, contained discussion on the topic. Unfortunately, the Canadian intellectual discourse done by its military profession over the past ten to fifteen years can be characterized as abysmal. This may seem overly harsh, but one need only look at the professional journals of other nations, and compare them with Canadian versions, to see that this is, in fact, the case.

Between 1987 and 1995, *Canadian Defence Quarterly* published fewer articles devoted to leadership than it did to physical fitness. There were several articles on ethics, however, these were almost exclusively written by one retired padre (who is still writing on the subject). Between 1995 and 1998, the situation concerning leadership did improve with one article being published. *Canadian Defence Quarterly* is no longer printed, now replaced by the *Canadian Military Journal* and *The Army Doctrine and Training Bulletin* (now *The Canadian Army Journal*). These two journals are in their infancy, and though each has published at least one article on leadership, they do not compare favourably to the discourse currently taking place in the American Army.[66]

Parameters: *The Journal of the United States War College* and *Military Review* have both published numerous articles on leadership. *Military Review*, up until 1999, published an annual issue that was completely devoted to the subject. They actually published more complete issues on the topic than *Canadian Defence Quarterly* published articles concerning ethics and leadership combined. The quality of the articles that both *Military Review* and *Parameters* publish is excellent, with the ideas that they cover being quite amazing in their scope. Using just their 1999 issue on leadership[67] as an example, it is possible to read on topics as diverse as development of a leadership philosophy,[68] leadership and doctrinal reform,[69] or the creation of a leadership development program.[70] This is useful, thought provoking and engaging; everything that intellectual discussion should be. The editors of *Military Review* have recently decided to include at least one article on leadership in every issue of their journal. We would do well to follow their example.

Each of the Canadian Combat Arms Branches publishes a journal as well, and here the situation is slightly better. Both *The Infantry Journal* and the *Artillery Bulletin* include articles on leadership on a fairly regular basis. However, because of their nature as corps specific journals they do not receive the wide distribution accorded to either the *Canadian Military Journal* or *The Army Doctrine and Training Bulletin* (now *The Canadian Army Journal*). This impacts on their ability to transmit the lessons they contain, particularly considering that they are published sporadically at best, and cannot be subscribed to by the professionals that they are supposed to be serving. Further, because they are targeted towards their own corps, lessons that transcend corps functions, like leadership, are not always passed to the members of the other combat arms who might be able to use them. One solution to this problem would be to increase the distribution of the corps specific journals to all arms of LFC. This would

facilitate discussion on all topics, including leadership, between all corps. Additionally, all journals should offer opportunities to subscribe.[71]

Obviously then, the leadership doctrine of the Canadian Army is in a poor state. Out of date, no longer reflecting the realities of leadership at the commencement of the 21st Century, and basically lacking any discussion of the lessons that should have been learned in the 1990s, it demands revision. However, revising what has been written to bring it in line with current theory is but one step. If LFC wishes to truly remedy the present state of affairs, further action will need to be taken.

FIXING THE PROBLEMS

As mentioned, the obvious part of the solution is the rewriting of the current sanctioned leadership doctrine. This should be completed by the Department of Leadership and Psychology at the Royal Military College (RMC), rather than the Directorate of Army Doctrine (DAD) or the Canadian Forces School of Leadership, primarily because RMC already has a department specifically devoted to the study of leadership.[72] Once the doctrine has been rewritten it must be updated periodically. The Canadian Army cannot afford to repeat the mistakes made in the 1970s where the doctrine was left to stagnate without being reviewed for currency or relevance.

The second step that the institution needs to take is to capture the lessons on leadership that are being learned through the continuing operations being undertaken across the globe. The present POR process needs to be expanded with leadership placed as a central subject for observation. The Army needs to examine the effects of some of its practices on leadership. As described, this is not taking place. If LFC wants to improve the leadership of its commanders and their staffs, it needs to capture lessons the first time that they are encountered so that they do not have to be re-learned the hard way. One method to accomplish this is to be proactive. For example, the Army should now be questioning how command and leadership are affected by the technological implications of the light armoured vehicle (LAV) III and the modern peacekeeping environment, with its myriad of civilian partners and overtly political decisions. Succeeding generations of officers and NCOs should not be forced to learn every lesson on their own; LFC has the ability to be a learning organization, with lessons being institutionalized.

The third step is somewhat more difficult to accomplish. The officer corps of the Canadian Army needs to revitalize its profession and seize the legacy of academic excellence that it was left by its predecessors. Intellectual discourse and critical analysis of the writings put forward by fellow officers should be a central element in the modern army officer; these were hallmarks of the professional officer of the inter- and post-war periods.[73] Over time, however, this seems to have been forgotten, with relatively few officers now contributing to the ongoing evolution of their profession. When the *Canadian Military Journal* is examined it is incredible to note that Canadian officers write few of the articles. Knowing that the first instance where lessons are often recorded is within the pages of professional journals, officers need to be charged with writing about the topic of leadership. The litany of potential topics is endless: possibilities include leadership during periods of decreased budgets, equipment

changes, domestic operations, leadership and ethics, leadership and the Reserve Support Staff (RSS) officer, choosing an example to emulate, teaching leadership within a unit, or exercising leadership in a bilingual unit, to list a few.

The process of encouraging writing and thought on the subject can be assisted at the organizational level. One somewhat draconian method might be to link promotion to any rank above Captain to demonstrated contributions to the continued evolution of the military profession, specifically publication of articles. Many modern universities use similar criteria for giving tenure to professors. If actual publication is overly problematic, there is nothing stopping unit COs from including professional writing as part of their unit level programs for officer and senior NCO development. Another option is that used by the United States Marine Corps and their professional journal, *The Marine Corps Gazzette*. Their use of the "Chase Memorial Essay" contest, and until recently honorariums for contributions, both serve to increase the number of articles that are submitted for publication.

The process of encouraging writing and thought on the subject can be assisted at the organizational level

The journals of the Canadian Army could also be mandated to emulate other professional publications and include a section on leadership in each issue. This would be quite simple to accomplish, with articles being solicited on various topics several months before publication, giving unit COs the opportunity to assign different articles to members of their units. The point is that LFC needs to take steps to get its officers at all rank levels thinking and writing on the topic. The current drive for a university educated officer corps will be for nought if the degrees are not being used to assist the development of the profession.

The role filled by Canada's military journals also needs to be re-evaluated and rationalized. As mentioned earlier, reading and discussing professional discourse is an essential element of all professions. It is hard to imagine a doctor who does not subscribe to medical journals, therefore, why do we accept having an officer corps that does not examine its own evolution?[74] In some ways, this calls for a shift in the mindset of the Canadian Army; it needs to encourage and promote the inclusion of an intellectual component in the modern officer. The concept of professional culture needs to be expanded so that it is no longer enough to just go about the day to day affairs of being an officer or NCO, rather it must include active contribution to the institution.

CONCLUSION

Leadership is not a panacea for the wide variety of challenges that exist within LFC. It is, however, one of the most important tools that commanders at any level can use to ease the difficulties faced by their troops. It is one of the central characteristics of being a member of the military. Canadians expect their soldiers and their commanders to display ethical leadership in the conduct of all activities that they undertake. An Army that does not exercise leadership is little more than an armed mob.

The leadership doctrine of the Canadian Army shares some distinct similarities with the mechanized doctrine of the Polish Army on the out break of the Second World War. Antiquated to the point of irrelevance, not reflecting current theory on the topic, and institutionally not learning from its own experiences, it demands attention. As simply affirmed in *Canada's Army*, "the first duty of a Canadian officer is to lead."[75] It is time for the officer corps to lead change and correct the deficiencies in its Army's leadership doctrine. The Canadian public and its soldiers deserve no less.

About the Author...

Major Tod Strickland joined the Canadian Forces in 1988 and has completed two operational tours in Bosnia-Hercegovina. Currently he is the Officer Commanding Administration Company with 1 PPCLI. A graduate of the BMASc program at RMC, he is now completing a Masters degree in Middle Eastern History.

END NOTES

1. David Eshel, *Bravery in Battle: Valour on the Front Line* (London: Cassell, 1999), p. 43.
2. Ibid, pp. 45-46.
3. Canadian Forces, B-GL-318-015/PT-001 *Military Training Volume 15: Leadership In Land Combat* (Ottawa: Canadian Forces, 1988).
4. Canadian Forces, CFP 131(2) *Leadership Volume 2: The Professional Officer* (Ottawa: Canadian Forces, 1973).
5. It is interesting to note that *The Professional Officer* was specifically written to address an assessed weakness in both leadership theory and practice that was found in two studies in 1964 and 1965. *The Professional Officer*, 1-1, Article 102(2).
6. Including the year 1989, the Canadian Forces has been deployed on 65 different missions. Lieutenant-Colonel Bernd Horn, ed., *Contemporary Issues in Officership: A Canadian Perspective* (Toronto: Canadian Institute of Strategic Studies, 2000), p. 7.
7. Paul Johnston, "Doctrine is Not Enough: The Effect of Doctrine on the Behavior of Armies," *Parameters*, (Autumn 2000), p. 30.
8. Ibid.
9. Major J.W. Hammond, "First Things First: Improving Canadian Military Leadership," *Canadian Defence Quarterly*, Vol. 27, No. 4 (Summer 1988), p. 6.
10. Canadian Forces, B-GL-300-000/FP-000 *Canada's Army: We Stand On Guard for Thee* (Ottawa: Canadian Forces, 1998).
11. Canadian Forces, CFP 131(2) *Leadership Volume 2: The Professional Officer* (Ottawa: Canadian Forces, 1973).
12. Canadian Forces, B-GL-318-015/PT-001 *Military Training Volume 15: Leadership In Land Combat* (Ottawa: Canadian Forces, 1988).
13. Canadian Forces, B-GL-300-003/FP-000 *Volume 3: Command* (Ottawa: Canadian Forces, 1996).
14. Canadian Forces, A-PD-131-001/PT-001 *Leadership Volume 1: Junior Leader's Manual* (Ottawa: Canadian Forces, 1973).
15. Canadian Forces, *CDS Guidance to Commanding Officers 99/00: Book 2 Professional Development Workbook* (Ottawa: Canadian Forces, 1999).
16. Canadian Forces, *Shaping the Future of Canadian Defence: A Strategy for 2020* (Ottawa: Canadian Forces, 1999).
17. *Canada's Army*, p. i.
18. It should be stated that at the time of writing, the Directorate of Army Doctrine had begun the process of rewriting much of the Army's doctrine on all manner of subjects.
19. Because this document has not been re-issued or amended, it does not benefit from the experiences of our allies during the Gulf War.
20. For example, a discussion on the "Leader as Advisor on Alcohol and Drugs." See *Leadership in Land Combat*, 6-13 Article 613.
21. Although leadership theory should transcend all barriers, the practical application and specific techniques may not. Because of this detailed discussion of these practicalities needs to take place.
22. Re-roling may be defined as using one element of the combat arms to fulfil the tasks of another (using an armoured or tank unit to conduct tasks that would normally be done by the infantry). Because units, and their soldiers, are being used in an abnormal manner, different leadership challenges may arise.
23. See Dale M. Smith, "Women and Leadership" in *Leadership Theory and Practice*, Peter G. Northouse (Thousand Oaks, California: Sage Publications, 1997), pp. 204-238, and Michael M. Gurstein, "Leadership in the Peacekeeping Army

of the Future" in *Out-of-the-Box Leadership: Transforming the Twenty-First-Century Army and Other Top-Performing Organizations*, eds. James G. Hunt, George E. Dodge and Leonard Wong, (Stamford, Connecticut: JAI Press, 1999), pp. 195-218.
24. *Leadership in Land Combat*, Chapter 3.
25. *Canada's Army*, p. 34.
26. Ibid, pp. 34-35.
27. Canadian Forces, *Statement of Defence Ethics* (Canadian Forces, 1996), accessed 5 January 2001; http://www.dnd.ca/nayv/marcom/ethics.html.
28. Canadian Forces, *Canadian Military Ethos* (Canadian Forces, 1996) accessed 5 Jan 2001: http://www.homestead.com/maintcoy99/Ethos.html
29. Canadian Forces, *JAG: Certification Training Package for Presiding Officers* (Canadian Forces, 1998), accessed 5 January 2001: http://www.dnd.ca/jag/dlaw_training/chapter1_html/military_justice_ehl_e.html#section3.
30. Ibid.
31. *Somalia Commission Report*, ES-46; Vol. 5, 1451.
32. *Canadian Military Ethos*, para 5.
33. *Canada's Army*, p. 34.
34. Ibid, pp. 34-35.
35. *Leadership in Land Combat*, 6-20 Article 617.
36. These are truth, duty, loyalty, sacrifice, trust, competence, initiative, good example and the ability to inspire. Though the last two may be counted as leadership, the term itself is not mentioned. *Canada's Army*, p. 37.
37. Described as "those spiritual, psychological, intellectual and sociological factors which enable soldiers to overcome fear and defeat an enemy or successfully carry out a mission." Ibid, p. 38.
38. Some authors, including Lieutenant-Colonel Bradley, have decried the concept of leadership as an art, claiming that this would make it un-teachable, opting instead to refer to it as a skill. I do not see this as being an important distinction. If it is an art, then there are certainly components that belong to the skill category (similar to a painter learning brush techniques). See Bradley 2001.
39. *Canada's Army*, p. 41.
40. It can also be described as being in line with Sarkesian's characterization of leadership as "do the leaders wishes."
41. Hammond, pp. 7-8.
42. *Command*, 2-2 Article 201(2)(a)(1).
43. Within Canada's Amy, however, there are two positive points. First, leaders (note not officers or commanders) are charged with creating mutual trust between the ranks (presumably by following the Ethos); second, "commanders" are told that they "must lead by example" (Canada's Army, p. 36). These may be viewed as "fundamentals" and in some ways bring to mind the definition articulated by Joseph Rost particularly when it is considered that "mutual purposes" are extremely hard to build without mutual trust.
44. *Command*, 1-7 Article 1.
45. Ibid, 1-7 Article 4.
46. It is interesting to contrast the effectiveness of the LFC definitions for leadership and management. Management seems to be much better understood and clearer, whereas the definition for leadership is dated and needs further clarification.
47. *The Professional Officer*, 4-7, Article 408.
48. *Leadership in Land Combat*, 5-6 and 5-7, Article 504(4).
49. Canadian Forces, *Shaping the Future of Canadian Defence: A Strategy for 2020* (Ottawa: Canadian Forces, 1999), p. 7.
50. Canadian Forces. *Land Force Command Orders 23-11* and *22-13*. (Kingston: Canadian Forces, 1999). Accessed 16 January 2001; available from http://www.army.dnd.ca/allc/ website/english/ftp/ FTP.asp?category=downloads
51. Other aspects regarding the ALLC will be discussed later in this paper.
52. Canadian Forces, *CDS Guidance to Commanding Officers 99/00: Book 2 Professional Development Workbook* (Ottawa: Canadian Forces, 1999). This is, in the strictest sense, a CF publication, which would seem to warrant exclusion from this project. It has been included because it is universally issued to all commanding officers within LFC as part of their professional training prior to their assumption of unit command.
53. *CDS Guidance to Commanding Officers 99/00*, Chapter 3, 1/10, Article 301.2.
54. The exceptions being those to whom their commanding officers pass on this publication.
55. Canadian Forces, *Dispatches: Lessons Learned—Leadership in a Mixed Gender Environment* (Kingston: The Army Lessons Learned Centre, Vol. 5, No. 2, September 1998).
56. Ibid, Table of Contents.
57. Canadian Forces, *Dispatches: Training for Operations* (Kingston: The Army Lessons Learned Centre, Vol. 3, No. 2, April 1996), pp. 11-15.
58. *CDS Guidance to Commanding Officers 99/00: Book 2 Professional Development Workbook*, Chapter 3, 1/10, Article 303.1.
59. Ibid, Chapter 3, 6/10, Article 313.
60. Ibid, Chapter 3, 7/10, Article 314.
61. Ibid, Chapter 3, Annex A.

62. Ibid, Chapter 3 Annex A.
63. Immanuel Kant, "Foundations of the Metaphysics of Morals" in *Twenty Questions: An Introduction to Philosophy (Fourth Edition)*, eds. G. Lee Bowie, Meridith W. Michaels and Robert C. Solomon (Toronto: Harcourt College Publishers), pp. 685-690.
64. John Stuart Mill, "Utilitarianism" in *Twenty Questions: An Introduction to Philosophy (Fourth Edition)*, eds. G. Lee Bowie, Meridith W. Michaels and Robert C. Solomon (Toronto: Harcourt College Publishers), pp. 690-694.
65. Friedrich Nietzsche, "The Natural History of Morals" in *Twenty Questions: An Introduction to Philosophy (Fourth Edition)*, eds. G. Lee Bowie, Meridith W. Michaels and Robert C. Solomon (Toronto: Harcourt College Publishers), pp. 694-698.
66. It should be noted that while this document was being written, the Special Advisor to the Chief of Defence Staff for Professional Development has published three new books concerning leadership.
67. Colonel Lee J. Hockman, US Army, ed., *Military Review* (Fort Leavenworth, Kansas: US Army Command and General Staff College, May-June 1999).
68. Colonel Maureen K. Leboeuf, US Army, "Developing a Leadership Philosophy," *Military Review* (May-June 1999), pp. 28-34.
69. Sergeant First Class David R. Gayvert, US Army, "Leadership and Doctrinal Reform," *Military Review* (May-June 1999), pp. 18-22.
70. Lieutenant Colonel Donald M. Craig, US Army, "Designing a Battalion Leadership Development Program," *Military Review* (May-June 1999), pp. 7-17.
71. This is not much of an issue when it is considered that some of these journals are available online.
72. A second option is to use the Canadian Army's developing Leadership Institute.
73. The intellectual discourse that took place within the pages of *Canadian Defence Quarterly in the 1920s and 1930s* stands out as an example of thought provoking and engaging academic dialogue written by Canadian officers. The *Canadian Army Journal* of the post-war and Korea time frame also includes intellectual discourse on a wide variety of topics and issues.
74. Although this may sound harsh, the fact that *Canadian Defence Quarterly* stopped publishing in 1998 is a telling statement regarding the active participation of the Canadian officer corps in its profession.
75. *Canada's Army*, p. 52.

THE ELASTIC DEFENCE, 1917-1943

By Mr. Vincent J. Curtis

It is necessary to call into council the views of our predecessors in order that we may profit by whatever is sound in their suggestions and avoid their errors.

-Aristotle

INTRODUCTION

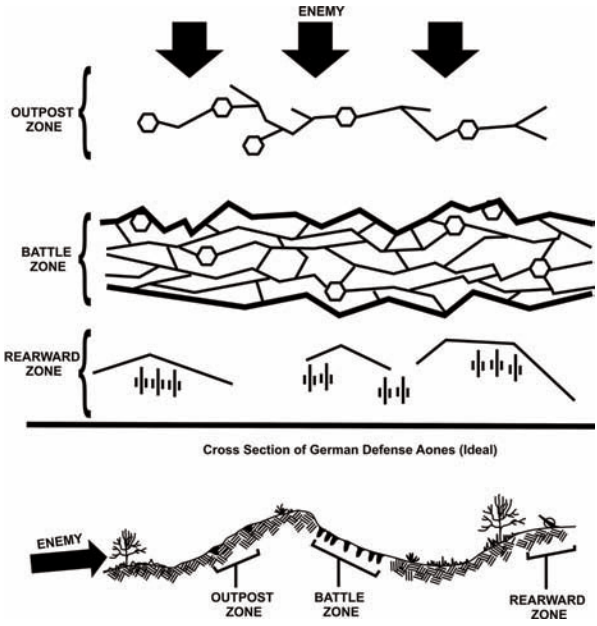

Figure 1: The Elastic Defense, 1917-18

"Elastic" was the name given by British Forces to the method of defence employed by the German army on the Western Front of World War I from February 1917, to the end of the war. No philosophical system builders they, the Germans gave the method no name at all; it was simply the preferred method of conducting defence on the Western Front. During the interwar years, the German army modified the details of their method of defence but retained its overall form. The defence was formally codified in *Truppenfuhrung*, the capstone doctrinal manual that carried the German Army through World War II. This method of defence was never implemented in Poland, in France, or in Russia in its fully developed form during World War II, although its spirit was retained when the Germans were forced onto the defensive in Russia from 1941 onwards.

Why should one study the methods of trench warfare in this age of mechanization, manoeuvre and surpassing air power, or indeed, when the elastic defence was never fully implemented in the first war after it was invented? Doesn't that prove that war is too changeable for the tactical methods of one war or one era to be applicable to the next, especially in an age of rapid technological change? The latter question is undoubtedly valid and applies just as well to doctrine developed today. As is said in *Truppenfuhrung*: "The conduct of war is subject to continual development. New weapons dictate ever-changing forms."

New forms, however, do not mean new principles. Aristotle observed that in change, something must remain constant. Military doctrine, then, should be seen as a point of departure; it consists of the underlying principles that guide change and yet themselves remain constant.

What will be covered here is the defence that the elastic defence came into being *from* and what the elastic defence changed *into* in response to developments in the tactical and strategic situation faced by the German army, and to show how strategic decisions made at the highest level changed defensive tactics as far down the chain of command as the section level. What will be seen is a consistency throughout of a structure and dynamic that is based upon the classical principles of defence.

A previous paper exposited the geometric principles of classical defence.[1] The elastic defence is an outstanding example of the application of the classic principles of defence to modern tactical problems, and was employed by the same army that invented blitzkrieg. In modified form, elastic defence became the doctrinal method of positional defence of Genforce after World War II. In short, while the details changed, the underlying concepts remain valid today. A thorough understanding of effective defence is essential to a full understanding of war because it is against a defence that an offense operates, and because an offensive that does not end in victory must end on the defensive.

THE FIRST WORLD WAR AND THE RISE OF ELASTIC DEFENCE

The mobile phase with which the western theatre of World War I began ended in November 1914, and a network of trenches wove across France and Belgium marking the extent of German conquest. An extreme form of cordon warfare gripped the Western Front as both sides lay siege to each other. The British naval blockade was slowly to crush the life out of the German economy. Germany could not match the Allies man for man, shell for shell and gun for gun; and the agriculture available to the Central Powers could not feed their populations. While the Germans were trying to bleed the French army white at Verdun, the British army attacked the Germans in the Somme sector.

> *The Somme battle ran from 1 July to 19 November 1916. The British offensive amounted to a spasmodic push forward—measured in hundreds of yards—across a limited sector supported by the enormous weight of British artillery. These are the defences into which the British army attacked:*
>
> *The first and second [defensive] systems each consisted of several lines of deep trenches, well provided with bomb-proof shelters and with numerous communication trenches connecting them. The front of trenches in each system was protected by wire entanglements, many of them in two belts forty yards broad, built of iron stakes interlaced with barbed wire, often as thick as a man's finger.*
>
> *The numerous woods and villages in and between these systems of defense had been turned into veritable fortresses. The deep cellars usually to be found in the villages, and the numerous pits and quarries common to chalk country, were used to provide cover for machine guns and trench mortars. The existing cellars were supplemented by elaborate dugouts, sometimes in two stories, and these were connected up by passages as much as thirty feet below the surface of the ground. The salients in the enemy's line, from which he could bring enfilade fire across his front, were made into self-contained forts, and often protected by minefields; while strong redoubts and concrete machine gun emplacements had been constructed in positions from which he could sweep his own trenches should these be taken. The ground lent itself to*

good artillery observation on the enemy's part, and he had skillfully arranged for cross-fire by his guns.

These various systems of defense, with the fortified localities and other supporting points between them, were cunningly sited to afford each other mutual assistance and to admit of the utmost possible development of enfilade and flanking fire by machine guns and artillery. They formed, in short, not merely a series of successive lines, but one composite system of enormous depth and strength.

Behind his second system of trenches, in addition to woods, villages and other strong points prepared for defense, the enemy had several other lines already completed; and we had learnt from aeroplane reconnaissance that he was hard at work improving and strengthening these and digging fresh ones between them, and still further back.[2]

It is a testament to the power of artillery that an assault of any kind by infantry against these defences could even be contemplated, let alone a breakthrough attempted. Yet on the first day of the Somme battle, there were several sectors of the front where allied forces captured the first system of trenches according to plan. However, the cost was enormous. The British suffered 60,000 casualties on the first day of the battle, and at the end of the first month had suffered 171,000 casualties compared to the German loss of 52,000. The solvating power of artillery fire over the entire five months of battle gradually destroyed the trenches, the wire entanglements and the villages of the German defensive system, and toward the end of the battle combat became field actions amid shell-holes. German casualties rose proportionately, partly due to misguided counterattacks against consolidated British defences when the Germans tried to regain lost ground and raise morale. By the end of the battle in November 1916, the casualties on both sides were approximately the same and enormous. Between Verdun and the Somme, the German army was nearly exhausted.

The Somme had a profound moral impact on the Germans. The weight of British artillery and the sight of the British soldiers constantly advancing regardless of casualties confirmed in the Germans the sense that they were losing. The German political leadership yet being determined to hold out, the German military leadership sought to find a tactical way to conserve manpower, especially infantry manpower, and be able to hold on substantially to the territory they had conquered in France. They came up with the tactical method the allies called the elastic defence.

The standard German practice that was employed in the Battle of the Somme, as quoted above, was to construct a defensive position in depth. Fortified line after fortified line confronted the British with all the obstacles and death traps known and developed over hundreds of years of fortress building. The forward trench line of each of the elaborately constructed defensive positions was fully manned with infantrymen, who were protected against barrages by bomb-proof dugouts, and who were expected to repel the attackers at the forward edge of the position. The position was visible to, and within range of, the British artillery. At the Somme, the British fired more shells into the German position than the Germans had defenders, far more shells than the Germans were able to reply with, and these elaborately constructed fortifications gradually melted. Many defenders were killed in the preparatory barrage; and when a creeping barrage was properly handled, the German defenders who were

not killed in the opening bombardment were held in the shelters long enough for attacking infantry to capture them before the defenders were able to deploy. When the attackers were able to consolidate on the captured position, it was a costly matter for the defenders in reserve to eject the attackers from their gains. Thus the defending Germans lost both men and ground.

The change to the German standard defence was actually subtle, and that subtlety made it all the more effective. Whereas before the defence was conceived as a hard shield, brittle and without "give", the new defence concept involved a sidestep and counterblow. Wherever it was possible, the Germans constructed a new line of trenches, which they called the main line of resistance, on the reverse slope of a ridge so that this new line was not visible to British artillery spotters and was masked from fire. In the old forward positions, 500 to 1000 m ahead of the new line, a few troops were left with light machine guns as the primary defensive weapon. The role of these troops was to prevent allied reconnaissance from probing the new German defences, to keep the allies under observation and to provide the first resistance the allies had to overcome. Behind the new main line of resistance were built numerous small strongpoints connected by trenches. These strongpoints were well camouflaged and kept small so that they could not be spotted from the air or from the ground easily. This battle zone behind the main line of resistance reached between 1500 and 3000 m in depth, and was preferably invisible from the allied lines but well observed from German artillery spotting positions. Behind the battle zone was another trench line, usually kept unoccupied, that was called the artillery protection line. The artillery protection line marked the boundary between the battle zone and the rearward zone.

When the opening bombardment was over and the attack began, attacking infantry would first have to overcome the machine gun fire that the surviving defenders in the outposts could bring down on them

This is how the defence worked. The preliminary artillery bombardment that marked the opening of battle fell onto forward positions that were largely unoccupied, and into rearward areas in which the defenders were well dispersed. In the forward positions, the few defenders moved under the leadership of their junior NCO from shell hole to shell hole to escape the bombardment. When the opening bombardment was over and the attack began, attacking infantry would first have to overcome the machine gun fire that the surviving defenders in the outposts could bring down on them. The attackers would next encounter the intact trenches of the main line of resistance that had not been destroyed by the bombardment. The defenders of the main line were expected to defend in place and to counterattack the attackers before they consolidated on the position. If the attackers overcame the main line of resistance, they advanced into the battle zone that was invisible from their lines. The official German description continues:

> *A fragmented, exhausted allied attack force reaches the battle zone. They hope that their thorough artillery preparation has killed all the Germans, but they encounter several Germans firing at them from shell holes in the torn ground. Sudden fire from the German main line of resistance has slowed the allies and their scheduled artillery barrage has crept forward without them, according to the timed sequence of fire they cannot modify. They feel helpless without artillery support.*

The allies have finally taken the main line of resistance at great cost, but now they are in unfamiliar ground, under fire from concealed enemy machine gunners and riflemen. German artillery, which the allies expected to destroy in the preparatory fires, now appears very active. The Germans concentrate their artillery fire behind the allied advanced units cutting them off from reinforcements and supplies. For the next few minutes, the allies have a tenuous hold on a few acres of ground, but by advancing into the battle zone, the allies are most vulnerable, and have exposed themselves to the counterattack, the soul of the German defense. The immediate counterattack, well coordinated with accurate artillery fire, destroys, captures, or ejects the allied unit before it can consolidate its gains. The coherence of the German defense is restored.[3]

A divisional front in this defensive scheme stretched three to four kilometers in length, and the three regiments of the division were aligned abreast. The three battalions of each regiment were stacked in a column formation, with the first battalion occupying the outpost zone and most of the main line of resistance, the second battalion filling in the rest of the main line of resistance and the battle zone and the third battalion resting in the rearward zone, a part of the divisional reserve.

Command arrangements were highly streamlined. The Commanding Officer of the lead battalion was the regimental battle commander, and the forces of the second battalion and any other reserves pushed into his sector fell under his command when they became engaged regardless of rank. The job of his boss, the regimental commander, was to make sure the lead battalion commander had everything he needed to fight the battle: ammunition, food, water, reserves and additional artillery support. The lead battalion commander coordinated the battle directly with the division commander, bypassing regimental headquarters. In the same way, the division commander bypassed corps headquarters and spoke directly with the army commander. At the pointed end of the battle, the squad commander took on enormous tactical responsibility. He was the one who decided when the squad would move, when the machine gun would fire and when the squad counterattacked. One of the great fears of the German senior commanders was that there were not enough good junior NCOs left alive at that point in the war to make the new system work.

The adoption of the elastic method of defence was heralded by the withdrawal of the Germans to the Hindenburg Line in February 1917. The new method was employed with great success against the French in April 1917 and against the British in Arras and the Battles of the Scarpe and in the Passchendaele campaign. The British introduction of the tank at Cambrai threw a surprise at the Germans, but they were able to quickly adapt. The Germans came to regard the tank as a rogue elephant; they concentrated on separating the tanks from their accompanying infantry. Once separated from infantry, the tanks were wiped out by anti-tank rifles and artillery.

By the end of the war, the weakness of the shortage of good junior NCOs told. The Germans put their best personnel into the storm battalions that employed the new Hutier infiltration tactics for the spring offensive of 1918; the second line battalions, plundered of their best leaders, were left to man the trenches. The Germans lost the best soldiers their army had in the spring and summer of 1918. The weak trench battalions that remained were no match for the allies who counterattacked, overthrowing the Hindenburg line in the hundred day campaign that brought the war to an end.

INTERWAR PERIOD

Between the wars, the Germans thoroughly reviewed their fighting doctrine. Under the leadership of General Hans von Seeckt, the customary German preference for manoeuvre, demonstrated with great success against the Russians in the east, was retained in offensive doctrine,eventually evolving into the methodology known as blitzkrieg. The elastic defensive system used in the west against the allies was likewise updated and revised in the light of experience and thought, and was published as standard defensive doctrine in *Truppenfuhrung*.[4]

Truppenfuhrung consists of rules, recommendations, guidelines and advice in numbered paragraphs that are divided into chapters by subject matter. A collection of maxims, *Truppenfuhrung* makes no pretence of presenting its subject matter in the context of an overarching philosophical system, or even of ordering the material in a strictly logical fashion. Nevertheless, it is possible to picture the method by which the Germans intended to fight defensively.

The Germans conceived warfare as a continuum of manoeuvre back and forth across the lands of Europe punctuated by battle. War was a contest of wills in which character counted more than intellect. Superior will could sometimes overcome material facts, yet will had to be governed by reason (or shrewdness). Will was not to be confused with false pride. It was quite permissible, for example, for an engagement to be broken after its purpose had been achieved, if continuation would result in losses disproportionate to the mission or lead to defeat, and it was permissible after all options for a successful decision were exhausted. Set against reason and in support of will is a caution against haste and lack of perseverance: battles were sometimes lost because the commander thought he was beaten.

In terms of time and space, the defensive was characterized by the aim of gaining time and by manoeuvre usually, but not always, in a rearward direction. Hence we see the broad concept of "delaying action." The objective of delaying action could be met by limited objective attacks, by feints and by the avoidance of combat; but the primary means of gaining time was "the defensive", under which concept was grouped "the delaying defence" and "the defence". The aim of the delaying defence was to oppose the advance of the enemy without becoming decisively engaged, while in the defence the commander was prepared to hold the line and to accept decisive engagement. In some aspects, the delaying defence can be likened to a mobile defence and the defence to an area defence, but the two kinds of defensive are similar enough in structure and dynamics that one could become the other by a mere change in commander's intent. For example, it was considered desirable in a delaying defence that the withdrawal take place at night under cover of darkness, and if warranted by the tactical situation, the delaying defence would switch to a defence until night fell. Hard combat would be accepted, and then the tactical operation of disengagement and withdrawal would be executed in darkness. It was considered necessary for the delaying defence to appear to the attacker as a defence, for time was gained by the attacker forming up his artillery and deploying his troops to attack the defence, an action he would shorten if he knew he was faced with an enemy not intent on accepting decisive engagement. In structure and dynamics, the delaying defence and the defence are similar, differing primarily in commander's intent. The technique of the elastic defence remained the basis for the German method of the defence.

COMPONENTS, STRUCTURE AND DYNAMICS

Component answers the question of what the defence is made of. Structure answers the question of how the components are arranged and what the defence looks like on the ground. Dynamics answers the question of how the defence reacts to an enemy attack.

Truppenfuhrung declared that the defensive was based primarily on firepower, and that firepower came from artillery and heavy infantry weapons such as machine guns and mortars. These came to be called the commander's main effort weapons. The most important consideration for the selection of a battle zone—the place to accept battle—was good observation for the artillery and machine gun observers. The role of infantry in the defensive was to protect the guns and the observers from enemy infantry and tanks. The infantry barrier was best sited in positions concealed from enemy observation, e.g. on reverse slopes; but placement of the infantry barrier behind rivers, swamps and steep slopes also protected the infantry from tanks.

Field fortifications provided the cover that allowed fire superiority against moving attackers. Obstacles and barriers slowed down and disrupted the enemy advance. Reserves echeloned in depth secured open flanks. The primary weapons against enemy armour were direct fire guns in the hands of the infantry (the *Paks*) and artillery fire. Flak guns could be used in an anti-armour role for close protection if necessary, though this use detracted from their primary purpose of anti-aircraft defence. Panzers had no place at all in the defensive. They were to be used en masse as an arm of decision in an offensive role. In the worst-case scenario, panzers would be used as part of a well-planned counterstrike against a large enemy penetration.

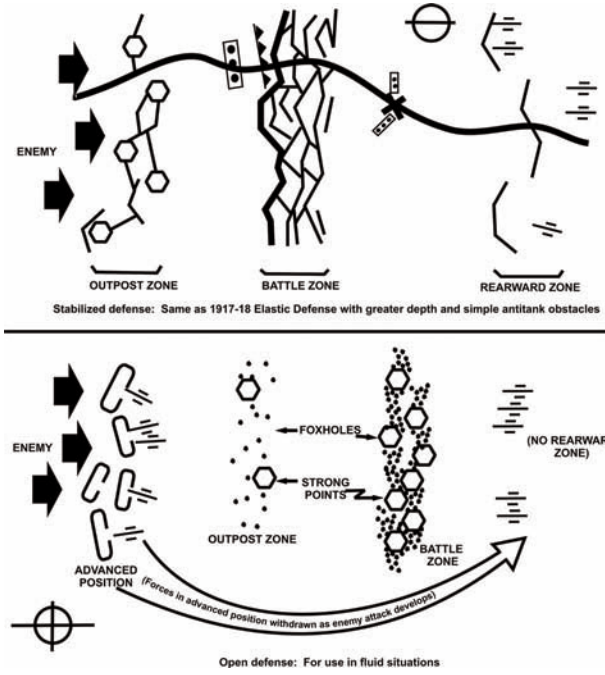

Figure 2: Defense in stabilized and open situations, 1921

Truppenfuhrung retained the zoned structure of the elastic defence of World War I, but added and deepened the zones (See Figures 2 and 3). The main line of resistance and battle zone were merged into a main battle area, the forward edge of which was referred to as the main line of resistance. In a hasty defence, individual weapons pits were to be dug. A defence of long duration, however, required that a continuous trench be dug along the forward edge, with communication trenches eventually connecting all the fighting positions. The main battle area was organized in depth for the purpose of dividing enemy fires, to facilitate local

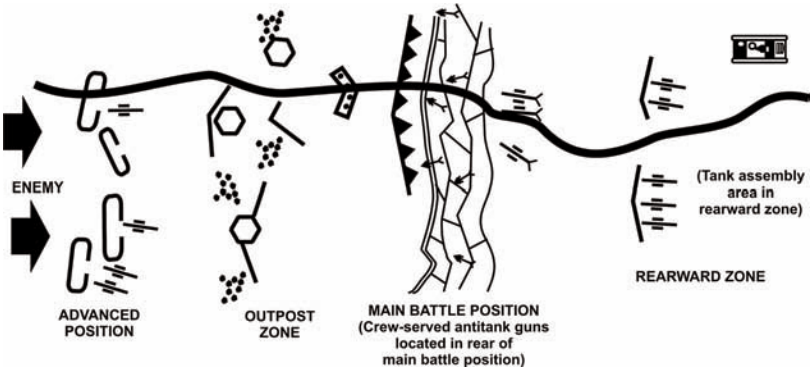

Figure 3: German Elastic Defense, 1933

withdrawals in the face of superior enemy fire and to concentrate friendly fires from the rear. Authorization for local withdrawal in the face of superior fire was held by the commander superior to the battalion commander, but the superior commander could delegate that authority to the battalion commander. The battalion commander could, in turn, delegate authority to subordinate commanders. The withdrawal could not however, endanger the cohesion of the defence or allow the enemy to become established in the main battle area.

The concept of local withdrawals in the face of greatly superior fire did not excuse the defenders from hard fighting. Far from it; it was declared explicitly that the most important part of any position was the main battle area, and it must be held to the end; that counterattacks were to be driven home with bayonets fixed; and that portions of the front not well supported with artillery fire were sometimes given very hard missions.

Organization in depth nevertheless required that the mass of infantry heavy weapons and as many light weapons as possible be able to fire to the front of the main battle area. The main battle area itself was to consist of a chain of mutually supporting positions with observation, trenches and individual firing positions. The positions were distributed irregularly and in depth, and were to be established in the order of their importance. Strongpoints for combined arms groupings (i.e. machine guns and anti-tank guns, or machine guns and mortars) were to be laid out in the most important positions. Adjacent positions were expected to be mutually supporting, but emphasis on flanking support was not to detract from frontal defence. The strongpoint had to be able to defend itself first; then the individual defensive positions would be gradually interlocked. The entire terrain in the front of the main battle area, including long ranges, was to be covered by fire without gaps.

Every effort was to be made to deceive and surprise the enemy, and in particular the enemy was to be deceived as long as possible about to the exact location of the main line of resistance. To this end, the doctrine called for the establishment of combat outposts and advanced outposts. Advanced outposts were the furthest most positions held in strength, and their purpose was to prevent the enemy from occupying commanding ground forward of the second line of outposts, the combat outposts. Advanced outposts consisted of combined arms groupings of light artillery batteries,

anti-tank guns, heavy machine guns, as well as observers for the heavy artillery in the rear of the main position. These outposts were to attrit the approaching enemy, and were expected to execute a delaying resistance in order to force the enemy to deploy his artillery too early. Artillery from the main position was to support the withdrawal of these forces and they were not to be exposed to defeat in detail. The forces of the advanced outposts, after withdrawal, resumed positions in the depth of the main position.

A chain of combat outposts was the second line of resistance encountered by the advancing enemy. Positioned not beyond the range of light artillery in the main battle area, the purpose of the combat outposts was to gain time for, and to deceive the enemy about the exact location of, the main line of resistance. When the leading edge of the main defensive area was located on a reverse slope, the combat outposts were expected to protect heavy machine guns and forward observers of the artillery who were positioned on the forward slope. The combat outposts likewise were expected to execute a delaying defence and were not to be exposed to defeat in detail. Not all combat outposts in the chain were assigned the same mission; one of them might be assigned the role of collapsing its resistance easily in order to draw the enemy's main effort into a kill zone prepared in front of the main position.

So long as the Germans were not decidedly inferior in artillery, the doctrine called for effective fires to be delivered against the enemy at maximum range, as the ammunition situation permitted. Thus, as the enemy advanced, he was to encounter increasingly strong defensive fires. The mass of artillery was to be employed against enemy infantry as it occupied assembly areas for the attack, against infantry heavy weapons and against avenues of approach and assembly areas of armoured vehicles. The infantry were to open fire as soon and as strongly as possible, based on the fire plans of its heavy and light weapons. The aim of this rising crescendo of fire was to force the attack to culminate (a term used by Clausewitz) in front of the main line of resistance. If the enemy did manage to penetrate the main position, fire was to be concentrated on the penetration, as this represented the enemy's main effort. Artillery had to be mobile to meet the crisis of the battle, and infantry heavy mortars and heavy machine guns had to have alternate, covered positions from which they could deliver flanking fires.

An enemy penetration of the main battle area was to be eliminated in the first instance with fires. If fires failed, infantry elements in the immediate area of the penetration were to attempt to eject the enemy before he could establish himself by means of hasty counterattacks. The artillery would support this effort by isolating the enemy with fire laid to the rear of the penetration. The infantry counterattacks were, whenever possible, to be made against the enemy's flank.

Compare this scheme with that elaborated by Frederick the Great on the method of defending an entrenched line:

> *While the enemy is at a distance our artillery should fire solid shot, but when he has approached to within four hundred paces we will begin to fire case shot. If the enemy, despite the strength of your entrenchment and notwithstanding your stubborn fire, should pierce your works at one point, the infantry reserve will move up to repel him, and in the event this reserve should be forced to fall back, then your cavalry should make the last efforts to drive back the enemy.*[5]

Such was the defensive doctrine with which the Germans entered World War II. Reconnaissance determined the direction of the enemy's advance and the composition and strength of his forces. The advanced outposts attrited, delayed and deceived the enemy at long range, and closer in, the combat outposts provided a different kind of resistance that both deceived the enemy about the location of the main line of resistance and protected the main position from surprise. All the while the enemy was being pounded by German artillery. The location of the enemy's main effort was betrayed by contact with the combat outposts and by penetrations into the main battle area. Advance through the main defensive area was designed to be highly lethal to enemy infantry and to tanks shorn of infantry protection. Penetrations of the main battle area received priority of all fires, and if fire alone did not eliminate the advancing enemy, local infantry reserves counterattacked the penetration in the flanks while heavy supporting fires isolated the penetration by a curtain of fire behind it. If the enemy still maintained lodgment, a heavier counterattack, better planned and prepared, perhaps including panzers, would be launched with reserves drawn from the rear. Alternatively, the Germans could give a little ground and use the old main position as the location of the combat outposts and dig a new main position in the rear of the old.

THE BARBAROSSA CAMPAIGN—WHEN THEORY MET REALITY

Because of the swiftness of their advances through Poland and France, the Germans were not required to employ a deliberate defence during the campaigns of 1939 and 1940. After marching all day, infantry units settled in for the night deployed in marching posture and only the hastiest defensive positions were prepared. Flak guns of 88 and 20 mm caliber as well as artillery were dispersed through the marching columns to add firepower to the column and provide security for the guns.

The first serious defensive battle the Germans fought in Russia occurred from late July through early September 1941, in the Army Group Centre sector. The Germans had captured a salient around Yelnya that formed a bridgehead on the road to Moscow. Attention was focused on the cauldron around Smolensk, and the Russians were hammering at the Yelnya bridgehead as a means of opening that cauldron. For their part, the German High Command wanted to hold the bridgehead for an advance on Moscow later. The panzer divisions that held the Yelnya salient until the Smolensk cauldron collapsed on August 5th were hard pressed to hold ground, for the panzer divisions possessed few infantry, had no well developed defensive doctrine and the confines of the salient limited the panzers' manoeuvre room.

The panzer divisions were replaced in the salient with infantry after the collapse of the Smolensk cauldron. The panzers were sent north and south to complete the investment of Leningrad and to close a great cauldron around Kiev. German successes glittered elsewhere, but at this point, Army Group Centre could undertake no further advance. The Army Group was depleted, and there were so few infantry on the ground that a defence in depth could not be formed in the doctrinal manner. Field Marshal Fedor von Bock, Commander of Army Group Centre, complained:

> *[a prolonged defense] was impossible in the present position. The front of Army Group, with its forty divisions sprawled over the 130 kilometer front, is exceedingly overextended, and a changeover to determined defense entails far-reaching*

planning, to the details of which no prior thought has been given. The present disposition and line is in no way suited for sustained defense.[6]

In the Yelnya salient where the battle raged, the outer defensive perimeter consisted of a single line of unconnected weapons pits on the forward slope, positioned so that the few defenders could both observe and fight. A divisional reserve comprised a single infantry battalion. There was little in the way of wire obstacles and minefields, ammunition was not stockpiled for a defensive fight and German artillery was weak. Digging more trenches by day could be observed, and the defenders had to deal with infiltration attacks by night. The shortage of infantry in relation to the length of the front drew the infantry who would ordinarily have enjoyed the relative safety of being in reserve, to the front line where they were exposed to Russian fire. The Russians hammered the salient ceaselessly, and the net result was that the German infantry was seriously depleted before the salient was abandoned.

The defence of the Yelnya salient illustrates that the German pre-war doctrine never took account of fighting defensively in a fixed position while overextended, on unfavorable terrain and without the defensive stores, manpower and ammunition required for a prolonged positional battle. Indeed, to have accounted for such a situation would be considered contrary to everything the doctrine tried to teach about fighting shrewdly. The length of the front precluded the use of doctrinal elastic defence because the forces available were insufficient to create a continuous front with the required depth and reserves ready for counterattack. It is hard to fight according to doctrine when the preconditions for it do not exist.

Faced with such a situation, the German High Command should have exercised fluid operational manoeuvre and withdrawn from the salient once it became obvious how costly the holding action would be

Faced with such a situation, the German High Command should have exercised fluid operational manoeuvre and withdrawn from the salient once it became obvious how costly the holding action would be. Rather than try to cordon a broad front, defence of the central sector, if necessary, would be by manoeuvre in which concentrated German forces would move rapidly to strike at advancing Russian spearheads—a shield of well directed blows—if the Russians chose to advance in strength. The possibility of a strong Russian advance was not a serious concern because the Germans had the operational initiative. However, it was not until a month after the collapse of the Smolensk cauldron that the German High Command consented to the abandonment of the bridgehead to Moscow. The cost in German infantry, the key to their defensive strength, was heavy.

It was Field Marshal Gerd von Rundstedt who demonstrated correct judgment when fighting overextended, at the end of the campaign, and near the end of an army's tether. Army Group South, which Rundstedt commanded, captured Rostov on 20 November 1941, with near the last spasm of its offensive strength. On 28 November, while being attacked on three sides by superior Russian forces, Rundstedt ordered a withdrawal of the Army Group to a favourable defensive line along the Mius River. This manoeuvre conserved German combat power and did not attempt to hold captured terrain for its own sake.

Army Group Centre suffered a much worse fate. Following the investment of Leningrad and the collapse of the Kiev cauldron, Army Group Centre, strongly reinforced, renewed its advance on Moscow in Operation Typhoon. The offensive collapsed at the outskirts of Moscow on 6 December 1941, and the Russian Army almost immediately switched over to the offensive.

RUSSIAN COUNTEROFFENSIVE AND THE RISE OF THE HEDGEHOG DEFENCE

The Russian counteroffensive occurred in two stages: the first, running from 6 December 1941 through mid-January 1942, pushed the Germans back from Moscow; the second stage ran from mid-January until the end of February 1942. The Russians had lost a lot of artillery, tanks, equipment, ammunition stocks, troops and especially skilled and experienced tactical leadership in the Barbarossa campaign. The Russian offensive was weak; it was strong only in relation to the Germans.

Army Group Centre, for its part, was exhausted, overextended, depleted and completely unprepared for defensive operations in front of Moscow in the midst of the Russian winter. Army Group operations until December 16 amounted to a patchwork of short withdrawals combined with listless counterattacks to contain Russian breakthroughs. The Fuhrer Directive 39, announced days before the Russians counterattacked, discounted a Russian counteroffensive over the winter. The directive planned for an orderly withdrawal of the German Armies to prepared winter quarters along a shorter line. However, the shortage of motorized transport, the execrable Russian road net, and the deepening snows inhibited the German Army from conducting an orderly withdrawal across a wide front under pressure. To withdraw in the conditions they faced would require that German army abandon artillery and heavy equipment, and would result in units being isolated or overrun. Hitler would not tolerate abandonment, betokening as it did a Napoleonic catastrophe; besides, there were no prepared positions to which Army Group Centre could retreat. Army Group Centre had lost the ability to conduct fluid operational manoeuvre, and on December 16, Hitler ordered all units to stand fast.

There simply were not enough troops on the ground for Army Group Centre to offer a continuous defensive front. In some places, assigned divisional fronts were 30 to 60 km wide, i.e. three to six times the doctrinal width, and the infantry companies of those divisions held between 25 and 40 men. The German defence condensed of necessity into a strongpoint system based on villages.

The villages offered warmth and shelter to the German troops who would have died of exposure if left to bivouac in the open. The Russian villages did have defensive value as they tended to be sited on high ground, offered good views of the open countryside and formed the hub of the local road network. The villages provided expedient fieldworks that the German soldiers initially lacked the time to prepare due to the Russian pursuit. Deep snow and cold weather made the bypassing and envelopment of these villages less than easy. When occupied and defended by an all-round defence, these strongpoint villages came to be called hedgehogs, and the German front "line" in this period consisted of the trace of the forwardmost defended villages.

The Russians, initially tried to bludgeon the developing strongpoints with uncoordinated frontal assaults, often with weak or non-existent artillery support.

Appalling losses cured the Russians of that habit about the time Hitler gave his stand fast order. Subsequent efforts by the Russians to envelop large numbers of retreating Germans were generally unsuccessful because the Russians were so tactically maladroit.

One great tactical advantage the Russians possessed was that their tanks, specifically the T-34s and KVs, were nearly impervious to German infantry anti-tank guns, the 37 and 50 mm *Paks*. Only when shorn of infantry protection and without supporting artillery fire, were the Russian tanks vulnerable to short range flank shots from the Paks and to improvised hand delivered explosives—a technique that pitted infantry morale against cold armour. The high-silhouette 88 mm flak gun and immobile German artillery were able to provide long-range tank killing power, but these weapons were kept deep in the defensive zone. The Russian tanks constituted a dangerous threat, and the German army keenly felt the need for long-range tank killing capability in the hands of its front line infantry.

In a typical village that the Germans had time to fortify, buildings well suited to the defence of the place were converted into small fortresses. Snow was banked up against the walls and then sheathed in ice; firing embrasures were cut and camouflaged with bed sheets. Buildings that interfered with the fields of fire were demolished. If a 20 mm flak gun could be incorporated into the defence, it was placed in a reinforced building that had had its roof torn off so that the gun could provide both anti-aircraft and anti-infantry fire. With experience, the Germans learned that if too densely manned, these villages could become man-traps for Russian artillery and tank attacks. Russian tanks breaking into a village strongpoint wreaked havoc by collapsing buildings and machine-gunning soldiers in the open as they tried to escape. To reduce casualties, enhance the security of the village and add depth to its defences, a continuous line of entrenchments was pushed out to encircle the village. (See Figures 4 and 5)

The entrenchments around the village were dug to ground level in the snow, and individual section fighting positions were revetted with ice walls reinforced with sticks

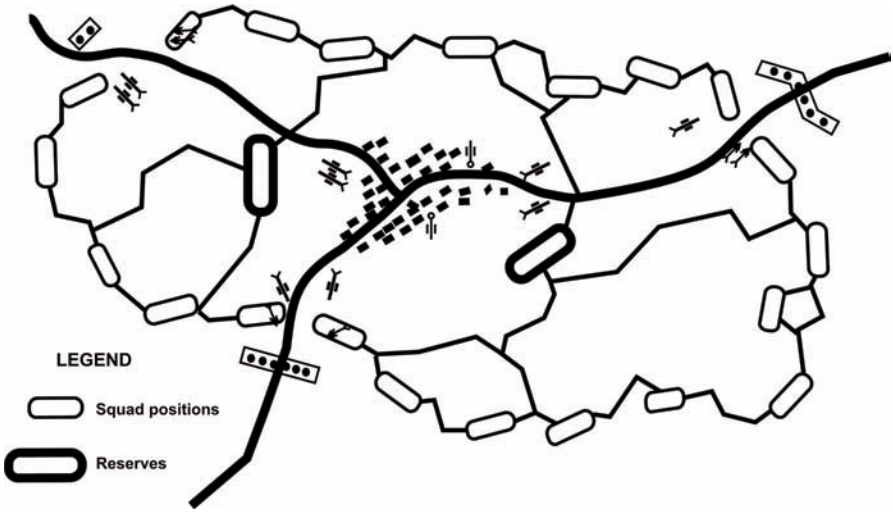

Figure 4: Extended Strongpoint

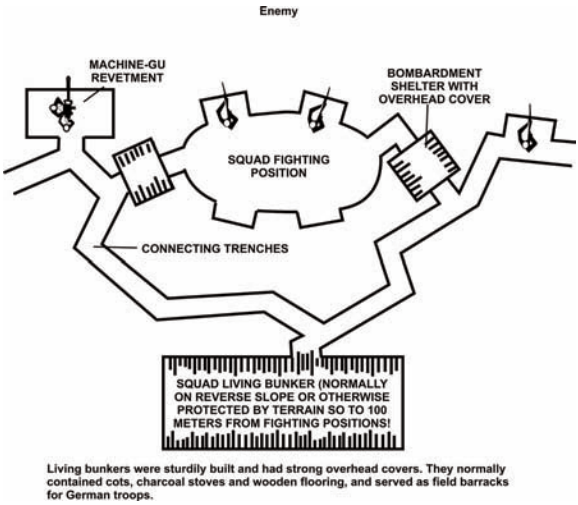

Figure 5: German squad fighting posistions and living bunker

and logs. Overhead cover was provided near the fighting positions to protect the infantry from artillery bombardment, and a small heated shelter was built in sheltered pieces of ground behind the fighting position to provide the section with a place to sleep and eat. Platoon sized reserves deeper in the strongpoint were housed in bunkers. Man-made obstacles were few and weak because wire and mines were in short supply, and on many occasions the drifting snow and frozen ground made them ineffective. The best obstacle in the defence of the villages was the deep snow itself.

Behind the thin line of fortified villages, the Germans echeloned fortified artillery and anti-tank positions, and they fortified their supply depots as well. In this way the Germans deepened the defended zone. The great weakness to the defence lay in the gaps between the fortified places through which the Russians could infiltrate attack forces, especially at night. (See Figure 6)

After the tactical situation stabilized, the Germans created divisional fire plans that integrated the fires of all mortars, artillery, and heavy machine guns. On the order of a designated front line commander, assembling or attacking Russian forces could be suddenly ripped by the simultaneous fire of all the mortar, artillery and machine guns that were within range. If a determined Russian assault managed to penetrate between strongpoints, the flanks of the penetration were counterattacked aggressively by a reserve force armed with grenades and machine pistols. Thus, the spirit of *Truppenfuhrung* was maintained.

The counterattack force, kept in the depth of the strongpoint, comprised as much as a third of the strongpoint garrison. Speed in launching the counterattack was found to be more important than size of the attacking force, and a couple of squads attacking immediately were usually found to be more effective in repelling a penetration than a company or battalion sized counterattack launched the next day. The important factor was to attack while the penetration was still small and before the Russians had a chance to consolidate and reorganize; otherwise, the small piecemeal counterattacks were wiped out. The echeloning of fortified defensive positions enabled a Russian penetration to be hit continuously with both direct and indirect fire to a considerable depth. Echeloning of positions also had the advantage of not requiring the displacement of heavy firepower assets through the snow.

The initial phase of the counteroffensive ran out of steam for lack of sustainment after the Germans were pushed back 50 to 100 km from Moscow. The Russians regrouped. When Stalin saw an opportunity to destroy the entire German Army in Russia, instead of concentrating his resources for a single blow against Army Group Centre, he dispersed his forces to attack Army Groups South and North as well. Besides

weakening the force opposite Army Group Centre, the Russians, in a gesture of egalitarianism, distributed their artillery and tank forces and their precious transport equally along the front. Insufficiently concentrated, poorly coordinated and led with little tactical skill, the Russians were unable to strike a single blow anywhere that was strong enough to pierce the German defences and seize the railheads supplying the German front. Nevertheless, deep indentations were made in the German line, and by the middle of January Hitler was obliged to allow the German army to withdraw to a "winter line." Hitler also reinforced the front with a few fresh divisions.

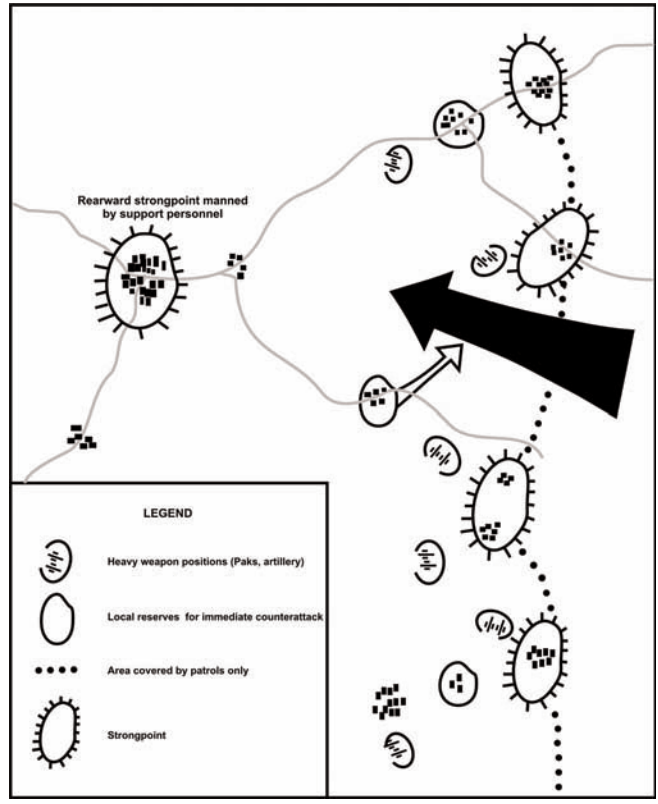

Figure 6: German strongpoint defense tactics, winter 1941-42

The Russian offensive petered out at the end of February. The German cordon line of strongpoints was never fatally punctured by the attacks launched everywhere against it because the Russians failed to concentrate their forces sufficiently and because the Russians lacked the tactical skill in combined arms necessary to exploit on the battlefield the advantages they possessed in force and mobility.

GERMAN AFTER ACTION REVIEW—EARLY 1942

Doctrinal assessments in the spring and summer of 1942 showed that German commanders regarded the strongpoint method of defence as an unsatisfactory expedient. Simply put, the strongpoints had flank problems and domination of ground with fire—as distinct from actually occupying ground with a continuous line of troops—did not work well at night and in periods of poor visibility. The strongpoints were vulnerable to encirclement, isolation and piecemeal destruction; the gaps between the strongpoints permitted Russian penetration and infiltration into the rear. German commanders expressed strongly their preference for a continuous line of trenches. As the German army was reinforced over the winter and the methods of counterattack improved, the individual German strongpoints sprouted extended flank defences (as one would expect from classical theory) and the lower level commanders did begin to knit together a single cohesive entrenched front in the manner prescribed in *Truppenfuhrung*.

Implicit in the criticism of the strongpoint system and the expression of preference for the elastic defence in the style of *Truppenfuhrung* are criticisms of the strategic situation in which the German army was placed. An extended elastic defence is form of cordon that requires a lot of infantry to man. By expressing a strong preference for a continuous line the commanders were implicitly calling either for more men than Germany had to conscript, or for a shorter line to defend. There was an additional significance in a call for a continuous entrenched line. With the infantry spread so thin, the troops in the front line adjacent to the threatened sector were often the only reserves that were available to launch a counterattack; these troops needed the covered approach that was provided by a continuous trench for them to reach the threatened area in safety. Unprotected by combat outposts, the thin main defensive "line" was exposed, and the terrain did not lend itself to covered movement.

What appears not to have been discussed is an operational, or mobile, defence. *Truppenfuhrung* covered divisional level delaying defence, and the Germans certainly understood an operational level offense, but a multi-divisional mobile defence did not make an appearance until it was undertaken by Field Marshal Erich von Manstein between December 1942, and March 1943, when Manstein rescued the remnants of Army Group South from the debacle of Stalingrad, protected the withdrawal from the Caucasus, parried the Russian efforts to cut off his Army Group and ended with the counterattack that seized Kharkov. Perhaps the German infantry divisions of Army Groups North and Centre were too exhausted or too immobile to manoeuvre against Russian armour in the open field; perhaps the snow and cold made such a defence impossible. It is clear that an operational level 'shield of well directed blows' was not seriously discussed; what is not clear is whether that deficiency was due to a lack of imagination, daring and insight or to political and tactical considerations that made such a course of action inconceivable.

Perhaps the German infantry divisions of Army Groups North and Centre were too exhausted or too immobile to manoeuvre against Russian armour in the open field; perhaps the snow and cold made such a defence impossible

DEFENSIVE PRACTICES 1942-43

The campaign of 1942 was to place Army Groups North and Centre on the defensive so that all resources could be concentrated on an advance by Army Group South into the Caucasus. Leningrad and Moscow became, for both sides, secondary theatres, and Army Groups Centre and North were therefore stripped to the bone of motorized transport, tanks, replacement troops and weapons. Hitler rejected a plan to construct a prepared defensive position, an "east wall," along a shorter line behind the positions held by Army Groups North and Centre. Instead, Hitler ordered that a continuous defensive line be built from the positions presently held by connecting the strongpoints with entrenchments, and fortifying positions in the rear. The problem of anti-tank defence in the centre and north was addressed by helpfully prescribing that thick belts of anti-tank mines and obstacles be laid, and by demanding greater coordination of artillery fire.

Because it was shaped by the winter battles of 1941-42, the line contained large swoops and indentations reflecting where the Russians happened to be stopped, and was not related to the best tactical position offered by the terrain. The line was

therefore longer than it needed to be and not well sited. Where an "east wall" position could be built by trainees and civilian labour with mechanical digging equipment and could take full advantage of terrain, the defensive line ordered to be built had to be dug by the forward combat troops and engineers under tactical conditions. The end result was that the defences were never completed as ordered because the job was too big for the people called upon to do it.

During 1942 (and later), the ability to mass fire quickly against Russian main efforts before they penetrated the forward defences proved to be essential to holding the front. When they became available, tanks, self-propelled assault guns and extra anti-tank weapons were parceled out to the reserves. When the troops were not digging defences, they were given refresher combat training to keep that aggressive edge necessary to counterattack enemy penetrations. Because of the scarcity of reserves, the troops in the front line were taught to "pinch" relentlessly inward against the flank of a local penetration as a form of manoeuvre and counterattack. The importance of small unit leadership in the conduct of the defence was particularly stressed. Small unit indeed, for it was not uncommon in the summer of 1942 for a rifle company of forty to fifty men to defend a sector of 3000 m or more, and for two man teams to cover a 60 to 100 m sector of trench at night. In addition, there were the usual requirements for local security, patrols, trench repair, equipment maintenance and rest.

It gradually became obvious that Hitler demanded rigid defence in place, not only operationally but tactically also. This limitation tended to run counter to one of the aims of elastic defence, namely the preservation of defenders. Hitler evidently believed that it was better for the defenders to sell their lives as dearly as possible in place rather than permit a withdrawal that could accelerate out of control into a general collapse. Manoeuvring to minimize casualties and not holding ground for its own sake were the German tradition, but the fact that the infantry were so widely dispersed along a line itself tended to reduce casualties because, unlike the strongpoints of the previous winter, few lucrative artillery targets presented themselves. The basic structure and dynamics of elastic defence: deep defended zone, manoeuvre to escape overwhelming pressure, reliance on firepower from heavy weapons and hasty counterattacks into enemy flanks were retained in the defensive scheme of 1942.

With the realization that Hitler's principle of stand fast would be maintained and that relief would not be found by withdrawing to a shorter line, Army Groups North and Centre could prepare for winter warfare in the autumn of 1942 where they stood. This meant that the shelters necessary to keep the troops warm could be built into the defensive line, and the warmth of the strongpoints would not be necessary to the survival of the troops.

The defences that evolved over 1942 were much weaker than the textbook elastic defence as described in *Truppenfuhrung*. Severe strain was placed on the defenders and the command staffs, but, frail as it was, in relation to the attacking force it faced, the defence fought by Army Groups North and Centre was just strong enough. Despite several crises, and aided by withdrawals in two exposed salients in February and March 1943, the defence held. Will prevailed over material facts. However, the relentless Russian attacks against the exposed German infantry had the effect of wearing out the defence.

The great doctrinal debate over the winter of 1942-43—while Rommel was still in Africa and before Manstein recaptured Kharkov—was the proper tactical employment

of armour in the defence. The infantry needed help in handling the Russian tanks, especially if they were expected to eject a penetration immediately. The infantry wanted tanks positioned close to the front line to provide additional direct fire support and to kill Russian tanks. The panzer generals all insisted that tanks were the arm of decision only when they were massed and able to manoeuvre. Tanks, they argued, should be conserved to counterattack operational sized penetrations, not be penny-packeted out to handle local crises. They strongly resisted the parceling out of tanks under infantry command. Both sides had valid arguments in this debate, but it was the infantry that carried the burden of defence and paid the price in casualties. It was heavy casualties among the infantry that was wearing out the German defence.

After the last German offensive spasm at Kursk in July 1943, the entire eastern front was thrown irrevocably onto the defensive, and the defeat of Russian armour became the primary focus of the defence. The details of German defensive methods by this time varied widely from one division to the next; consistency in doctrine had broken down, but the fundamental concepts of deep defended zone, concentrated firepower from heavy weapons and counterattack formed the philosophical background for all the different methods.

The German army entered Russia equipped with a rich defensive doctrine that included the means of holding a line against artillery supported infantry attacks while conserving their own infantry. The doctrine implicitly assumed that in holding a line there would always be enough infantry to form a continuous front, that the bulk of the infantry would not be exposed to enemy fire on a day to day basis and that the front line would, either by its sheer length or by terrain barriers, present no flanks to the enemy. The vast space of Russia where the Germans chose to defend, the brutal facts of the Russian winter and the growing number of superior Russian tanks falsified all these assumptions.

CONCLUSIONS

- Doctrine is worthless without tactical leadership that is skilled, experienced and energetic to apply it. It is a playbook without talented players, coaches and practice time. Doctrine should be regarded as a point of departure to be modified to suit the current tactical situation.

- Heavy infantry losses in the Somme and Verdun battles obliged the Germans to develop a new method of defence that would conserve infantry and yet hold ground. The new form of defence derived not from the discovery of a new principle but from a change of emphasis and method that played upon the weaknesses of the method of attack employed by the allies.

- The classic principles of defence are: surprise, use of terrain, concentric attack and firepower. Following these principles, the elastic defence made clever use of terrain by siting the main line of resistance on a reverse slope out of sight of and masked from allied artillery but well observed by German artillery. The layout of the defence was calculated to separate attacking infantry from the protection of a creeping barrage by constantly surprising the attackers with unexpected resistance as they tried to progress through the battle zone. Concentric attack was obtained by means of the crossfire of machine guns and concentrated artillery fire, as well as with constant efforts to counterattack the allied penetrations in the flanks with hidden reserves before the enemy could consolidate on the position.

♦ The elastic defence relied heavily upon the leadership of the junior NCO squad leader, and this proved its undoing at the end of World War I.

♦ In *Truppenfuhrung* the Germans elaborated a rich and fluid defensive doctrine, of which the elastic defence was a component. The interwar doctrine modified the elastic defence of World War I by deepening the zones, by increasing the number of zones, and by refining the method of handling enemy armour. After pushing through covering forces and a reconnaissance screen, the attacker would encounter a chain of advance outposts, then a chain of combat outposts and finally the main position itself. The outposts, after completion of their mission, would execute a withdrawal into the main position, and in effect conduct a delaying defence. The main position itself had a variety of means of resisting the attacker attempting to pierce completely through the defence, and those means included executing a short backward step—converting the old main position into the combat outposts of a new position in the rear, changing into a delaying defence or executing a withdrawal. The dynamics of the elastic defence could well have been written by Frederick the Great. Frederick, however, believed lines had no value whatever because they covered more ground than there were troops to defend them.

♦ The extremely wide fronts of Russia and the order to hold a line falsified all the preconditions on which the pre-war tactical doctrine was based. Defending a long line with few infantry drew those infantry who would normally have been relatively safe in reserve into the front line where they were exposed to enemy fire on a daily basis, resulting in greater infantry casualties.

♦ The structure and dynamics of the evolving German defence methods continued to rely on the firepower of heavy weapons, on a deep defended zone and on counterattacks into the flanks of the enemy penetration as the means of holding the line. Local withdrawals as a means of escaping overwhelming enemy firepower became problematic on the Russian front due to strategic choices made by Hitler, who was both the highest military and the highest political power in Germany.

♦ Panzers had no role in the defence except as a counterattack force against operational sized penetrations.

♦ An advance by the attacker towards a doctrinal elastic defence increased the defensive firepower to which the attacker was exposed. The structure of the defence dispersed the defending infantry who were exposed to the attacker's artillery fire. The dynamics of the elastic defence emphasized low level manoeuvre to avoid the attacker's main blow, and concentrated firepower against, and counterattacks into the flanks of, an enemy penetration of the main defensive position. The commander's main effort weapons in the defence were artillery, machine guns, mortars and anti-tank guns. The role of infantry was to protect the main effort weapons and their observers from enemy infantry and tanks and to counterattack penetrations.

♦ An extended elastic defence is a form of cordon warfare.

♦ The difference between a classical defence of the 19th century and the elastic defence of the 20th century consists of the difference between a point and a line. A classical defence was of a position, a place; the elastic defence was always of

a long cordon line. The elastic defence, as a practical matter, proceeded on the assumption that every attack must be frontal, for there are no flanks in an extended line to turn. A general commanding an elastic defence could fortify his front as much as he was able, though the fortifications were liable to be destroyed by artillery fire. A general commanding a position, on the other hand, had to prepare his defences and dispose his reserves on the assumption that the enemy could always try to turn, envelop or bypass his position. A classical defence, therefore, had to present a front that was either invisible or temptingly weak so that the defender could lure or trap his enemy.

♦ Infantry units are primarily those that would use an elastic defence because, tactically, they are relatively immobile and are therefore confined to "a place". Mechanized units can employ a form of defence that manoeuvres and counterattacks, but because of the size of the manoeuvre space required by mechanized units in defence, the idea of defending "a place" would be meaningless, and field fortifications would be pointless. The defence would for all intents be a mobile defence.

♦ If faced with a mechanized unit, dismounted infantry must have in its hands both long range and short-range anti-armour weapons that are capable of defeating the strongest enemy armour.

♦ All doctrine has preconditions. The best army doctrine therefore cannot foresee all contingencies because it cannot account for situations in which the doctrine's necessary preconditions do not exist. It can take no account of having to fight overextended and lacking the resources doctrine calls for. When the tactical situation does not contain the necessary preconditions of doctrine, fundamental principles must be recalled and applied by the tactical leadership. That is why there is no substitute for training, tactical skill, experienced leadership and an intuitive grasp of tactical principles on the part of commanders when fighting under unexpected conditions.

♦ High strategic decisions can have the profoundest impact on the methods of fighting at the lowest tactical level.

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THE 85TH CANADIAN INFANTRY BATTALION AND FIRST CONTACT WITH THE ENEMY AT VIMY RIDGE, 9-14 APRIL, 1917

By Lieutenant-Colonel Robert S. Williams, CD

Their's not to make reply,
Their's not to reason why,
Their's but to do and die:
Into the Valley of Death
Rode the six hundred.

"The Charge of the Light Brigade," 1855, Alfred Lord Tennyson

More often than not, military failures are dissected and re-fought with twenty-twenty hindsight and judged by today's standards. Rather than examine yet another failure, I would propose the following question: Why is it that untested soldiers often succeed, when the odds are seemingly stacked against them?

This article examines this thesis through the case of the capture of Hill 145 at Vimy Ridge by elements of the 85th Battalion (Nova Scotia Highlanders) on 10 April 1917. Hill 145, the objective of the 4th Canadian Division, was the highest and most important feature of the whole of Vimy Ridge. As long as it remained in German hands, enemy watchers could observe all movement in the valley of the Souchez and its southern offshoot, Zouave Valley, which ran behind the 4th Division's front. Once taken, however, Hill 145 would afford its captors a commanding view of the German rearward defences in the Douai plain and on the ridge itself. It was thus a valuable prize, though the task of attaining it was formidable.[1] So enter the Nova Scotia Highlanders.

BACKGROUND (UNTESTED BATTALION)

The Nova Scotia Highlanders were described as an ugly duckling battalion. Formed in 1916 they arrived in England without an assignment to a brigade or division. By early 1917 the unit's fortunes had improved little with the mumps sickness hitting two hundred of its soldiers, and nearly all suffering terrible seasickness during a rough crossing to France. Once in theatre the unit was resigned to menial tasks. Most of the men were big strapping fellows, but their tasks were simple: building and filling dumps, digging deep dugouts and assembly trenches, carrying and stringing wire, lugging forward loads of ammunition, escorting and guarding prisoners of war. They were, in short, considered a work battalion not a fighting unit.[2]

The "kiltless" Highlanders as they were scornfully called (they only received

Williams, Lieutenant-Colonel Robert S., 'The 85th Canadian Infantry Battalion and First Contact with the Enemy at Vimy Ridge, 9-14 April, 1917', Canadian Army Journal Vol. 8.1 (Winter 2005), 73-82.

authorization to wear the Argyle & Sutherland kilt on 17 May 1918, and the kilts only arrived on 8 June 1918) were employed as construction troops in support of 4th Canadian Division throughout early 1917 as they had not yet been brigaded.[3] Despite all of this, however, morale remained good and the hardy Nova Scotia Highlanders were determined to prove themselves.

Their opportunity came at an unexpected moment. The commanding officer (CO) received orders in early April that the battalion was to move into the line in support of the 12th Canadian Infantry Brigade attack.[4] It was not an envious situation to be in as the 4th Division had the most difficult terrain and objectives to capture, including the notorious Hill 145. Nevertheless, the CO took his assignment very seriously and began preparing his men for battle.

LEAD UP TO VIMY RIDGE

On the day of the battle, the 85th Battalion was assigned the less glamorous task of digging a new communication trench from the rear lines and across the ridge, directly over Hill 145.[5] As the morning wore on, however, disquieting rumours began to come in suggesting that 12th Brigade's advance was in serious trouble, and around noon it was learned definitely that Canadian troops were held up fighting around Hill 145. Failing to capture Hill 145 meant that the success of the whole operation was threatened. Two battalions had already been smashed before it and a general engagement had failed to dislodge the enemy from this point.[6]

The 85th Battalion moved into the Canadian front lines as a labour support unit. The unit was regarded as inexperienced, and senior divisional commanders considered that the battalion would not be efficient and steady under fire. Therefore, it was ordered to follow the lead troops in action, carry ammunition, build dugouts, keep up communication trenches, clear wire entanglements, and in general, mop up after the leading waves had attacked through enemy positions. Despite receiving no order to do so, however, the command element of the 85th prepared the battalion as much for a fighting role as a working role in case they were called upon to fight. The unit was trained in every detail of the Vimy operation, until all ranks knew the precise layout of the Canadian and German front lines and how the fighting units would operate. The initiative of senior officers and non-commissioned officers (NCOs) ensured that through careful and detailed training, and a thorough knowledge of the attack plan, the battalion was prepared either to exploit success or to prevent failure, dependent upon the requirement. Most importantly, the unit did not abandon its primary responsibility as riflemen first and continued to prepare for this task no matter what happened during the battle. In the end, the 85th Canadian Infantry Battalion was called into the fight.[7]

THE BATTLE

In the early morning hours of 9 April 1917 the Canadian Corps left its trenches all along its front and stormed the German positions at Vimy Ridge. In the face of inclement weather and withering machine gun and rifle fire, Canadian infantrymen, engineers, gunners, medics, logisticians and their support rushed forward to destroy the enemy. The 1st, 2nd and 3rd Canadian Infantry Divisions generally met with success as they took one objective after the next. The 4th Canadian Division, which had the steepest climb, however, immediately met very difficult resistance from determined German defenders and its attack soon stalled. Two of the leading battalions, the 87th (Canadian

Grenadier Guards) and the 102nd (North British Columbians), were cut to ribbons by machine gunners who escaped the Canadian barrage that preceded the attack. The 87th lost all of its officers and senior NCOs save two within the first six minutes of the attack, leaving the battalion in total disarray. The 102nd, also decimated, fared little better. The 4th Canadian Division was in a critical tactical position on the extreme left flank of the Canadian attack (joining the Canadian Corps to the British units next to it) and if it failed to reach its objective the entire battle might be lost.

Despite their best efforts and those of units that flowed into the attack behind them, the 4th Canadian Division could not secure the objective. Running out of options, the CO of the 85th Battalion was ordered to prepare for an attack on Hill 145. The untested battalion was going into battle.

The War Diary of the 85th Battalion reveals from a first-hand perspective the events leading up to and during the battle. Readers will note that several place names appear throughout, each referring to various trenches identified and registered by the Canadian Corps within the Hill 145 sector.

THE WAR DIARY

3/4/17

Owing to the fall of snow during the night it was impossible to practice the attack over the tapes. Lt.Col. Phinney explained scheme to Battalion [bn] in Y.M.C.A. Hut. The snow disappeared before noon and the attack was practiced in the afternoon. Our artillery near billets active during afternoon. Advice received today from 4th Canadian Division that one Company [coy] of the 44th Bn at BOUVIGNY would be under orders of the 85th Bn in the event of a tactical call from the 73rd Infantry Brigade (Imperial) for the defence of LORETTE SPUR.

4/4/17

The Battalion went out over the attack scheme today over the tapes but were interrupted by the enemy dropping 5 or 6 shells in the vicinity.

5/4/17

Officers and NCOs of D and C Coys went to CHATEAU-DE-LA-HAIE to go over the attack scheme on the tapes. Lieuts W.T.Ruggles, W.J. Wright with Scout NCOs and ORC went to MUSIC HALL LINE to go over location in attack. Orders received for move to MUSIC HALL LINE on night of 7/8 April preparatory to attack. The Commanding Officer went over tasks with various officers in charge of parties of 85th

6/4/17

Notice that ZERO for the VIMY attack would be 5.00 am, 8-4-17. C.O. called at Brigade about 11.00 P.M. to complete arrangements re operation 8-4-17, advised by G.O.C. that operations postponed 24 hours.

7/4/17

B Coy used all day cleaning up and A and D Companies carried on with instruction in attack scheme. Enemy shelling in the vicinity occasionally.

8/4/17

Advance party for position during operation marched off at 1.00 P.M. Battalion

moved off at 6.00 pm. Received tools at BERTHONVAL at 9.00 pm. In position MUSIC HALL LINE at 12 midnight. Very limited dugout accommodation. Men crowded in trench, secured very little rest.

9/4/17

The tasks allotted to the Battalion and practiced for some weeks were:

- *Construction and filling Dump at Strong Points 5 and 6: Lieut. King with No.6 Platoon, B Company.*
- *Construction of deep dugout for report centre at Strong Point 6: Lieut. Chipman and No.5 Platoon B Coy.*
- *Digging C.T. from Assembly Trench to BASSO line along BLACK-BILLY-BIFF-BESSY line. D Company under Capt P.W. Anderson, Lieut. Wylie and Lieut. Graham; C Company under Capt H.E. Crowell, Lieut. Crawley, and Lieut. Manning. Capt Anderson in Command of the whole party.*
- *Party to carry wire and assist Brigade wiring party in construction. Lieut. Hallett with 40 OR of No.7 Platoon, B Coy; Lieut. Borden with 40 OR of No.3 Platoon, A Company.*
- *Party to carry forward ammunition for Stokes Guns: Lieut. Hensley and No.1 Platoon, A Coy.*
- *Prisoners of War Escort Party: Sgt Horne with 25 other ranks from HQ details.*
- *Prisoners of War Guards: Sgt Robart with 10 Other Ranks from B Coy.*
- *Battle Police: Sgt Fulton with 12 Other Ranks from A Coy.*

Leaving Lieut. MacFarlane with 4th Platoons and the remaining HQ details as the reserve. About 2.00 am orders were received to detail 50 Other Ranks to carry water, and Lieut. MacFarlane's Platoon was sent out on this work. The O.C. Battalion was to be advised when the situation would permit these various parties to proceed to their tasks, and the parties were held in readiness from ZERO hour.

Late on 9 April, the German defences on Hill 145 were still jutting out into the centre of the 4th Canadian Division, where the left wing of Brigadier-General V.W. Odlum's 11th Brigade had been cut to ribbons earlier in the day.[8] The 85th Battalion was then ordered by the Brigadier to deliver an attack and finally secure the remainder of the ridge. As the War Diary below demonstrates, the unit was able to determine what it needed for success and prepared for it. This was critical, for in their first action, the untested 85th Battalion suddenly had the opportunity to determine the complete success of one of Canada's most important battles on the western front.[9]

9/4/17

From our own O.P. [observation post] and our Liaison Officer Lieut. Verner, who was at Brigade HQ, we were kept informed of the progress of the attack. Early in the afternoon it became evident that the attack was held up on the left front of our Brigade. From Lieut. Verner we learned that the Brigade and Division were considering the advisability of detailing 2 Companies of the 85th Bn to launch an attack on the positions which were holding up the advance. The CO decided that if

such an order came he would detail D and C Companies under the command of Capt Anderson to carry out the attack. The OCs [officers commanding] these Companies were sent for and informed of the situation, and told to draw all available Bombs and Rifle Grenades in MUSIC HALL LINE and have them issued to their men. Lieut. Verner, Liaison Officer, was informed he would command a platoon of D Coy in the attack.

The proper choice-use of a liaison officer (LO)-ensured that the battalion was as up to date as possible on the current situation when things changed and when the unit was suddenly needed to support the attack. Being what the Army would term today as "situationally aware," the battalion was able to properly arm and equip itself for the impending task. Officers and men were anxious and nervous, but they relied on their training and preparations to see themselves through the battle.

9/4/17

About 3.15 pm. an order was received that two Companies equipped with Bombs, Ammunition, Tools, Reserve Rations and water, would at 4.30 pm. be at the exit of TOTTENHAM TUNNEL and CAVALIER TUNNEL respectively, the right Company under the orders of OC 102nd Bn and the left Company under the OC 87th Bn, and that these Company Commanders would report to the respective OCs these Battalions immediately for instructions.

The OC notified Lieut.Col. Phinney, 2nd in Command, who had established a report centre near the exit of TOTTENHAM TUNNEL, to go to OC 87th and be present while Capt Crowell of C Company was getting instruction, and assist Capt Crowell in the plans for his Company. The OC himself went with Capt Anderson of D Company to HQ 102nd Bn for the same purpose. When the CO arrived at the HQ of the 102nd a message was there from the G.O.C. [General Officer Commanding] 11th Brigade, requiring the CO and Capt Anderson to report at Brigade Headquarters. He did this and was there informed that it was decided to leave the two Companies under the Command of the OC 85th. The information received was that the Germans held BATTER trench, from its junction with BLACK on the right to the vicinity of Crater at S.15.d.20.45. That the previous attacking Battalions had passed this line ad it was thought some of the men might be further in front in BASSO and BEGGAR. That the enemy in front had not been properly mopped up and that these had emerged from their dugouts and mine shafts and were holding this position. That the situation demanded that they be cleared out of this before dark. That there would be a 12 minute barrage and that the OC 85th was to inform the Brigadier at what hour he wished ZERO to be.

The plan was to storm the hill and eliminate the German flanking fire still harassing the 3rd Canadian Division's advance. Zero Hour changed a number of times before finally being set for 18:45 hours, preceded by a twelve-minute artillery barrage. Both companies left the Tottenham Tunnel and waded into the jump-off trenches.

9/4/17 (War Diary)

The CO decided that the two Companies should emerge from the left exit of TOTTENHAM TUNNEL, which would be near the centre of the position to be attacked, and that C Company would go to the left and D Company to the right and

occupy the new front line which had been dug on this Brigade frontage. Battalion HQ was moved up near this exit. It was explained to the O's C Companies that D Coy would attack with its right on the BLACK C.T. inclusive, and left to BAUBLE C.T. exclusive. C Company with its right flank BAUBLE trench inclusive and its left on the junction of BASSO and BATTER. The task being the capture of BATTER trench and its consolidation.

In today's terms the assigned mission was as follows: The 85th Battalion will capture and hold BATTER trench and will get in contact with battalions on the flanks.[10] Two companies were assigned to the task: Captain Harvey Crowell's "C" Company from Halifax (left flank) and Captain Percival Anderson's "D" Company from Cape Breton (right flank).[11] The CO placed Captain Percival Anderson in command, as he said, he knew that Captain Anderson "would take the position or die in the attempt."[12]

9/4/17

A conference was held of all the Officers and senior NCOs of these Coys, at the new Battalion HQ, orders were issued and explained and it was estimated that it would take ¼ of an hour to get the Companies out of the TUNNEL into the new front line. The Brigadier was so informed and ZERO hour was set for 6.45 pm.

C Coy led out of the TUNNELL, filing to the left, D Coy following and going to the right. The CO outside at the exit of the TUNNEL directed the Companies to their positions. At ZERO, just as the last men of D Coy were emerging from the TUNNEL, a Staff Officer of the 11th C.I. [Howitzer] Brigade, stating that it had been decided to have no barrage and that the attack should be modified accordingly.

The news came too late to reach the company commanders on the far flanks of their sub-units at the end of the trench. It seemed that at the last minute Brigade HQ decided not to precede this engagement with the promised artillery barrage because the new Canadian lines, and those of the enemy, were now in such close proximity that there would be as much danger to friendly troops as to the enemy.[13] From this point on, the attack would rely only upon proper training, familiarity with the objective, and trust in their leaders by all ranks. Hesitation, or faltering after the attack was launched, spelled disaster for the whole battalion.

Zero hour came with no barrage. Crowell, unaware what had happened, made a command decision to go, guns or no guns. He waved his hand forward and the company climbed out of the trench. To Crowell's dismay, Anderson's company on the other flank was not advancing. It occurred to Crowell that perhaps he had made a terrible mistake. Anderson had also been waiting for the barrage, but seeing Crowell's men advancing he drew the same conclusion and led his company forward.[14]

As the Nova Scotians plunged towards the German lines the hail of bullets began. This was the moment that every commander feared. There was no cover; the troops had been ordered not to stop and fire back but to keep moving; to stop meant being killed. It was almost more than the human psyche could bear. The instinct was to slow down, to stop, to grovel deep into the mud-anything to escape the deadly fusillade.[15] But a cohesive and motivated unit, with friends fighting alongside friends, whom they would never want to let down, and to a lesser extent endeavouring to redeem the reputation of their unit, the men did not falter and the attack continued.

The 85th advance was anything but amateur. From the moment C and D Companies went over the top, they never slowed as they raced to their objective. The men burst

onto the crest of Hill 145 with the precision and steadiness of inured troops. Outstanding during the attack was the conduct of Captain Percival W. Anderson, who, amongst other exploits, single-handedly performed a deed of heroism that later earned for him a recommendation for the award of the Victoria Cross.[16] Though he only received the Military Cross for his gallantry, the very audacity of his and his men's demeanor was one of the greatest factors of their success.[17] Two well-respected company commanders, understanding the necessity of their mission and leading by personal example at the forefront of the attack, were able to take untested men into harms way and achieve success. The soldiers demonstrating their own courage followed the example the officers and senior NCOs.

Seeing this display of aggression proved too much for the remaining Germans. Already exhausted and shocked, they were overcome by the same tendency to panic that had been about to engulf the Nova Scotians. After a few turned to flee, more and more soon followed, and the 85th enflamed now by blood lust, firing rifles and Lewis guns, swarmed up the hill, dispatching seventy of the enemy as they advanced.[18]

9/4/17

The Company Commanders were on the outward flanks of their Companies, and owing to the winding nature of the new front line trench were out of sight. The CO decided it was folly to attempt, at ZERO hour, to alter the plan. He feared that it might result in disconcerted action, as it was impossible to communicate any further orders to everyone concerned before ZERO hour. He waited to see whether the Companies would advance without a barrage. A half minute after ZERO, C Company on the left moved calmly and deliberately out of the trenches, the advance was taken up by D Coy. In spite of the Machine Gun and rifle fire from the enemy, which was immediately opened, the attack was pressed home, the Companies providing their own covering fire by Lewis Guns firing from the hip and riflemen firing on the move. Many of the Germans finding themselves unable to stop the advance turned and ran but were soon put out of action by our fire. About 20 prisoners, including 3 Officers, were taken. Two Hun Officers and about 70 other ranks were killed. At least three machine guns were captured.

Within 10 minutes after ZERO report was communicated to a Battalion Staff Officer by the Brigadier that the attack had been completely successful. The OC attack pressed on to BASSO and immediately commenced the work of consolidation. A portion of both Companies on the left flank, where the trenches were more defined, remained at BATTER.

The CO and the Adjutant at once went out to make a reconnaissance of the new position and remained there supervising the work during the night. The 2nd -in-Command went out to supervise a readjustment of the right flank to gain touch with the 102nd Bn on the right. The Companies reorganized and the line was extended to the right. The men in BATTER were brought up to BASSO. Snowed in evening, turned very cold. Men in the open holding shell holes.

Hill 145 remained in German hands until the untried "Pioneer Battalion," the 85th (Nova Scotia Highlanders), launched a desperate attack across the fields to the south. The men surged across the field of fire and somehow managed to take the German trenches on the Hill. Not bad for a first action![19] Within one hour the Highlanders without kilts had captured Hill 145 and even exceeded their orders in some cases by

going beyond it.[20] The report that their objective had been taken and that the section of the line consolidated was sent to Battalion Headquarters less than an hour from the start of the attack.[21] According to Captain Crowell, "I couldn't stop my boys going beyond the objective. We had been trained to death about not going past objectives, and here was "C" Company chasing Huns towards the 'Fatherland'."[22]

Before the battle was over, the 85th alone had fifty-six killed on the field and two hundred and eighty-two wounded, many of whom died afterwards, making the total casualties over twenty-five per cent of the strength of the unit.[23] Victory in war, as it often did in this war, came at great cost.

BATTALION LEADERSHIP

Although lacking fighting experience, the battalion was fortunate to have very strong leadership at both the company and platoon levels. The courage, pluck, indomitableness and resourcefulness of the officers, NCOs and men of the 85th battalion at the Battle of Vimy Ridge were instanced not to glorify the Battalion, but to show forth the kind of intangible "stuff" that was the spirit and morale of the infantry unit.[24] The soldiers had, through both proper training and time spent together as a formed unit, developed not only respect for each other but also faith in their company officers.

While in his tenure as Second in Command, Lieutenant-Colonel Phinney was one of the great motivating forces of the unit. During all periods of training he had shown great executive capacity. Under fire he demonstrated the same cool and determination. He displayed great tactical skill and was able to find a ready solution for every problem, however difficult.[25]

One of the outstanding men of the Canadian Corps in the whole Vimy engagement was the previously mentioned Captain Percival W. Anderson of Baddeck, Nova Scotia. He captured several machine guns during the battle and was always in the open inspiring his men by his dauntless courage. The citation for his award of the Military Cross reflected his personal gallantry most appropriately.[26]

24/6/17
Maj PW Anderson* presented with Military Cross by Major General Watson, GOC 4th Canadian Division

This was followed by a printed citation in the London Gazette:

London Gazette No. 30234 Pt IV, Order 1074—17-9-17
Capt (Acting Major) Percival William Anderson, 85 Bn NS Highlanders

For conspicuous gallantry and devotion to duty. He led two companies in an attack in face of terrific fire, advancing well ahead when all the other officers had been killed or wounded and inspiring his men to follow. Later, he went over the top, and carried a wounded officer in on his back under a heavy fire. Awarded the Military Cross.

Anderson was later promoted Acting Major and continued as a company commander with the 85th Battalion. He led D Company during the Battle of Passchendaele later

that autumn, taking command of his entire attacking force on 28 October after every other company officer had been killed. Anderson, who had survived the near impossible assault on Hill 145, was himself dead two days later, killed in action while leading D Company on another attack.

Captain Harvey E. Crowell was severely wounded in the shoulder while leading his company in the attack during the early part of the assault on Hill 145, but he continued on duty right at the front line of battle, directing and leading his men all night long, until the final objective was taken and the company reorganized. Then, he only left under direct orders from the commanding officer and did so under protest.[27]

Lieutenant Hugh A. Crawley assumed command of C Company at Hill 145 after all other company officers had been wounded, and proceeded with the utmost coolness and deliberation to organize his defences on the line of consolidation. Though only a junior officer without any combat experience before that day, he completed the task with such skill and thoroughness that senior command attributed his skills the same as those seen in other senior officers.[28]

At the section level, the NCOs and men showed equal courage, independence and resourcefulness, ensuring that after Vimy Ridge the 85th Battalion was no longer the ugly duckling of 4th Canadian Division, but the battalion that captured Hill 145 and sealed the German's fate at Vimy Ridge.[29]

The battalion finally saw relief on 14 April, and it came out of the line to heal the living, bury the dead, and assess its performance in battle. The unit had paid for its victory at Hill 145 and the War Diary reflects their sacrifice that day.

Total casualties on the tour (9 to 14 April 1917):	
Officers wounded	6
Other ranks killed	47
Other ranks wounded	116
Other ranks missing	3

CONCLUSION

Success in battle for an untried unit can be somewhat of a crapshoot; that is, all of the right factors coming together at the right point in time on the battlefield. It goes without saying that any army and/or unit cannot rely upon "chance and hope" for mission success.

Although trust in and familiarity with unit and sub-unit leadership, both officers and senior NCOs, will never ensure victory by themselves, they are invaluable in the maintenance of a unit's pursuit of an objective. Unit cohesiveness combined with this trust will hold together units that may otherwise disintegrate and/or be unable to recuperate/regroup after a defeat and/or heavy loss.

The importance of proper liaison between units, and between units and their headquarters has proven to be critical in the success of a mission. A well-trained, experienced and well-positioned liaison officer, who understands his commanding officer's intent together with his own role, can ensure that valuable time is not lost and that the appropriate information is passed in a timely manner to those who need it.

Thorough realistic training to cover any likely employment eventuality, with an emphasis on initiative down to the lowest level, flexibility and decisiveness, will allow appropriate reactions when all else goes wrong and officers and NCOs are killed or otherwise *hors de combat*. Although the expected pre-attack artillery barrage did not materialize for reasons unknown to most of the assaulting forces, the attack was launched and the objective achieved by both C and D Companies of the 85th Battalion (Nova Scotia Highlanders).

Having summarized the events surrounding the taking of Hill 145, neither of these points are new nor a secret prescription to success. Proper adherence to basic army training and leadership principles, combined with a modicum of common sense, dedicated and responsible leadership, and an understanding of the importance of any mission, will give an untested unit the best chances of success.

About the Author ...

Lieutenant-Colonel Robert Williams is strategic analyst (Sense) at the Directorate of Land Strategic Concepts, Director General Land Capability Development. He recently completed a tour in Afghanistan, and is designated to take command of the Canadian Forces Joint Imagery Centre in Ottawa in the spring of 2005.

END NOTES

1. 4th Canadian Division Routine Orders. Q15/1, 2-4-17. Authority to wear 4th Division (green) insignia was granted on April 2, 1917.
2. Colonel G.W.L. Nicholson, *Official History of the Canadian Army in the First World War: CEF 1914-1919*, (Ottawa: Queen's Printer, 1964), p. 236.
3. Pierre Berton, *Vimy*, (Toronto: McLelland and Stewart, 1986), p. 271.
4. M.S. Hunt, *Nova Scotia's Part in the Great War*, (Halifax: The N.S. Veteran Publishing Co. Ltd, 1920), p. 102.
5. Berton, p. 271.
6. Lieutenant-Colonel Joseph Hayes, *The 85th in France and Flanders*, (Halifax: Royal Print and Litho Ltd, 1920), p. 52.
7. Hunt, p. 103.
8. Alexander McKee, *Vimy Ridge*, (Toronto: Ryerson Press, 1966), p. 158.
9. N.M. Christie, *Canadians at Vimy*, (Ottawa: CEF Books, 2002), p. 43.
10. McKee, p. 185.
11. Berton, p. 271.
12. Hayes, p. 52.
13. Ibid., p. 53.
14. Berton, p. 273.
15. Ibid., p. 273.
16. Hunt, p. 105.
17. Hayes, p. 54.
18. Berton, p. 274.
19. Christie, p. 36.
20. Berton, p. 274.
21. Hayes, p. 54.
22. McKee, p. 188.
23. Hayes, p. 55.
24. Hunt, p. 105.
25. Hayes, p. 58.
26. Ibid., p. 59.
27. Ibid., p. 59.
28. Ibid., p. 60.
29. Ibid., p. 60.

NOTE TO FILE—AMERICA'S ARMY: THE VIDEO GAME

Since the mid-1980s the US military has actively pursued digital simulation technologies to reproduce dynamic and unpredictable scenarios as have often occurred in real combat situations. Traditional war games and full mock simulators had appeared as training aids much earlier, but these often consisted of large and bulky hardware only in the absence of powerful and portable desktop computing processors such as those found in today's average personal computer (PC).

In 1997 a US National Research Council report was published outlining a joint research agenda for defence and entertainment modeling and simulation.[1] It included a guide to the research and development needed to build digital entertainment military training systems as well as an agenda dealing with immersive technologies, networked virtual environments, computer-generated autonomy, standards for interoperability and tools for creating simulated environments.[2]

In response to this report, the United States Naval Postgraduate School Modeling, Virtual Environments and Simulation (MOVES) Institute proposed the design and development of two video games under the aegis of a larger effort named the Army Game Project (AGP). This was approved in May 2000, and for the next two years the AGP proceeded to create *America's Army: Soldiers*, and *America's Army: Operations* to demonstrate the daily life and challenges of the modern US infantry soldier. Upon completion, the videogames were employed as a public affairs and recruitment tool offered free of charge to the public via the Internet and in CD-ROM format.

Employing sophisticated role-playing game (RPG) and other methods that are familiar to most modern forms of digital entertainment, the two games allowed the player to have a realistic look at personal and career opportunities offered in today's US Army. In the game, players create a character and then proceed through basic training at Fort

Benning, Georgia, which is digitally recreated down to the smallest detail. Once passed through basic combat training (the player must pass in order to be able to play the follow-on missions), the player can deploy on operations and complete missions very similar to those undertaken in real life by US forces around the world today. For example, the game offers a variety of environments, from desert to arctic, and scenarios such as identifying weapons caches, rescuing prisoners of war, assaulting an airfield or securing an objective. To its credit, the game is very sophisticated. Players cannot just charge in and blast everything in site. Rather, the scenarios take physics and environment into account, encourage teamwork and ensure the players abide by the rules of warfare. Display poor conduct and shoot a prisoner, for example, and a character is instantly transported to a jail cell at Fort Leavenworth. Do this enough times, and a character is ejected from the game only to start over right back at basic training.

America's Army: Operations was introduced to the public at the Electronics Entertainment Expo (E3) on 22 May 2002. By 24 May, the official website, www.americasarmy.com, was receiving 180,000 unique visitors every hour. The on-line version of the game was posted to the Internet on 4 July 2002 and had been downloaded a half million times by noon the next day. By the end of the year, *America's Army: Operations* had just over 1 million accounts registered at its website, with as many as 50,000 people playing the game at any one time. From a public relations and recruitment perspective, it was perhaps the best bang for buck ever invested by the US Army.

Since its 2002 release, *America's Army* continues to evolve. In addition to infantry, players can now take on the role of Special Forces, medics, forward observers and much more. In addition to single player mode, multiplayer missions are possible similar to many other currently popular, massively multiplayer on-line role-playing games (MMORPG). An upgraded version of the game (2.0) was issued in October 2004, with more supplements, scenarios and challenges surely planned for future release.[3]

Wildly popular, digital entertainment is becoming more and more a regular part of our soldiers' daily lives. *America's Army: Operations* and its associated titles clearly reflect this trend, and future planners, trainers and operators alike should note it and other games in its genre.

END NOTES

1. M. Zyda and J. Sheehan eds. *Modeling and Simulation: Linking Entertainment and Defence*. (Washington DC: National Academy Press, 1997).
2. M. Zyda et. Al. "Entertainment R&D for Defense", *IEEE Computer Graphics and Applications*, (Jan/Feb 2003), 3.
3. As of 1 April 2005, AA:O claimed 5 million accounts registered with 150,000 player online at any one time.

— BOOK REVIEWS —

THE DEFENSE OF HILL 781: AN ALLEGORY OF MODERN MECHANIZED COMBAT

James R. McDonough, Presidio Press USA (1988), 202 pages. US $15.00

DRAGONS AT WAR: 2-34TH INFANTRY IN THE MOJAVE

Daniel P. Bolger, Presidio Press USA (1986), 338 pages. US $ 2.15

THE BATTLE FOR HUNGER HILL: THE 1ST BATTALION, 327TH INFANTRY REGIMENT AT THE JOINT READINESS TRAINING CENTER

Daniel P. Bolger, Presidio Press USA (1997), 363 pages. US $24.95.

Reviewed by Lieutenant-Colonel Peter J. Williams

INTRODUCTION: THE SHAPE OF THINGS TO COME?

The establishment of the Canadian Manoeuvre Training Centre (CMTC) in Wainwright, Alberta, is the Army's top priority for transformation. With initial operating capability (IOC) scheduled for 1 April, 2006, CMTC will see a renaissance of collective training for the Land Force in a modern, instrumented force-on-force environment. While this concept is new for the Canadian Army, such training has long been the norm with the United States Army.

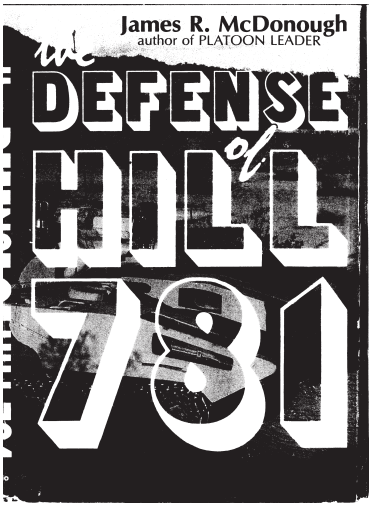
What follows are the reviews of three books covering the trials and tribulations, successes and failures and a fair share of getting one's proverbial butt kicked by the opposing force (OPFOR) of two US Army units at two of America's combat training centres-the National Training Centre (NTC) at Fort Irwin, California, and the Joint Readiness Training Centre (JRTC), Fort Polk, Louisiana -which validate mechanized and light task forces (TFs) respectively. In the first two books, the author is the same man describing the real-life experiences of his unit. In the first book, as a young captain, he is a company commander in a mechanized infantry TF, and in the second, CO of an air assault battalion. The final book, a work of fiction, is by a former mechanized infantry battalion commander, himself a veteran of several NTC rotations.

Veterans of an NTC rotation have described it as a “drive-by shooting,” in which the often-hapless BLUEFOR is soundly thrashed by the OPFOR. Doubtless, similar claims can be made by those who have passed through JRTC.

If the Land Force is to become an organization that is truly capable of learning and a combat capable, sustainable force, we must learn from the experiences of others in similar circumstances and adapt ourselves accordingly. Initial operating capability for CMTC is over eighteen months hence. In the interim, the respective experiences of TFs 2-34 and 1st Battalion, 327th Infantry at NTC and JRTC, as well as the TF led by

LTC A.Tack Always, should serve as food for thought and a guide for how to survive a possible future drive-by shooting at CMTC.

Assuming, of course, that the OPFOR don't read them as well…



Bearing in mind the publication date, "Modern" should be taken with a grain of salt of course. Nevertheless, this volume, a work of fiction by a former mechanized infantry battalion commander in the US Army, is a highly useful edition to a trio of volumes on combat and, in particular, the challenges felt by unit commanders, in a high tempo force-on-force scenario at a US Army combat training centre (CTC).

It is very much a modern version of The Defence of Duffer's Drift, a story written about the Boer War, in which a young British officer, through a series of dreams, undergoes a Scrooge-like tactical catharsis, enabling him to develop his knowledge to the point where he is successfully able to defend a position in enemy territory. Indeed, as a CO, McDonough gave copies of the story to his newly arrived platoon commanders to better develop their tactical prowess. Certainly, like Bolger, he brings a high degree of credibility to his work, having gone through at least three National Training Centre (NTC) rotations in his career.

The scenario of The Defense of Hill 781 sees Lieutenant-Colonel A.Tack Always awakening in Purgatory after expiring as a result of too many Meals Ready to Eat, of all things. LTC Always was a "light" soldier by background, and had little time for ostensibly "soft" staff officers, service support personnel or even mechanized troops for that matter. "Purgatory" in this novel is the NTC, and to make it out of there to heaven, LTC Always must successfully lead a mechanized task force (TF). The TF consists of two mechanized infantry companies, two armour companies, a mechanized anti-tank company, a reconnaissance platoon as well as a full range of combat support and combat service support assets. The missions the TF must successfully complete are:

- Dawn Attack
- Defence in Sector
- Deliberate Attack
- Night Attack
- Battle Position Defence

And, of course, before Always and his troops can leave Purgatory, all TF equipment must be brought back to Class S condition and turned in.

The book flows very much the same way as Daniel Bolger's two volumes: the TF is

given a mission, and in the early stages is soundly thrashed by the opposition force (OPFOR). Missions are followed by after action reviews (AARs) under the unforgiving observer/controller staff, which can last upwards of two hours. The reaction of LTC Always after one particularly humbling AAR is revealing:

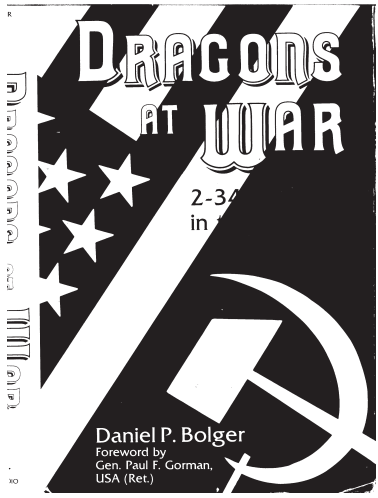
Always did not care. He was indifferent to the jibes, unbothered by the cataloging of his failures. His ego had been bruised beyond the point of feeling. But he did seize upon the kernels of truth, recognized what could have been done better, and branded the lessons learned into his own brain.

One would hope that our own CMTC O/C will do more than merely catalogue failures, though no doubt a few egos will get bruised in the process. For the ease of the reader, the "kernels of truth" are summarized as lessons learned at the end of each chapter, which follows the TF through each of its assigned missions. In the author's view, the lessons regarding leadership are the most important of all, particularly when seen from the TF commander's perspective. In addition, a series of maps, supplement by a short synopsis of the scenario, help trace the movements of both Always' TF and the OPFOR.

While Always goes through a steep learning curve at the start of his time in Purgatory, he eventually learns that even "victories" can come at a heavy price. In one scenario where his TF is successful, most of two companies are destroyed. Doubtless, the "casualty" figures at CMTC, whether win, lose or draw, will raise more than a few eyebrows as the results of the weapons effect simulation (WES) systems tell their stories.

While the scenario faced by LTC Always TF may not be that faced by Canadian TFs in CMTC or abroad, it does have much to commend it. The Defence of Hill 781 is particularly relevant given the organization of our Future Army task forces, which will eventually be based on 12 tactically self sufficient unit (TSSU) HQs from our nine regular infantry battalions and three armour regiments. To provide the infantry component of these TFs, we have 27 Infantry companies, a mix of mechanized and light.

Do the math: on future operations, in some cases, armour regiment HQs will command several infantry companies, which in some cases will be a mix of mechanized and light. "Light" and "mechanized" battalion HQs will also face the same situation. All TSSU HQs must be able to command a wide variety of capabilities on operations (a force employment construct), despite their garrison organization (the force generation construct). This begs the inevitable question as to when these two constructs will be the same! In any event, in future we will not be able to afford commanders of the likes of LTC Always…that's Always before he arrived in "Purgatory" anyway. Strongly recommended.



That's right, published in 1986. But don't let the Soviet hammer and sickle logo on the cover fool you. In short, this is an oldie but a relevant goodie, particularly as in the not-too-distant future, some of our units will go through what 2nd Battalion, 34th Infantry (known as the Dragons) did during National Training Center (NTC) rotation 1-83 over twenty years ago.

Task Force 2-34 is a mechanized infantry battalion comprising two mechanized infantry companies, a tank company, an engineer company (-), an air defence battery (-) and a combat support company including a scout (reconnaissance) platoon, heavy mortars and TOW. Facing them, was an OPFOR comprising three motorized rifle battalions, a tank battalion and a reconnaissance company. Over the course of its rotation, the Dragons would go through and be evaluated on the following tactical events:

- Movement to Contact (I)
- Deliberate Attack
- Defend in Sector (I)
- Counterattack
- Defend a Battle Position (Day/Night)
- Movement to Contact (II)
- Movement to Contact (III)
- Deliberate Attack (Night)
- Delay in Sector
- Defend in Sector (II)

The author, then Captain Bolger, commanded B Company of TF 2-34. His aim, as stated in the book's preface, is to " … offer an insight into how a military unit functions under stress, and it gives a few examples of what soldiers do when they train together for war." In this regard, the author has succeeded. Though the scenario faced by TF 2-34, and any unit passing through NTC in the 1980s, is now a relic of the Cold War, the lessons to be learned about leadership, logistics and planning are timeless.

The book commences with the background to the establishment of the NTC in the early 1980s, as a result of the lack of suitable training venues in the continental United States similar to those which existed for the US Army's "front line" forces facing the Soviet Army in Germany. A description of the OPFOR follows. At NTC the OPFOR was based on two regular units, the 1st Battalion, 783rd Armour, and the 6th Battalion (Mechanized), 31st Infantry. The units were permanently stationed at NTC and used US Army vehicles and equipment visibly modified to look like the Soviet "real thing."

Being permanent residents, the OPFOR had a knowledge and mastery of the terrain, which would prove a great advantage when faced with the most recent BLUEFOR TF.

Having described the adversary, Bolger now describes the Dragons, his own unit. Fist, however, he gives the uninitiated reader a course in "US Army 101." The elements of TF 2-34 are described in detail, as are their leaders. The author takes time (perhaps too much) to wax lyrical about what he calls "The Great Game" or the ostensibly rampant careerism which permeated the US Army at the time. Everyone from the CO ("He played the Great Game like a virtuoso") on down comes under the author's scrutiny in a section of the book entitled "Leaders." Interestingly, the author describes his own sub-unit as "…the most reliable unit in the battalion."

To set the remainder of the book in context, the next chapter describes the conduct of NTC rotations, which in the 1980s were based on the Multiple Integrated Laser Engagement System (MILES). The after action review (AAR) process and the role of observer controllers (O/Cs) is then described as well as the gateway training TF 2-34 had to complete prior to arrival at NTC. The Dragons then receive their first mission (movement to contact), and the reader has entered the heart of the book.

From this point on, the author takes the reader though each of the tactical missions listed above. Each mission lasts only about 24 hours, from receipt of orders to completion of the respective AAR, but for the members of TF 2-34, it must have seemed agonizingly long, particularly in the early stages.

Certainly in its first mission, TF 2-34 was not successful, displaying, in the author's words, "…an unusual degree of ineptitude." Every aspect of the unit's performance, from fire support to command and control to intelligence, came under the scrutiny of the O/Cs, who were unforgiving in their reviews. Results in the next mission, deliberate attack, were not much better, with the Dragon's CO suffering the ignominy of being lectured on how to attack "…with violence and aggression."

And so it would continue for the remaining two weeks, the Dragons winning some, losing others and dueling with the OPFOR to a "no decision" result on one occasion. After one particularly vicious engagement (deliberate attack (night)), the two rifle companies were reduced to less than platoon strength, and the tank company had only the commander's vehicle surviving. OPFOR losses were a tank platoon and an infantry platoon.

In the end, from Captain Bolger's perspective, it was a draw, with OPFOR and the Dragons sharing five victories each. Interestingly, Bravo Company, the author's command, gets credit as "… the rock of the battalion." The author's assessment of the performance of other Dragon members ran from schizoid (the tank company) to being "sad sacks" (the engineers).

The book ends on a hopeful theme, stressing the importance of unit leadership, particularly in an organization as complex as a mechanized infantry TF. The classic lessons of leadership by example, clear orders and the importance of leadership from them, rehearsals, and so the front are stressed once again, as they no doubt will be at future Canadian Manoeuvre Training Centre (CMTC) rotations by our own O/Cs.

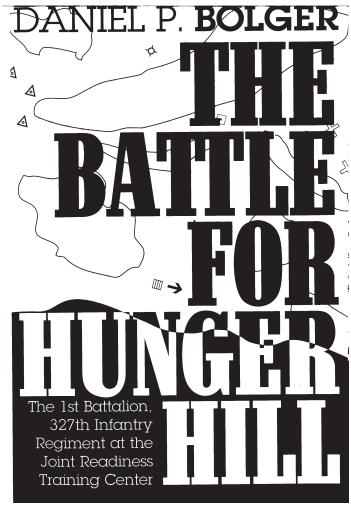
A final lesson comes out of what happened to the Dragons after their NTC rotation.

Upon return to their home station, the teams which had been forged at NTC were broken up, as the US Army equivalent of the APS descended with its demands for trained troops in Germany, Korea, Panama and other locations. It would appear that the Canadian Army has already leaned from this, making the CMTC rotation the culmination of the Training Phase of the Managed Readiness System and the stepping-stone to the High Readiness Phase.

All things considered, this is a highly useful and, despite the date of publication, extremely timely for those who will have anything to do with CMTC in future. The chapters describing each mission can be read in sequence or in any order. Each chapter ends with a summary of the AAR main points as well as a timeline describing highlights of each action. Each mission takes place over 24 hours approximately, but as the reader will find out, a lot can take place in such a short period of time.

I say all things considered because there are some aspects of the book that detract from an otherwise fine narrative. The quality of maps leaves much to be desired, but considering they were made using technology over 20 years old, this is perhaps somewhat forgivable. More distracting is the seeming over-emphasis placed on the "Great Game" by the author. While amusing at times, it borders on cynicism, lacks objectivity and adds little value to an analysis of combat leadership.

In all, Dragons at War is a highly instructive book. It is strongly recommended, particularly if your unit will be "first up" in 2006.



Few would describe a Joint Readiness Training Center (JRTC) rotation as a picnic. Nor the OPFOR as Teddy Bears. In the words of the author, the Cortinian Liberation Front (CLF), are "… the best insurgent force on Earth."

Fast forward 11 yeas from Dragons at War. Captain Bolger is now Lieutenant-Colonel Bolger, and is CO of 1-327th Infantry, a light infantry battalion and part of the 101st Airborne (Air Assault) Division. Such units get to "enjoy" a rotation in the wooded wetlands of JRTC in Fort Polk, Louisiana. Created in 1987, JRTC focuses on training light forces such as paratroops, Rangers and air assault infantry in an environment much more akin to the type of theatre US (and also Canadian troops) will likely deploy in future.

The CLF OPFOR (in reality the 1-509th Infantry) is formed into the 91st Assault Battalion, with two assault companies, a heavy weapons company, a reconnaissance company and an engineer company. In addition, JRTC also employs civilian actors from a private company to play the role of local Cortinian civilians. The JRTC rotation is twelve days long. Rotating units are exposed to such scenarios as:

- Air Assault
- Noncombatant Evacuation Operation (NEO)

- Search and Attack
- Defence (or, as the US Army likes to call it, "Defense")
- Deliberate Attack

"Victory" at JRTC is seen as not only accomplishing the mission, but with a friendly to OPFOR casualty rate of under 1:3. The Battle for Hunger Hill is actually the story of two rotations by Lieutenant-Colonel Bolger's battalion: JRTC 94-10 (September 1994) and JRTC 95-07 (May 1995). The two rotations are entitled, appropriately enough, "Learning" and "Winning" respectively.

The format of the book follows that of Dragons at War. The structure of 1-327th Infantry is described, including many of the key players at unit and sub-unit level. Interestingly, the author engages in little of the focus on the "Great Game" of Dragons at War. Indeed, in the author's own words, "…the commander and his headquarters spouted the textbook bromides and attempted to do things the way almost every other staff did them. And like almost every other staff, when this bunch got to Fort Polk, several of the wheels came off."

This notwithstanding, the author does not consider himself doctrinaire. The military decision-making process (MDMP) comes under particularly severe criticism by the author, who claims it is too lengthy and it takes little account of the enemy or ground. By comparison, Bolger provides the example of General George S. Patton's Third Army, where divisions were expected to execute missions within twelve hours of receipt of orders. Battalions had to do it in four.

The 1-327th Infantry is followed through each of its scenarios, from the receipt of the mission until the end of the after action review (AAR). And like Bolger's unit at the National Training Center (NTC) over a decade earlier, things do not go well initially. After a search and attack mission, two of three rifle companies and the anti-armour company are destroyed. At the resulting AAR, Bolger admits, "It is all my fault." On one occasion, the CO himself is captured by the OPFOR, and in later scenarios, he is shot twice.

In its 1994 rotation, Bolger's battalion succeeded in two of its three missions but at a horrendous cost. In the cruel calculus of JRTC in which soldiers can be "killed" and resurrected again for future mission, the 1-327th Infantry suffered a total of 909 casualties. In return, they inflicted 238 casualties on the OPFOR, a rate of approximately 1:4-victory, of a sort.

Few veterans of JRTC Roto 94-10 stayed around long enough to build on the lessons of the Roto, as the US Army posting system, which posted 15% of the unit strength out each month, made its influence felt. In order to ensure that the new 1-327th team was as prepared as possible, Bolger devised his ten commandments for JRTC ROTO 95-07:

- Kill the enemy
- Win over the civilians
- Act on contact-secure flanks/rear-squads fix, platoons attack always using a 90 degree bold flank
- If you fight somewhere, don't stop there; move out

- Never lose contact with our dead and wounded
- Security is a must, moving or sitting, front, flank and rear
- Major roads are off-limits; make combat trails to be where mines are not
- Night-vision goggles are worn in head/helmet mounts
- Daily duties: zero weapons, maintain weapons/communications, hasty fighting positions at halts, "safe" when not shooting
- Live and fight light-Earth Pigs

Bolger's battalion also abandons the MDMP, "…with both eyes open", and he reorganizes his HQ command posts, where planning focused on three questions:

- What do we want to do?
- What does the enemy want to do?
- How do we beat him?

Whether all these initiatives helped the 1-327th Infantry is difficult to say. Certainly, in the author's view, his battalion's performance the second time around "erased the shame from Rotation 94-10." Good thing too, as elements of the battalion were deployed within months to Haiti as part of the United Nations Mission in Haiti (UNIMIH). All missions in Haiti were accomplished.

Bolger concludes that victory at JRTC, or in any battle, is not merely due to a reliance on AAR results-future CMTC staff take note that JRTC AAR documents are some two inches thick!-or doctrine but simply this: "…get good soldiers, give them the tools, then turn them loose."

The Battle for Hunger Hill is not only a useful primer for light and air assault infantry but also a controversial look at leadership and the military planning process. Doubtless, many purists will take issue with Lieutenant-Colonel Bolger's views on doctrine and the planning process. The eventual performance of our own task forces at CMTC will no doubt cause a re-think of many of our extant processes as well. Perhaps a Canadian version of The Battle for Hunger Hill will be the result?

Though the quality of maps are somewhat of an improvement over those in Dragons at War, they merely prove to be a static snapshot in time and fail to show subsequent movements of forces. Still, as a follow on to Dragons at War (which should be read first), The Battle for Hunger Hill shows how one particular officer matured from sub-unit to unit command and the different challenges faced by mechanized and light units in a force-on-force training scenario.

The Battle for Hunger is highly recommended. Read it soon. The OPFOR likely will!

CONCLUSION

Though written for another time and threat, these books are still valuable for soldiers of the Armies of Today, Tomorrow and the Future. Indeed, their enduring relevance lies not in what they teach us about technology but rather in their reinforcing of those tenets of the human element of war which remain constant: the need for soldiers and commanders, in particular, to make wise, rapid decisions under stress in an

environment where full certainty is not possible and where the consequences of error can be fatal. Despite all the new command tools and sensors available (or soon to be available) in the Army, it still takes a human voice to say, "OK. This is what we are going to do." These three books have shown us how the US Army has passed on the lessons of its combat training centres to future generations of soldiers. The Canadian Manoeuvre Training Centre (CMTC) should do the same for us.

FICTIONAL WRITING AND THE CANADIAN ARMY OF THE FUTURE

Reviewed by Major Andrew B. Godefroy, CD, Ph.D.

There is an axiom that states all but war is simulation. If true, perhaps among the oldest forms of simulation is literary fiction, a flexible tool that has allowed generations of writers to speculate what past wars may have looked like as well as what future war may look like. Yet whether it is counter-factual "what if?" history or alternative "what the…?" future theory, literary fiction allows both individuals and organizations to investigate ideas, themes, events and outcomes that perhaps otherwise have not occurred in real life.

As with war gaming, modeling and simulation, military fictional writing allows defence organizations to stimulate interest and debate in past, present and potential future conflicts. Whether it is the application of current tactics or the possibilities of some future concept, fictional narratives may provide a descriptively detailed illustration of virtually any possible scenario and in any context. Most importantly, literary fiction serves as a record of possible decisions and is often the first step in bringing future army capabilities to fruition.

Literary fiction and illustrative narratives depicting the Canadian Army began appearing at the end of the nineteenth century. In 1883, Ralph "Centennius" produced a pamphlet titled *The Dominion*, in which he predicted the state of Canada and the nature of warfare circa 1983. This was followed six years later by W.H.C. Lawrence's *The Storm of '92: A Grandfather's Tale Told in 1932*.[1] A fictional memoir that portrayed a war between Canada and the United States in 1892, Lawrence described in detail hypothetical actions between American forces and Canadian militia, with the latter holding the invaders at bay until reinforced by colonial units from across the British Empire. Although not initiated by the Department of Militia and Defence, it was perhaps the first work of fiction dealing with future military "what if?" situations ever published in Canada.

The South African War (1899-1902) provided the next opportunity for literary fiction to play a role in future army concepts. The publication of *The Defence of Duffer's Drift* by Captain (later Major-General Sir) Ernest Swinton, KBE, CB, DSO, in 1905, was extremely well received and became required reading for many subsequent generations of young officers.[2] Set at a river choke point on some generic veldt anywhere in the Transvaal, the story's main character, a young and energetic Lieutenant Backsight Forethought, has a series of nightmares in which he loses battle after battle

against his Boer adversaries. After each dream, however, a series of lessons are highlighted, and each of these was incorporated into the next battle, which eventually leads Lieutenant Forethought to victory and relief in the final dream.

Although written as a fictional tale, Swinton's aim was to teach tactical lessons as well as generate discussion and debate on the planning and execution of operations. He noted specifically in his foreword:

> *This tale of a dream is dedicated to the "gilded Popinjays" and "hired assassins" of the British nation, especially those who are now knocking at the door, to wit the very junior. It embodies some recollections of things actually done and undone in South Africa, 1899-1902. It is hoped that its fantastic guise may really help to emphasize the necessity for the practical application of some very old principles, and assist to an appreciation of what may happen when they are not applied, even on small operations. This practical application has often been lost sight of in the stress of the moment, with dire results, quite unrealized until the horrible instant of actual experience. Should this tale, by arousing the imagination, assist to prevent in the future even one such case of disregard of principles, it will not have been written in vain. The dreams are not anticipations, but merely a record of petty experiences against one kind of enemy in one kind of country only, with certain deductions based thereupon. But from these, given the conditions, it is not difficult to deduce the variations suitable for other countries, or for those occasions when a different foe with different methods of fighting and different weapons has to be met.*[3]

The Defence of Duffer's Drift set a new precedent for literary fiction in military professional development.[4] The Canadian Army adopted the practice internally during the two World Wars and continued to publish fictional scenarios in its professional journals during the Cold War era.

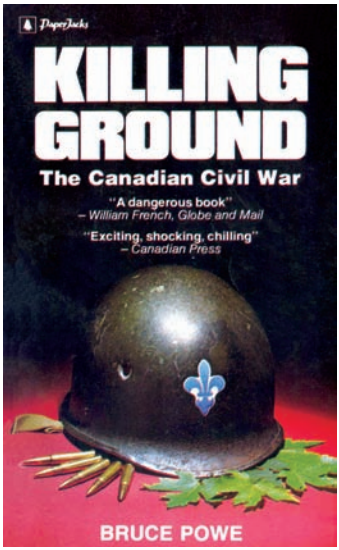
Early themes (1945-1960) focused on the transformation of Canada's army force structure, the adaptation of land forces to the atomic battlefield and the integration of new technologies into the soldier of tomorrow. As strategic defence concepts transitioned from a policy of mutually assured nuclear destruction to one of flexible conventional response in the 1960s, however, thoughts on the future employment of ground forces likewise changed focus.

Towards the 1980s, a possible Third World War fought largely in the European theatre was the centre of considerable fictional army narrative, including the publication of two major DND documents detailed below. Interestingly, the 1990s witnessed few such novelizations of Canada's army in a future war, perhaps due to the expected arrival of the post-Cold War peace dividend or the unexpected and unpredictable nature of the New World Order. Whatever the case, debate on future concepts laid largely dormant until very recently.

Early articles appearing in Canadian service literature came from both internal and allied sources. In November 1949, the newly created Canadian Army Journal published an article, titled "The Infantry of 1965," that described in considerable detail and with conceptual drawings the outfitting and employment of future ground forces.[5] Focusing heavily on a future defined by atomic warfare, the article suggested, "The main role of infantry in atomic warfare will be to put out of action the enemy atomic

bombing bases."[6] The author, H.H. Bryan, also noted that, "Future [land] forces will, then, consist predominantly of infantry, which will be entirely airborne."[7] He also offered that the fast pace of future warfare would ensure that the three-battalion battle group, not the division, would constitute the primary unit of employment in future operations. Finally, Bryan predicted that advanced headquarters close to the front line troops was necessary in any future air-land operation and that large-scale divisional level static headquarters would likely all but completely disappear from the battlefield.

Bryan also made a number of observations about the future individual soldier. He argued, "The 1965 infantryman will be as familiar with the air vehicle as the truck is to his counterpart today."[8] He suggested that future troops would employ lighter personal equipment, choose agility over endurance, use a helmet that would protect the head from radioactivity and wear a battle suit that was self-sealing and could be used either at high-altitude or underwater as required. He also predicted that small wireless personal communications, improved preserved rations and the retention of the grenade and ballistic weapons would shape the soldier of 1965. His final comment that, "within the next two decades the overburdened, plodding, private of the line, with his clumsy boots and cheap contractors clothing, will have disappeared from the scene," unfortunately was inaccurate, and even today, the Canadian Army still faces the challenge of lightening loads and improving clothing for its land forces.



The following year (1950), another article predicting a possible future for the land force appeared in the *Canadian Army Journal*. Authored anonymously by "One of Them," the short fictional scenario described the future visit of the Colonel-in-Chief of the Royal Underground Light Infantry (RULI) to his troops stationed at one of the major army bases in Canada in 1963. Perhaps meant as a criticism of the changing army force structure of the period, the conversation between the C-in-C and the commanding officer (CO) highlighted the disintegration of the traditional infantry unit of the Second World War period, as specialized trades like signals, transport, pioneering, logistics and anti-armour were removed and placed entirely within their own branches. Although this process slowly began during the Second World War, many tactical support functions remained within the infantry regiment or were directly attached to its command. The author apparently felt that the Canadian Army of the future would consist of numerous specialized branches and services with very little integration or convergence, leaving future infantry battalions extremely isolated and unsupported. Fortunately his (her?) prediction did not bear serious fruit, although it demonstrated once again that the Army was trying to conceive the shape of its own existence ten plus years into the future.

Canadian Army future fiction appeared less frequently during the 1960s and 1970s, with no significant internal documents being produced for general consumption. However, during this period the public became engaged once more in the exercise of

forecasting. Bruce Powe foreshadowed the subsequent FLQ Crisis with his 1968 publication of *Killing Ground: The Canadian Civil War*.[9] Described as "a war game novel, a projection of events based on assumptions which may or may not become valid in actual experience," it was perhaps the first detailed examination of what might be required of the Canadian Army in aiding the civil power under emergency measures in a modern conflict.

Increased concerns during the late 1970s that a NATO-Warsaw Pact war might erupt in Europe during the early 1980s instigated several fictional tales both in print and on film. Most notable in this genre to the Canadian Army was the 1978 public release of *The Third World War: August 1985*, by General Sir John Hackett and other NATO analysts. While admitting that "the authors make their conviction clear that the only forecast which can be offered with confidence about the future is that nothing will happen exactly as they have shown it," the story presented a remarkably detailed and very *plausible* fictional narrative of how just such a war might unfold. At close to 500 pages, *The Third World War* was presented as a history of the war written shortly after its conclusion. It discussed both causes and aftermath and included, albeit briefly, what roles Canada's military might have played as part of the NATO forces in Europe. A second volume, titled *The Third World War: The Untold Story*, appeared in 1982 and served as both an update and as an expansion on events the authors were unable to explore previously in depth in the first book.

Hackett's work was closely followed by both American and Canadian tactical-level studies of fighting on the West German plains. Of note in the American public literature were *Red Storm Rising* by Tom Clancy and Larry Bond (1986) and *Team Yankee* by Harold Coyle (1987). In Canada, Force Mobile Command (FMC) initiated two fictional studies of Canadian Army operations in this type of conflict. In 1984 DND released the first illustrated narrative, *First Clash*, written by Major (ret'd) Kenneth Macksey, MC.[10]

A former officer of the Royal Tank Regiment with service as a troop commander in Normandy in 1944, Macksey used the literary technique to provide Canadian commanders serving in Western Europe in 1984 with a better mental image of the phases of a battle group's approach and involvement against a Soviet tank division in a fictional battle. Focusing on company groups and combat teams, readers shadow the life of character Lieutenant-Colonel Doug Tinker, commanding officer of 3rd Battalion, Royal Canadian Regiment Battle Group, as he fights a defensive battle against Major-General Gregor Samsonov's 1st Guards Tank Division on the Buhl Plateau. Macksey republished the highly successful study into the public domain with Stoddard Publishing Company in 1985.

Though not necessarily a portrayal of future technology it was designed to be a training aid with the purpose of creating a mental image of what Canadian soldiers at war in

Western Europe might look like. Overall, the narrative was very well received by the Army and considered essential reading for junior and mid-level leadership and command.

The success of *First Clash* prompted the publication of a successor novel by Macksey in 1989/1990 titled *Counterstroke*.[11] Although not specifically a sequel to *First Clash*, it had the same aim of providing a mental image to land forces in future battles and was delivered in almost the exact same format and style. In *Counterstroke*, the Soviet adversary was replaced by the more generic and at the time politically correct Fantasian Army, however, it was immediately obvious that the two were one and the same the ground fought over was still Germany.

Still, there were other differences within the story. *First Clash* employed the Canadian Army organizations and equipment, as they existed in 1984, whereas *Counterstroke* was based on the notional Corps 86 ideas and its associated doctrine.[12] The novel also provides the caveat at its introduction that "the reader should be aware that many of the organizations and equipment described do not exist and may never exist".[13] Regardless, like *First Clash*, *Counterstroke* achieved its aim of providing a mental image and stimulating interest in army operations through a fictional yet realistic portrayal of events in battle.

There has not been a lengthy fictional assessment of the future army *within* DND since the publication of Counterstroke in 1989/90.[14] Although numerous short vignettes appeared discussing the impacts of various technologies within DND publications throughout the 1990s,[15] no author undertook a more detailed speculation of Canada's future Army across the entire spectrum of operations. The nature of the period was surely a factor: high operational tempo combined with a wide diversity in mission tasks and geographic locations. Though some believed that Canada would continue to prepare for a future large-scale, high-intensity war, others more accurately predicted that the Balkan "sideshow" would soon assume the centre stage for Canada's army. The publication of the defence White Paper in 1994 also provided little detailed insight as to what the future might hold, except to suggest that the Canadian Army could find itself doing pretty much anything, anywhere.

In 1997 the Canadian Army formed the Directorate of Land Strategic Concepts (DLSC) in Kingston, Ontario. Assigned with the mission of conceiving Canada's army of the future, the directorate's mandate was ideally suited towards creation of a new fictional story predicting how Canada's army might live and fight during the mid 21st century. In 2003, DLSC began work on *Crisis in Zefra*, a story set in a failed state somewhere in Saharan Africa that follows a typical Canadian infantry section on an atypical patrol.

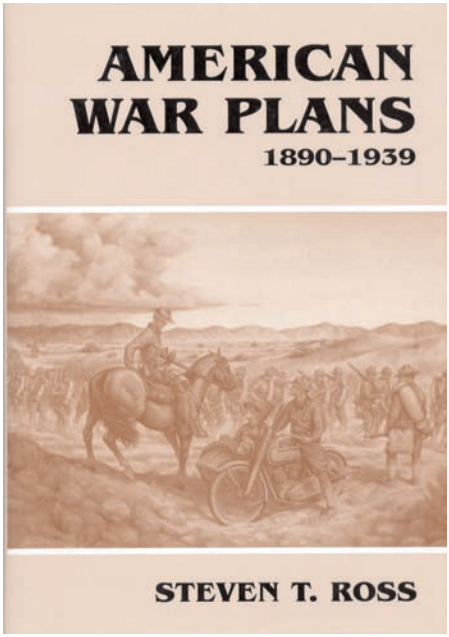
Considering that no one predicted in the late 1980s that the Canadian Army would be fully committed to asymmetric wars and peacekeeping in places like the Bosnia, Croatia, Somalia, Rwanda, Kosovo and Afghanistan during the 1990s and beyond, the need for speculation, thought and, most importantly, informed debate on the future of the Canadian Army continues to be critical to today's planning for the future. One means of encouraging these activities is through the employment of speculative fiction. The forthcoming DLSC publication, *Crisis at Zefra*, builds on over a century of

Canadian Army tradition of looking ahead and offers soldiers at all levels with food for thought, consideration and debate. Based on precedent, *Crisis at Zefra* and other speculative fiction like it will be an invaluable tool to help shape our successors.

END NOTES

1. W.H.C. Lawrence. The Storm of '92: *A Grandfather's Tale Told in 1932*. (Toronto: Sheppard Publishing Company, 1889).
2. Maj-Gen. Sir Earnest Swinton, "The Defence of Duffer's Drift", *The British Infantry Journal*, (April 1905).
3. Ibid.
4. The popularity of Duffer's Drift remains to the present day and the story has been modified to suit current warfighting scenarios. See RAND. *An Attack on Duffer's Downtown*. (Santa Monica: RAND, 2001).
5. H.H. Bryan. "The Infantry of 1965", *Canadian Army Journal*, Vol.2:11 (November 1949), 16-19.
6. Ibid, 16.
7. Ibid, 16.
8. Ibid, 17.
9. Bruce Powe. *Killing Ground: The Canadian Civil War*. (Toronto: Peter Martin Associates, 1968). Powe served in the Canadian Army overseas from 1943 to 1945, and later became a prominent lawyer and public servant.
10. Kenneth J. Macksey. *First Clash*. (Ottawa: DND Publication B-GL-309-006/FT-001, 15 February 1984). The publication was prepared by Force Mobile Command Headquarters. A slightly modified version was subsequently published as, *First Clash: Canadians in World War Three*. (Toronto: Stoddard Publishing, 1984, 1985).
11. Kenneth J. Macksey. *Counterstroke*. (Ottawa: DND Publication B-GL-309-007/FT-001, 1989/90).
12. Corps 86 was the name for a popular notional order of battle that included the fictitious 10 Canadian Mechanized Brigade Group (CMBG).
13. Macksey, Counterstroke.
14. The foreword of *Counterstroke* suggests that a third volume was then in preparation, but very likely the end of the Cold War and the subsequent review of Canadian defence policy in 1994 resulted in the termination of this work.
15. For example see Capt. Andrew B. Godefroy. "The Modern Umbrella: Space Assets As a Force Multiplier in Land Warfare", *The Army Doctrine and Training Bulletin: Canada's Professional Journal on Army Issues*. Vol. No.2 (November 1998), 18-22. This article begins by highlighting the potential future employment of space-derived information in ground operations.

AMERICAN WAR PLANS: 1890-1939



By Steven T. Ross (London : Frank Cass, 2002), 212 pages, 6 maps, bibliography and index. $64.50 (US) cloth, $26.50 (US) paper. ISBN 714653055.

Reviewed by Andrew C. Young

The author of American War Plans: 1890-1939, Steven T. Ross, can safely be said to be the world's foremost expert on the history of American war planning. As a professor of strategy at the United States Naval War College in Newport, Rhode Island, the author has written extensively on the subject of US war plans. Ross's other research interests include French military history and Soviet war planning.

The book under review, American War Plans: 1890-1939, is the first book in a trilogy that also includes American War Plans: 1941-1945

and American War Plans: 1945-1950. This trilogy is also part of a larger whole and is really the author's commentary on his previously published six-volume set, American War Plans: 1919-1950. The volumes in American War Plans: 1919-1950 consist mostly of photocopies of the actual plans themselves with only minimal commentary by Ross. For a more inclusive look at war planning in North America from an American, British and Canadian perspective the reader may wish to consult The Defence of the Undefended Border: Planning for War in North America, 1867-1939 by Richard A. Preston.

Although a reader could use any of the nine volumes that Ross has published on American war planning alone, the full value of his work is only realized when the two sets of books come together. All nine volumes are obviously too expensive for the average reader to purchase but would make a worthwhile acquisition for any library that supports the study of military, strategic or diplomatic history.

As stated in the book's title, the period under review by the author is 1890-1939. This was a period of time when the United States was a rising world power but had not yet achieved (or sought) the predominance on the world stage that it latter attained after the Second World War. The period of war planning in 1890-1939 did not achieve the level of sophistication in the United States that it did in the Second World War according to Ross. This lack of sophistication, lack of realism, is the main theme of Ross' treatment of the subject.

Ross identifies the primary war planning agencies of the period 1890-1939, which were the war colleges of the US Army and US Navy. In 1903 the Joint Army and Navy Board was established to attempt to make the two services work better together. Although initially the "Joint Board" had no independent war-planning authority, it did act as the final review board for war plans submitted to it by army and naval authorities.[1] After the First World War, the Joint Board gained its own planning staff and was able to initiate plans itself. Economic constraints on the military in the inter-war period led the leaders of both services to try to coordinate their plans to a much greater extent than before the First World War.

The framework of the book is built around the famous American colour-coded war plans: the Orange Plan for Japan, Black Plan for Germany, Red Plan for Great Britain (with a sub variant Crimson Plan for Canada) and Green Plan for Mexico. The main sources for the work are the reports of the Secretaries of War and Navy and the actual war plans themselves (in their multiple variants) held at the Naval War College Archives and the Army War College Archives. As such Ross's work is richly documented.

Ross categorizes the inter-war period war plans into two distinct categories: (1) probable contingencies the nation may face, i.e., domestic insurrection, intervention in Mexico and/or the Caribbean, and (2) war with a major power, i.e., Japan, Great Britain or a Japanese-British coalition.

The topic Ross has set out to elucidate is thus covered thoroughly in at least two respects: the actual plans with their multiple variations are described chronologically in the period 1890-1939 quite adequately (at least their salient points) and he also describes the lack of political input that the war planners had from other departments

of the government-this despite numerous requests for political guidance from the war planning agencies to the State Department.[2] The State Department rejected participation in the war planning process on 17 January, 1922. "Thus, as in the years before 1917, the military had to operate without specific political guidance from the country's political and diplomatic leaders."[3] Where Ross might have spent more attention would be in his descriptions of the formation of the war plans themselves, for example, of what significance was the role of inter-service rivalry in the construction of war plans? What role, if any, did the bureaucratic process play in shaping war plans? These themes are sometimes mentioned but only in passing.

Ross examines each of the major war plans chronologically and sets them in the historical context in which they were developed to assess their applicability to given circumstances. Ross correctly points out that it appears that the war colleges sometimes got off track and spent great amounts of time creating war plans that completely ignored the current strategic / military situation in the world.

A case in point was Plan Black (War with Germany), which was revised in 1916 to concentrate the main US battle fleet in New England. From there, the fleet would sortie to repel an invasion attempt by the German Imperial Navy.[4] This plan completely ignored the fact that the Royal Navy had the German Navy bottled up in the North Sea. This war plan also ignored the fact that the Germans' main naval effort in the Atlantic would be submarine warfare.

In any event, it was not US war planners that laid the groundwork for American strategic deployments in the First World War but Marshal Foch of France. In the case of the First World War, the war colleges completely failed to incorporate likely scenarios into their war plans and, as such, made the plans irrelevant to actual operations once war occurred between the United States and Germany. While Ross accurately assesses the lack of realism in these plans, he does not shed any light on how such misconceived ideas (such as a US-German Trafalgar) came to be included in these plans.

Of interest to Canadian readers are the Red / Crimson Plans (war with Great Britain / Canada). These plans received a great deal of attention from American war planners in the inter-war years. As such, the un-likelyhood of an American-British war seems to have had little dampening effect on American planning. Ross points out that participation by the State Department or other government officials would probably have cooled enthusiasm for war planning in this area, but such "civilian" government participation was consistently refused.

Ross speculates that the Anglophobia of some high-ranking US Army and Navy officers may have led to too much effort being spent on Plan Red. Other reasons for focusing on Plan Red are given, including that one of the rationales for war planning was as an academic exercise used to train mid-level officers to think about strategic planning. Such planning was unlikely to occur in the day-to-day activities of these officers in the cash strapped 1930s. Perhaps this is partially correct, but Ross gives no citation to back up this assertion. At any rate, this "training function" could just as well have occurred with a more realistic set of assumptions over who were the most likely set of opponents for the Americans in any future war.

Plan Red called for a defensive concentration of the main US fleet in New York harbour. At the same time, the American Army was to mobilize and launch raids to cut the rail lines linking Western Canada with the East. A rapid landing, in the first few weeks of war, was called for in St. Margaret's Bay in order to seize Halifax and deny its use to the Royal Navy. After the US Army was fully mobilized, operations would commence to seize the major Canadian cities within 200 miles of the US border.[5] The plan recognized that it was unlikely that the Royal Navy could be defeated. In all of its variations, Plan Red never came up with a solution of how to ultimately defeat Great Britain in a protracted war with the United States.

The Americans were not the only ones to be toiling away at plans involving the "undefended border." In Canada, Colonel J. Sutherland Brown (who detested Americans), the Director of Military Operations and Intelligence, planned to repulse an American invasion. Defence Scheme No.1 was the basic military doctrine of the Dominion for over a decade from April 1921 onwards. The fact that no one in the civilian end of the Canadian government had much of an idea of its (Defence Scheme No.1's) existence did not alter the fact that it provided much of the basis for planning a US-Canadian war.

The Canadian and American planners both devised their schemes without assistance (or interference) from civilian agencies. The unreality of the plans, given the prevailing international situation, did not preclude the American or Canadian armies from actively planning war against each other. In both countries, the planners could have better spent their time devising more realistic scenarios. In the second half of the 1930s, in fact, the Americans spent almost all their planning time looking at Japan, Germany and Italy.

Ross' style is descriptive and matter of fact, as he goes through a dizzying number of war plans and their variants over a 50-year period. There is little detailed analyses of the plans or consideration of the war plans of other powers. The book serves as a basic primer on the war plans, but a great deal more could be done, especially on the external factors (inter-service rivalries, scarcity of resources, intelligence estimates, personalities of the planners themselves, etc.) that all undoubtedly played some role in the formation of the plans. Ross gives us a description of the plans, but he does not delve very deeply into the planning process itself. Perhaps this type of information is simply not available.

There are six maps in an appendix giving a very basic illustration of the major war plans. The maps, however, are not detailed at all (presumably, a reader would have to check Ross's other compilations on US war plans to get detailed maps on the planned deployments of American forces during wartime).

The book would be most useful in an academic library as a reference work that lays out the basic chronology of US war planning with a somewhat limited description of the plans themselves. For more detailed research on US war plans, it would be necessary to refer to the archives or the reproductions of the plans that appear in Ross's previous six-volume set on the subject. Overall, American War Plans: 1890-1939 is a good introductory work on US war plans.

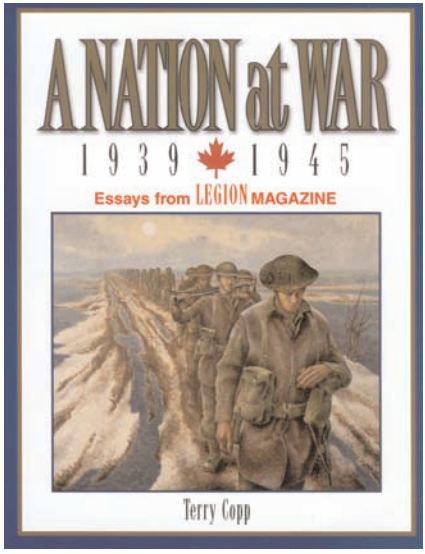
END NOTES

1 Page x.
2 Page 96.
3 Page 97.
4 Page 63.
5 Page 149.

A NATION AT WAR, 1939—1945: ESSAYS FROM LEGION MAGAZINE

By Copp, Terry. Waterloo: Laurier Centre for Military Strategic and Disarmament Studies, 2004. ISBN0-9688750-5-X. Softcover, 250 pages with maps and photos. Price: $34.00, with a portion of sales donated to the Royal Canadian Legion and the Canadian Battlefield Foundation.

Reviewed by Major J.R. Grodzinski, CD



From July 1994 until August 1995, Professor Terry Copp wrote a series of articles for "Legion Magazine," the newsletter and journal of the Royal Canadian Legion, to commemorate the 50th Anniversary of D-Day and subsequent events to 1945. These articles were very well received and Professor Copp has since written more on other subjects. *A Nation at War* is a collection of 62 of these essays, dealing with a variety of naval, land and air subjects from the Second World War. Most of them describe land battles but other subjects, such as the bomber offensive, tactical air forces, conscription, the home front and the atomic weapons are also examined in a chronological sequence, from the beginning of the war to its conclusion in 1945.

Professor Copp has a heroic view of history, particularly towards Canadians who fought in the Second World War. For him the heroes are the soldiers, the junior leaders and commanding officers, who drove themselves or their men to overcome battlefield friction and shortfalls in planning or generalship. He dismisses critical assessments of Canadian battlefield performance, and prefers to promote, as he once stated in an interview, "patriotic history." In several essays in this book, Professor Copp takes on a number of military historians and writers (note the distinction); among the former are Jack Granatstein, Jack English, Paul Dickson and Stephen Ambrose; while popular authors includes Daniel G. Dancocks, Mark Zuehlke and Max Hastings. He credits himself and the late Dr. Robert Vogel and their "Maple Leaf Route" series in establishing a new school of thought that rejected the "conventional wisdom" that dismissed the achievements made by the Canadian Army in Normandy. Copp claims, that work had little impact on "the country's military historians not to mention those who portrayed our history on television" (p. 91). While one cannot expect credible presentation of historical subjects from a medium such as television, Copp's assessment of our military historians is damning.

Historians, and military historians in particular, can be a curmudgeonly lot. They put too much effort in criticizing their peers and competitors rather than producing solid work. One would hope for more from a professional group and this wasteful infighting may be the reason why our best-known military authors are not historians, but journalists, such as the late Pierre Berton or Mark Zuehlke. The distinction is important since academic historians have to earn their wings, passing through a demanding educational process in which they are not only expected to *master* the knowledge and literature of their field, but also produce original work—at least when rigour, discipline and a questioning mind are applied liberally. It is also important to understand that historiography is progressive—an author takes his study to a certain point, which is then further advanced by a future historian. This process of accretion is what advances our understanding, and is the reason why some books become dated and others endure.

Professor Copp does deserve credit for establishing the only real school of military historical writing in Canada. By that, I refer to the establishment of the Laurier Centre for Military Strategic and Disarmament Studies, from where sponsorship is given to budding historians through an annual military history symposium aimed at undergraduate and graduate level students; the publication of "Canadian Military History," a quarterly journal featuring a limited range of articles and reviews on several subject areas, and his work with the Canadian Battlefields Foundation. The foundation takes young undergraduate students to Europe to study First and Second World War campaigns. Professor Copp has served as mentor to a loyal group of Young Turks, many of whom have gone on to broaden our understanding and literature of the Second World War. This is a very powerful position and no other individual or institution has had the same effect, at least in recent years. Canadian military history owes him much.

As for *A Nation at War*, the essays are reproduced as they were in Legion Magazine. The articles are not lengthy, ranging from four to six pages, and collectively offer a lot of information. Indeed, this is a good non-academic single volume overview of Canada in the Second World War. While brevity offers some advantages, it also invites the employment of many broad generalizations and several strange conclusions and assertions. For example, the author writes "the Canadians who arrived at Hong Kong on November 16, 1941, can best be compared to a peacekeeping force deployed into an especially dangerous situation." Certainly, this is not the best analogy. As a popular work, Professor Copp's repeated attacks against "historians" are unfortunate; he paints them as an ossified monolithic group, unable to assess military operations. The essay on Dieppe claims "historians have frequently missed the obvious reality" of that raid and its "important contribution to allied doctrine." Historians, writes Copp, think as "armchair generals instead of real ones" (p. 37). Whether this comment is directed at contemporary historians or more recent scholars is unclear. Colonel C.P. Stacey, the official historian of the war, was certainly not tied to a chair and his account of Dieppe includes a discussion of its effect on Allied planning and amphibious doctrine. Stacey was writing in 1955, without the luxury of a large body of literature to draw upon.1 There are other examples. In "The Canadian Army and the Normandy Campaign," Jack English offered a challenging interpretation of Canadian training and combat

performance based on solid research; Donald E. Graves' impeccably researched history of the South Alberta Regiment not only chronicles the story of that unit, but gives an superb account of the fighting in Normandy. Canada has produced a solid group of operationally focussed historians, at home on the tactical battlefield and fully conscious of the difficulties of soldiering, so who are the "historians" Professor Copp refers to?

Although the essays were written for popular consumption, their compilation in a book would have benefited from the application of more editing and detail. The addition of endnotes would have been especially helpful, particularly as there are many places where text appears in quotation but no sources are given. A form of bibliography is offered, but only covers those books mentioned in the text. The maps are simple (not always a fault), of mixed quality, and are inconsistent in providing a scale or key to the contractions used. For example, a map of Operation Charnwood (p. 93) includes the "59th BR" and "3rd BR," which supposedly the reader must divine as being the 59th and 3rd British Infantry Divisions. Many familiar, yet poorly captioned, photos appear, but the spectacular period aerial photos from the collection of the Laurier Centre for Military Strategic and Disarmament Studies offset those of lesser quality. There are also minor errors in the text, such as repeatedly misnaming the commander of the 1st Polish Independent Parachute Brigade Group, Major-General Stanislaw Sosabowski, as "Sobowski." Errors such as this and other editorial oversights may simply have resulted from this being an "in house" publication, but it detracts from the overall quality of the book as a stand-alone work.

I would have liked to conclude with the usual review phrase of "these criticisms aside, this book would be a valuable addition to any library," and I will, but with reservation. A Nation at War is a good summary of Canadian military operations during the Second World War, but one marred by mixed scholarship and debatable claims. It is a good primer for general reading on the Second World War, however, and hopefully will entice those who read it to examine more detailed and challenging studies on the campaigns and battles presented.

END NOTE

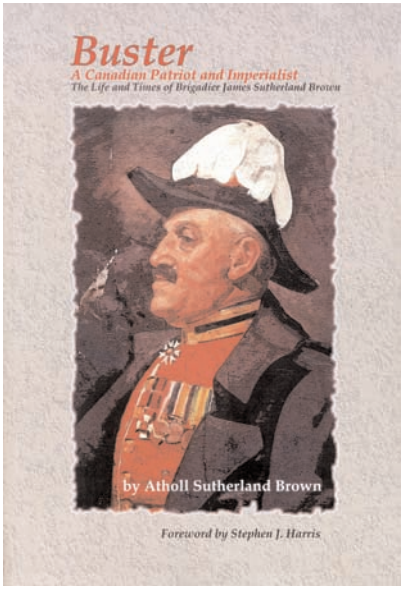
1. Colonel C.P. Stacey, *Official History of the Canadian Army in the Second World War, Volume I, Six Years of War: The Army in Canada, Britain and the Pacific.* (Ottawa: Queen's Printer, 1955), pp. 397-407.

BUSTER: A CANADIAN PATRIOT AND IMPERIALIST THE LIFE AND TIMES OF BRIGADIER JAMES SUTHERLAND BROWN

By Atholl Sutherland Brown (Vancouver: Trafford Books, 2005) SC, 240 pages, ISBN 1-4120-2522-2.

Reviewed by Major J.D. Godefroy, CD

Atholl Sutherland Brown sets out in this book to write a biography of his father, Canadian Army Brigadier James Sutherland "Buster" Brown, that examines the life of the latter in the perspective of the times in which he served. Brown acknowledges that



much has already been written about Buster, most of it critical, and he candidly admits that the added value he brings to this study lies mainly in his personal recollections and knowledge of the man. Buster Brown gained infamy after his death as the author of "Defence Scheme No. 1," drafted in late 1920 and early 1921. This document laid out a defensive plan that called for a pre-emptive Canadian attack on the United States in the event of looming conflict. Buster Brown prepared this document in his role as Director of Military Operations and Intelligence (DMO & I) at National Defence Headquarters at the behest of his superiors, and it is arguably typical of military plans, prepared for a possible worst case, and admittedly unlikely to be used. This said, his ardent defence of its content, particularly the military personnel and materiel requirements that it entailed, has caused him to be personally associated with it.

Brown appreciates that he is walking over familiar ground in his re-examination of the "Defence Scheme No. 1" controversy, and seeks to provide a broader insight into his father's personality. Brown takes an approach to his task that is sensitive, reasoned and sympathetic. He admits his father's flaws, and doesn't seek to gloss over them. Indeed, he devotes much of the work to providing some context for the development of Buster Brown's views and personality. We are presented a description of Buster which reveals him to be a man who was strong-willed, sometimes naïve, possessed of a distinct sense of justice and right, and unafraid to state his views. The details Atholl Sutherland Brown provides about his father's early years and subsequent Permanent Force career offer a wealth of insight into the formation of the latter's personality, and provide a window into the workings of the establishment at the time. Roughly half of the book is devoted to the career of Buster Brown before his accession to the DMO & I post in 1919, with the remainder devoted to his escalating conflicts with General Andrew McNaughton, which ultimately led to Brown's resignation from the Army in 1933.

The rivalry between Brown and McNaughton seems to have begun in 1919, when they were each being considered for post-war positions in the Permanent Force. McNaughton came out on top, with Buster given the position of DMO & I. Their disputes began over "Defence Scheme No. 1," and stemmed from the force structure and establishment assumptions that were used to build the scheme. Atholl Sutherland Brown agrees with Canadian Brass author Stephen Harris's analysis, which suggests that Brown's stand on the issue was principled, and strove to force the government to take responsibility for the defence of Canada. McNaughton is criticized less for his pragmatism than for his vindictiveness, and Buster is described as the principled foil to more "political" colleagues who ultimately drove him out of the Army he loved. Some of Brown's criticism of McNaughton is very personal, and may be motivated by his loyalty to his father; it is occasionally difficult to discern where the opinions of Buster

end, and those of his son begin. This said, Brown is generally measured in his presentation of his father's case, acknowledges his bias where appropriate, and tries to offer supporting sources or opinions where available. The portrait of Buster that emerges is one of a man who was less politically savvy than his peers, and who learned, to his chagrin, that hard work, principled objections and indignation would not triumph over political expediency. Atholl Sutherland Brown presents his father as a tragic but heroic figure, loved by his men, his subordinate officers and his peers, but a thorn in the side of those who expected him to loyally execute instructions that affronted his sense of justice.

Atholl Sutherland Brown's book does suffer from some editing flaws; occasional typographic errors or repeated spelling mistakes detract, as do errors in unit names. The Royal Canadian Dragoons become the Canadian Dragoons at least once, and Canadian Expeditionary Force (CEF) battalions are confused with numbered pre-war militia battalions. Some stories or comments are repeated in the text, particularly criticism of past writings on Buster, and the result is an occasional sense that you have lost your place in the book. Atholl Sutherland Brown is candid in his admission that no one who knew his father is still alive to be interviewed, and that a major source of possible insight, his father's diaries, were destroyed by his mother years ago. Nonetheless, the overall presentation of the book is sound, footnotes offer explicit references, and primary source material, particularly the Sutherland Brown Papers at Queen's University, provide the basis for the treatment. This source material, interpreted by someone with access to a wealth of family photos and first-hand information on the subject, make the book a significant and welcome addition to the published record of Canada's Permanent Force, and I recommend it with few reservations to any student of Canadian generalship.

THE STAND-UP TABLE

Commentary, Opinion and Rebuttal

SUCCESSION PLANNING: WHAT THE EXPERTS SAY

Colonel S. Appleton writes ...

In 1995 an article I wrote entitled, "Officer Professional Development: Selection or Sidestep?" was published by the Canadian Forces College (CFC). The paper argued that the present officer professional development (OPD) process was flawed because of its chosen logical construct, that is to say, its inductive versus deductive approach to logic. As such the very best leaders for the CF could never be identified in a *systematic* manner. Nine years later, and I do not pretend to believe that my innocuous paper from CFC served as a catalyst, the OPD has been strengthened by certain decisions taken by the CF leadership. This has been very encouraging.

In the past year, the Army has undertaken to further reinforce the overall OPD framework through the development of *succession planning*. The strategic intent is to identify, develop, train and educate selected individuals to create a broad but effective resource of leaders to ensure management succession. This initiative should not surprise anyone. It is commonplace throughout the business community, and CEOs spend an enormous amount of time identifying potential leaders. Despite this, research has shown that most organizations make decisions on distorted information and identify the wrong person for key positions. This is more common than one may appreciate. According to Melvin Sorcher and James Brant, an organizational psychologist and organizational sociologist respectively and partners in a management consulting firm designed to assist corporate America with succession planning, too many CEOs tend to overvalue certain attributes while undervaluing others. This is called the "halo effect."

For purposes of brevity, I have summarized Sorcher and Brant's list of the most fundamental mistakes—the overvaluation of certain attributes—made by organizational leadership when addressing leader succession:

Being a Team Player

Too often organizational success, as witnessed by promotion or enhanced status, is achieved by those who manage issues by consensus. This is particularly appealing to senior managers because it makes their life easier and is generally effective at producing a smoothly operating organization. Consensus managers, however, had difficulty making a decision unless everyone was in general agreement. They rarely demonstrated their own vision or ideas. As reported by Sorcher and Brant, these individuals created for themselves an amalgam of others' ideas. The process to do this retarded timely decision-making and fostered an aversion to risk. More emphatically, consensus managers sought others similar to themselves. This homogeneity was effective for moderately difficult tasks. Studies have shown, though, that to solve truly complex situations, synergistic skill-sets are needed. This necessitates complementary skills, ones found in a diverse group. Consensus managers do not seek out these individuals.

According to Sorcher and Brant, their research shows that the truly exceptional leaders are not team players. Working in a group at the operational and strategic level is viewed as important but not compelling. These individuals are far more comfortable as independent thinkers and predisposed to making decisions that set them apart than reinforce the status quo. These leaders prefer *others* to work as a team; when push comes to shove, they are prepared to move on before listening to everyone else's idea.

Hands-on Coaching

Common thinking has been that leaders actively develop others by virtue of mentoring relationships. Sorcher and Brant argue that this is false, as witnessed by successful corporations. Exceptional leaders prefer to select individuals, delegate fully and provide them with opportunities to grow through their own experiences and mistakes. Hands-on relationships stifle independence of thought.

Operational Proficiency

Efficient individuals were seen to be less than exceptional leaders. Heavy reliance on systems-based approaches, policies and procedures stifled innovation, which, at the highest level of organizational leadership, was vital. Problem-solving skills and operational expertise functioned well in an operating environment that was well defined. In turbulent and nebulous operating environments, where repositioning was necessary, exceptional leaders were able to thrive with fewer facts and less data. Instead of confusion, they saw opportunities. Ambiguity confused good operations managers and was shown to create a series of delayed decisions until more information, *at times upwards of 90% available information*, was gathered.

Dynamic Public Speaking

This skill was overvalued. Albeit important, it was rarely the reason for executive failure. Proper coaching corrected most presentation styles. More critical, and less correctable, were social skills. The ability to engage one-on-one, convince and inspire at all levels was assessed as fundamental to enlisting others' support.

Ambition

Amongst the assessed exceptional leaders humility was more prevalent than ambition. A perceived lack of organizational ambition was the cause for several individuals to not be selected for higher posts. Unfortunately, too many senior executives failed to understand that ambition could be understated. Sorcher and Brant found that many superb leaders were modest and displayed little ambition, although they were fiercely competitive.

Lastly, an additional aspect of succession planning which was not explored by Sorcher and Brant but which is being used more frequently by organizations seeking new hires at the junior management level is the use of cognitive and character surveys. Many of you will be familiar with the Myers Briggs personality survey. A second but far more powerful tool is the Hermann Brain Determination Index, which shows the participants'prefered cognitive operating quadrant. I have not only taken this survey but also recently administered the same to the area and brigade G3s. We will discuss the group results at the next Army G3 Conference.

Succession planning is an important aspect of any organization. The Army is no different. Having embarked upon this journey, however, it is critical that we, as a collective group, appreciate and understand the various experiences of those who have traveled this path before. The corporate world has provided us with many lessons and tools. The analysis from Sorcher and Brant is merely one example of the information available. As a self-declared learning organization that is advancing the mantra of managing knowledge and focusing on people, it would be folly for us to not exploit these experiences. Planning for leadership succession is too important to not recognize more sophisticated tools and rigorous studies. Electronic score boards, group discussion and preferred lists are simply not good enough for informed succession management. We have the process; we must ensure it is used to its full potential.

ON REGIMENTS, CORPS AND TRANSFORMATION

Major R.A. Roach writes...

I was heartened to read LCol Dave Banks' article, "A Single Combat Branch?" and equally pleased with LCol Harry Bondy's comments on that article in *The Canadian Army Journal*, Vol. 7, No. 2 (Summer 2004).

I believe that LCol Banks' assumptions are sound and that, ultimately, the Army's relevance and success will be measured by how well we are able to adapt to a constantly changing environment, encompassing threats to Canada (in the broadest sense) and socio-political developments at home and abroad. A single branch would support increased flexibility in combat development and transformation activities.

The historical perspective presented fails to capture the ascendancy of the "corps" during and immediately following WW II. We are living in the shadow of a branch (corps) system, which developed to exploit the war fighting potential of the industrial age. I contend that the branch system has weakened the regimental system in Canada by becoming, in effect, uber-regiments and creating unnecessary tension between commanders and COs through emotionally charged, functionally based, "tech-nets" to control personnel management and the combat development process. I posit that strong, healthy regiments, stripped of corps affiliation, could emerge in the formation of a single Army branch.

I agree with LCol Bondy's argument that a single combat branch does not go far enough to transform the Army and that "soldiers first" should also encompass the notion of "soldier first." Army oriented combat support and combat service support personnel would not only strengthen land component capabilities but also would enrich and promote joint endeavours by ensuring that all Army personnel bring a common understanding of the land environment to the joint table.

I do not think that LCol Banks need be so concerned about the ability to generate ISTAR soldiers. A well-rounded soldier, with the right aptitude and good training, will make a superior reconnaissance or surveillance specialist when compared to a soldier brought up in a functional branch.

Similarly, transforming the Militia need not be an onerous task. Again, I would argue that it is the linkage to corps that causes the most tension in this arena. In fact, I believe the reserve should be launched to exploit in this endeavour. Currently, personnel and training are effectively being managed as a single "branch" in each LF area. The requirements of LFRR are heavily influencing the future of militia units, and inter-corps transfers of regiments have already occurred to balance force generation needs. Training to a common "close combat" skill set, prior to becoming a specialist, would enhance militia training and employability.

Building a single Army Branch would not be easy to sell CF wide, but would certainly ingratiate us with a Treasury Board that is trying, desperately, to reduce the number of job classifications across government. A model that would have all officers and soldiers pass through the Army "crucible" prior to specialty trades training is highly desirable (particularly in light of the growing asymmetric threat and non-contiguous operations). In practice, this could be achieved in the short term by using voluntary occupational transfer to achieve the desired result, with individuals moving to a "purple" branch. In the longer term, the Army branch could develop structure and process to cater to the personnel and career needs of diverse specialties, while meeting CF requirements to fill joint and CF billets.

It is time we exploit, not justify, the regimental system to achieve the objectives of Army transformation. Canadians have a rich "Army branch" heritage with the Canadian Mounted Rifles, deploying "tactical self-sufficient units" at the turn of the last century (a stretch, but illustrative and rousing). We have the opportunity now to ride hard into the future, drawing on the spirit, tenacity and skill of our forbears.

THE 100TH MONKEY: CATALYST FOR THE LEARNING ORGANIZATION

Lieutenant-Colonel Stephen McClusky of the Directorate of Army Training writes...

Take a hundred monkeys and give them a coil of rope. Now most of the monkeys may initially be curious about the rope, but the novelty of this new addition to their environment will quickly wear off once they determine that the rope is of no assistance in their quest to procreate or find food. By accident or design, the 100th monkey will find some use for the rope that gives it a significant advantage over the other 99 monkeys in its pursuit of one or both of its two main objectives. So long as the other 99 monkeys remain ignorant of the innovation of the 100th monkey, then that one monkey will have an asymmetric advantage over the other 99 non rope-wielding monkeys. Chances are, however, that some of the other monkeys will observe and learn from the 100th monkey. This hit and miss approach to collective learning does not make the 100 monkeys a learning organization.

Peter Senge, in his book *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*, describes the act of organizational learning as: "Learning in organizations means the continuous testing of experience, and the transformation of that experience into knowledge—accessible for the whole organization, and relevant to its core purpose."[1] With our monkey parable, the 100th monkey developed knowledge that was relevant to its core purposes, but it did not continuously test that

experience, nor did it deliberately make that knowledge accessible to the other 99 monkeys. Is the Canadian Army a learning organization, or are we 100 monkeys?

Arguably we (the Canadian Army) make the effort to be a learning organization. We have liaison officers (LOs) stationed with our allies looking for the 100th monkey. Our Army Lessons Learned Centre (ALLC)—through its website, *Dispatches* and other media—touts the accomplishments of the 100th monkey. Our training and education establishments strive to incorporate lessons learned and best practices into their curricula. We preach professional development and even publish a recommended reading list. These initiatives clearly indicate that we strive to be a learning organization, but are we?

Op tempo, pers tempo, double and triple hatting, training demands, resource management demands, policy implementation, capability development and many more time thieves seem to steal our opportunities to drink from the fountain of institutional knowledge. Are we unique if we read only a few LO reports each year, rarely, if ever, surf the ALLC website and have read less than half of the recommended reading list? What is that 100th monkey up to? There is an old saying, "you don't know what you don't know," and this is the bane of a learning organization. How then can we better sound the clarion call of the 100th monkey's accomplishments than we do at present? We submit that, in the first place, we need to incorporate the successes of the 100th monkey into our organization's expression of how we fight and, in the second place, we need to be where the 100th monkey is most likely to appear in order to record his accomplishments for the benefit of the whole organization.

The contemporary commander can dominate his email dragon and network with the best of them, do more with less and deliver just in time, but no enemy is going to capitulate just because we can out NEO,[2] self-synchronize, EBO[3] and mission command his non-linear, non contiguous, unconventional ass. War is a uniquely human endeavour. The western paradigm of war is some form of professional military cadre or force with levee en mass or mobilization in time of crisis. The institutional expression of how these forces fight is called doctrine. Doctrine can cut a pretty wide swath, from tactics, techniques and procedures on the one hand, to a national military strategy on the other. For doctrine to remain relevant, it must disseminate the discoveries of the 100th monkey.

The problem is that our current paradigm for doctrine development is to pump out new doctrine at a glacial pace while technology, equipments, the operating environment and other factors that influence how we will fight change much more rapidly. We need a better means of transforming information into knowledge and sharing it throughout our entire organization to allow us to more effectively achieve our core purposes. If we are to be strategically relevant, we must be tactically decisive. Where can we expect to find this tactically decisive 100th monkey? The Canadian Manoeuvre Training Centre (CMTC).

Say what you will about personnel administration system, particularly the CFPAS, but face the fact that more often than not, the 100th monkey achieves successive command positions more often than the other 99. Where, if not the CMTC, are we likely to observe our best and brightest using new tools, concepts and technologies? Would it

surprise anyone to discover that these new tools, concepts and technologies will not be used by our best and brightest for their intended purpose? How many WWII Allied tankers cursed the German that first depressed his 88 mm anti-aircraft gun and fired it at a tank? Did we not then, and even today, still look to capitalize on the innovation of that 100th monkey? What would have happened if the other 99 monkeys had had their way, and the 100th monkey was roundly chastised, forbidden from depressing his 88 mm and held up before the other 99 monkeys as an example of what not to do?

The lesson here is that not only must a learning organization watch for its 100th monkeys, but also its observers must be astute enough to recognize unconventional brilliance when they see it. Our CMTC will have observer/controllers, and they must be carefully selected because they will witness, first hand, the innovations of our 100th monkeys. Problem is, unless we have some mechanism for collecting and disseminating the experiences and knowledge gained at the CMTC, we will fail to increase our collective institutional knowledge and we will thus not be a learning organization. Do we aid and abet the email dragon that so many of us square off with on a daily basis by disseminating this institutional knowledge electronically? Do we put these priceless nuggets of knowledge on a CMTC website so that the majority of intranet, DWAN surfing desk jockeys can trip across them as they while away their hours developing their carpal tunnel medical disability? How about we summarize the CMTC findings in a periodical that we can put in everyone's in-basket? Well maybe these means of dissemination have a glitch here or there, so is there a better way? Sure.

We know that the 100th monkey is out there. We are fairly certain that we will see him in his native habitat at the CMTC. We know that doctrine is the institutional expression of how an army fights, and we know that war is ultimately a human endeavour. Clearly then we must capture the endeavours of humans (debatably commanders) in a variety of milieus, but certainly at the CMTC, express it in our doctrine and reinforce it at our learning and training establishments. Director General Land Capability Development (Directorate of Army Doctrine) develops doctrine, which is taught at our training and learning institutions, and sponsors LOs. DAD should have an LO at the CMTC.

END NOTES

1. Peter Senge, *The Fifth Discipline Fieldbook: The Art and Practice of the Learning Organization* (New York: Doubleday, July 1994), p. 49.
2. Non-combatant Evacuation Operation.
3. Effects-Based Operations.