



# THE ARMY DOCTRINE AND TRAINING BULLETIN

Canada's Professional Journal on Army Issues  
Volume 4, No. 4 • Winter 2001 - 2001

MISUNDERSTANDING MARS AND MINERVA:  
The Canadian Army's Failure to Define an Operational Doctrine  
*Lieutenant-Colonel Ian Hope, CD*

EXPERIENCE IN OFFICER PROFESSIONAL DEVELOPMENT:  
A Pillar in Peril  
*Colonel Stuart A. Beare, CD*

OPERATION "ANGER":  
The Little Known Canadian Victory at Arnhem in 1945  
*Captain S. F. King, CD*

THE ANTI-ARMOUR SQUADRON AT BRIGADE GROUP LEVEL  
*Captain J.R. McKay*

LIGHT PUNCHING:  
The Case for an Improved 105 mm Tank Round  
*Major L.R. Mader, CD*

THE CONTINUUM OF LEADERSHIP:  
A Model for the Future  
*Sergeant Arthur Majoor*

PRE-DEPLOYMENT TRAINING FOR PEACE SUPPORT OPERATIONS:  
A Revisionist's Analysis  
*Captain A.J. Vivian*

TANK: THE CANADIAN ARMY'S FOUR-LETTER WORD  
*Major Lee J. Hammond, CD*

Published Quarterly



National Defence  
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# THE ARMY DOCTRINE AND TRAINING BULLETIN

## Canada's Professional Journal on Army Issues

**T**his is an official publication of Land Force Command and is published quarterly. *The Army Doctrine and Training Bulletin* is dedicated to the dissemination and discussion of doctrinal and training concepts, ideas and opinions by all army personnel and those civilians with an interest in doctrinal, training and other military matters. Articles on related subjects such as leadership, ethics, technology and military history are also invited. Considered, reasoned debate is central to the intellectual health of the army and the production of valid doctrine and training policies. Articles promoting thought and discussion are therefore welcome. All ranks and personnel from other environments are encouraged to contribute. Opinions expressed in the articles remain those of the author and do not represent departmental or Canadian Forces policy. The doctrine, training and other updates do not represent authority for action on that particular topic. All published material remains the copyright of the Department of National Defence and may be used with written permission from the Managing Editor.

### ARTICLE GUIDELINES

Articles of any length will be considered for publication, the ideal length being 3000 to 6000 words. Articles can be submitted in either official language. Usage and spelling are in accordance with *The Canadian Style: A Guide to Writing and Editing* (Minister of Supply and Service 1997) and *Le guide du rédacteur de l'administration fédérale* – both are available via [www.pwgsc.gc.ca/termium](http://www.pwgsc.gc.ca/termium), libraries or bookstores; and *The Concise Oxford Dictionary* or *Le Petit Robert*. Supporting tables, charts and images must be provided by the author and should not be embedded in the text. Articles must include endnotes. Contributors must include a brief biography citing their academic background, noteworthy military or other experience, key courses and current position. Articles can be submitted via e-mail or regular mail (a disc copy must be included). All submissions will be reviewed by an Editorial Board and contributors will be notified by the Managing Editor on the status of their submission. The Managing Editor reserves the right to make minor editorial changes to grammar or style. Authors will be contacted should their submission require revision.

### STAND-UP TABLE (COMMENTARY) GUIDELINES

Contributions to the Stand-Up Table should be no longer than 1000 words and can be made anytime. Every effort will be made to publish these in the earliest issue possible. Comments on articles should be submitted as soon as possible following the publication of that article.

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Please contact the Managing Editor to confirm submission deadlines:

Spring Issue:	By 15 September
Summer Issue:	By 15 December
Fall Issue:	By 31 March
Winter Issue:	By 30 June

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The *Bulletin* is distributed throughout the Army and to select NDHQ, Maritime Command, Air Command, CFRETS and DISO addresses. Copies are also provided to defence-related organizations, allied armies and members of the public and academia. Inquiries regarding distribution are to be made to the Managing Editor. An electronic version of the Bulletin is available at [www.army.dnd.ca/acl/](http://www.army.dnd.ca/acl/).

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Layout and proofreading services are provided by:

CFTMPC  CPMIFC

CF Training Materiel Production Centre  
(204) 833-2500, ext. 5356

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# Table of Contents

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<b>GUEST EDITORIAL – SOLDIER/SCHOLAR: AN IRRECONCILABLE DIVIDE? . . . . .</b>	<b>3</b>
<i>Lieutenant-Colonel Bernd Horn, CD</i>	
<b>FROM THE MANAGING EDITOR – THE CANADIAN ARMY READING LIST . . . . .</b>	<b>8</b>
<b>UPDATE FROM THE DIRECTORATE OF ARMY TRAINING: PROGRESS TO DATE . . . . .</b>	<b>9</b>
<b>MISUNDERSTANDING MARS AND MINERVA: THE CANADIAN ARMY’S FAILURE TO DEFINE AN OPERATIONAL DOCTRINE . . . . .</b>	<b>16</b>
<i>Lieutenant-Colonel Ian Hope, CD</i>	
<b>EXPERIENCE IN OFFICER PROFESSIONAL DEVELOPMENT: A PILLAR IN PERIL . . . . .</b>	<b>36</b>
<i>Colonel Stuart A. Beare, CD</i>	
<b>OPERATION “ANGER”: THE LITTLE KNOWN CANADIAN VICTORY AT ARNHEM IN 1945 . . . . .</b>	<b>49</b>
<i>Captain S. F. King, CD</i>	
<b>THE ANTI-ARMOUR SQUADRON AT BRIGADE GROUP LEVEL . . . . .</b>	<b>54</b>
<i>Captain J.R. McKay</i>	
<b>LIGHT PUNCHING: THE CASE FOR AN IMPROVED 105 MM TANK ROUND . . . . .</b>	<b>58</b>
<i>Major L.R. Mader, CD</i>	
<b>THE CONTINUUM OF LEADERSHIP: A MODEL FOR THE FUTURE . . . . .</b>	<b>63</b>
<i>Sergeant Arthur Majoor</i>	
<b>PRE-DEPLOYMENT TRAINING FOR PEACE SUPPORT OPERATIONS: A REVISIONIST’S ANALYSIS . . . . .</b>	<b>70</b>
<i>Captain A.J. Vivian</i>	
<b>TANK: THE CANADIAN ARMY’S FOUR-LETTER WORD . . . . .</b>	<b>74</b>
<i>Major Lee J. Hammond, CD</i>	
<b>A SIMPLE TACTICAL PROBLEM - “SELECTION OF THE AIM” . . . . .</b>	<b>83</b>
<i>Tacitus</i>	
<b>THE STAND-UP TABLE . . . . .</b>	<b>84</b>
<b>BOOK REVIEWS . . . . .</b>	<b>88</b>

# Part of Our Heritage

## Stand to your Horses...



A soldier of the *Corps de cavalerie*. This Corps existed from May 1759 to September 1760 and included 200 Canadian volunteers and five French officers. This was the first mounted unit raised in Canada. (Courtesy the Directorate of History and Heritage)



A trooper from the Canadian Light Dragoons in 1813. This unit was raised in the Montréal area in April 1813 and disbanded in May 1815. It participated in several engagements during 1813, specifically Beaver Dams, Schlosser, Black Rock, and Moraviantown. (Courtesy the Directorate of History and Heritage)



A soldier of The South Alberta Regiment wearing the winter crew suit, circa 1944. (Courtesy the Directorate of History and Heritage)



A pilot from "Bubble Troop" or the reconnaissance squadron aviation troop from 1962 to circa 1970. The troop's CH-112 Nomad helicopters were crewed by armour corps officers and sergeants. (Courtesy the Directorate of History and Heritage)

# The 2001 Army Doctrine and Training Bulletin Warfighting Essay Competition

Two prizes will be awarded for the two best papers.

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**Entry Rules:** Essays must be original and not previously submitted or published elsewhere. Entries must be between 2000 and 4000 words in length. Submissions must include one double-spaced printed copy and an IBM-compatible disc copy. A *nom de guerre* must be substituted for the author's name on the title page. The author's actual name, contact information and a brief biography (academic background, key courses and employment, current position) must be provided in a sealed envelope with the *nom de guerre* clearly shown on the outside of the envelope.

**Judging:** All submissions will be reviewed by a panel consisting of the Commandant Canadian Land Force Command and Staff College, representatives from the Directorate of Army Doctrine and the Directorate of Army Training, and an academic member of The Royal Military College of Canada, with the Managing Editor as Secretary. Winners will be announced in January 2002 and will be published in the Spring 2002 issue of the *Army Doctrine and Training Bulletin*.

**Deadline:** Entries must be postmarked on or before 31 December 2001.

**For further information or to submit entries contact:**

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The Army Doctrine and Training Bulletin acknowledges the support of  
Vanwell Publications in making this competition possible and its continued  
assistance in Bulletin-sponsored activities.

# Obviously we had too good a summer...

## Errata for the Army Doctrine and Training Bulletin, Vol. 4 No. 3, Fall 2001

Upon receiving the Fall 2001 issue of the Army Doctrine and Training Bulletin from the printer, it became clear to this Managing Editor that several editorial errors slipped by during the review process. We would like to take the opportunity to correct them.

- Lee Windsor's article "Professionalism Under Fire: Canadian Implementation of the Medak Pocket Agreement, Croatia, 1993" (pp. 20 – 27) is a reprint which originally appeared in Canadian Military History, Vol. 9, No. 3, Summer 2000. Our apologies to the Editorial staff of Canadian Military History for not acknowledging their permission to reprint Mr Windsor's article.
- The biography for Brigadier General Nordick at the end of his "Fighting in Built-Up Areas: We Can Do This, so Let's Get on With it" (pp. 28 – 32), notes that he commanded 1 Canadian Mechanized Brigade Group from 1991 to 2001. Despite General Nordick's desire to have commanded the brigade for a decade, his tenure as commander actually ran from 1999 to 2001.
- The title for Professor Robert Citino's "*Die Gedanken sind frei*" (pp. 48 – 55) had a typographical error on both the cover and first pages of the article. Somehow *sind* became *sid*. In the same article, the captions on p. 51 and p. 53 were transposed. Our apologies to the author for these oversights.
- Lieutenant-Colonel (Retd) Jarymowycz's article "On Doctrine – A Brief Comment" contained two errors. Firstly the captions on pages 62 and 63 were reversed, while a footnote was added to his biography on page 64 in error. Again, our apologies to the author for these errors.

We would like to extend thanks to those readers of the *Army Doctrine and Training Bulletin* who also brought these errors to our attention.

# Guest Editorial

## Soldier/Scholar: An Irreconcilable Divide?

by Lieutenant-Colonel Bernd Horn, CD  
Commanding Officer, 1st Battalion, The Royal Canadian Regiment

*War is a science so obscure and imperfect that custom and prejudice confirmed by ignorance are its sole foundation and support.*

– Marshal of France, Herman  
Maurice Count de Saxe

**T**he conventional military mind is conservative, functional and skeptical. Above all else, it utilizes experience as the key filter to determine what is possible, what is useful and even what is truth and reality. Quite simply, experience is empirical and tangible; decisions are made, actions performed and the results of such decisions and actions are seen if not felt. Experience builds confidence and individual and group competence. In fact, the military culture reveres and rightfully recognizes the experience of individuals. Campaign ribbons, qualification and specialty badges, and long service medals are instantly recognizable indicators of an individual's experience and, more often than not, they bestow a degree of credibility upon the bearer.

This is not to denigrate or trivialize experience, since actual observation of facts or events, as well as the knowledge and/or skill resulting from this observation, are powerful teachers. Experience is recognized as a critical developmental tool for officers and soldiers. In a crisis, any rational person would prefer to be led by, or teamed with, someone who has previously been tested or has faced a similar situation successfully. However, the Army's traditional myopic reliance on experience as the preferred, if not exclusive, professional development tool has arguably created and perpetuated an attitude that has historically shunned intellectualism

and scholarship as a useful skill set for officers and soldiers to acquire and maintain. It is certainly not unique to assert that the military, up until recently at any case, was largely and typically anti-intellectual. It is within this context that the query as posed in the title of this editorial is raised. That is, can a soldier also be a scholar?

This question is an interesting one within the framework of the Canadian Forces (CF) and particularly the Army. The tumultuous decade of the 1990s in many respects ripped the CF and the Army asunder. The institution as a whole lost the trust of both the public and the government as a result of a series of scandals that demonstrated an apparent lack of ethical behaviour and leadership as well as an inability to adapt to, or cope with, significant changes in society and military affairs. This appalling situation led to an in-depth examination of the CF. Tellingly, this examination was not entrusted to the institution itself but rather to an external board of inquiry as well as an array of academics and scholars. One factor that was repeatedly criticized was the absence of intellectual rigor and the lack of higher education in the officer corps.

This criticism should not have been a big surprise. Higher education has never been an important component of

### ***Can a soldier also be a scholar?***

officership in the CF or the Canadian Army, particularly not during the Cold War. Theoretical musings and historical studies, much less a grounding in the liberal arts, were perceived as suspect and quite frankly un-soldier like. Simply put, scholarly pursuit was anathema to

the true warrior. This attitude was rooted in the Army, if not the entire CF, culture. To be fair it is a criticism that applies to most militaries. Norman Dixon, in his seminal work, *On the Psychology of Military Incompetence*, states:

Whether or not intellectual shortcomings lie at the heart of much military incompetence, the fact [is] that a deliberate cult of anti-intellectualism has characterized the armed services. While its origins relate, as we shall see, to much deeper reasons for military mishaps than mere ignorance or slowness of mind, the fact remains that its effects have not been helpful. That generals and admirals between the wars denigrated progressive thinkers and poured scorn on men who wrote books which challenged existing practices must surely have tended to stifle any exercise of intellect by those who wanted to get on, and deterred the gifted from ever seeking a military career. As Robert McNamara once remarked, "Brains are like hearts, they go where they're appreciated."<sup>1</sup>

Nonetheless, as already stated, anti-intellectualism was endemic to the CF. It is widely recognized that culture is influenced by what is paid attention to, controlled and rewarded. Cultural values, in turn, define who we are and what is acceptable thought and behaviour. As a result, the rampant anti-intellectualism that was clearly present ensured that the divide between soldier and scholar remained a deep chasm. A former Chief of Defence Staff (CDS), General Maurice Baril, conceded that:

Our approach over the last twenty-five years has focused almost exclusively on the practical side. In



the arena of officer education, for example, there was little opportunity or encouragement for officers to undertake academic study. It was generally accepted that to take time out for post graduate work was detrimental to your career.<sup>2</sup>

But once again, this admission is not a startling revelation. The attitude was prevalent and overt and could be seen and heard throughout the Army. Streamers (those identified with great career potential and destined to attain the highest rungs of the corporate ladder) were normally not posted to schools or

not restricted merely to higher education. Equally telling was the lack of tolerance for new ideas, criticism or self-examination. Conformity and loyalty were valued over intellect and critical thinking. Challenging the prevailing beliefs and pushing the envelope on future developments were not career enhancing. Innovation may have been applauded, but conformity was consistently rewarded.

Annual personal evaluation reports (PERs) were yearly reminders of the culture.<sup>4</sup> Education was of little consequence. It was just not seen as an important component of the military.

### ***Education assists in our reasoning ability, which, in turn, is critical in responding to unanticipated circumstances.***

required to take time out to attain graduate, much less bachelor degrees, if they were lacking. Those who showed an inclination to pursue higher education had to do so on their own and were still often seen as suspect and their loyalty questioned. Graduate training was seen as self-serving and a step towards preparing an individual for employment on the “dark side,” namely the civilian sector. Not surprisingly, actively seeking higher education became career debilitating. Paradoxically, the few sponsored graduate education billets that were available were normally given to those on the bottom of the merit list who were nearing the end of their career. Rather than use the opportunity to prepare the future corporate leadership to better command the institution, education billets were used as a consolation prize, a reward to some of the long serving members who failed to attain high rank. Graduate studies were an effort to allow those individuals to pad their CVs and prepare them for their second career. The only other accepted rationale for graduate education was to fill a particular requirement. In 1988, Lieutenant-General R.J. Evraire wrote that higher education was not conceived as a way to develop the minds of officers; rather, it was a task-oriented function to acquire a skill for which there was an obvious and immediate need, mostly in technical areas.<sup>3</sup> The anti-intellectual attitude was

The successful completion of a Ranger course (not to denigrate its value for tactical training or as a test of personal stamina) was of greater value to a member’s future progression than was the attainment of partial or complete fulfillment of a degree. In addition, when rating personal attributes, whenever scoring limitations precluded a high grading for all attributes, intellect would often be sacrificed for the putatively much more important categories of loyalty and deportment.

Should there be any doubt of the CF’s historic culture of anti-intellectualism, then one need only look at the composition of its officer corps. In March of 1997, the renown Canadian military historian Jack Granatstein reported to the Minister of National Defence (MND) that “the CF has a remarkably ill-educated officer corps, surely one of the worst in the Western World.” He pointed out that only 53.29% of officers had a university degree and only an abject 6.79% had graduate degrees, and these primarily in technical areas.<sup>5</sup> Professor Albert Legault was equally as scathing: “The level of education in the Armed Forces,” he argued, “is particularly lacking within the framework of a democracy that thinks of itself as a model or example within the Western world.”<sup>6</sup> Former serving officer and

current military historian Desmond Morton, another of the MND’s hand-picked consultants, asserted that “when one Canadian in five completes such a degree [bachelor’s degree] or its equivalent, this is no longer an elitist pre-requisite for a commission in Canada’s armed forces. No self-professed profession would accept less.”<sup>7</sup>

But then, why should the numbers have been greater? As already explained, there was a strong institutional belief that soldiers could not and, frankly, should not be scholars. When many in the senior leadership achieved their rank and position without university education, why should they emphasize such a requirement, a requirement that could be construed as a shortcoming in their personal circumstances and one that did not apparently prevent them from attaining success? But this attitude was rooted in a complete ignorance of the importance of education to the military profession. Moreover, there was little comprehension of the difference between training and education. The traditional stress on training, that is “a predictable response to a predictable situation,” was often confused, or considered synonymous, with education, which is defined by Professor Ron Haycock as “the reasoned response to an unpredictable situation – critical thinking in the face of the unknown.”<sup>8</sup> Because of the CF’s excellent training regime, a perception existed that the institution’s educational needs were quite adequately looked after. But what was missed was that the prescribed application of ideas and methods, as well as drills and check-lists, have a purpose and functional utility, but this methodology was no longer (if, in fact, it ever was) enough to equip leaders to cope with and function in the complex post modern world. Simply put, “education,” explains Major David Last, a professor in the Department of Political Science at the Royal Military College of Canada (RMC), “is the shaping of the mind.”<sup>9</sup> Education assists in our reasoning ability, which, in turn, is critical in responding to unanticipated circumstances. This is crucial to soldiers, senior NCOs, warrant officers and particularly officers.



Equally important, is the ability to place the CF's ultimate purpose and its operations within the context of the larger whole. Neither the CF, nor the Canadian Army, nor the components that comprise it, exist in and of themselves. "Professional officers," asserts Major Last, "are managers of violence." He further explains:

Their professional education must allow them to understand it. Violence has always been a part of the interconnected human conditions that we label war, conflict, and peace. In the complex world of today and tomorrow, our understanding of these conditions needs to be more comprehensive than in the past. This is more important than technology, doctrine, and strategy, because all are subservient to purpose. There is no purpose without understanding. The officer's understanding must match that of society – otherwise he or she cannot serve it.<sup>10</sup>

The importance of education to the military profession, particularly in the post modern world, should be self-evident, especially in light of the series of crises that the CF endured in the last decade. Paradoxically, the importance of education to the military profession was recognized as early as 1969 by then CDS, Jean Victor Allard. "It matters little," he wrote, "whether the Forces have their present manpower strength and financial budget, or half of them, or double them; without a properly educated, effectively trained professional officer corps, the Forces would, in the future, be doomed at best to mediocrity, and at the worst, to disaster."<sup>11</sup> Clearly, education rooted in critical thinking, problem solving and analytical research better prepares individuals to think as well as cope with problems and situations that are unexpected. It assists individuals to not only embrace change, but adapt to and anticipate it. More importantly, it instills in people the attitude and ability to constantly learn from one's environment and to prepare, as well as react, accordingly. The famous British military historian Sir Michael Howard wrote:

...academic studies can provide the knowledge, insight, and the analytic skills which provide the necessary

basis, first for reasoned discussion, and then for action. They provide a forum, and breed the qualities, which enable the student, the

of higher education. It was a culture comfortable with the Cold War paradigm. Experience was the primary discriminator for advancement. Higher

***...those who refuse to open their minds are doomed to suffer the limitations of their narrow, restricted and outdated beliefs.***

teacher, the politician, the civil servant, the moral philosopher, and not least the soldier to reach a common understanding of the problems which confront them, even if inevitably there is disagreement about the solutions. This dialogue is what civilization is all about. Without it societies dissolve.<sup>12</sup>

Similarly, closer to home, the Principal of RMC, Dr. John Cowan, reinforced the necessity of education in relation to the military during a recent convocation address:

Today, when a young officer may be called upon to be a skilled leader, a technical expert, a diplomat, a warrior, and even an interpreter and an aid expert all at once, there is no question that good training is not enough. Skills are not enough. The job calls for judgement, that odd distillate of education, the thing which is left when the memorized facts have either fled or been smoothed into a point of view, the thing that cannot be taught directly, but which must be learned. Without the mature judgement which flows from education, we fall back on reflexes, which are damned fine things for handling known challenges, but which are manifestly unreliable when faced with new ones.<sup>13</sup>

Needless to say, as Cowan affirms, there will always be new challenges.

But, you don't know what you don't know. Therefore, a culture absorbed by the 4 Canadian Mechanized Brigade Group experience and the expectation of fighting back the Russian hordes pouring through the Fulda Gap, was oblivious to the value, if not necessity,

education was inconsequential. What mattered was progression in a series of key appointments and geographic postings, most notably Europe. Successful completion of these tours was perceived as sufficient to prepare an individual for the next higher rank and responsibilities. Unfortunately, the myopic outlook and inwardly focused mind-set failed to see the inherent flaw of the accepted model. Experience in itself is valuable and irreplaceable. But it is also constrained by time, geography and memory. One person's experience, particularly at a specific time and place, does not necessarily represent the knowledge or abilities that are needed for an institution to advance into the future. Moreover, the perspective from a shell-hole, turret or command post is so very limited. Service requirements become defined in and of themselves without being rooted in their proper societal context. But most of all, a system that values experience as the only true arbitrator of reality suffers from human arrogance and frailty. "We see," wrote Major Seiberg in the mid 1930s, "that the Spanish Civil War has up to now demonstrated nothing really new, and also that men only regard experience as valid when it is their own experience. Otherwise, it would not be possible for the same errors that led to failure in the Great War to be repeated."<sup>14</sup> Simply put, those who refuse to open their minds are doomed to suffer the limitations of their narrow, restricted and outdated beliefs.

The truth in this condemnation of professional development based almost exclusively on the experiential paradigm settled home in the nineties. "Undeniably," wrote General Baril, "the 1990s represented the first strong test of the contemporary CF Officer Corps and we found that part of it was

broken.” He concluded, “Experience in and of itself was not enough.”<sup>15</sup> He later acknowledged that “over the past 10 years . . . we constantly found ourselves thrown into the unknown. Complex, ambiguous and politically charged operations tested our leadership and confronted us with ethical dilemmas.” Baril further conceded that “here at home we were slow to understand and adapt to the large-scale societal changes associated with the end of the Cold War and therefore were not prepared for these demands.”<sup>16</sup> The warning given by General Allard well over two decades previous went unheeded. As a result, his prophecy came to pass. The predicament was aptly summarized by the current Chief of the Land Staff, Lieutenant-General M.K. Jeffery. He observed that “the lack of intellectual discipline in the past has got us where we are today. If we don’t change, we will die.” He added, “the longer we resist it, the harder we make it on someone else.”<sup>17</sup>

So, have things changed as a result of the tumultuous decade of the nineties? Have the Minister’s imposed reforms, which were carefully scrutinized by the Minister’s Monitoring Committee, taken root and are they providing the necessary conditions to change the anti-intellectual culture within the CF? Is the divide between soldier and scholar closing? Sadly, there is still a strong residue of the old culture. Initially, the Minister’s directive that all officers require a university degree resulted in a misguided dash for credentials. Academic accreditation was sought for life experience and technical training that had been completed previously in a member’s career. One must wonder what senior officers would say if academics at RMC demanded military rank equivalency because they studied, taught and wrote on all aspects of military operations and theory.

In addition, RMC came under pressure to accredit existing Staff College courses as they were, regardless of their lack of academic rigor. It became simply an exercise of “ticking the box” as quickly as possible. Clearly, the message was lost on the leadership. Education and experience are not the same. One does not necessarily replace the other. Rather,

they complement one another and, combined with training, provide a solid foundation for the military profession.

In regard to the lingering mind-set, the verbal messages sent by some general officers were also worrisome. For example, late in the nineties, one brigadier-general expressed his lack of support for the new requirement for degrees. He pointed out that he had attained his rank without the benefit of a university degree and, therefore, did not feel it was important. One must wonder if he fully understood what had transpired during that decade. More recently, another brigadier-general commented that, having attained his current point in his career, he would much rather have a bunch of subordinates who have a high degree of energy rather than intellect. Although one can appreciate the frustration that is present when faced with a highly intelligent but surly and petulant subordinate, the apparent preference for enlightened despotism or the seeming belief that rank provides an all encompassing wisdom that requires only highly energized drones to carry out the necessary direction is disheartening.

Equally dim is the message still sent out by some career managers. In preparation for the last posting cycle, RMC actively sought out instructors to teach at the college. In all cases, the selected individuals were excited to come as instructors to the College. Amazingly, some of the posting were resisted by the

### ***Education and experience are not the same.***

staff at the Directorate of Military Careers because, in the words of a career manager, the individual “still has a salvageable career” and wouldn’t survive the hit that a posting to RMC at this point in time would entail on his/her career. Thankfully, this attitude was rare, at least overtly. Nonetheless, whether justified or not, RMC staff still perceive that during merit boards, just about any staff position still beats a full teaching load.

The residue of military culture is not the only remaining obstacle to closing the gap between soldier and scholar. There is also a degree of

academic hostility. In some corners of the campus, military intellectuals are not taken seriously. After all, how can an individual have two demanding careers? In many cases, civilian academics spent decades reading, studying and teaching. So how could some neophyte who spent those years running through the woods consider him or herself a peer? Furthermore, where is the dedication, since a posting to RMC represents just another two or three year posting? Finally, there is also a degree of fear. If military academics begin to fill teaching billets, where is the job security for the civilians? One telling example of such an attitude was provided during a recent departmental meeting, where a new military faculty member was welcomed aboard by a civilian peer and told, “now you are one of us!” Another civilian faculty member quickly interjected, “no, he’ll never be one of us.”

Alas, the picture I paint seems bleak, but it is not. Although a residue remains, it is continually being carried away by a persistent and ever increasing wind. Worthwhile change takes time, effort and consistent reinforcement. That is occurring. An effort in the late nineties, which continues to this day, to dispatch those with promise on undergraduate and graduate education is a healthy sign. It transforms mere rhetoric to a clear signal of what is important to our leadership. In addition, the restructuring of the curriculum of Staff College, the Advanced Military Studies Course (AMSC) and the National Security Studies Course (NSSC) to ensure they conform to academic standards and requirements for accreditation is another important benchmark. So is the emphasis that the Director of Military Careers placed on priority manning for RMC this year. The enforced direction on putting qualified military instructors who are not at the end of their careers into the classrooms is a key step forward.

Equally telling of the change is the tolerance, as painful as it may be, of critical debate and self-examination. Publications such as the *Canadian Military Journal* and *The Army Doctrine and Training Bulletin* and a series of books,

*Warrior Chiefs and Generalship* and the *Art of the Admiral*, were and continue to be supported by the most senior leaders in DND and the CF. These are humble beginnings that will pay off huge dividends. These efforts will ensure the realization of Lieutenant-General (retired) Romeo Dallaire's battle cry, "never again in ignorance."

The new emphasis on education is also evident statistically. RMC's Office of Continuing Studies (OCS) has experienced exponential growth. In the 1999/2000 academic year they had 983 undergraduate and 299 graduate students actively undertaking courses through their office. During that same period, five post-graduate, 146 graduate and 254 new undergraduate students enrolled through OCS. Since 1996, they have administered 576 graduate / post-graduate and 2,124 undergraduate students.<sup>18</sup>

Most importantly, the Department's new strategic guidance for the officer corps and the Officer Professional Development System, Canadian Officership in the 21st Century (Officership 2020), enshrines the necessity of education, emphasizing the need for critical thinking, intellectual development and the evolution to a learning environment. "Officers need to have the right mindset to change and evolve the

profession," wrote the former CDS. He added, "knowledge must be valued as a key ingredient to our growth as individuals and as a profession."<sup>19</sup>

So, can a soldier also be a scholar? The answer is definitely yes. The many tenets of scholarship—namely precision, detailed research, communications, breadth of knowledge, placing events in a proper economic political and social context, drawing conclusion and trying to discern themes therefrom, committing those themes to paper and articulating them so that others can understand the argument put forward and learn from it—are all skills that are necessary for a soldier. Equally as important, this type of study provides vicarious experience. As already explained, experience is seen as sacrosanct and great emphasis is rightfully placed on it. But, due to real life limitations, experience is often constrained by time and place. Scholarship, on the other hand, allows its virtual experience to be timeless and cover a wider breadth of activity and circumstance. It provides soldiers with a greater repertoire of scenarios, possible solutions and context from which to draw upon.

The soldier/scholar also contributes to academic study by providing an intangible element to the understanding of past events. The plight of

the soldier—the confusion, desperation, fatigue, fear and loneliness; in short, Clausewitz's friction—that is experienced at every level adds to the comprehension of past events. Those who have experienced such friction first hand can understand and possibly offer a more accurate interpretation of historical events by being able to draw on their own experience. Conversely, the study of the past and a scholarly analysis of why things went wrong may assist the soldier in trying to mitigate a repetition of faults by trying to control, correct or manage as many of those faults as possible.

Beyond the practical, there is also the intangible. That is to say, a greater breadth of knowledge, tolerance to alternate interpretations and ideas, familiarity with critical debate and discussion, the honing of analytical skills, as well as the exposure to complete new bodies of literature and thought expand the mind and make the soldier that much more capable. The soldier/scholar an irreconcilable divide? Absolutely not! For far too long these two entities have remained apart when in fact they should be fused to strengthen both disciplines.



## ENDNOTES

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4. The whole issue of the subjective nature of PERs can be summed up by Lord Palmerston's comment, "Merit? The opinion one man holds of another." See John A. English, *Lament for an Army* (Toronto: Irwin Publishing, 1998), p. 55. See also Brigadier-General Ken Hague, "Strategic Thinking General / Flag Officers: The Role of Education," in *Generalship and the Art of the Admiral*, eds. Bernd Horn and Stephen Harris (St. Catherines: Vanwell Press, 2001), pp. 516-517.
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10. *Ibid.*, p. 9.
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12. Michael Howard, *The Causes of War* (New York: Harvard University Press, 1984), pg. 83. Major-General the Honourable W.A. Griesbach stated, "Since wars cannot be arranged to order merely to train officers, it follows that, after a long period of peace, the officers of an army must get their military education from reading and study." "Military Study: Notes of a Lecture," *Canadian Defence Quarterly*, October 1931, p. 19.
13. Dr. John Scott Cowan, RMC Convocation Address, 4 October 1999, Kingston, Ontario. See also Eliot Cohen and John Gooch, *Military Misfortunes. The Anatomy of Failure in War* (New York: Vintage Books, 1991), pp. 233-237.
14. Major Sieberg, "Tank or Anti-Tank? Does the Spanish War Show which is Superior?" Translation of an article appearing in the *Militär-Wochenblatt* of 11 February 1937, National Archives, MG 31, G6, Vol 9, File: Articles, Papers, Speeches – U.
15. Baril, p. 140.
16. Canada, *Canadian Officership in the 21st Century (Officership 2020). Strategic Guidance for the Canadian Forces Officer Corps and the Officer Professional Development System* (Ottawa: DND, 2001), Foreword, p. iii.
17. Lieutenant-General M.K. Jeffery, address to the Commanding Officers Course 2001, 21 June 2001, Fort Frontenac, Kingston, Ontario.
18. The Office of Continuing Studies Annual Historical Report, December 2000.
19. General Maurice Baril, covering letter, "Canadian Officership in the 21st Century (Officership 2020) Launch Implementation, 2 May 2001, p. 3.

# From the Managing Editor

## The Canadian Army Reading List

Major John R. Grodzinski, CD

This issue of *The Army Doctrine and Training Bulletin* includes a milestone for self-development in the Canadian Army. *The Canadian Army Reading List: A Guide to Professional Reading* is the first such list promulgated for use by the entire Land Force. Initiated by a solicitation for titles in an earlier issue of this journal,<sup>1</sup> and developed with guidance from Lieutenant-General Mike Jeffery when he was the Army Training Authority,<sup>2</sup> the list has been developed over a two-year period. Reference is made to a variety of other lists, including those from the US Army, US Marine Corps, the New Zealand Army, the Infantry School, the Canadian Land Force Command and Staff College, and reading lists from a number of graduate courses offered at The Royal Military College of Canada. A number of individuals, representing several military and academic organizations or on their own, also offered titles and general comments. These include Dr Sean Maloney (The Royal Military College of Canada), Dr Steve Harris (Directorate of History and Heritage), Professor Rob Citino (University of Michigan), Brigadier-General Marc Lessard (then Commandant Canadian Land Force Command and Staff College), Lieutenant-Colonel Shane Fisher (then Directing Staff, Canadian Land Force Command and Staff College), Lieutenant-Colonel Ian Hope, Captain Kristian Gustafson, and Captain Bob Herold. The contributions of these individuals is appreciated.

As explained in the preamble to the list, it is designed to:

“provide[s] an *instructive guide* to members of the Land Force to explore the more suitable works on any given subject. The list is not exhaustive, nor is it a limit to what we read; rather, for those seeking professional knowledge, it is a start

point to enhance that knowledge. All members of the Land Force are encouraged to use the list, to read the titles presented, and to debate these subjects at length, whether at work, in the messes, or through professional journals.”

The works listed are not assigned to any rank groups or development period level. This would be possible if the Army had a developed literary culture, but until then, the works listed are applicable to all ranks. Some titles should be revisited as one progresses in rank and experience. Perspectives change as we develop and so will our views towards these books.

As stated, the list is not exhaustive nor does it include articles from other professional journals.<sup>3</sup> It can be used in conjunction with unit and other lists, but as the Army's official list, it cannot be modified by users and then distributed as “the” list. The authority for changes to *The Canadian Army Reading List: A Guide to Professional Reading* remains the Chief of the Land Staff, while the staff officer responsible for the list is the Managing Editor of this journal.

Readers might wonder why certain titles are not included. Each title was reviewed for its suitability to advance professional knowledge and understanding or to provide new and different perspectives. In cases where a number of editions of a title were available, the best one was selected. Books were also

weighed in the context of the overall body of literature on that subject. Put simply, the wheat was cut from the chaff. Practical limitations on the length of the list were also necessary.

As new important titles are published or old ones rediscovered, the list will be updated. It remains uncertain whether the list will be reprinted in a booklet; however, a revised list will be posted on the Army Electronic Library web site once annually. If necessary, further details will be provided in this journal or through other means. Readers are encouraged to offer suggestions. It is requested that title recommendations include all the publishing data about the book and a brief synopsis.

*The Canadian Army Reading List: A Guide to Professional Reading* is included in this issue of the *Army Doctrine and Training Bulletin* as an insert booklet. Additional copies can be obtained by contacting the Managing Editor (contact information is on the inside cover) or by visiting the Army Electronic Library at [www.army.dnd.ca/ael/](http://www.army.dnd.ca/ael/).

It is hoped that *The Canadian Army Reading List: A Guide to Professional Reading* proves to be useful and important to all members of the Army.



### ENDNOTES

1. “The Army Professional Reading List,” *The Army Doctrine and Training Bulletin*, Vol 2, No. 3 (August 1999), p. 6.
2. Until the formal establishment of the Land Force Doctrine and Training System (LFDTS) in July 1999, Major-General Jeffery served as the Commander, 1st Canadian Division and the Army Training Authority. The latter responsibilities oversaw the developmental planning for LFDTS.
3. Note that a means of providing lists of articles of professional interest is under investigation. *The Army Doctrine and Training Bulletin* at one time provided such lists, but it has been physically impossible to continue doing so.

# From the Directorate of Army Training

## Progress to Date

**W**ith the reorganization and move of Land Force Command Headquarters in 1996, the strategic training management functions were split between the Combat Training Centre (CTC) in Gagetown and the Directorate of Army Training (DAT), which was established in Kingston. At that time individual training qualification standards and the course scheduling and loading functions were also moved to CTC. DAT retained all of the other strategic training functions including policy, general and occupation specifications, collective and individual battle task standards and the like. The collective training functions that were formerly performed in Montreal were moved to Kingston in their entirety but one year later the collective training management functions were moved to the Land Staff Ottawa and placed in DLFR, where they were combined with the existing foreign training functions. In April 2001 it was decided to return these functions to DAT in order to achieve better synchronization of both individual and collective training. DAT is part of the Land Force Doctrine and Training System that was established in 2000.

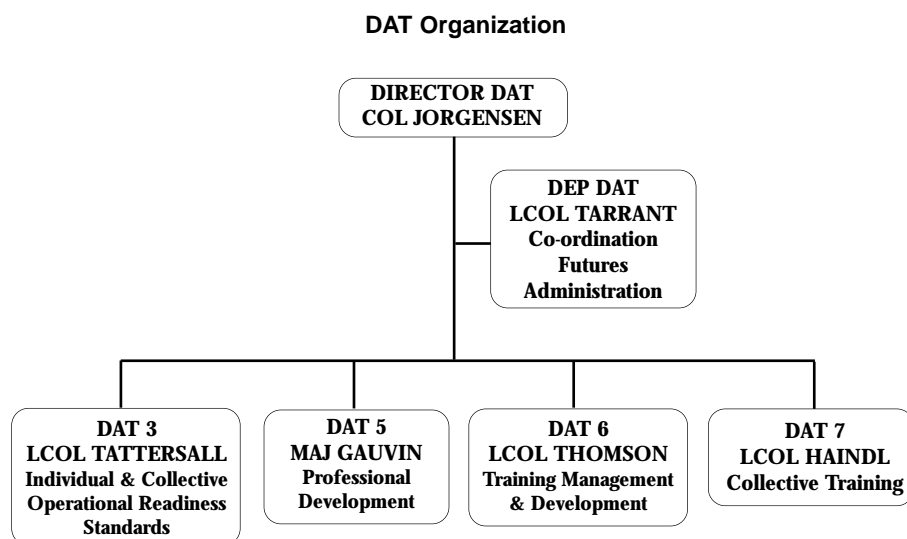
The mission of the Directorate of Army Training is:  
*To provide dedicated professional training support to the Land Force.*

The vision of the Directorate of Army Training is:  
*To provide the highest quality training at all levels in order to prepare the Total Force Army to meet all of its roles and missions.*

The Director of DAT is Colonel Mike Jorgensen who arrived this summer from the Canadian Land Force Command and Staff College where he was one of the Directing Staff. The Directorate is organised along functional lines with several section

heads and a Deputy Director who maintains a future focus. Currently the Deputy Director, Lieutenant Colonel Tom Tarrant, is deployed on a peacekeeping mission so DAT 3 is responsible for future functions. Lieutenant-Colonel John Tattersall, formerly the commandant of the Canadian Forces School of Military Engineering, who took over as DAT 3 this summer. Major Gauvin is currently DAT 5, with Lieutenant-Colonel Mark Thomson as DAT 6 and Lieutenant-Colonel Peter Haindl as DAT 7. The diagram below shows DAT's current organisation.

- A complete revision of Reserve officer training to provide a better training profile that has achieved a balance between the high yet very expensive standards formerly achieved under the Reserve Entry Scheme Officers (RESO) system, and the very minimum standards of the old and block system.
- The development of Unit Qualification Lists (UQL) that enable the Army to better manage the quantity of training to be delivered through the Individual Training



Since its inception DAT has undertaken a wide range of projects. Some of its recent accomplishments include:

- A complete review of the Canadian Forces Officer and Non-Commissioned Member General Specifications and all Army Military Occupation Classification (MOC) Specifications, resulting in extensive revisions to most Qualification Standards and eventually to all aspects of Army individual training. This will aid in better preparing personnel for the Army of tomorrow.

Management Information System (ITMIS). The UQL ensures that training is only provided to those who need it, thereby releasing resources for those areas in which there is a shortfall.

- The creation of Battle Task Standards to provide a clearer focus, as well as evaluation standards, for both collective training and individual soldier skills for all members of the Army through the Individual Battle Task Standards.

- The publication of B-GL 300-008/FP-001, *Training Canada's Army*, a keystone manual that fully explains the Army training approach and process. An electronic copy of CFP 300-008 is available on the Land Force Doctrine and Training System (LFDTS) web-site at: <http://lfdts.army.mil.ca/dat/draft-ebauche.asp>.
- The publication of B-GL 381-001/FP-001, *Training Safety*. An electronic copy of this manual is available on the LFDTS web-site at: <http://lfdts.army.mil.ca/acl/new-nouveau.asp>.
- The creation and approval of the Army Training and Operations Framework (ATOF), a major step in addressing the issues of operational tempo and the synchronisation of individual and collective training.

Some of the current and future DAT work includes:

- The integration of formal instruction on the ATOF into Army Officer and NCM professional development.
- Creation of policies and programmes for:
  - Physical Fitness.
  - The Shoot-to-Live Programme, including evaluation and the integration of simulation with the small arms trainers.
- Assessing the usefulness of a new training cycle.
- The development of an Army approach to Distance Learning (DL) in co-operation with the National Defence Headquarters (NDHQ) Defence Learning Network project, including the creation of an army DL policy.
- The development of an Army Training Strategy to work within the ATOF to balance individual and collective training;
- The transfer of responsibility to the Army for training management for some Combat Support Trades.

An overview of the various sections within DAT will now follow.

### DAT 3 INDIVIDUAL AND COLLECTIVE OPERATIONAL READINESS STANDARDS

DAT 3 Individual and Collective Operational Readiness Standards (ICORS) is the guardian of all Army MOC Qualification Standards and Occupation Specialty Specifications. The section is responsible for the training management of current courses and it produces army individual training policies. It is the largest section in the directorate, consisting of both staff officers and senior non-commissioned members for the combat arms MOCs of armour, artillery, infantry, and engineers, as well as the support MOCs of signals, intelligence, combat service support, and army aviation. There is also one staff member responsible for liaison with the Directorate of Land Requirements (DLR) for all new projects as well as for conducting Training Needs Assessments for these same projects. The section's other responsibilities include:

- Provision of Army input into the Military Occupation Specifications, which are maintained by Associate Deputy Minister (Human Resources) Military (ADM [HR-Mil]).
- Adjustment of Qualification and Individual Battle Task standards when this becomes necessary due to new equipment, new doctrine, or changes to jobs or employment in an MOC.
- Assisting the CTC in the development of training plans.
- Responding to numerous queries on individual training issues that are generated from Land Force Area Headquarters as well as other agencies such as recruiting and selection agencies.
- Integrating officer and non-commissioned member professional development requirements promulgated by DAT 5 into current MOC training.

- Ensuring that all individual training solutions meet Reserve Force requirements.
- Provision of policy and management of Army military competitions.
- Provision of information on current MOC training issues and developments at various Army, corps and branch meetings.

### DAT 4 FUTURE CONCEPTS

DAT 4 was formerly an independent section and will be placed under the Deputy Director on his return from Sierra Leone. It is responsible for the development and implementation of policies and plans to aid the Army in transitioning from the Army of Today into the Army of Tomorrow. It is currently grouped under DAT 3 and its responsibilities include:

- Development of the ATOF strategy which meets Land Force operational requirements through a progressive training strategy. This process is embodied in *Training Canada's Army*.
- Planning the implementation of the Canadian Manoeuvre Training Centre.
- Development of an Army Lessons Learned Process to support the implementation of ATOF.
- Development of training simulation strategy in concert with the Army Simulation Centre. This governs the development, acquisition, integration and employment of training simulation technology in both individual and collective training.
- Development of the Army Risk Assessment Model.
- Provision of training input to the Land Force Strategic Direction and Guidance
- Integration of the Land Force Command and Control Information System (LFC2IS) into Army Training.

- Planning training for Stages 3 and 4 of mobilization.
- Ensuring that the needs of the Primary Reserve are met in developing future concepts.
- Development of policy and processes governing the development, production, promulgation and integration of distance learning.

## DAT 5 – PROFESSIONAL DEVELOPMENT

DAT 5 has been developing the new professional development models for army officers and non-commissioned members resulting from the changes that have taken place in the officer and non-commissioned member general specifications. One of the biggest changes is the approach to reserve training. The following is a brief description of the Army Reserve Professional Development Model at Development Period (DP) One for Reserve Army Officers and DP One and Two for Reserve Army Non-Commissioned Members.

It will have been hard over the past two years to have been in the Army or any of the other environments in the CF and not to have heard of, or to have already been affected by, the changes taking place in the realm of training. As of this past summer both new recruits and officer candidates of the Regular Force began the first courses of the “new development model”, i.e., the Basic Military Qualification (BMQ) and the Basic Officer Training Plan (BOTP) respectively.

The focus of this article is to describe the changes and the effect(s) of the Army’s Professional Development Model upon the Army Reserve at the CF and Army levels. Training for specific trades will be addressed in the future.

The aim of the effort was to:

“Provide a Professional Development path in all Developmental Periods for Army Reservists, both Officer and Non-Commissioned Members on Class A service.”

Throughout the article it will be necessary to refer to the changes using new terminology which is described in the section entitled “Glossary” at the end of the article. Figure 1 provides a brief depiction of the process that converts a training need into a usable training plan.

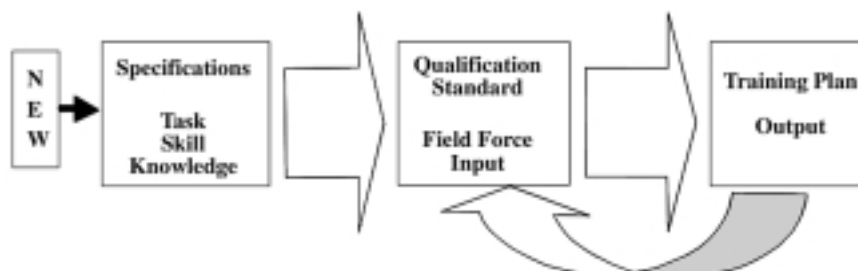


Figure 1: QS process

To accomplish the aim it was necessary to leave the specifications untouched while making the programme manageable for the reserves to implement, which in turn lead to the development of categories in which to separate and place the material (see Table 1). To achieve manageability, it was determined that the material should be modularized into portions of at least the size of a complete Performance Objective. The two places to best do this were in the Qualification Standard (QS) and the Training Plan (TP).

Writing boards were convened by DAT in January and February of 2001 composed of reservists from across the country. Each QS Working Board (QSWB) was tasked to review the Regular Force work to date and recommend a

sub-set of each for the Reserves, both officers and NCMs. The provision was made that the sub-sets produced must suit the needs of the Reserve Force while satisfying the requirements of the CF.

To date only Reserve NCM DP One and Two have been approved by Army

Council for implementation. The dates set were the fall of 2001 for the Primary Leader Qualification (PLQ) portion of DP 2, and January 2002 for the BMQ Reserve (R) segment of DP One.

In the past a Reserve soldier walking out of a recruiting centre would complete QL2 and QL3 in 61 days. This requirement has been amended downwards over the past two years to what is now a 39-day program. The results of the Reserve NCM QSWB determined that the required DP One training would consist of a 20-day BMQ(R), a 20-day Soldier Qualification (Reserve) (SQ[R]), and a 20-day MOC(R) course for a total of 60 days. It is only after the completion of all three parts of the DP that a recruit will be deemed to be a trained soldier.

Essential	Supplemental	Residual
The tasks and knowledge required by Army Reservists to perform their occupational duties on Class A service or on domestic operations. Resource limitations must be considered in the determination of Essential training.	The tasks and knowledge not essential for Class A service, specific components of which may be required by a Reservist to perform occupational duties when employed full time. These components will form the basis of training that may be required before commencing full time employment (i.e., Delta training).	The tasks and knowledge not included in Essential or Supplemental training that may be required by a Reservist only on component transfer to the Regular Force.

Table 1



Because of the unique composition of the Reserve Force, the flexibility of delivery was of paramount concern. While the BMQ must be the first course that a recruit completes, there is the ability to flip the sequence of delivery of the SQ(R) and the MOC(R), or to deliver any of the courses at either a centralized location or at an independent armoury. As well, there is the capacity to have multiple start dates. But please keep in mind, that as usual, everything is resource dependent.

Having completed all of DP One the trained soldier immediately enters DP Two. It is within this DP that the soldier, dependent upon his or her trade, will improve upon their Primary Combat Function (PCF) or receive a Secondary Combat Function (SCF) and for those selected, receive training at the primary leadership level.

Candidates selected for leadership training achieve the PLQ through the completion of a six-module course. Regardless of component, the PLQ is identical and leads to the granting of a single national qualification code. The modules of PLQ are:

Module One – Physical Training Instruction;  
Module Two – Method of Instruction;  
Module Three – Range Safety;  
Module Four – Discipline;  
Module Five – General Service Knowledge, and  
Module Six – Applied Army Skills

The modules may be completed in any order with the exception that Module five must be done prior to Module Six.

Currently, only DP One for Reserve officers has been approved for implementation with a start date of January 2002.

Officer candidates in the Reserve have historically fallen equally into one of two categories, i.e., employed and non-employed (students), with a decision made to continue to accommodate both when planning the officer training program. In the past, unlike our soldiers, the Reserve officer corps followed two distinct training programs leading to two classes of

officer. Previously some Reserve officers who held civilian employment were restricted to attending six, two-week training courses usually held each summer. The result of this is that it took some officers six years to become qualified to command a platoon or troop. The other training program allowed the Reserve officer to attend Regular Force courses and achieve the Regular Force national qualification code. The officer QSWB determined that training for officers should take no longer than three years and that the disparity in skills and knowledge should be removed.

Again following the premise of Essential, Supplemental or Residual, the QSWB concluded that Reserve Officer DP One would consist of a 25-day BOTP(R), and 25-day Common Army Phase (Reserve) (CAP)(R) and a 40-day MOC(R), a total 90 days of training. As with the soldiers it is only after having completed all portions of the DP that the candidate is considered to be a trained officer. The courses of DP One may be delivered to officers who have smaller amounts of time available for training e.g., two week blocks or to candidates who have larger amounts of time available, e.g., a summer. Regardless of their course of study, all Reserve officers will receive the exact same training.

As with the program for the NCMs, flexibility of delivery was taken into account as much as possible. For example, when there are not a sufficient number of officer candidates in one location, the QSWB determined that on approval some candidates may complete the BMQ(R) plus a five-day package of Officer-Like Qualities after which a request for equivalency to BOTP(R) would be granted.

During August and September of 2001 representatives of DAT conducted a travelling road show for Area and Brigade staffs, unit Commanding Officers (CO), and Regimental Sergeant Majors (RSM) at sites across the country, briefing on the details of the Army Reserve PD Model. While the audience saw that the model was a work in progress, the majority concluded that it puts the army in a far better position

than it had been. The fact that Reserve training is based on substantive requirements with the differences between Regular and Reserve planned in, allowing them to be tracked, was seen as a distinct advantage for all concerned.

## GLOSSARY:

**Professional Development (PD)** – the life-long education, training, experience and self-development required to develop an officer or non-commissioned member, Regular and Reserve, from the date of enrolment until the date of retirement or release. DPs are broken into DPs One, Two, Three, Four, and Five for NCMs, and DPs One, Two, Three-Alpha, Three-Bravo, and Four for Officers. They are defined by the education, training, experience, and self-development required to complete required tasks as stated in the General Specifications.

**Specifications** – the policy and standardisation documents that describe the general job performance and environmental requirements for all officer and NCM occupations, as well as for each Developmental Period (DP) in all occupations of the CF.

**Qualification Standard (QS)** – a document that describes, in operational performance terms, the required outcome of Individual Training & Education (IT&E).

**Training Plan (TP)** – a document which prescribes the manner in which the Individual Training & Education (IT&E) establishment plans to meet the Qualification Standard.

**Occupational Specialty Specification (OSS)** – a special occupation required by only a few soldiers or officers.

**Writing Board (WB)** – a group of subject matter experts gathered to determine the content and standard required.

**Basic Military Qualification (Reserve) (BMQ[R])** – the course wherein new recruits are exposed to life in the military and are taught rudimentary military skills and knowledge.

**Soldier Qualification (Reserve) (SQ[R])** – the course wherein new recruits are exposed to, and are taught the common military functions unique to the environment into which they have enrolled, regardless of trade.

**Military Occupation Code (Reserve) (MOC[R])** – used at the moment to indicate a training course wherein the soldier or officer is taught the skills, tasks and knowledge of their trade.

**Primary Leader Qualification (PLQ)** – a course to prepare corporals for promotion to MCpl and employment as a junior leader.

**Basic Officer Training Plan (Reserve) (BOTP[R])** – the course wherein new officer candidates are exposed to life in the military and are taught rudimentary military skills and knowledge.

**Common Army Phase (Reserve) (CAP[R])** – the course wherein new officer candidates are exposed to, and are taught the common military functions unique to the environment into which they have enrolled, regardless of trade.

**Primary Combat Function (PCF)** – describes the primary trade of the soldier or officer. PCF courses are designed to enhance the soldier's, or officer's knowledge of their trade.

**Secondary Combat Function (SCF)** – describes a secondary, i.e., an additional trade which a soldier or officer may learn to expand their breadth of knowledge.

## DAT 6 TRAINING MANAGEMENT AND DEVELOPMENT

DAT 6 staff have been developing two Land Force Command Orders (LFCO) to assist Army trainers and staff in the performance of their duties. The first, LFCO 24-8, is directed at trainers and focuses on policies and procedures for Individual Training and Education (IT&E). Area staff will welcome the publication of the second LFCO, 24-20, which covers training equivalencies and

qualification reinstatement. The LFCOs are discussed in detail in the following paragraphs.

### LAND FORCE COMMAND ORDER 24-8 – INDIVIDUAL TRAINING AND EDUCATION POLICY AND PROCEDURES

The objective of the Army Systems Approach to Training (ASAT) is to aid in the preparation of Army personnel for operations. The Canadian Forces sets out strategic level guidance in various instructions and in the A-P9-050-000/PT serials of manuals on the Canadian Forces Individual Training and Education System (CFITES). However, it is the Army's responsibility to specify the policies and procedures that govern the quality and quantity control of all Army IT&E. These policies and procedures are set forth in LFCO 24-8.

LFCO 24-8 specifies the quality and quantity control mechanisms for all Army individual training and education. More specifically, the order provides a description of the quality control process of the IT&E component of ASAT, a description of the control documents that support IT&E and a description of the responsibilities of key organisations tasked with IT&E within the Army. LFCO 24-8 provides policy on liaison between the LFDTS and key training organisations within the Army and the CF. LFCO 24-8 also outlines the key boards, working groups and conferences that govern Army training as well as their aims and responsibilities. They include the Army Professional Development Senior Review Board (Army PD SRB), the Army Individual Training and Education Working Group (Army IT&E WG), and the Army Individual Training Conference (AIRC).

Standards are key to the success of Army training. LFCO 24-8 describes the role and functions of the Command Chief Standards Officer (CCSO) including visit procedures, the visit reporting format, as well as Army Progress Review Procedures. LFCO 24-8 also covers the validation process and policies, the quantity control process, as well as a description of the document management control system, which is used to manage qualification

standards, training plans and other training documentation. In summary, LFCO 24-8 was developed to support the CLS vision of "one Army – One Standard". It provides direction on policy and procedures to all trainers across the Army.

### LAND FORCE COMMAND ORDER 24-20 – TRAINING EQUIVALENCIES AND QUALIFICATION REINSTATEMENT POLICY AND PROCEDURES

Quite often candidates seeking enrolment in the Army, or who are undergoing a military Occupation Transfer (OT) or CF Component Transfer (CT) have civilian and military qualifications and experience that are related to their new military career or occupation. Further, personnel already serving in the Army continue to acquire qualifications and experience outside of their normal military employment in the Canadian Forces (CF). There is a requirement to recognise these individuals and to take full advantage of their previous qualifications and experience by granting formal CF qualifications where possible. The two processes set forth in LFCO 24-20 are the granting of equivalencies and the reinstatement of CF qualifications. LFCO 24-20 provides direction to the Land Staff, the Land Force Areas, and to units on the processes to be followed in order to grant equivalencies, reinstate qualifications, as well as the policy for driver qualifications.

Within the Army, equivalencies are forwarded through the chain of command to either DAT, for combat arms and general army related equivalencies, or to the Canadian Forces Training Support Group in Borden for support MOC equivalencies. For the reinstatement of qualifications, the policy can be summarised as follows:

- If the break in service is less than three years, have the authority to reinstate Army and Army CSS qualifications. The authority for the reinstatement of all other qualifications rests with the appropriate managing authority (MA) 1.
- If the break in service is between three and five years, Land Force Area Commanders have the

authority to reinstate PCF and Leadership qualifications. Authority for the reinstatement of all other qualifications rests with the appropriate MA.

- If the break in service is between five to 10 years, the authority for the reinstatement of all qualifications rests with the appropriate MA.
- If the break in service is 10 years or more, no Army qualifications will be reinstated. Nevertheless, the file may be sent to the Canadian Forces Recruiting Group who may reinstate the basic training qualification.

LFCO 24-20 was developed to take advantage of the previous qualifications and experience of personnel and to minimize staffing requirements and delays. Its observance will ensure fair, equitable, and speedy processing of all equivalencies and qualification reinstatement requests.

## DAT 7 COLLECTIVE TRAINING

Since 1 April 2001, the day-to-day planning and management of collective training has become the focus of this newest section within DAT. The DAT 7 section, formerly DLFR 5, resides with the Land Staff in Ottawa. On behalf of Commander LFDTs, the section's mission is to plan, manage and co-ordinate day-to-day collective training for operations, and at the joint and combined level, for CLS. This is broadly executed within the following four areas:

- Canadian Army collective training for ongoing or unforecasted operations such as Operation "Eclipse" or the Immediate Reaction Force (Land).

- Foreign Military Training – specifically British Army Training in Canada.
- Level 2 SORD and Land Force Funding Model planning and management for collective training.

- Planning and managing, from an operators perspective, all aspects of training ammunition.

Within these areas, there are several more specific subject areas which members of the section staff manage on a day to day basis, such as:

- Partnership for Peace exercises.
- Military Training Assistance Program.
- Small Unit Exchanges.
- Sovereignty Exercises in the Far North.
- German and Dutch Army training in Canada.
- Cross-border requests for all land borne forces crossing into the USA or from the USA into Canada.
- Planning, managing and coordination of all army airlift and aviation hour requests.

The DAT 7 section is a busy segment with DAT. One of the most recent staffing issues within DAT 7 is the implementation ATOF. The concepts and theories of ATOF are best described in B-GL-300-8/FP-001 Training Canada's Army. DAT 7, on behalf of DAT, is embarking on an information campaign to ensure that all members of the Army are conversant with both Training Canada's Army and ATOF. This will provide members of the field force with a chance to question the logic and analysis that went into the development of these two products. During the fall and winter of 2001/2002 briefing teams will cross the country to try and reach as many soldiers as possible. See you then.

## CONCLUSION

In order to better focus the Directorate, the Director has developed the following thrust lines:

- *Overall – Harmonisation, rationalisation, and synchronisation of both individual and collective training.*
- *Putting the proper emphasis back on collective training.*
- *Implementation of B-GL-300-8/FP-001 Training Canada's Army.*
- *Implementation of Officer and Non-Commissioned Members Professional Development Models—Regular and Reserve—"Army Level".*
- *Implementation of Officer and Non-Commissioned Professional Development Models—Regular and Reserve—"Military Occupation Classification Level".*
- *Maximization of the use of external communications such as the Army Doctrine and Training Bulletin and the DAT Web Page on the DIN.*



Position	Rank	First Name	Last Name	Phone Number*
Director	Col	Mike	Jorgensen	4809
Deputy Director	LCol	Tom	Tarrant	4922
DAT Coord	Maj	Peter	Brown	4820
DAT Administration Officer	Capt	Ann	Lavallée	4807
DAT Chief Clerk	MCp	Tom	Rutledge	4804
DAT Clerk				4819
DAT 3 Individual and Collective Operational Readiness Standards	LCol	John	Tattersall	4823
DAT 3-2 Armoured	Maj			4832
DAT 3-2-2 Armoured	Capt	Kendrick	Sproul	4938
DAT 3-2-3 Armoured	CWO	Michel	Tassé	4892
DAT 3-3 Artillery	Maj			4833
DAT 3-3-2 Artillery	Capt	Dale	LaFreniere	4833
DAT 3-3-3 FD Artillery	CWO	Dick	Montague	4674
DAT 3-4 Engineers	Maj			4829
DAT 3-4-3 Engineers	CWO	Wayne	Ford	4943
DAT 3-5 Signals	Maj	Louis	Xenos	4831
DAT 3-5-3 Signals	CWO	Anthony	Fequet	4650
DAT 3-6 Infantry	Maj	Graham	Blackman	4834
DAT 3-6-2 Infantry	Capt	S. (Sam)	Pengelly	4834
DAT 3-7 Aviation	Maj	Jeff	Smyth	4910
DAT 3-8 CSS	Maj	Will	McCutcheon	4835
DAT 3-8-3 CSS	CWO	Raymond	Aubin	4956
DAT 3-9 Intelligence	Maj	Jim	Godefroy	5247
DAT 3-10 Equipment	Maj	Frank	Delanghe	4826
DAT 4-2 Concepts	Maj	Nick	Martyn	5273
DAT 4-3 C2 Concepts	Maj	Steven	Beattie	5268
DAT 4-4 Institutional Learning	Maj	Jurek	Romaniec	4842
DAT 4-5 Lessons Learned	Maj			
DAT 4-6 Reserve Integration	Capt	James	McKay	4827
DAT 5 Professional Development	LCol	Randy	Stowell	4841
DAT 5-3 Professional Development	Maj	Ken	Hynes	4836
DAT 5-3-3 NCM PD	CWO	Denis	Levesque	4944
DAT 5-4 Selection	LCdr	Mike	Parkes	4592
DAT 5-4-3 Research Assistant	MCpl	John	Courtney	5300
DAT 5-5 Reserve Professional Development	Maj	John	Spence	4821
DAT 5-5-2 Reserve Officer Professional Development	Capt	Shawn	Herron	4512
DAT 5-5-3 Reserve NCM PD	CWO	Dan	Lander	4513
DAT RMC Liaison Officer	Capt	Ronald	Roy	6772
DAT 6 Training Development and Management	LCol	Mark	Thomson	4822
DAT 6-2 Individual Training and Education	LCdr	Serge	Ouellet	4569
DAT 6-2-2 Quality Control	Capt	Garry	Hewett	4825
DAT 6-2-3 Equivalencies	Sgt	Matthew	Charlesworth	4334
DAT 6-2-3 Validation and Control Management	Capt	Marcel	Ducharme	4846
DAT 6-2-3-5 Validation clerk	Cpl	Jasmine	Krlin	4522
DAT 6-3-2 Fitness	MCpl	Dan	Fullerton	4530
DAT 6-3-3 IBTS	Capt	Bruce	Prendergast	4511
DAT 7 Collective Training	LCol	Peter	Haindl	613-945-0428
DAT 7-2 Collective Training	Maj	Jerry	Walsh	613-945-0427
DAT 7-2-3 National Collective Training	Capt	Dan	McNeil	613-945-0408
DAT 7-3 Foreign Military Training	Maj	Ed	Urbanowicz	613-945-0448
DAT 7-3-2 FMT/Cross Border	Capt	Robert	Lajoie	613-945-0449
DAT 7-3-3 FMT Clerk / Coord	Sgt	Debbie	Landry	613-945-0389
DAT 7-4 Ressource Management	Capt	Denis	Lahaie	613-945-0237
DAT 7-6 Plans and Standards	Maj	Bart	Gauvin	4836

\*All Kingston numbers are 613-541-5010.

# Misunderstanding Mars and Minerva

## The Canadian Army's Failure to Define an Operational Doctrine

by Lieutenant-Colonel Ian Hope, CD

Ares, Ares [Mars], destroyer of men,  
reeking blood, stormer of ramparts,  
why not let these mortals fight it out  
for themselves? Homer (*Iliad*, 5. 34)<sup>1</sup>

Sing of the wooden horse ... built  
with Athena's [Minerva] help, the  
cunning trap that good Odysseus  
brought one day to the heights of  
Troy. Homer (*Odyssey*, 8. 552)<sup>2</sup>

Mankind uses dichotomy; art and science, positive and negative, good and evil, yin and yang; so as to enhance understanding by perceiving a polarized world wherein all things are identified in relation to these poles. This is true in war. Ancient man knew two gods of war. The first, Mars—patron god of Rome—was blind to cause or justice and in constant lust of bloodshed. His style of fighting has been considered simple yet violent and powerful, seeking death and destruction.<sup>3</sup> His nemesis was Minerva—founder of Athens, goddess of wisdom, war and the arts,—whose method in war included cunning and stratagem, and whose desires were moderated by reason and compassion. City states paid tribute to one or the other of these gods of war. In a manner similar, modern armies have often identified with one part of a martial dichotomy. In the nineteenth century, for example, interpretations of an offensive-defensive dichotomy led to a belief in the pre-eminence of the offence (the *offensive à l'outrance*). This narrow perspective, widely favoured in Europe in the decades preceding 1914, was held with such religious zeal that generals in good faith sacrificed many thousands upon its altar during World War I.<sup>4</sup> Modern debates about the pre-eminence of manoeuvre warfare over attrition have a similar sinister aspect.

Since the mid 1970s there has been a tendency in English-speaking armies to describe warfare in terms of a dichotomy: attrition and manoeuvre. Canada's Army has officially proclaimed itself a 'manoeuvrist' army.<sup>5</sup> The same has happened in the British, Australian, New Zealand armies and in the US Marine Corps. The 'doctrine' of manoeuvre warfare—Minerva's child—has been adopted because of its promise of rapid decisive victory with minimal casualties. Warfare by attrition—a progeny of Mars—is abhorred.

This article argues that the attrition-manoeuvre perspective is a false dichotomy, a misunderstanding of the nature of war that has produced doctrine as dangerously narrow as *offensive à l'outrance*. The argument is made incrementally; first questioning the utility of the dichotomy as a basis for 'comprehensive doctrine'; then examining the limited tactical-level focus of manoeuvre warfare theory, its irrelevancy to current strategic situations, and how it impedes comprehension of operational art.

The article contains five sections. In the second section the origins of manoeuvre warfare theory are reviewed, from its genesis in the 1970s as an interpretation of Second World

manoeuvre warfare theory as doctrine. The traditional roles of doctrine—namely conceptual, organizational, material, procedural and moral application—are examined. The conclusion is that effective doctrine must be comprehensive and influence all aspects of the preparation of an army for war. Two examples of comprehensive doctrine are presented, illustrating by comparison to what extent 'manoeuvre warfare doctrine' fails to provide anything but an abstract conceptual component to combat development. The fourth section examines the lack of historical and theoretical substantiation for the attrition-manoeuvre dichotomy. The evolution of operational art is then introduced. The contention is made that there is no such thing as a panacea theory of war: doctrine must be aligned to war-planning based upon geo-strategic realities; only then can operational art be exercised. The relevancy of manoeuvre warfare as the stated operational doctrine of the Canadian Army is then examined in the final section.

Fundamental to the entire thesis is an appreciation of the operational level of war, of operational doctrine, and of operational art. It is proposed that operational level doctrine fulfills a synthesizing role that reconciles

***The attrition-manoeuvre perspective is a false dichotomy, a misunderstanding of the nature of war.***

War German doctrine, to its articulation in current Canadian and Allied doctrine. The next section refutes the idea that an army can simply adopt

false dichotomies and eliminates the confusion caused by such dichotomies. The argument relies heavily upon 'general systems theory' as a basis for

the formulation and application of effective doctrine within the context of combat development, and as a key to a higher understanding of the complex phenomena of war. The final conclusion of this paper is that the Canadian operational and tactical level doctrine manuals must be reformulated and rewritten to ensure coherency within the context of the strategic realities, and to enhance their utility in force management. The rewriting must reflect Canadian operational thinking, accommodating interoperability, but not plagiarizing wholesale either British military doctrine or the words of US military theorists.<sup>6</sup>

While the paper calls for a review of doctrine, it recognizes that there is no common agreement between armies about the definition and role of doctrine. Dictionaries have long

operational and tactical' doctrines,<sup>11</sup> and it is unclear in Canadian doctrine what exactly is descriptive and what is prescriptive. It also differs significantly from US Army doctrine by its role.<sup>12</sup> Canadian Army doctrine is not an 'engine of change'. It is considered merely one of the many products of the Army's Strategic Planning Process (ASPP).<sup>13</sup> In this linear development process, doctrine is one of many equal subordinate parts, and not the key component that binds all the parts together.

Nor is Canadian doctrine tied directly to stated Canadian strategic imperatives. It is considered a cognitive tool—used for conceptual understanding and not to regulate action. This paper contends that, by not linking doctrine to strategic imperatives and to operational realities, Canadian Army doctrine is too easily influenced by interpretative theories, as it has been by



**What we ask of our soldiers demands that we get our doctrine right.**  
(Courtesy CFPU)

## ***There is no common agreement between armies about the definition and role of doctrine.***

defined doctrine as "that which is taught."<sup>7</sup> J.F.C. Fuller saw doctrine as the "central idea of an army."<sup>8</sup> Current NATO thinking describes it as "fundamental principles by which the military forces guide their actions in support of objectives."<sup>9</sup>

The Canadian definition of doctrine is a verbatim adoption of the British, approved by the British Army Board in 1993, accepted by the Canadian Army Doctrine and Tactics Board in 1994 and presented in Canadian Forces Publication B-GL-300-001/FP-000 *The Conduct of Land Operations*:

Military doctrine is a formal expression of military knowledge and thought, that an army accepts as being relevant at a given time, which covers the nature of conflict, the preparation of the army for conflict, and the method of engaging in conflict to achieve success.<sup>10</sup>

However, Canadian Army doctrine is distinguishable from British Army doctrine in structure and role. In it there is no distinction between 'military,

'manoeuvre warfare', which does not have obvious relevance to ongoing operations. Canadian Army doctrine lacks strategic utility and fails to provide army leaders with operational level coherence. In turn, lack of operational-level understanding prevents the full development of a systems approach within the ASPP, and precludes understanding of operational art during Canadian Army operations. Yet, because Canada has very little experience with operational level doctrine and operational art,<sup>14</sup> the role of doctrine as a conduit for knowledge of operational art is ever more critical.

If Canadian doctrine continues to teach only the tactical prescriptions of manoeuvre warfare, it will continue to lack relevance. It will foster, rather than reconcile, the false dichotomy of attrition and manoeuvre, and impede comprehension of operational art in war. This is a fatal flaw. The promises of manoeuvre warfare support only preparations for short, decisive wars. Canadian history demonstrates that equal consideration must be given to larger-scale mobilization for sustained warfare—which if not anticipated and planned will

lead to terrible sacrifice. Manoeuvre warfare demands that Canadian soldiers pay homage to Minerva, while ignoring the pervasive and immortal Mars.

## **MANOEUVRE WARFARE ADOPTED**

**M**anoeuvre warfare is relatively new. It emerged during the American 'doctrine reform debate' of the period 1976-1989; a debate originating from General William E. Depuy's revision of American Army doctrine for the 1976 edition of Field Manual 100-5 *Operations*.<sup>15</sup> Severe criticism of Depuy's 'Active Defense' resulted in healthy introspection and reappraisal of both US Army doctrine and the US Army doctrine development process. Researchers and writers outside of the US Army were amongst the strongest critics. First among these were civilian defense analysts William S. Lind and Edward Luttwak.

William S. Lind first presented his criticisms in an article in *Military Review* in 1977.<sup>16</sup> Lind was an adviser to Senator Gary Hart and had considerable influence with that politician. His *Military Review* article was copied as Annex G to Senator Hart's 1978 *White Paper on Defense*.<sup>17</sup> Manoeuvre warfare theory was born in



Canada has a history of success in war, but is there a Canadian way of war? (Courtesy CFPU)

this article. Lind characterized military doctrine as being of two possible types – attrition or manoeuvre. A doctrine of attrition would seek victory through “the physical reduction of the opposing forces”; while the “primary objective” of a doctrine of manoeuvre would be “to break the spirit and will of the opposing high command by creating unexpected and unfavourable operational and strategic situations, not to kill enemy troops or destroy enemy equipment.”<sup>18</sup> In manoeuvre doctrine, manoeuvre becomes an end in itself. This theory was substantiated almost exclusively from an interpretation of *Blitzkrieg* as relayed through B.H. Liddell Hart and General Heinz Guderian. “The Germans developed the maneuver doctrine before and during World War II: the Soviets in many ways have adopted it.”<sup>19</sup> Lind’s interpretation contended that attrition warfare required technological or numerical superiority, while manoeuvre warfare did not. The two doctrines were mutually exclusive; therefore, it was only logical that US forces facing war against superior Soviet forces in Europe should use a manoeuvre doctrine. The 1976 edition of FM 100-5 *Operations* was criticized as decidedly attritionist, over-reliant upon the defence, upon firepower, and upon winning the so called ‘first battle’ of the next war by destroying the enemy incrementally.

Lind’s manoeuvre attrition dichotomy was utilized in subsequent writings by Edward Luttwak.<sup>20</sup> Luttwak used the word ‘relational-maneuver’

to describe what he thought was a superior ‘style of war’: one which sought the ‘systematic disruption’ of the enemy’s military, and not their ‘cumulative destruction.’<sup>21</sup> Luttwak also used *Blitzkrieg* as the exemplary model. He claimed that no doctrine could be purely attritionist or manoeuvrist—but would in character lean toward one or the other of these two theoretical extremes.

Lind’s and Luttwak’s ‘styles of war’ were presented as conceptual devices; theoretical conceptions to illustrate what they believed to be an incorrect focus and emphasis of the US doctrine of that time. Their explanations included examples of a few *Wehrmacht* tactical procedures, but there was no analysis of what might be the comprehensive tactics of manoeuvre or attrition warfare, or what would be the material or organizational needs of each.

The ideas of both Lind and Luttwak had some influence in the doctrinal reviews leading up to the US Army’s AirLand Battle. In 1981 these analysts were invited to review and discuss the drafts of a new FM 100-5. They were critical of the US Army’s unwillingness to officially adopt their theories, and continued to believe that the army was too attritionist in orientation.<sup>22</sup> In this criticism they were inextricably linked to the political agendas of the “Defense Reform Caucus.”<sup>23</sup> In response the Army considered manoeuvre warfare theory as much too simplistic.<sup>24</sup> As appealing as the theory might be, it depended too heavily

upon a seemingly irreconcilable attrition-manoeuve dichotomy that defied coalescence of the theory into coherent and comprehensive doctrine.

The US Army instead pursued deeper analysis of military history and theory. While the new doctrine of FM 100-5 in 1982 acknowledged the ‘manoeuvrist’ point of view, it also sought to reconcile the attrition-manoeuve split by focusing upon activities at the operational level of war.<sup>25</sup> During the mid 1980s the German ‘*Blitzkrieg* cult’ waned under the scrutiny of sound academic study, and the influence of Soviet theorists steadily grew.<sup>26</sup> With further refinement US Army doctrine was revised in the 1986 edition of FM 100-5 to articulate AirLand Battle in the context of ‘operational art’. Manoeuvre warfare as a theory gave way completely to the coherent and comprehensive doctrine of AirLand Battle.

The US Army left the attrition-manoeuve doctrine debate when it instituted AirLand Battle. At this same time both the US Marine Corps and the British Army were just joining the debate, having discovered ‘manoeuvre theory’. William S. Lind became highly influential with Major General A.M. Gray – the future Commandant of the US Marine Corps. In 1985 Lind presented a more mature manoeuvre theory in the *Maneuver Warfare Hand-book*.<sup>27</sup> The Marine Corps encapsulated his ideas into their own new doctrine, published in 1989 in the Fleet Marine Force Manual 1 (FMFM 1) Warfighting. The Corps believed that doctrine was first and foremost a conceptual tool, used to harmonize thinking. This allowed for an easy acceptance of manoeuvre warfare theory, which does not rely upon specified weapons or organizations. The theory retained psychological appeal in its emphasis upon speed, movement, decentralization of command, and economy of force. Yet—as a myriad of articles and dissertations attest—for ten years the Marine Corps has suffered internal tensions related to this attrition-manoeuve dichotomy, finding resolution by deviating from Lind’s theory and adding structure to manoeuvre warfare. This has produced more substantive concepts to organize, equip and practice the Corps.<sup>28</sup>



In the British Army, interest in doctrine reform was sparked by a more genuine (and a less politically-connected) military theorist—Brigadier Richard Simpkin.<sup>29</sup> Simpkin wrote and lectured extensively on ‘manoeuvre theory’. His operational ideas were articulated in *Race to the Swift*. Abiding with the attrition-manoeuvre dichotomy, he incorporated Soviet concepts into his theory and illuminated the physical dynamics of warfare. This book, “marred by some complex prose”, was nonetheless chosen by the Chief of the General Staff, General J.L. Chapple, as a basis for a revision of British doctrine articulated in 1989 in *The British Military Doctrine*, and in subsequent Army field manuals.<sup>30</sup> The attrition-manoeuvre dichotomy was utilized in this doctrine as illustrative of the changes the doctrine promised.

Manoeuvre warfare was seen as a way to break from a positional style of warfare epitomized in NATO’s Western European defence. It was also seen as the means by which smaller armies could produce more decisive operational results. Debates still continue regarding the validity about manoeuvre over attrition as ‘styles of war’; and this in itself is an indication of unattained synthesis, if not doctrinal confusion.<sup>31</sup>

While the US Army broke from the confusion of the attrition-manoeuvre debate in order to instruct and apply AirLand Battle, the Canadian Army was using its own ‘systems approach’ to define its tactical doctrine for a corps fight in central Europe—embodied in the Combat Systems Studies (CSS). This was formalized in the 1980s with the *Combat Systems Studies 1996-2005: The Corps Study Model*, under the auspices of the Land Force Combat Development Cycle. Using the scenario of a Canadian Corps deployed in a defensive mission in Central Europe, the CSS outlined the envisioned threat, the integral functions of the corps, the organization of its components and their weapons systems. The operational concept for Canadian combat development was derived from this threat scenario. Canadian organization, equipment procurement and tactical doctrine were

largely defined by this concept. The executive summary of the CSS was eventually produced in the *Canadian Land Forces Synopsis of Operational Concepts for the Period 1996-2005*, published in July 1989, four months before the Berlin Wall came down.

After the Soviet withdrawal from Central Europe the relevancy of the CSS faded. The redeployment of Canadian Forces from Germany back to Canada clearly marked the end of legitimacy of the underlying operational concepts

***The most influential written doctrines ... were the British and the US Marine Corps’—not so much for their concepts as for their compelling eloquence.***

presented in the CSS. But important components of the CSS remained within the Canadian combat development process, most noticeably a commitment to a catalogue of combat functions, a categorization of initially eleven functions (now reduced to six—command, information, manoeuvre, firepower, protection and sustainment), that helped to develop essential capabilities for the Canadian Army. While CSS was in effect, these functions were unified under a common doctrine derived from an alliance operational concept. Relevancy was obvious and common purpose—the unifying component of any system—was tangible. With the demise of the foundations of the CSS there began a search for a replacement operational concept. Manoeuvre warfare emerged as an alternative. Unlike CSS it is not based upon a real strategic imperative, but was considered to have universal application.

The Army gradually accepted manoeuvre warfare as an operational concept. This was not a deliberate thing. The ideas of manoeuvre warfare were not chosen by the army’s senior generals—as they had been in the US Marine Corps and in the British Army. The ideas entered into informal discussion through articles and papers circulated between 1988 and 1994.<sup>32</sup> In 1994 it was decided that a revision of

army doctrine was necessary and would be conducted by a review of Allied doctrine and a reformulation of existing Canadian doctrine in accordance with these Allied works.<sup>33</sup> The most influential written doctrines of the time were the British and the US Marine Corps’—not so much for their concepts as for their compelling eloquence.

The authors of the capstone manuals (B-GL-300-000/FP-000 *Canada’s Army*, and CFP B-GL-300-1/FP-000 *The Conduct of Land Operations – Operational Level Doctrine for the Canadian Army*), deliberately did not use the words manoeuvre warfare, largely because of the confusion surrounding the term.<sup>34</sup> They adopted instead Simpkin’s words and concepts, well articulated in British doctrine manuals. British manoeuvrist doctrine became the Canadian

Army’s — without clear identification of an operational concept beyond the continued Canadian commitment to NATO. The writing of subsequent tactical doctrine manuals deviated from *Canada’s Army* and *The Conduct of Land Operations* by formally introducing the term ‘manoeuvre warfare’ and adopting William Lind’s definition. Whilst well-intentioned, the use of Lind’s construct of manoeuvre warfare only increased the confusion surrounding the term and detracted from an attempt at coherency between *The Conduct of Land Operations* and B-GL-300-002/FP-000 *Land Force Tactical Doctrine*. The confusion is exacerbated in that there are no organizational, material, or procedural considerations in manoeuvre warfare, whether considered as an operational concept or as doctrine.<sup>35</sup> Like that of the US Marine Corps, Canadian doctrine has become a cognitive device—‘a mindset’. Unlike the USMC, the Canadian Army has not sought to add structure to the conceptual model of manoeuvre warfare. The next section examines the problems related to this perspective, demonstrating to what degree manoeuvre warfare falls short of comprehensive doctrine, and emphasizing the need to revamp the ‘systems approach’ utilized formerly in the Combat Systems Studies, in order to overcome current Canadian doctrinal confusion.

## THE INSTITUTIONAL ROLE OF DOCTRINE

Manoeuvre warfare is a mindset. There are no checklists or tactical manuals that offer a prescribed formula on how to employ manoeuvre warfare.<sup>36</sup>

The current Canadian manoeuvre warfare concept is too superficial to adequately serve the institutional role of doctrine. This section argues that the operational concept of an army must be more than a cognitive tool—a ‘mind set’—as suggested in the above quote from Canada’s capstone tactical doctrine manual. In order to have institutional utility the operational concept of an army must be clearly articulated as doctrine, so that it may serve the needs of all aspects of force management, and so that it ties together all subordinate doctrine—the tactics, techniques and procedures of an army with a strategic purpose.

The Canadian definition of doctrine—while mindful of its *cognitive* purpose—does not convey the traditional function of doctrine in standardizing and controlling the organizational, procedural, material or moral qualities of an army, particularly in response to technological and geo-strategic change. Doctrine must be holistic and integrated, incorporating all military activities that attempt to regulate and

provide method to the formation, training and performance of armies in operations.<sup>37</sup> Doctrine is the unifying force of a military. It is more than just principles of warfare: it also involves application, which includes method, structures, procedures and even rules. To view doctrine as “a mindset” is to perceive only its conceptual or cognitive quality: doctrine in its proper form must be much more comprehensive. It has *cognitive, procedural, organizational, material* and *moral* components. The *cognitive* elements are dedicated to the articulation of a particular concept of operations relevant to a specific time and which forms the basis for a common understanding of war. The cognitive elements include the army’s attitude to the higher purposes of operations—their relationship with strategy and national policy—and also the army’s philosophy of command and control. The *procedural* elements of doctrine guide teaching and practice of the operational concept: this is often presented in field service regulations and includes tactics taught and applied. Doctrine also has an *organizational* component that ensures that army structures are commensurate with the operational approach. Also, doctrine has an element that is material that considers the proper equipping of an army to conduct operations in accordance with the operational concept (making the most of fielded

technologies or driving experimentation in new technologies). Finally, doctrine has a moral (including the psychological) component that is concerned with how best to make soldiers fight, the ethical use of force, and army morale. The *moral* includes the leadership practices in the army. Doctrine then is multifaceted—*cognitive, procedural, organizational, material* and *moral*: the purpose of each facet is to provide standardization and a common high quality to an army. None of the components can stand alone as a complete basis for doctrine. The components must be to some degree integrated—binding them into a more coherent whole. It is the underlying point of this thesis that the best doctrines in history were those which were the most integrative of all of these factors. With this broad definition the relevance of doctrine in history is more easily understood.

That written doctrine forms a common base for all aspects of military activity is evident throughout military history. The writing of military doctrine parallels man’s eternal search for “universal rules”. Sun Tzu identified five factors of war that must be understood—the fifth of which were the laws governing military organization, regulations, command and logistics.<sup>38</sup> Vegetius’ *De Re Militari* (late fourth century AD) attempted to promote a revival of former Roman strength by “offering a systematized remedy for alleged military failures in recruitment and training, army organization and strategy, and arms and equipment.”<sup>39</sup> Machiavelli’s *The Art of War*<sup>40</sup> also attempted to restore Roman organizational and procedural practices, and his *Virtu* is as illustrative example of moral doctrine as one may find anywhere.<sup>41</sup>

Raimondo Montecuccoli<sup>42</sup>, Maurice Prince of Orange-Nassau,<sup>43</sup> Saxe, Frederick and others followed with rigorous works—defining comprehensive doctrine.<sup>44</sup> However, it is not until the second half of the nineteenth century that doctrine began to take on a modern aspect. The intellectual and industrial revolutions, and the rise of enormous national armies produced great challenges in war planning, and warfare



“Y’know (soldier to the barber), it sometimes gets so confusing; I don’t know if I’m with Mars or Minerva!”

could no longer be understood or practised from the narrow perspective of tactical procedure. Mass conscript armies, weapons industries, railroads, telegraph communications and the expansion of military staffs combined to allow for the rapid mobilization and 'distributed manoeuvre' of very large armies, over distances too vast for a single commander to exercise control.<sup>45</sup> This made necessary the introduction of a distinct echelon of command whose role filled the gap between military strategy and battle tactics: this became the operational level. First advocated by Moltke as *operativ*, it eluded military cognition throughout most of the nineteenth and early twentieth centuries. The Soviets articulated it deliberately after World War I, the Germans only incidentally.

The operational level demanded doctrine that retained relevance between strategic aims and tactical activity carried out over the vast distances both laterally and in depth. With the industrialization of warfare in the twentieth century, the conduct of distributed manoeuvre became increasingly difficult. Common doctrine helped to induce standardization of procedural, material, and organizational matters in the planning and conduct of widely dispersed manoeuvre. Doctrine was also necessary to span the gap between the moral and cognitive realities of the strategic and tactical levels. When involved in distributed operations the difference in perspective between these two realities was profound. It became the task of modern doctrine to provide a unifying force in all areas—cognitive, material, organizational, procedural and moral—to reduce the dissonance between the strategic and tactical levels. This was particularly crucial during and after the First World War when the potential impact of the industrial revolution, and the advent of advanced communications technologies, promised to expand operations over distances heretofore unimaginable. It was in this demanding era that truly comprehensive doctrine emerged.

In the twentieth century, the size and complexity of armies and military functions required standards of

organization, supply, training, movement and fighting that could not be satisfied by the simple prescriptions of Jomini. The factors and methods at work in society, particularly in industry, came to merge with military thinking to create complex doctrine. The Soviet and German armies of the inter-war period, and the US Army of the post Vietnam era reached epitomes in this regard. Examination of their doctrines of warfare reflects what has been called a 'systems approach' to the preparation for and conduct of war.

Perhaps the best theoretical analysis of the unifying force of modern doctrine is Shimon Naveh's *In Pursuit of Military Excellence*.<sup>46</sup> Naveh has convincingly argued that the most effective approach to military organization and function lies in the 'systems approach' derived from *General Systems Theory*.<sup>47</sup> Systems theory has widespread application and has been adopted by most complex western organizations as a basis for organization growth and management.

'Systems thinking' holds that modern technology and society are so complex that traditional methods of understanding and dealing with problems are now inadequate. New holistic—or systems—approaches, interdisciplinary in nature, offer an alternative.<sup>48</sup> Borrowing from the lexicon of engineering and natural sciences, systems thinking defines the world in terms of feedback, equilibrium, control and stability mechanisms in dynamic social-economic systems. A 'system' is a collection of parts that interact with each other to function as a whole. Modern military systems contain multiple subsystems and numerous 'agents', and their interactions are highly complex.<sup>49</sup> Understanding these systems requires method that is the reverse of scientific reductionism. Instead of breaking things down to their smallest part for optimal development of one component of the whole, systems science seeks instead to recognize the critical systems and essential interactions between systems and subsystems, and to enhance these interactive processes to improve the system as a whole. It is a generalist vice a specialist approach. It recognizes that

everything is connected to everything else, and that one can never solve a problem by doing just one thing, even 'one big thing'. This in essence is the underlying theory of combined arms operations, and of orchestration in joint and combined theatre operations. It is also critical to the combat development processes. Integration of doctrine, acquisitions, organization, training, operations activities (and their inherent feedback mechanisms) is fundamental to war preparation and conduct. Doctrine in this environment must be much more than a 'mindset'; it must have tangible 'outputs'.

The Canadian Army's 1980s CSS employed systems theory to ensure consistency in the combat development process. While not new, the application of systems theory has not been constant. Naveh argues that the greater adherence to the underlying principles of systems theory has in the past led to military excellence, while lack of a coherent systems approach ensures friction and possibly defeat. This is particularly true at the operational level of war.

Strategy, whether political or military, exists primarily in the field of the abstract and requires a degree of creative vision. Tactics belongs to the world of the immediate and is mechanical—it is about live personnel and machinery moving across the obstacles of terrain to engage other men and machines.<sup>50</sup> While there is need for only one strategic vision, there is inevitably multiple tactical realities. The operational level is that level at which independent tactical systems and tactical commands are integrated under a common universal military system; a system that incorporates an operational concept relevant to a nation's military strategy.<sup>51</sup> The system draws together the myriad components that make up a modern army and unifies these constituent parts, producing *constitutive* (synergetic) as opposed to summative effects. This is a process that works in times of peace, in combat development for instance, and is a command function in war. In both instances it is the role of doctrine (based upon a relevant operational concept) that unifies separate parts

under one common purpose. The parts of the military system involving force structuring and mobilization, research and acquisitions, training and training standards, and leadership and command practices—the *organizational*, the material, the procedural and cognitive, and the moral parts of an army—are brought to a synthesis at the operational level by conformity to a comprehensive operational doctrine.

While doctrines have often tended to emphasize one or two of these key components over the others, the systems approach applied to modern military practices ensures that doctrine addresses the need to integrate all components. Operational doctrine must be a comprehensive binding force in the military system. It must be much more than a 'mindset'; it must address all the potential material, organizational, procedural and moral tensions between the abstractions of strategy and the realization of strategic aims by mechanical actions at the tactical level.

History provides a number of good examples of the unifying force of a comprehensive doctrine: this paper will use two examples to illustrate the relevance of such doctrine; that of the German Army 1923-1941, and the doctrine of the US Army 1982-1991. Both demonstrate the importance of a common military understanding—expressed in a comprehensive doctrine that is incorporated into a 'systems approach'—to the preparation and conduct of military operations.

#### THE GERMAN ARMY 1923-1941

The successes of the *Wehrmacht* in Poland and France 1939-1940 have achieved mythical appreciation, largely because of over-attention given to *Blitzkrieg* by B.H. Liddell Hart and General Heinz Guderian.<sup>52</sup> The truth of these successes is less sensational and much more complex. The German victories were the result of better tactics, training, leadership and organization, bound together by a coherent operational concept and articulated in two editions of the capstone doctrine manuals—*Army Regulation 487: Leadership and Battle with Combined*

*Arms, Part 1* (1921), *Part 2* (1923), and *Army Regulation 300: Troop Leadership (Truppenführung)* (1933).<sup>53</sup> *Blitzkrieg* was not the operational concept of the German Army, and in fact was never articulated in German Army doctrine.<sup>54</sup> The real operational concept was a product of war planning against German's two nearest enemies, Poland and France. It called for the rapid defeat of each, sequentially, in battles designed to envelop and annihilate enemy tactical echelons.<sup>55</sup> This was called *Kesselschlachten*, cauldron battles—involving the trapping and destroying of opposing armies in grand battles of annihilation. The concept was in keeping with the German military tradition—inherited from von Moltke and von Schlieffen.<sup>56</sup> Throughout the pre-war period, and during the planning and execution of the 1939-40 campaigns, this operational concept was maintained. The *Blitzkrieg* idea emerged out of the opportunities presented to key German generals during the execution of these campaigns. The flexibility inherent in German doctrine allowed such opportunities to be capitalized upon. The real strength of the *Wehrmacht* did not rest in Guderian and his *Panzer* concept, but in the extent to which a comprehensive yet adaptable doctrine was practised throughout the entirety of German forces. *Army Regulations 487* and *300* were instrumental to early German tactical victories.

The German *Army Regulations* provided the basis for a systems approach to German Army force management, allowing for the integration of cognitive, organizational, material, procedural and moral elements.<sup>57</sup> The Versailles Treaty severely constrained the material and organizational components of the army—until 1933. This was compensated for by von Seeckt's conscious decision to enhance the cognitive, procedural and moral aspects of the force, creating the *Führerheer*—a leader's army—wherein all NCOs and officers were educated to a high standard of combined arms tactics and in leadership initiative. The evolution of combined arms tactics

began with a comprehensive assessment of the lessons of World War I that involved some five hundred German officers throughout the early 1920s.<sup>58</sup> The lessons were incorporated into doctrine in *Regulation 487*, which set down divisional organizations and

### ***Operational doctrine must be a comprehensive binding force in the military system.***

tactical procedures that accommodated all arms groupings. It also identified the procedural and moral expectations of commanders, both junior and senior, in battle. *Regulation 487* became the guide for subsequent arms doctrine manuals, which became the standard texts of officer and NCO training.<sup>59</sup>

Within the organizational and procedural prescriptions of *Regulation 487* there was flexibility to experiment and grow as advances in technology and mechanization worked to enhance the all arms focus of the army.<sup>60</sup> This gave impetus to the progressive evolution to tank doctrine in the 1920s,<sup>61</sup> and helped to evolve motorized, armour and air force concepts. These were further refined in *Regulation 300 (Truppenführung)*.

The publication of *Truppenführung* in 1933 took the *Wehrmacht* a large step closer to achieving operational and tactical coherency. Part I focused on the cognitive enlightenment of ALL army commanders, corporal to general; it also gave detailed procedural and moral prescriptions. Part II listed organizations and movement data. The material needs of the army were implied in *Truppenführung*, as German re-armament was only just starting at the time of publication. It is a testament to its utility as comprehensive doctrine that *Truppenführung* did not change despite the massive expansion of the army 1933-1939, and the acquisition of completely new equipment and technologies. This illustrates the potential of a 'doctrine-based' army as opposed to a 'capability-based' army. The former is inherently more adaptive, and its reliance upon common cognitive, procedural and moral



**While others have built doctrine suitable for their purposes, do we know what we are doing and are we putting the right pieces together?**

practices makes it all the more cohesive. *Truppenführung* is the manual under which the Germans fought World War II. It, and not the opportunistic occurrences of *Blitzkrieg*, was the key to German tactical success. In both the strategic offence and the strategic defence the *Wehrmacht* retained its fundamental cohesion, thanks largely to the standards demanded by the army's doctrine.<sup>62</sup> As a unifying doctrine *Truppenführung* continues to be a model of coherent operational thinking resulting from an integrated systems approach.

## THE US ARMY 1976-1991

A second excellent model of comprehensive doctrine emerged out of US Army reforms 1976 to 1991. This incorporated the evolution of AirLand Battle under the US Army's Training and Doctrine Command (TRADOC). The driving force for change in doctrine came—as it had in Germany in the 1920s—from war planning, specifically from the realization under General Creighton Abrams that the NATO forces of 1975 could not win against a Soviet offensive. Influenced highly by the Arab-Israeli war of 1973, Abrams and General William Depuy

set out to revise the Army's operational concept. Depuy formulated 'Active Defense',<sup>63</sup> which failed to instill commonality of thought, but succeeded in formalizing a systems approach to army development. The entire concept of TRADOC is a product of a 'systems approach'.<sup>64</sup> The capstone doctrine manual of the Army, FM 100-5 *Operations*, became an instrument for TRADOC, providing the cognitive grounding for organizational, procedural, material and moral combat development throughout the Army. It united the very complex and disparate organizations and units of the Army under a common operational perspective, promoting coherence amid multiple functions and at the same time exacting relevant feedback for continued refinement of the operational concept and the main doctrine manuals. This was manifest in the re-publication of FM 100-5 in 1982 and its revision in the 1986 version.<sup>65</sup> These documents provided cognitive and moral direction for tactical commanders. They guided and integrated a new family of weapons systems,<sup>66</sup> affirmed organizational structures, and introduced new procedural concepts (most significantly 'Deep Battle') that deviated from previous concepts, and enhanced the Army's thinking and practice of fire and manoeuvre. This doctrine was formulated and taught in a fully integrated systems structure. The operational concept set the focus for weapons acquisition and training. The newly established National Training Center became the venue for systematically testing AirLand Battle proficiency.<sup>67</sup> The Center for Army Lessons Learned captured critical observations during training and operations in order to provide a feedback mechanism in TRADOC's systems structure. Lessons learned were captured within revised tactical manuals. Critical lessons were considered in the continuing scrutiny of FM 100-5. This systematic approach to Army development and management helped arrive at constitutive effects, producing compounding enhancements to Army organization, procedures, weaponry and practices. All of these were captured under the comprehensive articulation of AirLand Battle, a war winning doctrine. There can be little dispute that AirLand Battle was vindicated during Operation "Desert Storm."<sup>68</sup> The quality performance of the

US Army during that operation was largely facilitated by common understanding of the Army's operational concept, articulated in the doctrine of FM 100-5.

*Army Regulation 487, Truppenführung* and AirLand Battle are illustrative of comprehensive doctrine. In their times, they fostered a systems approach to force development and force management. There was in each a distinctive cognitive, procedural, and moral component, which served to organize and equip forces to meet the tactical method prescribed. Each of these publications fostered subordinate doctrine used in teaching. Each produced requisite 'outputs' to allow other components of the army systems to function in an integrative manner. The doctrines were also important in the formation of Army leadership, enhancing a common understanding of war that in turn provided uniform high standards in combat. These doctrines were so much more than a 'mindset'.

The current Canadian perspective of doctrine, viewing it as serving a cognitive purpose only, will fail to achieve the synergistic effects of comprehensive doctrine. While manoeuvre warfare may fulfill the conceptual element of doctrine, its want of organizational, material and procedural prescription, preclude it from contributing to a systems approach in force management. A second and equally problematic characteristic of manoeuvre warfare is its exclusive tactical-level focus. This is examined below, illustrating how this tactical focus prohibits realization of operational-level competence and operational art.

## OPERATIONAL ART – MAKING DOCTRINE RELEVANT

It is essential that military doctrine address the inherent tension that exists between the strategic and tactical levels. This is best done through clear operational-level doctrine that is relevant to the strategic environment and accommodates the tactical realities confronting an army. This section examines the deficiencies of manoeuvre warfare in satisfying this linking function. In the first part of the section, the historical substantiation for

manoeuvre warfare is analyzed in order to expose the soft theoretical foundations of the concept. Its exclusive tactical focus is also emphasized. The second half of this section examines the evolution of operational art and Soviet manoeuvre theory, in order to illustrate the extent to which manoeuvre warfare fails in promoting an understanding of operational-level functions and operational art.

Advocates of manoeuvre warfare have continually used selective history to illustrate their 'superior style of warfare'. Although many historical examples of manoeuvre warfare have been cited, the most frequently used is that of the German Army of 1939-1941. Lind, Luttwak and their supporters have argued that manoeuvre warfare was developed and practised by the *Wehrmacht*, and that the operational concept is applicable today. These are spurious contentions.<sup>69</sup>

Manoeuvre warfare envisions winning by 'systematic disruption' through manoeuvre, producing defeat without the need for destruction. This is achieved by finding enemy weakness—his 'gaps' as opposed to his 'surfaces'—by a technique of 'recon-pull'.<sup>70</sup> Once located these 'gaps' are to be vigorously attacked to produce twofold effect. Firstly, exploitation of a weakness will allow penetration into an enemy's depth and cause the physical dislocation of his forces and the disruption of his command and communication means. Secondly, by continuing to keep the initiative (with offensive action) the attacker operates faster than it is possible for the dislocated enemy to react to, causing paralysis in his command function. Defeat follows. All of this requires a decentralization of command and control so that the attacker can operate at high tempo and seize opportunities as they arrive.<sup>71</sup> This formula is the same in all types of war, at all levels of war, and in all environments of war. It has universal application—provided that military commanders are given the freedom to prosecute manoeuvre warfare without political restraints at the tactical level.<sup>72</sup> The German Army's performance in World War II is always cited as the supreme example of manoeuvre warfare realized. However, historical analysis does not support this interpretation.<sup>73</sup>

The aim of systematic disruption through manoeuvre was not German strategy of World War II, nor was it the operational concept of the *Wehrmacht*. German strategy recognized the duality of aims postulated by historian Hans Delbruck his monumental *History of Warfare*.<sup>74</sup> Delbruck, while interpreting how tactics have served to achieve strategic aims, raised a compelling theory that nations can have but two distinct forms of strategy—annihilation and exhaustion.<sup>75</sup> A strategy of annihilation is a 'single pole' strategy—seeking to annihilate the enemy's military forces in single decisive battle. This is the strategy of a superior force seeking unlimited aims (e.g., the complete defeat of an opponent). The second form—exhaustion—is practised by weaker powers whose aims are limited and who are unable to achieve victory through decisive tactical battle. Such nations follow a 'two pole' strategy of battle and manoeuvre to avoid battle, aiming to win their political goal by exhausting the enemy—either materially or morally—to the point where the conflict can be terminated on favourable or equal terms.<sup>76</sup> The second strategy is in no way inferior, may be of less risk and cost, but may also be much less decisive. Delbruck's paradigm has been used to understand military history in terms of national ways, means and ends: linking tactical ways and means with strategic ends.

The German Army of the Second World War was following a strategy of annihilation, *Vernichtungsgedanke*, involving large-scale encirclement battles. German military tradition and her geo-strategic problem led German leaders to an unquestionable adherence to this strategy.<sup>77</sup> Pre-war German operational research, war planning and doctrine were driven by empirical factors, chief of which was the need to guarantee national survival by defeating her two most threatening opponents—Poland and France.<sup>78</sup> The mechanism for defeat was to be *Kesselschlachten* that involved German envelopment of major portions of an enemy's fighting forces and their defeat by destruction and capture.<sup>79</sup>

The emergence of the 'armoured school' after 1935 called into question the operational 'means' of the German

strategy of annihilation. Guderian and other advocates attempted to deviate the focus of offensive manoeuvre away from the destruction of enemy field forces toward the severing of his lines of communication and the induction of 'paralysis' into his command system. The means to this end was to be a heavy concentration of armoured forces, operating somewhat independently as they projected themselves into the depths of an enemy's territory. It is this formula that modern 'manoeuvrists' hold as the basis for manoeuvre warfare.

However, the 'armour idea' was not accepted in the *Wehrmacht* as new doctrine. The traditional German tendency toward battles of annihilation, a lack of technological capacity for mechanization, and a predominantly infantry focus precluded adoption of the new concept.<sup>80</sup> German Army doctrine had accommodated the evolutionary development of armoured units, and understood the idea of deep armoured penetration, but remained committed to *Kesselschlachten*, wherein armoured units would be tethered to infantry formations to support the detailed destruction of enveloped enemy forces.<sup>81</sup> The need to achieve penetration and to manoeuvre-in-depth was measured by the distances it would take to encircle the key Polish and French formations in a battle of envelopment and annihilation. The German strategy was thus still battle focused, although operational-level planning was required to effect the scope of the battle envisioned.

When German war plans were being put into effect *Blitzkrieg* emerged as an adjunct to the stated operational concept of the *Wehrmacht*. The procedural elements of penetration theory—*Schwerpunkt*, *Flächen und Lückentaktik*, *Aufrollen*—and the organizational makeup of offensive combat groupings, were already embedded in German envelopment doctrine.<sup>82</sup> They facilitated the initial tactical successes required in *Blitzkrieg*, but thereafter they worked against the armour idea. German penetration theory was unintentionally wedded to the concept of *Kesselschlachten* which prohibited bypassing enemy formations and furthering the penetration into the operational depth of the

enemy. While the strategic aim of both *Blitzkrieg* and *Kesselschlachten* was 'annihilation' (rapid decisive victory), the tactical ways and means became divergent. This is crucial to recognizing the problem with modern manoeuvre theory. Manoeuvre warfare may be considered as a variation of this strategy of annihilation.<sup>83</sup> While it advocates deep penetration and annihilation by shock, it prescribes German tactical penetration techniques (e.g., surface and gap tactics) that are historically contradictory to the manoeuvre in depth envisioned by Lind, or the manoeuvre in time envisioned by Boyd.<sup>84</sup>

This opposition of purposes created enormous tension between command levels of the German Army in the 1939-1940 campaigns.<sup>85</sup> Yet, because of German military capacity to project reach to an operational-level depth, coupled with the use and exploitation of tactical expediencies demanded by *Truppenführung*, the operations in Poland, Western Europe, Scandinavia and the Balkans were successful. These successes were a result of the innovation allowed in the German military system—and not because of a coherent doctrine of *Blitzkrieg* or manoeuvre warfare.

The tension between the institutional and doctrinal tradition of encirclement and the idea of strategic shock became fatal for the German Army in Operation "Barbarossa" and thereafter. In all offensive operations the *Wehrmacht* remained a slave to its own stated doctrine<sup>86</sup> and while attempting to seize certain opportunities to achieve *Blitzkrieg*, the Germans failed to comprehend both their own logistical limitations, and the degree to which Soviet military thinking measured operational and strategic depth. In the vast distances of Russia, against an enemy with seemingly endless capacity to generate armies, the operational concept of the German Army, and the expediencies of *Blitzkrieg* lost all relevance.<sup>87</sup> With this loss also went the German capability to apply operational art.<sup>88</sup>

There is no historical substantiation that manoeuvre warfare—based on the German Second World War *Blitzkrieg*—

is a superior 'style of warfare', or that *Blitzkrieg* doctrines have a universal operational application. Nor is there any truth to the argument that English-speaking armies have an exclusive tradition of the inferior attrition style of

### ***There is no historical substantiation that manoeuvre warfare ... is a superior 'style of warfare'***

warfare.<sup>89</sup> Manoeuvre warfare as it was originally expressed rests upon soft theoretical foundations. While it has a strategic aim of 'annihilation' by shock, the ways and means to that aim are confused between German infiltration tactics and penetration theory, and *Kesselschlachten*, all with a tactical focus of engaging and destroying an enemy in battle.<sup>90</sup> By dismissing the historical foundations of manoeuvre warfare its true nature is exposed: it is a formulation for the purposes of a debate, with a political agenda. Its utility was limited to aiding an understanding about the nature of manoeuvre in war at a time in the Cold War when forward defence was seen as perilous. It no longer serves a useful purpose. The utility of manoeuvre warfare theory has been superseded by a much more comprehensive and sound analysis of warfare which took hold in the US Army in the 1980s and reached a zenith with articulation of the concept of operational art in doctrine.

#### **THE EMERGENCE OF OPERATIONAL ART**

German doctrine during the Second World War had relevancy while the Germans conducted operations within the context of their envisioned pre-war strategy. Once they began operating outside of the envisioned strategy their focus upon battles of annihilation lost coherency and they were drawn into a long war of exhaustion. In this their operational concept became moot. The limits of their empirical-based operational concept and doctrine, and the degree of strategic abstraction fomented from Hitler, precluded consistent application of operational art.

Likewise, modern manoeuvre warfare theory (as articulated by the USMC, the British Army and by William Lind) has

limited charm at the tactical level, but no clear relevancy to the strategic environment that face modern forces. Manoeuvre warfare lacks operational level focus and application because it has no direct link to stated strategy and practised tactics.<sup>91</sup> The operational level is the controlling component of the military instrument designated to carry out a particular operation. Control is exerted by the

clear articulation of the operational concept and the operational objectives necessary to achieve strategic objectives in that theatre. The operational concept and objectives determine tactical plans. It is imperative that in preparing and executing plans that a consistency of purpose is preserved as a "conceptual denominator common to all participants in the operational process...".<sup>92</sup> There must be a common aim between the separate tactical commands involved in an operation in order for the entire military endeavour to function in an effective coordinated manner, producing synergy and reducing the shocks of battlefield confusion and losses. Simply put, there must be operational art.

Operational art is the ability to conduct highly complimentary military activities, engagements and battles, simultaneously and sequentially across the entire width and depth of an area of operations to achieve common strategic purpose.<sup>93</sup> The art involves envisioning the constitutive effects of multiple engagements and battles—the mechanical realities of the tactical level—toward the achievement of a strategic abstraction.<sup>94</sup>

Operational art was first formulated in the 1920s in the brilliant works of Aleksandr A. Svechin.<sup>95</sup> Svechin saw it as the means by which commanders orchestrated tactical action over vast distances toward the achievement of a common theatre-strategic purpose. His concept was framed within the prevalent strategic paradigm of the period, the Delbrukian dualism of strategies of annihilation versus strategies of exhaustion.<sup>96</sup>

Svechin believed that geo-strategic realities (characteristics of national geography, demography, industrial and



military potential) dictated which strategy—annihilation or exhaustion—was appropriate for a state at any given time. In the wake of the destruction of the First World War, Svechin felt that industrialized warfare precluded a Soviet adoption of the strategy of annihilation. The era when decisive battle could be used as a singular means to achieve strategic decision was over. Instead, he advocated a strategy of exhaustion based upon preparations for war that achieved national military, geographic and industrial 'depth'.<sup>97</sup>

General V.K. Triandifilov refined Svechin's work and formulated material, organizational and procedural constituents of Operational Art. His *The Nature of the Operations of Modern Armies* (1929) advocated the creation of a mass mechanized army supported by a developed industrial economy.<sup>98</sup> He introduced the concept of the 'shock army' as the instrument to achieve penetration (hopefully two penetrations in a theatre) to a critical depth to the enemy (through the enemy's tactical defensive zone—a 'break in' battle to a depth of 30-36 km).<sup>99</sup> This would be followed an intermediate operation to pursue and destroy enemy to a depth of 150-200 km, followed by final operations to defeat remaining enemy at depth of another 30-50 km. Shock armies (and their subordinate units) were all-arms organizations. Triandifilov foresaw no major decisive operation, but the need for successive operations leading over time to strategic victory.

Svechin and Triandifilov chose operational concepts within a strategy of exhaustion as the best military policy of the USSR. In this they were opposed by General M.N. Tukhachevskii.<sup>100</sup> Tukhachevskii was influenced by Fuller's ideas of mechanized and air force manoeuvres, annihilating an enemy by achieving faster mobility than he can sustain. Tukhachevsky borrowed from Triandifilov, envisioning the use of shock armies in penetration, but working in conjunction with massive airborne and air mechanized forces that would be inserted into the enemy's rear to create a complete dislocation of his defences to an operational depth. This 'Deep Battle' was to be decisive, producing rapid annihilation of the

enemy by shock rather than destruction. It precluded the need for successive operations necessary in a strategy of exhaustion; albeit, Deep Battle was not to be a single decisive battle so much as a single decisive 'operation' involving manoeuvre and many deep battles with considerable extension in space and requiring great application of operational art. If anything in history approaches the manoeuvre warfare ideal of defeat by inducing shock, it is Tukhachevskii's Deep Battle, and not *Blitzkrieg*.

The great exhaustion versus annihilation debate in the Soviet Union lasted into the 1930s. During the debate a systematic approach to war-preparation evolved; one that connected political, military, economic and industrial productions, and geography and infrastructure considerations into a coherent formulation supported by a 'unified' military doctrine.<sup>101</sup> Cognition of operational art was essential to this evolution. It allowed for a synthesis of tactical functions that reconciled the offensive-defensive, manoeuvre-position dichotomies prevalent in other countries at that time. Tukhachevskii and Triandifilov both viewed destruction by fire and manoeuvre as equally critical. The physical extension of military forces throughout the breadth and depth of the area of operations meant that battles of attrition and deep manoeuvres were together very important, and not opposite poles in warfare. Operational planning in the Soviet Union sought to achieve integrated operations throughout an entire theatre of war, by providing all military activity a unifying purpose. Soviet doctrine attempted to retain relevancy to the geo-strategic situation and to link the abstract strategic aims of the country to tactical-level war preparations. As Svechin stated:

... like the tactician and operations specialist, a strategist is not completely independent in his field. Just as tactics is an extension of operational art and operational art is an extension of strategy, strategy is an extension of politics.<sup>102</sup>

Progress was made in Soviet army development even during the bitter

strategic debates. Stalin eventually sided with Tukhachevskii in this dispute. Subsequently, he found reason to question Tukhachevskii's loyalty and had the General executed in 1937.<sup>103</sup> After this, the military preparations continued, but were diffused. The Soviet Army entered the Second World War hamstrung by 'the purges' and their effect upon the war preparations process.

While modern manoeuvre theory is not substantiated by *Blitzkrieg*, it could be well substantiated in Tukhachevskii's Deep Battle. In fact, Richard Simpkin implies this.<sup>104</sup> Tukhachevskii's Deep Battle has the same aim as modern manoeuvre warfare, the rapid and decisive defeat of the enemy by paralyzing his command and control ability. However, Tukhachevskii's Deep Battle is not a model for small professional forces. Tukhachevsky's prescriptions require massive political will, industrial focus, economic backing and formations large enough to induce shock by simultaneous military action over huge distances. Deep Battle is not the operational concept of small armies. Tukhachevskii illustrated this point as follows:

Let's imagine a war between Great Britain and the USA, a war, for example, which breaks out along the Canadian border. Both armies are mechanized, but the English have, let's say Fuller's cadres of 18 divisions, and the US Army has 180 divisions. The first has 5,000 tanks and 3,000 aircraft, but the second has 50,000 tanks and 30,000 planes. The small English army would be simply crushed. Is it not already clear that talk about small, but mobile, mechanized armies in major wars is a cock-and-bull story? Only frivolous people can take them seriously.<sup>105</sup>

While the pre-war Soviets had broken from the binding constraints of a tactical level focus, most western Europeans, in contrast, had not. The British and French continued to analyze the problems of tactical stalemate of the First World War. In England Fuller and Liddell Hart attempted to influence British military

thinking toward a better understanding of industrialized warfare. However, the overstated simplifications of Liddell Hart,<sup>106</sup> the inability of Fuller to comprehend operational level mass and depth, coupled with the anti-intellectualism of the British Army,<sup>107</sup> kept their ideas from achieving coherency and from gaining professional currency in England. In France the tactical focus of doctrine and the Gallic penchant for Cartesian logic precluded any appreciation for the potential use of mass mechanized forces in operations of free manoeuvre. Both armies developed operational concepts and tactical doctrines which failed to appreciate the operational level distances and depth that the industrialization and mechanization of war allowed. Both suffered under the illusion that smaller professional armies and large reserve forces could match strategic imperatives.

#### CANADA AND OPERATIONAL ART

Both the US and British Armies have formulated doctrine that uses German and Soviet theory. The difference between the two is that the British doctrine rests upon recognition of the attrition-manoeuve dichotomy created by theorists in the 1970s, and the American doctrine does not. The British Army, and consequently the Canadian Army, chose from this dichotomy a manoeuvre warfare focus, because it promised to be the means by which a small army could achieve victory in grand decisive manoeuvre (spatial or temporal), at low cost. That such a concept has spurious historical substantiation has seemed to escape British and Canadian criticism. Particularly of concern is the selective use of theory and history to prove that small armies can achieve victory by shock action—without destruction. History more correctly demonstrates that such victory usually can only occur at the strategic (vice tactical or operational) level and only when there is significant overmatch in size or technology or political willpower.

That manoeuvre warfare has limited relevance to current British and Canadian geo-strategic realities, despite

its promise of universal application, has likewise escaped notice or criticism. What is perhaps most frightful is that the adoption of manoeuvre warfare precludes understanding of operational art, because the nature of the dichotomy runs counter to the integrative function of operational art. This could potentially make Canadian Army tactical developments largely irrelevant to Canadian strategic needs. The next section of this paper examines the applicability of manoeuvre warfare to the Canadian Army's strategic imperatives.

#### CONCLUSION – CANADIAN STRATEGY AND MANOEUVRE WARFARE

Canadian Army doctrine is now predicated upon an understanding of an attrition-manoeuve dichotomy that leads to explicit acknowledgement of manoeuvre warfare as a superior style of war. This understanding is independent of Canadian strategic imperatives and current operational realities. The doctrine is not derived from an overarching operational concept that focuses planning to achieve specific strategic aims. Therefore the linkage between strategy and doctrine is tenuous. Furthermore, because manoeuvre warfare doctrine is regarded merely as a conceptual tool, and does not serve as comprehensive doctrine for force management, the linkage between it and other components of the Army's

***Of concern is the selective use of theory and history to prove that small armies can achieve victory by shock action—without destruction.***

Strategic Planning Process (ASPP) is also tenuous. Manoeuvre warfare cannot be used for doctrine-based force development or doctrine-based operations planning. Its utility to the Canadian Army is limited.

The armies studied above were 'doctrine-based': in peacetime they used written doctrine as a link between strategic vision, a coherent operational concept, and tactical combat development, and in war as a link between strategic war plans and tactical actions. The Canadian Army in contrast is

'capabilities-based'.<sup>108</sup> Its organization and equipment reflects the stated requirement for the maintenance of a small multi-purpose and combat capable force. The multi-purpose capability rests within the six combat functions (command, information, manoeuvre, firepower, sustainment, and protection), extant within certain army units that can be task-organized any number of ways to suit the requirements of a specific mission. These are tactical level functions, the assumption being that function of echelons higher than brigade will be fulfilled by Allied armies (namely British, US, or within a multinational division structure).<sup>109</sup>

The Canadian Army is capabilities-based because Canada's strategy for the use of the military as an instrument of national power is not derived from war plans. It does not aim to prepare for either a war of annihilation, or a war of exhaustion, against any particular foe. Instead, Canada's military strategy recognizes fiscal restraints and envisions the need for multi-purpose battalion and brigade-sized forces capable of participation in joint and combined operations in accordance with the assigned missions of the Army. These missions are multifarious in nature and include: 'Homeland Defence', 'Defending North America', and 'Contributing to International Security'. Formulating a single operational concept and doctrine that adequately links strategic

imperatives to tactical realities in all three of these mission areas is problematic. Manoeuvre warfare certainly does not achieve such linkage.

The prescriptions in B-GL-300-001/FP-000 and B-GL-300-002/FP-000 regarding manoeuvre warfare are highly abstract and have limited application in preparing the Army for any specific operations within the three mission areas. The stated purpose of manoeuvre warfare is to defeat an enemy by shattering his moral and physical cohesion rather than by

destroying him by incremental attrition. Its method involves attacking an enemy's critical weakness so that he cannot react to changing situations, therefore inducing paralysis of his systems and a loss of cohesion in his actions. How exactly a Canadian brigade is to achieve this operational concept is not articulated in either doctrine manual. There is no statement of organizations, equipment requirements, tactics, techniques or procedures to guide the accomplishment of manoeuvre

### ***Doctrine cannot just be conceptual.***

warfare goals. Some techniques have been espoused in non-doctrinal writings about manoeuvre warfare, but they are rather shallow in focus and limited in application.<sup>110</sup>

The Army's commitment to a capability-based approach reflects the fiscal, material and political restraints placed upon it. The capabilities that the Army can afford determine the operational commitments it can make and its approach to conducting these operations. The prescriptions of manoeuvre warfare are largely irrelevant. The Army's size precludes—in all but the smallest domestic operation—the concentration of sufficient combat power to achieve the overmatch necessary to cause dislocation, disruption or pre-emption of an enemy demanded in manoeuvre theory.<sup>111</sup> Furthermore, the ability to operate with faster decision-action cycles has virtually no application in peace support operations wherein decision is not reached by inducing rapid paralysis of opposing forces; and where information operations and civil affairs have difficulty achieving the overmatch necessary to 'out-loop' the indigenous forces. These operations necessarily follow strategies of exhaustion, with long-term presence gradually inducing change. Likewise the application of faster decision-action cycling in a conventional war loses its relevance if the Canadian brigade operates as part of a coalition division. It is this higher formation that determines the tempo of operations, and it is formations higher than this that formulate the operational framework for the warfighting force. To suggest

that a Canadian brigade will have flexibility to attempt a decisive manoeuvre, or will establish a decisive tempo, in accordance with Canadian operational doctrine, is rather farfetched, and certainly has limited and not universal application.

While it is difficult to see any deficiency in operational art during current low-level tactical deployments, the Canadian problem of operational-level understanding is manifest in the lack of a 'systems approach' to force management, comparable to that provided by *Truppenführung*, Airland Battle, or even the Combat Systems Studies, and in the absence of thinking and planning for large-scale wars.

The strategic vision of the Army demands a multi-purpose force and the ASPP helps determine the separate capabilities of each of the combat functions in this force. However, there is no effective operational doctrine serving to link the strategic vision to the developments in the six combat functions. Coherence between ends and means is not achieved. While the ASPP attempts to generate army development, it lacks the integrative glue of comprehensive operational doctrine to provide common purpose and focus to each component of the process. Combat function development

standards. This in turn makes any lessons-learned process more difficult, which then makes a doctrine revision process harder. The systems approach, so well designed in the example of TRADOC, is not achieved by the ASPP. Canadian doctrine does not stem from a coherent operational concept, and the role of doctrine itself is restricted—it is not the 'engine of change' seen in TRADOC. It is not the key filter through which new ideas and concepts are screened, and through which feedback information is processed. Nor is doctrine within the ASPP the standard by which all other force development activities are measured. This failing of doctrine is in part because manoeuvre warfare is merely a 'mindset' and not doctrine.

Doctrine cannot just be conceptual. The effective formulation, teaching and execution of doctrine, requires a systems approach designed to integrate in non-linear manner the cognitive, material, organizational procedural and moral components of an army into a coherent whole. While the gap grows between the tactical action, confined in time and space, and strategic need, ever extending in time and space, so too does the potential for cognitive tension between these two realities. Military doctrine must address this gap. To be effective in the extremely complex structures of modern armies, and in very complex environments, the doctrine must have coherency, derived

### ***The lack of clear linkage between strategy, operations, doctrine and other components of the ASPP has made it difficult to develop tactical-level doctrine and measurable training standards.***

is therefore subject to the diffusing influence of independent explorations of emerging technologies, of trendy concepts that are not tied to an operational doctrine, and of political agendas.<sup>112</sup> At the same time the lack of clear linkage between strategy, operations, doctrine and other components of the ASPP has made it difficult to develop tactical-level doctrine and measurable training

from analysis of the strategic imperative and articulating of the best ways and means to achieve strategic ends. Manoeuvre warfare cannot fulfill this function.

Canadian operational and tactical level doctrines must be re-formulated and re-written to achieve coherency with current and forecast Canadian military strategy. This new doctrine

must then form the basis for the comprehensive application of doctrine in a redesigned combat development process that must succeed the ASPP. Doctrine re-formulation must dismiss the attrition-manoeuvre dichotomy and the theory of manoeuvre warfare, replacing them with general theory of warfare based upon providing Canadian Army leaders with a cognitive understanding of classical strategic thinking, an understanding of operational art, and knowledge about how these things relate to Canadian tactical actions in coalition warfare, in peacekeeping, in independent domestic operations, and in the event of larger scale conflicts requiring national mobilization. This will not be an easy formulation, for it requires that Canadian military thinkers start fresh, using counter-intuitive processes and critical observation to determine the relevancy of all theories of war, and to restrict the powerful influences of foreign writers and trendy theories.

Any rewriting of Canadian doctrine must articulate the Army's operational-level concept. This concept must address Canadian realities. It must accommodate current missions and structures, but also anticipate larger-scale mobilizations involving all the elements of national power for sustained warfare. This would set the framework for a higher cognition of a distinctly Canadian operational level. The operational level doctrine must explain the application of operational art in Canadian domestic operations. It must also educate the officer corps in classical military theories (annihilation and exhaustion strategies) and how these are manifest in US and British strategic thinking, without advocating the complete adoption of one or another. It must establish a tactical framework for force development that satisfies inter-operability but maintains relevancy to Canadian realities and potentials. This framework must reconcile the attrition-manoeuvre dichotomy, and promote balanced force development based upon the traditional Canadian all-arms teams in

both war and operations other than war. It must also frame how the army will expand through mobilization to fight the war of exhaustion that few today want to contemplate, but that history tells us we cannot ignore.

It is true that the Canadian Army does not need an independent operational concept for large-scale war fighting, since it will in such instances always act in coalition with the US or British Armies. Yet, the Canadian Army officer should be educated in

### ***... the Canadian Army is trapped by the attrition-manoeuvre dichotomy.***

the distinctly different operational concepts of the British and US armies so that tactical formations can be employed in either system with minimal disruption.

The Canadian officer's understanding of military strategy must also be broad. While it is beyond the means of the Canadian Army to independently practice annihilation it is very likely that a Canadian formation will play a limited tactical part in an annihilation operation under US or British direction. Canadians must understand the implications of this. The tempo and manoeuvre of a Canadian expeditionary brigade would be determined by higher formations, and not left to the notions of manoeuvre warfare in the minds of Canadian commanders. Conversely, the army would be negligent if it did not consider the implications of a failure in allied strategy to achieve quick victory—falling back upon a strategy of exhaustion, and the need for something other than a 'manoeuvrist approach'.

The Canadian officer should also understand the operational and strategic concepts relevant to operations other than war. While strategies of annihilation dominate US military thinking, the reality of Bosnia and Kosovo suggest that these are very much operations of exhaustion defying quick and decisive action. As such the military implication is clear – Canadian participation requires organizational depth

in order to conduct long-term rotations with minimal degradation of combat skills. Combat development that attempts to achieve sufficient organizational depth and training standards must be based upon a sound knowledge of the exigencies of limited versus unlimited warfare.

Written doctrine is of fundamental importance to the well being of an army, and to the application of a systems approach to Army force management. A new written doctrine for the Canadian Army must come from Canadian pens. It must be clearly relevant to Canadian

realities and serve as the basis for professional education about operational art. It must recognize the tactical methods of allies and provide a framework for comprehending Canadian tactics and procedures in operations of war, both small and large scale, and in operations other than war. Finally, it must be of utility to all component parts of a revamped systems-based ASPP, providing key input to combat development regarding force structure, equipment, training and subordinate doctrine, and capturing feedback from that system. If the Canadian Army cannot institute Canadian operational doctrine relevant to both strategic imperatives and the tactical actions occurring now, then the army will never achieve proficiency in operational art, and the systems approach will be denied. Presently, the Canadian Army is trapped by the attrition-manoeuvre dichotomy, worshipping Minerva and ignoring the harsh reality of Mars, in a manner no different from the former worship of *offensive à l'outrance*.<sup>113</sup> Only hard work will allow the Army to ascend out of this trap toward embracing an integrative operational level cognition, hopefully before Mars makes us aware once more of his power and wrath.



## ABOUT THE AUTHOR...

Lieutenant-Colonel Ian Hope holds an Honours BA in History from Acadia University. He is an infantry officer and has held several appointments in Princess Patricia's Canadian Light Infantry. Lieutenant-Colonel Hope is a graduate of the US Army Command and General Staff College, where he won the JC4I Writing Award and the William E. Depuy Award for his Masters Thesis, and the US Army School of Advanced Military Studies. Lieutenant-Colonel Hope has served as an exchange officer in the UK. He is currently employed in the Directorate of Land Strategic Concepts in Kingston, Ontario.

## ENDNOTES

1. Homer, *The Iliad*, trans. by Robert Fagles (New York: Penguin Books, 1990), Book 5, 34. Mars is the Roman name for the Greek god Ares – god of war.
2. Homer, *The Odyssey*, trans. by Robert Fagles (New York: Penguin Books, 1996), Book 8, 552. Minerva is the Roman name for the Greek goddess Athena – goddess of war. Fagles' translations are in modern verse making Homer accessible to those untrained in the classics. His works are clear and compelling. The introductions by Bernard Knox are alone worth the price of the books. Both Fagles and Knox claim that the finest translation of the Iliad is Alexander Pope's whose prose is unequalled.
3. This is discernible in the *Iliad*, but modern interpretations are more condemning in their simplicity; a recent example is in John Arquilla and David Ronfeldt, eds. *In Athena's Camp: Preparing for Conflict in the Information Age* (Santa Monica: RAND, 1997), p.8.
4. For a good discussion on this issue see John A. English, *Marching Through Chaos: The Descent of Armies in Theory and Practice* (Westport: Praeger, 1998), pp. 81-82. For original source see Ardent du Picq, *Battle Studies* trans. by Col J.N. Greely and Maj. R.C. Cotton (Harrisburg: Military Service Publishing Co., 1947), pp. 118-127. For commentary on First World War generalship see J.F.C. Fuller, *Generalship: Its Diseases and Their Cure* (Harrisburg: Military Service Publishing Co., 1936).
5. For definition of 'manoeuvre warfare' and 'manoeuvrist' see Canadian Forces Publication (CFP) 300-2, Land Force Volume 2 – *Land Force Tactical Doctrine*, pp. 1-7; and, the entire volume of The Army Lessons Learned Centre, *Despatches*, Vol 5. No. 1. The Canadian commitment to the 'manoeuvrist' approach is blessed in the *Land Force Strategic Direction and Guidance*, 1-2-8.
6. The entirety of paragraph 17, p. 1-9 to 1-11 of CFP 300-2 *Land Force Tactical Doctrine* is borrowed from William S. Lind's *Maneuver Warfare Handbook* (Boulder: Westview Press, 1985). Significant sections of CFP 300-1 Land Force Volume 1 – *Conduct of Land Operations – Operational Level Doctrine for the Canadian Army* (Ottawa: National Defence Publication, 1996) have been lifted word for word from both the US Army FM 100-5 *Operations* (1993) and the British Army Doctrine Publication Volume One – *Operations*. The author can say this with absolute certainty as he was one of the primary authors of CFP 300-1.
7. *The Pocket Oxford Dictionary of Current English*, Seventh Edition, ed. by R.E. Allen (Oxford: Clarendon Press, 1984); and, *Nuttall's Standard Dictionary of the English Language*, ed. by W.J. Gordon (London, Willaim Clowes & Sons, Limited, 1910). See also, *Design for Military Operations - The British Military Doctrine* (BMD) (Army Code 71451, 1989), p. 3.
8. J.F.C. Fuller, *The Foundations of the Science of War* (Leavenworth: Reprint by USACGSC Press, 1993), p. 254.
9. BMD, 3. The US Marine Corps (USMC) similarly sees doctrine as the means to convey the Corps' beliefs about war—its nature, theory, and preparation for war and its conduct. USMC doctrine does not incorporate specific tactics, techniques or procedures for battles or operations; but provides instead a conceptual basis "for harmonious actions and mutual understanding." Marine Corps Doctrine Publication 1 (MCDP 1) *Warfighting* (Washington, Department of the Navy, 1997), p. 56.
10. Canadian Forces Publication (CFP) 300-1, *The Conduct of Land*

*Operations - Operational Level Doctrine for the Canadian Army*, (Ottawa: Canadian Forces Publication, 1996), p. iii.

11. The British divide doctrine into three levels—military, operational, and tactical. Military doctrine is derived from government policy and addresses the purpose for the retention of an army, the nature of wars it envisions fighting, and how it foresees winning such wars. The function of military doctrine is to "establish the framework of understanding of the approach to warfare in order to provide the foundation for its practical application." (BMD, 3-4). Its purpose is to convey understanding not instruction. In contrast, operational doctrine applies to particular theatres and has a purpose of both understanding and instruction. Tactical doctrine is what is taught and practised.

12. The US definition of doctrine is less structured and of broader utility. The role of doctrine is to provide a statement about how the army will conduct war and operations other than war. United States Army Field Manual (FM) 100-5 *Operations* (Washington, Department of the Army, 1993), p. 1-1. Doctrine serves to facilitate communications between soldiers, and to underpin the curriculum of service schools. The tactics, techniques and procedures taught and practiced have as their common basis the overarching doctrine articulated in Field Manual (FM) 100-5 *Operations*. Beyond this, US Army doctrine is "a tool with which to coordinate the myriad activities and thinking of a complex organization...an expression of the concepts against which researchers test equipment, as well as a channel of communication with which to influence the activities and thinking of the field army." Generals Frederick Franks and Gordon Sullivan saw it as "the engine of change" (Gordon R. Sullivan & Michale V. Harper, *Hope is Not a Method* (New York: Random House, 1996), p. 10.), providing "...the intellectual structure for supporting doctrine, training, leader development and force structure decisions. It reflects the impact of strategy, technology, interservice relationships, political decisions and the capabilities the Army must possess...." US Army publication, TRADOC: *Where Tomorrow's Victories Begin* (Fort Monroe: US Army Training and Doctrine Command Publication, 1993), p. 5. The key distinction in the US definition is its explicit institutional role, far more than the conceptual role implied in European armies and in the USMC.

13. Army Strategic Planning Process (ASPP) Policy and Procedures manual (G3 Pol & Prog) August 2000. This document embodies the current Canadian Army effort at managing combat and force development. It is highly process-oriented and utilizes 'strategic' processes in a business-management context. This is very different than traditional military strategic planning and traditional combat development. While military strategic planning must be process-driven, its aim is operational plans—not combat development. Any current combat development methodology on the other hand that is strictly process-oriented—as opposed to systems-oriented, will be inherently flawed. The ASPP then is misnamed and structurally flawed.

14. This statement must be qualified to some extent because the term "operational level" has become well worn but rather nebulous. The most compelling definition of operational level and operational art are found in James J. Schneider's "Theoretical implications of Operational Art" in *On Operational Art* ed. by Clayton R. Newell and Michael D. Krause (Washington: Centre of Military History US Army, 1994), pp. 18-20. Schneider's operational art is characterized by "free distributed maneuver" in a "series of distributed battles leading to the dispersion of combat force in space and time." This is the arena of very large joint operations of war conducted simultaneously and sequentially throughout the entire depth of a theatre of operations and all united by common strategic purpose. The scope of this level and size of operations has been beyond the capacity of the Canadian Army, whose place in war has always been focused at the conduct of battles and engagements (at the tactical level). While some Canadian battles have had operational level relevance (eg. Vimy Ridge or Rimini), this in itself does not infer operational level command or experience. Canadian military strategic issues came under the umbrella of British imperial policy until 1945, and subsequently under the strategic direction of NATO. While Canadian soldiers participated in both world wars, and have been deployed on both NATO and United Nations missions since 1947, the Canadian Army has never held operational level responsibility for anything other than domestic campaigns.

15. The development of Active Defense and AirLand Battle are covered in: John L. Romjue, *From Active Defense to AirLand Battle: The Development of*

the Army Doctrine 1973-1982 (Fort Monroe, VA: The US Army Training and Doctrine Command Historical Monograph Series, 1984); or, Paul H. Herbert *Deciding What Has to be Done: General William E. DePuy and the 1976 edition of FM 100-5, Operations* (Leavenworth Papers No. 16) (Fort Leavenworth, KS: Combat Studies Institute, 1988). For information regarding the impact of Active Defense as a catalyst for institutional change see: Edward Elme Blankenhagen, *Organizational Learning in the Development of Doctrine in the US Army, 1976-1986: A Historical Case Study* (Ann Arbor: UMI Dissertation Services, 1995).

16. William S. Lind "Some Doctrinal Questions for the United States Army" *Military Review*, Vol. LVII, No. 3, March 1977 (Fort Leavenworth, KS: US Army Command and General Staff College, 1977), p. 54.

17. Robert Taft, Jr. in cooperation with Senator Gary Hart *White Paper on Defense: 1978 Edition: A Modern Military Strategy for the United States* (Washington: 15 May 1978).

18. Lind, "Some Doctrinal Questions", p. 58. Lind argues that attrition doctrine is based upon firepower and dedicated to destruction, with the aim of manoeuvre being the destruction of an enemy. His ideas on 'maneuver warfare' are clearly associated with *Blitzkrieg* - offensive operations designed to induce shock leading to an enemy's collapse. This differs somewhat from his later writing on 'maneuver warfare' wherein he associates his theory with John Boyd's famous OODA loops and is not so reliant upon large scale ground manoeuvre; see Footnote 27 below in reference to John Boyd.

19. Quote from *Ibid.*, p. 57. Lind cited only three authors in substantiation for his theory, J.F.C. Fuller, B. H. Liddell Hart and Heinz Guderian. The centrepiece of the theory is *Blitzkrieg* reincarnated.

20. See Edward N. Luttwak, "The American Style of Warfare and the Military Balance" *Survival* Vol XXI, Number 2, March/April 1979, 57; and "The Operational Level of War" *International Security*, Vol. 5, No. 3, Winter 1980/81, 61; also *Strategy: The Logic of War and Peace* (Cambridge: Harvard University Press, 1987). Luttwak was heavily influenced by German military history, referring in his early works to *Blitzkrieg* as the example of *relational-maneuver* (as opposed to attrition) warfare. He was also an advocate of German "elastic defense" theory as a model for NATO. He took this particular argument into his writing of history, using elastic defense as an example of an optimal defense strategy utilized by the Romans, see his *The Grand Strategy of the Roman Empire: From the First century A.D. to the Third* (Baltimore: Johns Hopkins University Press, 1976).

21. Luttwak, "The American Style", pp. 64-67.

22. Romjue, *From Active Defense to Airland Battle*, p. 58.

23. Manoeuvre warfare was "a favorite shibboleth of the Defense Reform Caucus" (James J. Schneider "The legacy of V.K. Triandifilov" the Introduction to *The Nature of the Operations of Modern Armies* by V.K. Triandifilov, ed. by Jacob W. Kipp (Portland: Frank Cass, 1994)), p. xxvi.). For information on the Reform Caucus see James W. Reed, "Congress and the Politics of Defense Reform" in *The Defense Reform Debate: Issues and Analysis* ed. by Asa A. Clark, Peter W. Chiarelli, Jeffrey S. McKittrick, and James W. Reed (Baltimore: Johns Hopkins University Press, 1984), p. 230. Lind's involvement in the debate was substantial and perhaps self-serving, his arguments are summarized in Sen. Gary Hart and William S. Lind, *America Can Win* (Bethesda, Md.: Alder and Alder Publishing, 1987).

24. Romju, *From Active Defense to Airland Battle*, p. 58. See also Huba Wass de Czege "Army Doctrinal Reform" in *The Defense Reform Debate: Issues and Analysis*, pp. 101-120. Wass de Czege was the Lieutenant Colonel responsible for the drafting of FM 100-5, *Operations* in 1982 encapsulating AirLand Battle, aided by Lieutenant Colonels Holder and Henriques.

25. The acceptance by the Army of the manoeuvre-attrition dichotomy as a tool to understanding is unquestionable. General Donn A. Starry used it in his forward to Richard Simpkin's *Race to the Swift: Thoughts on Twenty-First Century Warfare* (London: Brassey's Defense Publishers: 1985). The exclusion of the dichotomy and the term 'maneuver warfare' from written doctrine is more telling. That the subject was debated within Army circles is evident in Richard M. Swain's *Selected Papers of General William E. DePuy* (Fort Leavenworth, KS: Combat Studies Institute, 1994); see particularly the papers on pp. 315 and 339 arguing the need for a balancing of emphasis between firepower-maneuver and centralized-decentralized command practices.

26. James J. Schneider, "The legacy of V.K. Triandifilov" the Introduction to Triandifilov, *The Nature of the Operations of Modern Armies*, pp. xxv-xxvii.

27. William S. Lind, *Maneuver Warfare Handbook* (Boulder: Westview

Press, 1985). Lind's maneuver warfare of 1985 differs from that of his 1977 articles for its heavy reliance upon Air Force Colonel John Boyd's theory of warfare based upon time-competitive 'decision-action' cycles, the premise of which is that an army that could constantly gather information, and make and execute decisions faster than an opponent, would inevitably win. Boyd wrote very little in treatise form: his theory was first and most comprehensively articulated in a 1977 briefing entitled "Patterns of Conflict", amended in 1986. The author has reviewed these briefings, which remain unpublished. See also the monograph by Major Robert B. Polk "A Critique of the Boyd Theory - Is It Relevant to the Army?" (Fort Leavenworth: School of Advanced Military Studies, 99-00).

28. William Lind is dissatisfied with the lack of progress made in the USMC to institutionalize his theory of manoeuvre warfare. He blames institutional intransigence and not the shallowness of his own concept; see W.S. Lind "What Great Victory? What Revolution?" in the USMC's *Tactical Notebook* (May 1993). The most compelling internal condemnation of USMC doctrine is found in an unpublished monograph: Major Craig A. Tucker "False Prophets: The Myth of Maneuver Warfare and the Inadequacies of FMFM-1 Warfighting" (Fort Leavenworth: School of Advanced Military Studies, 1994). Indication of doctrinal discontent can be found in examination of Marine Corps Gazette articles relating to 'maneuver warfare' from the period 1986-1996; see for instance Kenneth F. MacKenzie "They Shoot Synchronizers Don't They?" *Marine Corps Gazette* 78 (August 1994): 30-33, and John S. Schmitt "Out of Sync With Maneuver Warfare" *Marine Corps Gazette* 78 (August 1994), 16-22. The greatest criticisms centre upon the neglect afforded to the use of firepower in the written doctrine; firepower being viewed as the antithesis of maneuver and the instrument of attrition. Traditional USMC reliance upon firepower and the proud heritage of Marine artillery and naval and air fire support add fuel to the discontent about this neglect. The other aspect of this problem is manifest in the fact that FMFM-1 did not serve the USMC adequately in efforts to organize and equip the Corps - there being no clear TTP for manoeuvre warfare upon which to base such Force management activities. The amended USMC doctrine—MDCP-1—and the new operational concept of the Corps—Operational Maneuver From the Sea—addresses the deficiencies of Lind's manoeuvre theory, and all other Marine manuals add needed structure to the USMC idea of manoeuvre warfare.

29. Brigadier Richard E. Simpkin retired from the British Army in 1971, after serving thirty years in the Royal Tank Regiment and Royal Armoured Corps. He was a technical specialist and multi-lingual translator. Upon retirement he created a commercial translation company and lectured and wrote extensively on future technologies and warfare. To his credit any personal political or self interests are not obvious in his written works. See Simpkin, *Race to the Swift*.

30. Quote from Brian Holden Reid, *Military Power: Land Warfare in Theory and Practice* (Portland: Frank Cass, 1997), p. 193. Reid claims that Simpkin's work has given manoeuvre theory a reputation of impenetrable obscurity and is less compelling to the military mind than is Lind's *Maneuver Warfare Handbook*, which has had more currency at the Army Staff College at Camberley. It would be incorrect to claim that Simpkin's theories are the exclusive basis for the *Design for Military Operations: British Military Doctrine* (London: Army Code No. 71451, 1989); J.F.C. Fuller also has a place in this seminal army publication, as does Frank Kitson with regard to explaining operations other than war.

31. A perfect example of this is to be found recently in articles by Brigadier J.B.A. Bailey MBE "Deep Battle 1914-1941: The Birth of the Modern Style of Warfare" and "The Century of Firepower" in *The British Army Review*, Number 120. Bailey refutes the very basis of manoeuvre theory without directly confronting it as theory. His base argument is that manoeuvre has received much too dominant an emphasis in modern war, and that firepower, vis-à-vis Deep Battle, is more relevant and decisive. In this he gravitates to the other pole of the attrition-maneuvre dichotomy.

32. The first article in Canadian journals was Maj C.S. Oliviero's "Manoeuvre Warfare: Smaller can be Better" *Canadian Defence Quarterly* Vol 18, No. 2 (Autumn 1988), pp. 67-72. One of the most indepth articles is Captain I. Hope's "Changing a Military Culture: Manoeuvre Warfare and a Canadian Operational Doctrine" in *Quarterly Review* Vol 5, No. 1/2 (Spring 1995), pp. 1-7.

33. This was a direct experience by the author as a primary writer for CFP 300 and CFP 300-1.

34. 'Manoeuvre warfare' is mentioned only once in these two publications, on p. 2-3 of CFP 300-1. The authors (Majors Ian Hope, PPCLI, and Brad Bergstram, Engr) deliberately chose to avoid the confusion surrounding this term. The editors concurred. The term,

however, was in use in briefings, lectures and articles throughout the army. It was only in the preparation of subsequent and subordinate doctrine publications, under different authorship, that the term 'manoeuvre warfare' was used and defined.

35. See for instance the evident controversy in articles in *The Army Doctrine and Training Bulletin*; LCol Oliviero's "Trust, Manoeuvre Warfare, Mission Command and Canada's Army" with Col W. Semiani's "The Battle Group in the Advance and Maneuver Warfare" in Vol 1, No. 1 (August 1998), 24-28, and 51-56 respectively. See also Col Semiani's "Manoeuvre Warfare and Leading from the Front", LCol. Roman J. Jarymowycz, "Doctrine and Canada's Army: seduction by Foreign Dogma: Coming to Terms with Who We Are" and "Firepower: a Primer for the New Manual" in Vol. 2, No. 3 (August 1999) as illustrative of how disparate are the views regarding manoeuvre warfare.

36. CFP 300-2, Land Force Volume 2 – *Land Force Tactical Doctrine, 1-8. The Land Force Strategic Direction and Guidance* (LFS DG) Part 1, Chapter 2, p. 8/18. Manoeuvre warfare is in fact mentioned only once in Canadian Forces Publication (CFP) 300-1 Land Force Volume 1 – *Conduct of Land Operations – Operational Level Doctrine for the Canadian Army* (Ottawa: National Defence Publication, 1996): in the footnote on p. 2-3. The authors deliberately chose to dismiss the words 'manoeuvre warfare' because the doctrine being written - while 'manoeuvrist' in inclination - deviated from that espoused by William S. Lind, Robert Leonhard and Richard Simpkin. The authors of CFP 300-2, Land Force Volume 2 – *Land Force Tactical Doctrine*, did not share the same view and liberally used the term and definitions of manoeuvre warfare favoured by these authors; see p.1-8 for the description of manoeuvre warfare referred to in the LFS DG.

37. The definition and role of doctrine has been a contentious issue in most armies throughout modern history. The broad purpose view of doctrine has become prevalent in three armies studied here—the German army 1860-1945, the Soviet Army 1920-1989, and the US Army 1976-1999. The perspective of doctrine prescribed in this thesis draws from the commonality between the use of doctrine in these three armies. There is consistency in the German's doctrinal approach between 1860 and 1945 because of the institutional place of doctrine—expressed as an operational concept (*Kriegsführung*)—within the General Staff system. This system was highly integrated, with the operational concept providing the input into national mobilization planning, and the historical section of the High Staff providing feedback for the system based upon empirical lessons learned. Integration of technologies was accommodated within the system. The mechanisms of the staff system also reviewed the organizational components critical to realizing the operational concept. For details on the organization and function of the German system see Major Theodore Schwan, *Report on the Organization of the German Army* (Office of the the Assistant Adjutant General US Army, Washington: Government Printing Office, 1894); Herbert Rosinski, *The German Army* (New York: Praeger 1966); Mathew Cooper, *The German Army 1933-1945* (London: Scarborough House, 1978); Denis Showalter, *Railroads and Rifles: Soldiers Technology and the Unification of Germany* (Hamden: Archon Press, 1986); Martin Samuels, *Command or Control* (London: Frank Cass, 1995); James S. Corum, *The Roots of Blitzkrieg* (Lawrence: University Press of Kansas, 1992); and Walter Goerlitz, *History of the German General Staff 1657-1945* (New York: Praeger, 1962). The Soviet perspective on doctrine is similar in its integrative nature, clearly presented in the conception of the "Unified Military Doctrine" of M.V. Frunze: "... A unified military doctrine is the teachings adopted in the army of a given state and establishing the nature of the organizational development of the of the nation's armed forces, the methods of troop combat training and their leadership on the basis of the views prevailing in the state concerning the nature of the military tasks confronting them and the methods of resolving these...and determined by the development level of the nation's productive forces." Quoted in M.A. Gareev, *M.V. Frunze, Military Theorist* (Washington: Pergamon-Brassey's, 1988), p. 103. This perspective on doctrine lay at the essence of the great Frunze-Trostky doctrine debates of the 1920's, from which emerged the relatively coherent and systematic approach to combat development that characterized Soviet military activity 1920-1937; see *The Evolution of Soviet Operational Art, 1927-1991: The Documentary Basis* translated by Harold S. Orenstein (London: Frank Cass, 1995). The similarity to the US Army's "systems approach" to doctrine, emphasizing doctrine as the "engine of change" will be covered later in Section IV.

38. Sun Tzu, *Art of War* translated by Ralph D. Sawyer (Boulder: Westview Press), p. 167.

39. Vegetius drew his material from ancient authorities- Cato, Celus, Frontinus and Paternus - making his a compilation of lost military doctrines from earlier times, see N.P. Milner, *Vegetius: Epitome of Military Science* (Liverpool: Liverpool University Press, 1993), xiv – xxi. See also Delbruck, *History of the Art of War, Volume II: The Barbarian Invasions* translated by Walter J. Renfro, Jr. (Lincoln: University of Nebraska Press, 1975), pp. 202-205; and Thomas R. Phillips, ed. *Roots of Strategy: the 5 Greatest Military Classics of All Time* (Harrisburg: StackPole Books, 1985), p. 67.

40. Machiavelli follows Vegetius' documentary organization: Vegetius' expositions on military service, training, drill and exercises are in his Book I, Machiavelli's same subjects are in the same order in his second book. Vegetius' Book III on tactics and generalship equates to Machiavelli's Book IV and Book V.

41. See Machiavelli Book II, *The Art of War* in the Neal Wood edition, 76-80. *Virtu* is characterized by boldness, bravery, decisiveness, and resolution—the power to sustain a course of action to the end. It is both an individual and collective quality. See also Wood commentaries, liv-lvi.

42. Barker Thomas M. *The Military Intellectual in Battle: Raimondo Montecuccoli and the Thirty Years War*. (Albany: State University of New York Press, 1975), pp. 5 and 58. Montecuccoli was an Italian-born Austrian Imperial General and the chief founder of modern Austrian Army. He developed a theory of military organization based upon a 48,000 strong combined arms standing army, well-equipped and trained for war. He devised tactics for both horse and foot, and operational method that sought always to seize the initiative. He is also accredited with articulating strategy for limited operations and wars of attrition in manner practiced in the 18th century; see Barker, pp. 60-61. But his was not strictly a primitive scientific approach, his doctrine had a moral component evident in his examination of the qualities of leadership in war: see *Makers of Modern Strategy*, p. 62; and Barker, pp. 64-71. Montecuccoli's morality is influenced by Machiavelli's *Virtu* and Lipsius' *Constantia*. Montecuccoli's emphasis upon professional military preparations is also examined in Paret, ed. *Makers of Modern Strategy*, p. 61.

43. The search for immutable laws in war became evident in the doctrinal texts. Marshal Maurice de Saxe declared in *Mes Reveries* that careful application of tactical manoeuvres and attention to logistics could 'guarantee' success. Technical writings appeared on military craft; the most noticeable by Sebastien Le Prestre de Vauban, whose works on fortification endured well into the 19th century (Engineering schools were established at Woolwich in 1721, *Ecole Militaire* in 1751, and in the Potsdam Academy of Engineering in 1768). Science and technology were becoming pervasive themes in military education in the 18th century, and Vauban had a most influential role in this; see Paret, ed. *Makers of Modern Strategy*, pp. 72-73. The first comprehensive doctrine of the modern times was probably Frederick the Great's *Instructions for His Generals*. While a prescription of standard tactics and procedures, Frederick also considers the moral aspects of doctrine particular to the strict discipline of the Prussian Army. But more than this, Instructions is unique in its expression of specific concepts of operations for future campaigns for the Prussian Army. T. R. Phillips, ed. *Roots of Strategy: The Five Greatest Military Classics of All Time* (Harrisburg: Stackpole, 1985) see Saxe "My Reveries Upon the Art of War", p. 177; and "The Instruction of Frederick the Great For his Generals, 1747", p. 301. Frederick's other works include: *Principes généraux de la guerre*, *Testament militaire*, *Elements de castametrie* et de tactique all of which by name alone describe the systematic approach being adopted at the time to all things military. In his Instructions he gave his subordinates in one volume doctrine that is coherent with his stated strategic purpose. His aim was clear: "to turn the army into an instrument of a single mind and will." Paret, ed. *Makers of Modern Strategy*, p. 99.

44. *Ibid.* Hans Delbruck claims the French revolution not only produced a new "character of the army, but also tactics, and finally strategy, and it brought on a new period in the history of the art of war." Delbruck, *History of the Art of War, Volume IV*, p. 390. But such new tactics and strategy did not rise spontaneously from the revolution: The emphasis on mobility and the divisional organization itself—things which were decisive for Napoleon—were borrowed from Guibert in his *Essai general de tactique* (1770) and his *Defense du systeme de guerre* (1779), *Ibid.*, p. 407; see also R.R. Palmer, "Frederick the Great, Guibert, Bulow: From Dynastic to National War" in Paret, ed. *Makers of Modern Strategy*, p. 91. Gribeauval gave Napoleon improved artillery. Under Napoleon the prescripts of older doctrinal texts were combined into a new and powerful system of warfare, that was not however reliant upon one written treatise, and were therefore susceptible to interpretations after Napoleon's defeat.

45. James J. Schneider, *The Structure of Strategic Revolution: Total War and*



the *Roots of Soviet Warfare State* (Novato: Presidio Press, 1994), pp. 32-53. Also by James J. Schneider; "Theoretical implications of Operational Art" in *On Operational Art* ed. by Clayton R. Newell and Michael D. Krause (Washington: Center of Military History US Army, 1994), p. 18, and; *Vulcan's Anvil* Theoretical Paper No. 4 (Leavenworth, School of Advanced Military Studies, 1991), pp. 30-32.

46. Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (Portland: Frank Cass, 1997).

47. *Ibid.*, p. 6.

48. Bertalanffy, *General System Theory*, p. xx.

49. Dietrich Dörner, *The Logic of Failure: Why Things Go Wrong and What We Can Do to Make Them Right* (New York: Metropolitan Books, 1996), p. 38.

50. Naveh, *In Pursuit*, p. 7.

51. *Ibid.*, p. 14.

52. James J. Corum, *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform* (Lawrence: University Press of Kansas, 1992), p. 137.

53. *Ibid.*, pp. 202-203.

54. Mathew Cooper, *The German Army 1933-1945* (London: Scarborough House, 1978), pp. 115-117.

55. Outside of the General Staff (disguised as the *Truppenamt*) officers did not engage in strategic speculation or politics – their professional focus was on tactical level proficiency. But strategic thinking and policy making was going on in the training and in planning activity of the *Truppenamt*. The traditional need to avoid two front wars led *Truppenamt* to consider the strategy to defeat Poland and France in operations of manoeuvre. See Corum, *Roots*, pp. 87 and 95.

56. (Corum 51, Cooper). Jeduha L. Wallach, *The Dogma of the Battle of Annihilation: The Theories of Clausewitz and Schlieffen and Their Impact on the German Conduct of Two World Wars* (Westport: Greenwood Press, 1986), pp. 210-211. Von Seeckt deviated from the traditional reliance upon mass armies: he saw two roles for the German army, a small elite strike force and a basis for the expanded army. See Corum, *Roots*, pp. 52, 55, and 69.

57. Corum, *Roots*, p. 49.

58. *Ibid.*, p. 38.

59. *Ibid.*, pp. 84 and 87.

60. *Ibid.*, p. 54; and Chapters 5 and 8.

61. *Ibid.*, pp. 122-125. Guderian has criticized heavily the German Army leadership for their apparent intransigence regarding the development of armour. In truth von Seeckt supported this development, Volckheim set up the tank training program in 1924 and von Fritsch, von Blomberg and *Truppenamt* all wanted independent tank organizations. The German Army of this period was a 'learning organization' and was committed to discovering the best utility of the tank. It was not however prepared to throw out the tradition of 'annihilation' to satisfy the armour school.

62. See Martin Van Creveld, *Fighting Power: German and US Army Performance, 1939-1945* (Westport: Greenwood Press, 1982). Van Creveld demonstrates statistically the continued effectiveness of the German Army throughout WWII. He suggests that their military system was crude in comparison to US standards, but effective. His criticism of the highly structured US Army system does not give enough credit to the fact that this structure eventually did win.

63. Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington: 1976).

64. Edward Elme Blankenhagen, *Organizational Learning in the Development of Doctrine in the US Army, 1976-1986: A Historical Case Study* (Ann Arbor: UMI Dissertation Services, 1995).

65. US Army Field Manual (FM) 100-5, *Operations* (Washington: Department of the Army, 1982), and US Army Field Manual (FM) 100-5, *Operations* (Washington: Department of the Army, 1986).

66. Most notably the Apache helicopter, MLRS, the M1 and M2 and JSTARS.

67. A succinct interpretation of the systems approach, and in particular the 'interpretation' (feedback) systems (including NTC and CALL) instituted under the Starry reforms can be found in Blankenhagen, *Organizational Learning*, pp. 102-112. See also Ann W. Chapman, *The Army's Training Revolution 1973-1990: An Overview* (Fort Monroe: US Army Training and doctrine Command, 1991).

68. See Chapman, *Training Revolution*, for background to this contention. The argument is presented in Harry Summers, *On Strategy II: A Critical Analysis of the Gulf War* (New York: Dell Publishing, 1992), Chapter 8.

69. See Daniel J. Hughes, "The Abuses of German Military History" *Military Review*, December 1986.

70. See Lind, *Handbook*, pp. 18 and 73-80. Lind relies upon three main sources in his explanations: B.H. Liddell Hart's "The man-in-the-Dark"

Theory of Infantry Tactics and the 'Expanding Torrent System of Attack' in *Journal of the Royal United Services Institute* February, 1921, p. 13; Timothy Luper's influential work *The Dynamics of Doctrine: The Changes in German Tactical Doctrine During the First World War* Leavenworth Paper No.4 (Fort Leavenworth, KS: US Army Command and General Staff College, 1981); and Department of the Army Pamphlet 20-269 *Small Unit Operations During the German Campaign in Russia* (Washington: US Army, 1953).

71. This paper distinguishes clearly between manoeuvre warfare and command philosophies that seek decentralization. They are separate concepts and not necessarily dependent. Decentralized command philosophies have always had relevance and currency in war, provided that there is cognitive understanding of the absolute requirement in some operations to maintain tight tactical control in order to achieve synchronization. Again—like manoeuvre and attrition—one must see the dichotomy for what it is—a conceptual construct—and not be a slave to one part or another. For a superb example of the institutionalization of decentralized command practices in history, and outside of the manoeuvre warfare context see J.F.C. Fuller, *Sir John Moore's System of Training* (London: Hutchison & Co., 1924). The light infantry tradition of the British Army 1745-1815 is illustrative. So too is the allowance for initiative within the Canadian Corps 1916-1918, see Bill Rawling, *Surviving Trench Warfare: Technology and the Canadian Corps, 1914-1918* (Toronto: University of Toronto Press, 1992). The emphasis placed upon decentralized command as essential to manoeuvre warfare is illustrative of the heavy German influence. The WWI innovations of the German Army institutionalized decentralization which was retained in *Army Regulation 487* and *Truppenführung*. However, decentralization of command function is, with digitization, no longer essential to manoeuvre warfare; see Robert Leonhard "Maneuver Warfare and the US Army" in *Maneuver Warfare, and Anthology*, ed. by Richard D. Hooker (Novato: Presidio, 1993), pp. 43-52; and Robert Leonhard, *The Principles of War for the Information Age* (Novato: Presidio, 1998), pp. 179-180.

72. See Hart and Lind, *America Can Win*, pp. 33-34.

73. A well-articulated criticism of the historical foundations of manoeuvre warfare theory is presented in Craig Tucker's "False Prophets", pp. 14-27.

74. Hans Delbruck, *History of the Art of War* translated by Walter J. Renfro, Jr. (Lincoln: University of Nebraska Press, 1975).

75. Delbruck, *History*, Vol I, pp. 135-139; see also Gordan A. Craig, "Delbruck: The Military Historian" in *Makers of Modern Strategy: from Machiavelli to the Nuclear Age*, ed. by Peter Paret (Princeton: Princeton University Press, 1986), p. 341. Also see: Arden Bucholtz, *Hans Delbruck and the German Military Establishment* (Iowa City: University of Iowa Press, 1985). Delbruck's interpretation of a strategic duality is founded in Carl von Clausewitz's limited and unlimited duality of war, see his note of 10 July 1827, explaining this duality, prevalent in key parts of his masterpiece, *On War*, ed. and translated by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1984), p. 69, and Book Eight, Chapters Five, Six and Seven.

76. One of the best explanations of the Delbrückian dichotomy, framed within a discussion of levels of command, war and peace, and guerrilla versus conventional operations is found in Mao Tse-Tung, *Selected Military Writings of Mao Tse-Tung*, compiled by the Combat Studies Institute (Fort Leavenworth: US Army Command and General Staff College, 1991), 142, 187, 210, 229-257. The utility of the Delbrückian dichotomy is evident here.

77. The extent of tradition in German warfare is covered in Mathew Cooper, *The German Army 1933-1945* (London: Scarborough House, 1978), pp. 133-138. The influence of Schlieffen and his predilection for annihilation is presented in Jeduha L. Wallach, *The Dogma of the Battle of Annihilation: The Theories of Clausewitz and Schlieffen and Their Impact on the German Conduct of Two World Wars* (Westport: Greenwood Press, 1986), pp. 210-211. In the 1920's von Seeckt did not deviate from the tradition of annihilation, but he was innovative in the sense that he sought annihilation by a professional army with superior technologies, and not by a mass conscript force, see James J. Corum, *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform* (Lawrence: University Press of Kansas, 1992), pp. 51-54.

78. The potential disaster associated with having to fight wars simultaneously on two fronts is a legacy from the era of Frederick the Great and has defined the German problem of national survival. Robert M. Citino in his book *The Evolution of Blitzkrieg Tactics: Germany Defends Itself Against Poland 1918-1933* (Westport: Greenwood Press, 1987) argues that The Polish threat was a catalyst for developing Blitzkrieg to solve the strategic dilemma facing Germany. James Corum considers this too simplistic stating that The French threat was also considered (see Corum, *Roots*, pp. xi and 197), however Corum's argument does not detract from

Citinos observation that the geo-strategic situation and war planning had a tremendous impact on the development of German Army capabilities. Barry Posen in his *The Sources of Military Doctrine: France Britain, and Germany Between the World Wars* (Ithaca: Cornell University Press, 1984) argues that the German Army was led to an offensive doctrine (of annihilation) because of the predominant influence of 'organizational theory', and not because of perceived geo-strategic need. Posen's arguments are addressed satisfactorily by Corum (Roots, p. 66).

79. Cooper, *The German Army*, pp. 137-138. This is explained in the German Field Service Regulations *Truppenführung* (Troop Leading) 1933, Articles 314-329, translated and reproduced by the US Army (LaCrosse, Wisconsin: Digital Production, date unknown).

80. *Truppenführung*, articles 355-371 indicate the infantry-focus and the limited extent to which the Germans in 1933 were reliant upon the tank as their main offensive weapon.

81. Corum, *Roots*, Chapter 6, pp. 122-168. The tension between the traditional and the armoured school is also covered in Shimon Naveh, *In Pursuit of Military Excellence: the Evolution of Operational Theory* (Portland: Frank Cass, 1997), Chapter 4, pp. 105-163.

82. Naveh, *Pursuit*, p. 124; see also John A. English, *A Perspective on Infantry* (New York: Praeger, 1981), pp. 95-96.

83. This is the author's interpretation based upon the premise that the *Blitzkrieg* form of maneuver warfare (the form advocated by its originators) seeks rapid decision by a 'complete' capitulation of the enemy. The role of battle and force destruction in this is secondary. Whether the enemy fights or not, whether he surrenders because of a paralyzed command structure, because of a reversal of political and military will, because of a perceived threat to civilians, because of casualties, or because of a combination of all of these things, is immaterial provided that he surrenders rapidly and decisively to the will of the attacker. An alternative point of view has arisen that argues that rapid and decisive defeat of an enemy without destruction of his forces is indeed a third form of strategy different from that of annihilation (in battle) or exhaustion: see James J. Schneider "A New Form of Warfare" in *Military Review* Vol LXXX, January-February 2000, No. 1 (Fort Leavenworth: US Army Command and General Staff College, 2000), p. 56. Naveh, *Pursuit*, p. 124; see also John A. English, *A Perspective on Infantry* (New York: Praeger, 1981), pp. 95-96.

84. Lind, *Maneuver Warfare Handbook*, p. 73.

85. Naveh, *In Pursuit*, p. 125. Manstein's plan for France May 1940 was for the concentration of armour forces to induce shock as a means to their division, encirclement and the annihilation (by destruction) of key fighting formations; shock was not an end in itself. It was only when Guderian achieved unforeseen success and saw opportunity that the tension between these two concepts emerged.

86. Naveh, *In Pursuit*, p. 150; Naveh characterizes the German enslavement to a simple tactical formula (penetration x mechanization x encirclement = destruction) as "beyond the limits of professional and human logic, attempting to satisfy the frenzied fluctuations of an incoherent strategy."

87. J.F.C. Fuller, *Armament and History* (New York: Da Capo Press, 1998), p. 148.

88. Naveh, *In Pursuit*, pp. 140-144.

89. Tucker, "False Prophets", p. 12.

90. *Ibid.* pp. 143-144.

91. This assertion will be contested by manoeuvrists. The early articulation of manoeuvre warfare introduced the concept of the operational level of war as an intermediary level between tactics and strategy. However, being slave to the attrition-manoeuve dichotomy these writers associated attrition as solely a tactical level focus and manoeuvre with a liberating operational level focus. This of course ruined any chance of finding synthesis which the operational level offers. See Edward N. Luttwak, "The Operational Level of War" *International Security*, Vol. 5, No. 3, Winter 1980/81, p. 61.

92. Shimon Naveh, *In Pursuit*, p. 15.

93. James J. Schneider's "Theoretical implications of Operational Art" in *On Operational Art*, ed. by Clayton R. Newell and Michael D. Krause (Washington: Centre of Military History US Army, 1994), pp. 18-20.

94. Naveh, *In Pursuit*, p. 1.

95. Svechin, *Strategy*, p. 68. Svechin's work was first published in 1927. The importance of the operational level linkage between politics, strategy and tactics has not always been so clear. The first modern understanding of this critical linkage was demonstrated during the later half of the US Civil War (see James Schneider "Theoretical Implications" pp. 18-19), but in the wake of that war the US reverted to tactical level thinking. At the same time

Helmuth Graf von Moltke was beginning to understand the relationship between war planning and geo-strategic realities: but he refused to codify an operational level doctrine and would not accept the disciplining of operations by politics once hostilities commenced. (See Moltke *On the Art of War: Selected Writings*, ed. by Daniel J. Hughes (Novato: Presidio, 1993) In this regard he broke from Clausewitz. His legacy remained—to the misfortune of later Germans—tactically focused. See also Donald Cranz "Understanding Change: Sigismund von Schlichting and the Operational Level of War" a School of Advanced Military Studies Monograph (Fort Leavenworth: US Army Command and General Staff College, 1989) for an examination of the rise of operational understanding in the German Army of the late 19th century. I.S. Bloch's (also Jean de Bloch) monumental work of 1898 *The Future of War* (Fort Leavenworth: Combat Studies Institute Reprint) clearly demonstrates understanding of the linkage in his argument about the purpose of industrial age warfare as a political instrument. Unfortunately European armies ignored Bloch while preparing their mobilization plans before 1914.

96. The place of attrition and manoeuvre within the strategies of annihilation and exhaustion is of some interest. Attrition is critical to both strategies—it is the means by which annihilation is achieved. Decisive battle is an attempt to utilize rapid attrition of the enemy's means to produce decision. This does not preclude manoeuvre, for it is manoeuvre that places forces in the best position for the decisive engagement. Leuctra, Cannae, and countless other decisive battles required manoeuvre to produce the attrition necessary for annihilation. Likewise attrition is necessary to strategy of exhaustion. Incremental attrition is sought through manoeuvre (to positions of advantage in relation to the enemy) and through engagement (to weaken physically and morally) an opponent. Here the effects of attrition are gradual. The European tradition of the pre-WWI era was upon strategies of annihilation, short decisive wars in the Franco-Prussian or Napoleonic image. But WWI broke the European mold. Strategies did not take into account the impact of the industrial revolution upon warfare. The inability of any side to gain decisive annihilation made each nation default to a costly war of exhaustion—unlike anything envisioned by Delbruck. Manoeuvre to decisive battle was foreclosed after the 'race to the sea', and annihilation denied. Manoeuvre in avoidance of decisive battle was likewise precluded. Attrition on an hereto unforeseen extended front was the only alternative. In the analysis of the Great War during the 1920's and 1930's most armies sought to avoid strategies of exhaustion by discovering means to re-instill mobility in war. The Soviets and the Germans both conducted profound analysis. The Soviet's was the most comprehensive, surpassing that of the Germans because it formalized the linkage of politics, strategy and tactics, producing the world's first 'unified doctrine'; see Svechin, *Strategy*, and Makhmut A. Gareev M.V., *Frunze Military Theorist* (London: Pergamon-Brassey's, 1988), p. 103. The complimentary, as opposed to contending, nature of attrition and manoeuvre in the Delbruckian duality of annihilation and exhaustion goes a long way in deflating the attrition-manoeuve dichotomy as sound basis for theory of war.

97. Svechin believed that in war preparation a 'working hypothesis' regarding which strategy was absolutely essential. The geo-political situation must determine the likely threats, which in turn defines the national goals in relation to these threats, which then allowed the political and military leaders to agree upon the appropriate military strategy—one of annihilation or exhaustion. *Ibid.*, p. 97.

98. V.K. Triandifilov, *The Nature of the Operations of Modern Armies*, ed. by Jacob W. Kipp (Portland: Frank Cass, 1994).

99. *Ibid.*, 159-179. In the preface to this work Dr. Jacob Kipp states that Triandifilov brought applied science to calculation of operations plans (p. xvii). See also James J. Schneider, *The Structure of Strategic Revolution: Total War and the Roots of the Soviet Warfare State* (Novato: Presidio Press, 1994), p. 188.

100. M. N. Tukhachevskii, *New Problems in Warfare* reprint of three chapters of authors 1931 work by the Art of War Colloquium – US Army Carlisle Barracks, 1983 (Fort Leavenworth: School of Advanced Military Studies Reprint). Also see: Richard Simpkin, *Deep Battle: The Brainchild of Marshal Tukhachevskii* (London: Brassey's Defence Publications, 1987), and Schneider, *The Structure*, pp. 218-222.

101. This is very much as Svechin had originally advocated in *Strategy*. Of course this was very much rationalized within the communist state ideology wherein total war and class struggle inherently linked, see Schneider, *The Structure*, pp. 217-218.

102. Aleksandr A. Svechin, *Strategy*, ed. by Kent D. Lee (Minneapolis: East View Publications, 1992), p. 70.

103. Mao Tse-Tung, *Selected Military Writings of Mao Tse-Tung*, compiled by

the Combat Studies Institute (Fort Leavenworth: US Army Command and General Staff College, 1991), pp. 142, 187, 210, 229-257.

104. Indeed this is exactly where Simpkin was headed in his *Race to the Swift and Deep Battle*, whereas American Reform Caucus manoeuvrists remained transfixed by Blitzkrieg.

105. Quoted from a work by Tukhachevskii (Preface to Fuller's *Reformation of War*), found in Svechin, *Strategy*, in the preface by Dr. Jacob Kipp, p. 50.

106. See B.H. Liddell Hart, *Strategy* (New York: Henry Holt & company, 1991). Compared with Delbruck's interpretation of strategy in history, and Svechin's articulation of the need for political, economic, diplomatic and military linkage in strategy, Liddell Hart's work is exceedingly simple and narrow of focus. His advocacy of 'the indirect approach' is overstated to the point of confusion. Fuller suffered somewhat similar narrowness in his advocacy of a tank only decisive manoeuvre force, see his *Armored Warfare: Lectures on F.S.R. III* (Operations Between mechanized Forces (Harrisburg: The Military Services Publishing Company, 1955).

107. Brian Holden Reid *Military Power: Land Warfare in Theory and Practice* (Portland: Frank Cass, 1997), pp. 194-195.

108. The *Land Force Strategic Direction and Guidance* (LFSDG) Part 1, Chapter 1, p. 9/9, and Chapter 2, pp. 7-9/18.

109. *Ibid.*, Part 1, Chapter 2, p. 7/18.

110. An example is in the Canadian Army's own doctrine publications; see Col Walter Semianiw's "The Battle Group in the Advance and Maneuver Warfare" *The Army Doctrine and Training Bulletin* Vol 1, No 1, August 1998.

111. This is particularly true if one envisions manoeuvre warfare in terms of M. N. Tukhachevskii's Deep Battle, see his *New Problems in Warfare* reprint of three chapters of authors 1931 work by the Art of War Colloquium – US Army Carlisle Barracks, 1983 (Fort Leavenworth: School of Advanced Military Studies Reprint). Also see: Richard Simpkin, *Deep Battle: The Brainchild of Marshal Tukhachevskii* (London: Brassey's Defence Publications, 1987).

112. The Land Force Strategic Direction and Guidance (LFSDG) Part 1, Chapter 2, p. 8/18. Here the statement is made that there is consideration of five new combat processes—shooting, sensing, shielding, commanding and supporting. This of course is not coherent with manoeuvre warfare, demonstrating the limited utility of it as doctrine or theory, and the degree to which new theories can and will pull apart any chance of coherency of doctrine within the current LFMP.

113. For a convincing analysis of Canadian military failure to appreciate higher military concepts—and the fatal results of this—see John A. English, *Failure in High Command: The Canadian Army in the Normandy Campaign* (Ottawa: The Golden Dog Press, 1995).

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# Experience in Officer Professional Development: A Pillar in Peril

by Colonel Stuart A. Beare, CD

**E**xperience is the anchor that secures professional excellence. As one of the four pillars of the Officer Professional Development System (OPDS), experience, like its education, training, and self development counterparts, must be programmed, planned and shaped to maximize an individual's development opportunities, while delivering competent and credible leaders to the Canadian Forces (CF).

The CF officer is a member of a profession that "requires a competence in its members involving continuous intensive preparation by way of education, training, self-development, and practical experience in all aspects of the modern profession of arms."<sup>1</sup> The OPDS supports the mission of the officer corps by developing the abilities of all officers to excel in command. This factor is the dominating precept that guides the conduct of OPD. The OPDS defines experience as the milieu in which training and education is contextualized, built upon, expanded, and reinforced through the repetition of practical day-to-day affairs. The OPDS further divides experience into employment, operational and command domains. Employment experience relates to the management of personnel, resources, and activities in the day-to-day affairs of the CF. Operational experience refers to the benefits gained from operational duty, be that realistic and demanding collective training or actual operations themselves. This type of experience focuses on warfighting skills and

to effectively command. Command experience can be garnered in employment and operational environments. This experience revolves around

development effort, officers will find themselves on an endless treadmill of training and education, with insufficient opportunity to command

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the accumulation of time in command positions that reinforces the ability to lead and direct subordinates. The OPDS recognizes command experience as pivotal in the development of the professional officer, but it prefaces this assertion with a warning that not all will be afforded the opportunity to command due to the limited numbers of command opportunities that the CF can provide.<sup>2</sup>

While the OPDS highlights those types of experience required to develop the professional officer and directs the training and education events supporting the application of leadership and command, it does not establish a system whereby an individual is guaranteed to acquire the requisite experience. Neither does it define how that experience is to be integrated into the developmental whole. In an era where calls for greater skills abound and where OPD initiatives demand a greater investment in schoolhouse training and education, the pressures on an individual officer's time have become enormous. The CF risks denying its officers the opportunity to gain experience because it has not

and to practice leadership and their wartime craft with their soldiers, sailors and airmen and women, in their units under realistic operational conditions.

This article argues that the CF must manage all professional development activities within the OPDS as a *system of systems*, with the experience pillar as a key element of the professional development strategy. It finds that experience is recognized as an important developmental pillar but that there exists no means to quantify or qualify its value within the OPDS as a whole. Experience is important but it is not managed in harmony with its training and education counterparts. Experience is important but it has no unified champion in its management. Experience is important but it is not resourced in balance with other PD activities. Finally, experience is important but its value is not capitalized upon through a productive learning environment supported by consistent unified individual and institutional feedback.

This article concludes that experience opportunities are critical to the development of leadership qualities and command competencies demanded today and into the future. Indeed, it is the source of the confidence and competence essential to effectively command. The essay exposes the trends in the OPD environment that are impinging upon

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competencies. It is impossible to replicate elsewhere and has profound implications on an individual's capacity

established a means to balance training and education demands with essential experience needs. Without a balanced

opportunities for valuable experience and highlights potential consequences. It makes the case for experience as the most critical activity on the road to professional competence and argues the need for a policy to manage experience within the system of OPD. Finally, the essay presents elements of the framework necessary to ensure that experience becomes a truly developmental event that benefits both the individual and the CF as a whole.

## THE DEMAND FOR NEW SKILLS

There is a plethora of material calling for new leader skills for military professionals in the 21st century. Vision 2020 tells us that the full spectrum demands and tactical-strategic compression of operations that characterized the 1990s will continue to prevail. Operations will include an integrated civil-military dimension at the tactical level and combatants will present themselves in military and non-military forms.<sup>3</sup> Lieutenant-General Dallaire writes that classic warfare skills are not enough to meet contemporary and future needs and that officers must expand their skills to include a whole new lexicon of action verbs to deal with those operations our government is likely to send us to conduct. Multi-agency teambuilding, cultural awareness, and superior communications skills are some of the new tools he argues that are needed.<sup>4</sup>

As expressed in General Krulak's Three Block War, "the inescapable lesson of ... recent operations, whether humanitarian assistance, peacekeeping, or traditional warfighting, is that their outcome may hinge on decisions made by small unit leaders and by actions taken at the lowest level".<sup>5</sup> This increased level of small unit responsibility and authority requires superior reasoning and decision-making skills at the lowest levels. These factors demand the early development of the meta-cognitive attributes essential to dealing effectively with those complex scenarios characterized by General Krulak.

Over the past decade, Canada's military has had its share of growing pains and lessons learned in dealing with such hot spots as Somalia, the

former Yugoslavia, Rwanda, Haiti, and Kosovo. There has been a fairly universal acknowledgement of some of the CF's significant tactical successes. However, leadership shortcomings and a public, as well as internal scrutiny into the inner workings of the CF has caused the Forces to identify the need to regain the initiative in developing leaders for today, tomorrow and the future.<sup>6</sup> The Chief of the Defence Staff (CDS), on reflecting on the demands of the last decade, has found that part of the officer corps was broken and that relying on "experience in and of itself was not enough".<sup>7</sup> In this light, in 1999, General Baril directed Lieutenant-General Dallaire to articulate the deficiencies and requirements in leadership skills of the officer corps considered necessary to complement the CF's vision for 2020. With this mandate, an OPD 2020 team was formed and a departmental strategy developed to "articulate the foundation for the reform – intellectual, moral and professional – of the CF officer corps with the anticipated needs of 2020 in mind".<sup>8</sup>

## THE STRATEGY FOR OFFICER PROFESSIONAL DEVELOPMENT

The OPDS is a mature system that acknowledges the need to integrate the four PD pillars to deliver competent and confident leaders at all levels of the CF. It describes education as the cornerstone of the system and as the determining factor in subsequent employment, training, and education. The training pillar focuses on individual training related to the needs of the CF, individual environments and branches and trades as prescribed in qualification specifications (QS). Experience is motivated to develop leadership and command abilities through practical application of knowledge and skills. Self-development is left to the individual to conduct based on one's own goals and self-motivation.

Leader skills and qualities are developed through four development periods (DP). DP 1 focuses on preparing the officer for first

employment and delivers junior officers to field forces, largely through training and education programmes. DP 2 deals with junior officer development, primarily with an environmental and

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occupational focus. The DP 2 strategy is to develop skills largely through employment experience and supporting training. Career managers, on behalf of the environmental chiefs of staff (ECSs), manage the officer's key training and employment opportunities. DP 3 introduces majors and lieutenant-colonels to joint and combined expertise, prepares them for sub-unit and unit command and does so principally on the strength of education and training. At this stage career management begins to become more centralized, in particular with regard to commanding officer and joint staff appointments. Finally, colonels and generals are developed through professional military education and centrally controlled employment experience during DP 4.<sup>9</sup>

OPDS management is led by a CF level OPD Council under the CDS, who is the departmental authority for OPD. Assistant Deputy Minister Human Resources Military (ADM [HR-Mil]) provides policy and guidance, the managing authorities include the ECSs and ADM (HR-Mil), and Commander Canadian Forces Recruiting, Education and Training System (CFRETS) acts as the system manager and advisor to the OPD Council.<sup>10</sup> While the OPD system document identifies the need to balance the development pillars, it provides no guidance on how this is to be achieved. ADM (HR-Mil) is mandated to operate the OPDS as an integrated whole and ECSs are mandated to deliver their part of the system and to monitor quality assurance. The system manager, Commander CFRETS, is a line commander as well as a coordinator, and is responsible for the delivery of the CF centralized training and education component

(and institutions) on which the environments depend. Consequently, the system manager's products, including the OPDS document and its supporting working group reports, focus the vast majority of their effort on directing training and education objectives. They have a "courses completed" vice "competency demonstrated" approach to career progression, and provide no detailed guidance on how to deal with employment

21st Century places the successful implementation of the programme largely on the shoulders of the generals and flag officers. It directs them to ensure that the appropriate "emphasis and institutional support (is) placed on the importance of officers attaining the requisite experience and education required to fulfil their duties and responsibilities and to be given the opportunity of learning and improvement."<sup>13</sup> Giving this responsibility to the general and flag officer as a whole is so wide a mandate as to be no mandate at all. Like the OPDS, OPD 2020 does not provide

the framework needed to direct and choreograph the balance between experience and the three other development pillars.

#### AN ALTERNATIVE VIEW

Whether an organization will realize the full potential of its leadership is a leadership issue.<sup>14</sup>

Criticisms of the OPD Systems and OPD 2020 do not diminish what they have achieved and are intended to achieve. Indeed, few western OPDS have been able to find the correct marriage between experience and training and education. The US has come closest to the mark by building a doctrine-based system guiding all players involved in the OPD process. The US Army recognizes three pillars that link military values to leader development objectives: institutional training and education, operational assignments, and self-development.<sup>15</sup> Training and education provide the theoretical basis for learning while operational assignments provide the venue to turn theory into practice and to evolve ideas into realities. The US Army promotes operational experience as the means to acquire and demonstrate the confidence and competence required for more complex and higher assignments. Leader doctrine mandates the chain of command to develop their subordinates, on the job, by offering challenging assignments, providing critical assessments, and by coaching and developing them in the application of their skills.<sup>16</sup>

The US Army leader development system (as described in Department of the Army 350-58, Leader Development for America's Army) functions on two principles: the need to properly sequence training/education, operational assignments and self development opportunities, and the establishment of progressive and sequential career development models. Of their system's twelve imperatives, three deal directly with experience. These include the need to provide the critical experiences needed for the future, the need to resource and conduct unit and formation collective training opportunities to generate unit-based learning experiences, and the assignment of leaders based on leader development priorities and needs—not fair share or fill the hole arrangements. US doctrine claims quite clearly that "leaders ... develop over time through a carefully designed progression of schools, job experiences, and individual initiated activities ... where a continuing cycle of education and training, experience, assessment, feedback and reinforcement and remediation occurs."<sup>17</sup> As well, during the process, the US doctrine places responsibility for leader development equally at the feet of the leaders of the education and training system, the chain of command, and the leaders themselves. When unfolding the American system, a progressive path is evident that links specific types of work place, command and operational experiences amongst training and education events. This path is supported by clear policies and guidelines that speak to the flow between the developmental pillars and the conditions within each, in particular the job experiences that must be met to generate the necessary developmental opportunities.<sup>18</sup>

The British and Australian armies are attempting to create PD systems that effectively integrate experience with training and education. The most interesting is that of the Australian officer corps where the focus is on *effectiveness* as the end state vice *development* which is the means to achieve it. The Australian Army Officer Professional Effectiveness strategy seeks "to enhance the Army's effectiveness while providing more satisfying careers for its officers".<sup>19</sup> From the Australian perspective, this initiative focuses on

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experience.<sup>11</sup> This integration does occur within branches and environments, between career managers, commanding officers and the ECSs, however, this approach fails to address the requisite balance of an individual officer's time in each of the development pillars. As a result, when new demands for professional development resources are being considered, there is no forum to reconcile needs across the full spectrum and to prioritize development activities for the system as a whole.

Those involved in the OPDS have done yeoman's service to develop it this far. They are now being further challenged to evolve the system to meet the demands of the CF vision for 2020. OPD 2020, as described earlier, recognizes in its vision statement the need to balance the pillars and to provide for individual development through flexible delivery and dynamic learning strategies such as mentoring while on the job. The document refers repeatedly to the need to create unprecedented levels of skill and knowledge in the future officer corps through continuing education and practical experience and directs the OPDS to ensure balance between the four supporting pillars. Like the OPDS, however, OPD 2020 initiatives are predominantly training and education centric. Indeed, the programme's key initiatives relating to governance and implementation are entirely education focussed.<sup>12</sup> Canadian Officership in the

the degree to which the officer contributes to their country's warfighting capability. It depends on how work and careers are managed to support both *institutional and individual* goals, and is as much about increasing *opportunities to use the officer's abilities* as about the abilities per se.

While Australian DPs are markedly similar to those of the CF, they are highly employment focussed with the thrust of training and education being enablers to employment opportunities. DP 2 focuses on leading troops in combat-related functions. DP 3 recognizes that some will command and some will not, and provides opportunities for career specialization (command or staff streams). Finally, DP 4 supports senior tactical command appointees (for those who are command selected) while developing strategic level leaders for employment where they can make the best contribution.<sup>20</sup> Clear guidelines and direction on employment (time and conditions) underwrite the entire strategy at each development phase. For example, officers will spend a minimum of six years in the rank of captain and senior officers a minimum of two to five years of tenure in executive appointments. Unlike the development-focused Canadian system, the Australian view focuses both on developing and using the talents and skills developed over time, and does not seek to shoehorn all officers into the same mold. In their own words, the Australian Army Officer Professional Effectiveness programme will "deliver improved officer effectiveness and organizational effectiveness through increased focus on strategic leadership, greater specialization and longer job tenure".<sup>21</sup>

## THE CASE FOR EXPERIENCE

Out of the unusual application to duty comes the power to lead others in the doing of it.<sup>22</sup>

General S.L.A. Marshall

The need to make a case for experience to those charged with PD responsibilities would be about as necessary as having to convince Smoky the Bear not to play with matches. In a perfect world where one could have

all things, time for training, quality education, an abundance of employment opportunities, and time for reflection and self-study, this would indeed be the case. However, as evidenced by demands for new skills and the increased breadth of professional competencies required, the pillars of training, education and experience, let alone self-development, are competing for ever diminishing resources, in particular, time.

## The Anecdotal Case for the Experience Pillar

Constant practise leads to brisk, precise and reliable leadership.<sup>23</sup>

Successful commanders and historians have contributed directly and indirectly to the case for experience, however, this contribution has largely been anecdotal. The historian's pre-occupation has normally been with the events of wars themselves while relatively little is written on the details of training and developments that preceded them.<sup>24</sup> This hopefully will not diminish the strength of their observations on the subject.

In his dissertation on Training for Uncertainty, Hodges postulates that leaders need to develop intuitive and creative skills to deal with operational decision-making. In his research he referred to two renowned Wehrmacht officers who pointed to self-confidence as an essential attribute for battle leadership. To them, self-confidence is the "wellspring from which flows his (the leader's) willingness to assume responsibility and exercise his initiative".<sup>25</sup> As proffered by General Dubik, it is experience and practise that provide leaders with the skills, self-confidence, and mental flexibility they need to make decisions and use their initiative in battle.<sup>26</sup> Experience is critical to developing the ability to lead effectively in the face of uncertainty.

A study of Patton as an innovator in information operations concludes that successful commanders possess an intuition that enables them to be at the right place at the right time of battle to exert his/her personal force to

influence the outcome. Nowowiejski asks rhetorically how a commander gains the qualities of adaptability, intuition and imagination their positions require and concludes that experience gained through education and employment are the most likely sources to enhance these qualities. He concludes that "certainly no one is born with them (qualities) because intuition alone is a quality that can only be developed by experience. Intuition is the ability to form the remaining elements of experience from a partially completed mental picture, based upon seeing the elements of the completed picture before. A wealth of experience makes the elements of the picture more easily recognizable."<sup>27</sup> Peter Senge supports this notion by identifying the subconscious as the vehicle that assimilates hundreds of feedback mechanisms simultaneously, allowing the mind to integrate detail and dynamic complexity together. Senge concludes that "this is why practise is so important, for any meaningful interplay of conscious and subconscious, practise is essential. Conceptual learning is not enough."<sup>28</sup>

In his research into *Tactical Intuition*, Major Brian Reinwald found three common traits among the many descriptions of intuition: the phenomena of unconscious thought, a heavy reliance on experience-based knowledge, and a comprehensive

## Leaders need to develop intuitive and creative skills to deal with operational decision-making.

unrestrained thought process.<sup>29</sup> He found a strong correlation between a commander's intuition and tactical combat success and offered that "in peace it (intuition) is trivial ... in war the lifeblood of command decision and the precursor of victory."<sup>30</sup> As presented by Nowowiejski, Patton developed, through aggressive self-study and application in operations, a uniquely keen level of vision and intuition that guided him successfully throughout his commands.<sup>31</sup> According to Nye in *The Patton Mind*, the source

of Patton's genius was in his library *and* on-the-job learning, rather than the school system.<sup>32</sup> Repetitive troop assignments, demanding and realistic training, a substantive and concentrated professional military education (PME) and broad personal education are determining factors in developing intuition.<sup>33</sup>

Following two years of commanding the US Army's opposing force (OPFOR—a Soviet-styled regiment used to fight force on force contests against US Army formations at their National Training Center), Colonel James E. Zenol concluded that experience was his best teacher and was the “most efficient lubricant to overcome the friction of war”. Short of war, he states, “repetitive, tough, realistic training is the best way to build in commanders the skills of battle command.”<sup>34</sup> General Frederick M. Franks attributes the US Army's transformation and success in the Gulf War to the inculcation of a common doctrine and the soldiers' and their leaders' battle experiences earned during repeated drilling through the Combat Training Centers (CTC) against the likes of James Zenol's OPFOR.<sup>35</sup> Based on his personal experiences in CTCs, commanding VII Corps, and in Vietnam, General Franks knew that despite the wide range of communication systems available to him, his place in the Gulf War was forward. He dealt face-to-face with his subordinate commanders to ensure they had a common feel for the battle and the way ahead. Less than 50% of his command was exercised over technical means.<sup>36</sup> Like Patton before him, Franks' experience guided his intuition in battle command.

In a study on the creation of battle commanders, Reisweber remarks that battle command, like operational art, is “difficult ... to define, although most would know it when they see it.”<sup>37</sup> In US terms, battle command is the expert ability to see the battlefield, visualize an end-state, and communicate intent to make the end-state a reality. There is ample evidence, Reisweber writes, “to suggest that battle command skills are a

function of not only raw talent, but years of practice, experience and maturation.”<sup>38</sup> The qualities necessary to practise battle command are cognitive complexity (the ability to deal with relational complexity, see in the abstract, and make decisions) and behavioural complexity (the ability to perform, communicate and influence others to do). While their principles can be taught, it is the assignment to challenging duties and work roles requiring an upward revision of thinking, envisioning and behaviour that is critical to their development.<sup>39</sup> General George C. Marshall wrote that high-level thinking skills were developed through extensive experience solving many different types of problems and being in a position to make clear decisions.<sup>40</sup> Experience,

### ***Success is going from failure to failure without ... loss of enthusiasm.***

supported by an educational foundation, is critical to the development of cognitive and behavioural complexity.

A rare study on combat command was conducted to determine the consequences of experienced versus inexperienced leadership during the battles of the Chosin reservoir in Korea in 1950.<sup>41</sup> In Kirkland's research on the subject, he discovered that all of the US Marine division and regimental commanders had commanded in combat during WWII; however, 79% of their Army counterparts had no such experience. During the ensuing operations at that time, the US Marines managed to fight their way out of the Chinese encirclement while the Army units were defeated or their cohesion destroyed. Kirkland concluded that the knowledge that came from experience was directly useful in solving the practical problems of battle, in particular during periods of severe situational and environmental stress. During this campaign, the indirect benefit of experience was the confidence of leaders to stand-up to superiors and authorities and to exercise the moral authority to make

arguments effecting successful combat operations stick. As this situation demonstrated, there is no time to train combat commanders to be effective after hostilities begin. Experience is a determining factor in developing leaders who are confident and competent in their knowledge and abilities.

On the role of peacetime leadership in developing wartime commanders, Major Daniel Roper noted that exceptional leaders did not simply appear on battlefields but that they develop over years of work, laborious efforts and preparations to be ready for those few critical moments in combat.<sup>42</sup> He recounts how a US Military Academy report found that the most salient predictor of a successful combat commander was successful peacetime command, particularly at the unit level. This experience, however, had to be shaped in an environment of decision-making under pressure if it was to be deemed a contribution to an individual's development. Commanders could fail in tasks and deeds while still being successful in their professional development needs. Churchill himself was a proponent of experience and considered the lessons he learned from his mistakes as instrumental to his success as a leader in war. In his own words he proclaimed: “success is going from failure to failure without ... loss of enthusiasm”.<sup>43</sup>

The final note on what could be a pleasant but unending journey on the anecdotal case for experience will be left to a more junior member of the officer team. Captain Robert A. Jones, USMC writes: “No professional military education, sand table drill, or battle study will teach a company commander the lessons he will internalize after conducting a fully supported live fire run on Range 400 at Twentynine Palms or going full tilt for a week in a free-play exercise like BATTLE GRIFFIN. Standing around a TacWar board ... simply does not replicate the physical discomfort, counterproductive stimuli, sleep deprivation, and uncertainty that can



influence decision-making.”<sup>44</sup>

On an anecdotal basis, then, the obvious value of experience can be tied to the qualities and skills demanded of contemporary and future leaders. Confidence, cognitive and behavioural complexity, intuition, leadership in the face of uncertainty, and professional competence are just some of the attributes that can be honed only through experience, experience that must be garnered before leaders command soldiers, sailors and airmen and women in battle.

### A Case for Experience— The Researchers’ View

If you really want to learn to do your work—go to the line.<sup>45</sup>

Ardant du Picq

There does not exist a plethora of research on the value of experience versus other developmental means, however some have attempted to look at the subject from a scientific perspective. In 1996, Stephen Zaccaro, a member of the US Army Research Institute for the Behavioral and Social Sciences, published a comprehensive dissertation on the Models and Theories of Executive Leadership with a view to discovering the determinants for successful senior and executive level leadership. The report substantiated our earlier anecdotal conclusions on the qualities and characteristics required: conceptual complexity, behavioural complexity, strategic decision-making, and visionary or inspirational leadership.<sup>46</sup> In his investigation of a number of conceptual leadership models that support the formulation and demonstration of these qualities, Zaccaro touched on the subject of developmental requirements and offered some useful contributions to the experience dimension. He found, like Churchill before him, that *cognitive complexity* could not be developed purely from study, but that individuals need to experience failure in the real world in order to expand their intellectual horizons and develop new ways of thinking. According to Zaccaro, this can only be achieved through planned assignments to more and more challenging work roles, where a mentor



What is important in the development of officers? (Courtesy National Archives of Canada)

is available to assist the leader in the more complicated environment in which he/she is working.<sup>47</sup> Theorists challenge as well the effectiveness of changing *behaviour* through education when the operating environment is so likely to be different from the training domain. They conclude that behaviour is best developed through work related experience, a supportive work environment and constructive reflection on that experience.<sup>48</sup>

*Visionary leadership*, otherwise referred to as transformational leadership, is based on a lifetime of contributions that include: learning how to deal with one’s emotions; reflection on previous leadership opportunities and experiences; the willingness and actual engagement in developmental activities; and an attitude wherein the leader regards experiences as learning events and reflects on them as such. Zaccaro’s research finds that the principles of transformational leadership can be taught, but that its results must be realized in practice.<sup>49</sup>

Zaccaro’s research offers the thought that effective senior executive development requires “training and practice that push the leader to the limits of his/her retained schemes and ways of behaving; (for) when these

are inadequate those who succeed do so by developing new schemes and behavioural patterns.”<sup>50</sup> Not to leave us guessing on how training and practice experiences can be structured, he refers to the work of several behavioural scientists to proffer five types of employment experience that can generate this learning environment. These include the assignment to jobs that deal with: transitioning the leader (adding pressure to the leader by assigning them unfamiliar responsibilities); creating change (the leader is responsible for significant portions of institutional change); high levels of responsibility (including dealing with high stakes, job overload, handling external pressure); nonauthority relationships (success depends on getting the job done without the explicit authority to carry it out); and obstacles (such as adverse business conditions, lack of top-down and personnel support and even working with a difficult boss).<sup>51</sup> One can legitimately claim that these conditions reflect an average day in the life of the Canadian staff officer; however, their successful application relies upon the fact that they are prescribed for developmental purposes. Moreover, the leader must be supported by a mentoring approach that fosters introspection, feedback and mechanisms to register the value of the learning experience.

While not targeted to deal with the tension between experience and education demands, Zaccaro's work does offer clues on their preferred relationship. With respect to the levels of development, he concludes that junior level development is highly experienced based, while senior development, given a solid junior level foundation, is more influenced by school-based education and training supported by employment to shape new conceptual skills.<sup>52</sup> Bass, in Transformational Leadership, supports the notion of junior level experience and found that relevant previous experience added 20% to the prediction of effective performance of company commanders in the US Army.<sup>53</sup> While it has been proven that schooling can be mind broadening, it does not typically have an impact on conceptual capacity. Schooling does, however, facilitate the requisite conceptual shifts and, when paired with associated experiences, allows their practice to become embedded qualities. If Zaccaro contributes any one thought on this subject it is the conclusion that education and experience pillars need to be integrated and nurtured as a system of systems.<sup>54</sup>

Perhaps the seminal piece on experience in professional development is that produced by Morgan McCall in his book *High Flyers: Developing the Next Generation of Leaders*. McCall reinforces Zaccaro's conclusions and offers advice on how experience-based development can be achieved within an organization. He places the responsibility for professional development squarely at the feet of line managers (the chain of command) and proffers that "the primary classroom for developing leader skills is on-the-job experience and that this critical resource is controlled by line (officers) ... not by staff."<sup>55</sup> He writes that allowing a "survival of the fittest" approach to senior executive development eats at an organization's seed corn and can be potentially wasteful of talent.<sup>56</sup> It is not necessary to repeat his case for the

merits of executive development, however, it is worthy to note that his model for developing executives focuses on programmed assignments as the object of PD. In order for the experience pillar to be effective, however, coaching, mentoring and a business strategy that sees developed leaders, vice products, as its outputs must support it.<sup>57</sup> McCall's greatest contribution to this discussion is on the requirements of an experience-based leader development model.<sup>58</sup> We will return to this point when exploring PD policies later in this essay.

As presented earlier, the merits of experience-based learning remain self-evident. It is particularly important to return to its value and balance with

***the effects of operational demands  
and limited resources are leading to  
a potential crisis in the maintenance  
of tactical excellence across the  
spectrum of conflict.***

other PD demands when this pillar is threatened. Is the CF in a potential experience crisis? While there is no empirical data to conclude one way or the other, trends in other militaries that share the same strategic pressures as the CF, as well as a subjective look at our own trends are instructive on this matter.

### The Erosion of Experience

An army requires leaders who have the firmness of decision of command proceeding from habit.<sup>59</sup>

Ardant du Picq

In a US Army study on training needs assessments for battalion commanders, Steven Stewart discovered that during the late 1980s, brigade commanders found their subordinate commanding officers' greatest weaknesses to be technical and tactical competence and their capacity to delegate and take risks.<sup>60</sup> They described successful commanders as those who were able to let go, a capacity related to the individual's emotional maturity and

development. Most interestingly, however, is the report's conclusion that the foundation for this competence is a solid basis of collective training, balanced with individual training, and that collective training, was competing in time and effort with other developmental vehicles.<sup>61</sup>

Concerned with US Army commander claims of an eventual degradation in the tactical competence of future leaders, US Army Forces Command sponsored a RAND study to reveal changes to the experience base of the US Army officer corps. Their 1999 report reflected the concerns of many whom had a stake in US Army effectiveness. From Congress' perspective: "we are developing a breed of commanders who are less and less experienced at doing their thing than they ever were before."<sup>62</sup> The Secretary of the Army was concerned over the fact that the US Army could be eating away at the seed corn of a competent warfighting force. He expressed his feelings this way: "because junior officers no longer execute the full training strategy, they will lack the necessary experience when they are battalion and brigade commanders in the future."<sup>63</sup>

With these perceptions in mind, RAND researchers conducted a wide ranging review of the US Army approach to OPD and focussed in on the experience trends of the decade since the Gulf War. They reported favorably on the US approach to PD while pointing out the inseparable linkages between education, training and employment experience. They reinforced the point that education provides the what and why, while on-the-job experience provides the how—the how knowledge being tacit and a factor that increases with experience in a given domain.<sup>64</sup> They found through their interviews that subordinates' attitudes and perceptions rather than leader behaviour were the determining factors in a unit's performance. Soldiers' attitudes were most influenced by trust

between the leaders and followers, and that *trust was based on the leaders tactical expertise*, a quality that, when lives are on the line, is “crucial to unit integrity and faithful execution of directives.”<sup>65</sup>

While the balance of the RAND report supports the earlier conclusions of our behavioural scientists, its findings on the growing unit-level experience gap are the most instructive. RAND researchers found that there has been a significant decline in US Army unit-level opportunities to practice their skills in operational settings. They attribute this phenomenon to the demands of contemporary operational tempo, lower rates of unit training, and changing career patterns. Were the required leader skills from 1990 to 1999 to have remained unchanged, the researchers would have offered a form of quantifiable “delta” to the resulting levels of leader expertise. As they discovered, however, demands in leader qualities and skills have increased, and they can only report on the fact that there is a growing skill gap that cannot be quantified.<sup>66</sup> They conclude that the tactical competence of the officer corps rests on bolstering the oversight of the conduct of unit assignments and establishing feedback mechanisms to develop individual and collective competencies. Although the RAND report dealt uniquely with the tactical level within an Army context, its conclusions can apply to the experience pillar as a whole and the relationship to other development pillars as well.<sup>67</sup> A more thorough understanding of the developmental value of unit (employment) time would certainly improve judgements about any required changes to the OPDS as a whole and permit informed decisions on the relative balance of effort between its supporting pillars.

Lieutenant General Holder of Gulf War fame provides the most succinct assessment of the state of expertise being generated by the US Army today. He notes that schooling paints all officers with a light tactical brush but “does not develop intuitive commanders with advanced tactical understanding firmly grounded in the art of war.” He observes that leaders in combat will have the same

amount of battlefield vision as they have warfighting expertise, and that the US Army’s current leader development programme focuses on developing competent and confident leaders—not warfighting experts.<sup>68</sup>

The US experiences described here are analogous to the Canadian reality. Strategic and operational conditions over the 1990s have been similar and the effects of operational demands and limited resources are leading to a potential crisis in the maintenance of tactical excellence across the spectrum of conflict. Indeed, the current drive to reform the OPDS through new initiatives such as the DP 1 enhanced leadership model (ELM), a new approach to delivering DP 3 command and staff training, and the potential to lengthen DP 4 to a year long National Securities Study Course are all adding tension to the education versus experience balance. To illustrate the point, DP 1 will grow from an average of 47 to 77 weeks, thus compressing the DP 2 window to 11.5 years from an average of 14 years. For the Army, the combined DP 2 and 3 course load grows to 58 weeks from 55 and the fallout of DP 3 and 4 developments has yet to be entirely factored into the equation. When demands for a degreed and bilingual officer corps and post-graduate education for senior officers are added onto the bill, the balance of career time remaining available for employment experience becomes even more constrained.<sup>69</sup> The issue here is not the recognized need for these qualification specifications based on professional military education opportunities. The issue is that the OPD model and its management framework provide no vehicle to quantify the balance of training and education time versus employment experience, nor do they qualify the relative merits of these separate but interdependent pillars. Without this holistic perspective, education and training demands will continue to be over represented by the centralized training and education delivery staffs (who represent the systems manager team) while the case for experience-based OPD suffers from a lack of visibility and unified approach at the OPD Council level.

The case for employment-based experience remains as solid as ever before. Indeed, in a world where conflict resolution requires near-immediate readiness, we cannot depend on long mobilization periods to inculcate leaders with the experience their competencies demand. The OPDS must remain vigilant of the demonstrated balance between experience and its supporting developmental pillars. Unprogrammed and unguided experience, however, does not add a lot of value to the professional development process. Like its training and education counterparts, experience must have a focus, be regulated and integrated into the PD whole. Unlike training and education, the development and management of experience opportunities is almost entirely a chain of command issue, not a training or education system issue. In this light, let us turn to exploring the elements of an OPD policy that embeds experience into the PD whole.

## AN EXPERIENCED-BASED OPD POLICY AND ENVIRONMENT

### A Framework Policy on Experience

Commanders ... are to be guided by their own experience or genius ... generalship is only acquired by experience and the study of the campaign of the great captains.<sup>70</sup>

Napoleon

McCall has formulated a model for successful employment-based development. In *High Flyers* he describes the optimal solution for leader development as one that is based on the conscious and systematic development of talent. First, a clear statement of strategic aims including development as a priority, acceptance of risk, establishment of work opportunities for an experience base, and willing senior-level participation must lead policy. Second, experience opportunities must be linked to strategic objectives, they must be defined in terms of what is available and what they teach, and the organization must identify what it can generate internally as well as what must be

generated by other means. Third, the model must seek to assess talent as it relates to potential senior level ability. In particular there must be the early identification of a leader's ability to learn from experience, the integration of an individual's development objectives into annual assessments, and a corporate ability to monitor an individual's development over time.<sup>71</sup> A comparison of these attributes against the current OPDS, OPD 2020 and the Canadian Forces Personnel Assessment

the leader, and a certain amount of sponsorship and protection by the sponsor. Psychosocial mentoring focuses on role modeling, counseling, and a degree of friendship between the mentor and his/her mentored.<sup>75</sup> Successful mentoring is conducted outside of the chain of command, and mentors are schooled in how to perform this highly influential duty.<sup>76</sup> By the nature of the activity, mentoring may seem to violate institutional command and control assumptions. If

assessment framework for promotion decisions (he estimates that at least 20% of commanders are failures in their appointments; however, these may remain undetected in the contemporary top down assessment framework).<sup>78</sup>

As pointed out in the US Army's training needs assessment, outside of actual combat, collective training provides the most challenging developmental environment and should be the focus of operational leader development.<sup>79</sup> Collective training must be integrated within the experience pillar in a quantitative form (time and events) that permits

some means of qualifying (skills and competence) the progression of the individual concerned. The contemporary unit employment record is a manual system that fails to provide an objective or even qualitative view of collective training events. The Army's draft of CFP 308, Training Canada's Army, is taking the first steps towards integrating the management of unit individual and collective training and their integration with operational tasks. On the other hand, doctrine has yet to answer the question of how an individual's development is managed within this view of collective capabilities, or how the training and operational cycles can be integrated with the education pillar.<sup>80</sup>

Training doctrine has much to do with maximizing the developmental value of collective training events. Here again, CFP 308 makes progress by demanding a progressive approach to training events, a clear progression through preparation to planning and execution and the mandatory evaluation and after-action-review (AAR) process that drives the lessons home. In *Hope Is Not A Method*, General Sullivan touts the AAR as the single most substantial development in the US Army collective training methodology. The AAR is not a critique. It is, however, a means to establish success or failure. As he writes: "In the AAR process, the establishment of success or failure, sometimes in a very precise (and painful) way, is only a tool with which to learn."<sup>81</sup>

## ***Training doctrine has much to do with maximizing the developmental value of collective training events.***

System (CFPAS) indicates that a majority of these elements exists in one form or another within the OPD and personnel management systems. They are not, however, tied together in a policy or management framework that links them in the manner suggested by McCall.

McCall's model, by his own admission, must be supported within an environment where lessons are driven home through self-reflection, assessment, coaching and mentoring. Much has been written on mentoring and coaching, however within the CF there is little in terms of definition of these activities, nor who should perform them and how. Coaching has been defined as a superior to subordinate activity that focuses on the here and now feedback on a subordinate's performance and development.<sup>72</sup> The CFPAS provides the basis for coaching through the quarterly personnel development reviews (PDRs) and clearly establishes coaching as a chain of command responsibility. The application of this responsibility remains personality based and is unlikely to achieve consistent results without clear inculcation of coaching skills within the community of leaders.<sup>73</sup>

Mentoring, on the other hand, is a "process used to develop the thinking skills and frames of reference for the sequential and progressive development of the leader."<sup>74</sup> Most mentoring relationships have a career and psychosocial basis. Career mentoring focuses on the provision of challenging assignments, exposure and visibility of

it is to be supported, policy must prescribe its place in the chain of command, and most importantly, the institution must recognize and accept the individual and organization risks that mentoring entails. This implies that the organization *must decide between the development of the leader and the guarantee of productivity* as the institution's objective.<sup>77</sup>

General Ulmer's expose on 21st century military leadership posits a similar but more system's oriented view on best practices for leader development. He argues strongly for early employment opportunities that support leader development. He supports a codified doctrine on leadership and leader behaviour and a system whereby leadership qualities and behaviours are monitored and fed back to the individual. He makes the case for developmental feedback and mentoring and points out contemporary shortcomings in mentoring policies and procedures and skills, as well as the lack of a better informed feedback mechanism based on a 360 degree review of a leader's performance. The institution must take steps to measure the organizational climate, thus allowing it to be pro-active in maintaining a learning environment and leaders need to be educated in techniques for measuring individual and group effectiveness. Ulmer points out the risks inherent in a single source view for promotion decisions (that of the immediate superior) and recommends a move to a more holistic

As described earlier, training time continues to be compressed due to a wide range of demands and resource limitations. Policy must set requisite collective training experiences for individual leaders, as well as units, and must set the conditions under which collective training will be conducted. A random approach to the execution of collective training events fails to capture the full value of these critical and expensive opportunities to learn. As declared by one author "it is more beneficial to train three tasks with rehearsal and AAR than to train five tasks without".<sup>82</sup> As well, policy must either lengthen an individual's tenure in a key assignment or raise the rate at which units train to ensure the appropriate learning experiences are generated.<sup>83</sup>

Perhaps the most durable policy initiative supporting an experienced-based OPDS is in the prescription of experiences required before higher-level training, education or appointments (including promotions) are considered. The Australian Army has demonstrated the feasibility of building such a model and the US has instituted this approach in the form of joint education and employment for senior officer advancement under the Goldwater-Nichols Act.<sup>84</sup> Indeed, our own General Evraire recommends reduction in the turmoil in field and staff postings by longer tour lengths and a degree of specialization such as that within the Australian model.<sup>85</sup>

To support this and other initiatives, however, the OPD Council must take control of the experience pillar of the OPDS. The council must develop the means to quantify and qualify the requisite experience events mentioned earlier, develop and institute a monitoring and feedback mechanism, and regulate the balance of resources (time in particular) that are invested in the supporting PD pillars. A more precise understanding of what units are actually able to provide would improve judgments about any required changes in the OPDS and support informed decisions on the balance of PD efforts as a whole.<sup>86</sup> The OPD council must be

served by a staff that can reach across and monitor all developmental pillars and report objectively and accurately on PD issues. This staff should not be responsible for the management of any one or more of the supporting development programs, but must focus instead on serving the needs of the Council. In a manpower constrained CF this remains a challenge, however, the benefits of maintaining a balanced, objective picture with independent coordination capability merit a move in this direction.

Policy on its own will not guarantee effective PD. To be effective, policy must exist within an environment that accepts risk and the notion of learning by doing. This environment cannot be generated by policy alone. Let us turn now to look at some of the challenges to creating a true learning environment that supports professional development.

### The Learning Environment

The purpose ... is to correct mistakes and learn from the ... experience, not cover up mistakes for fear of public censure. ... the elimination of such fear is the first prerequisite for learning.<sup>87</sup>

Martin van Creveld

General Sullivan is justifiably proud of the US Army's transformation during the last two decades of the 20th century. As he correctly points out, the learning leader gains and sustains the learning initiative by building a learning environment. This environment, however, must be monitored and evolved in kind with cultural, technological and strategic change. Accordingly, General Sullivan offers the theory of a *leader action cycle* that sustains the initiative in a learning environment. The cycle is not only characterized by types of activities and strategic aims, but more importantly prescribes a set of attitudes that must prevail for success to be achieved. The leader action cycle is initiated by defining the learning environment it is intended to create.

This requires a clear understanding of current events and trends, the separation of the important from the unimportant, and the creation of context and a shared vision focusing on intellectual and physical development for the future. Teaching follows through repetition and demonstrated values. General Sullivan points out here that explaining is often more important than directing, and listening more important than talking. The cycle is completed by shaping the environment through lessons from the past, demonstrating the way ahead through the careful selection of projects and reinforcement of success, and adjustments to the course of learning based on lessons learned.<sup>88</sup>

Hodges characterizes the learning environment as one in which leaders are willing to exercise their initiative, mutual trust based on technical and tactical skills and leader behaviour is established, and a consistent philosophy for learning is shared between garrison and the field. He summarizes this point by proclaiming that "treating soldiers with dignity and respect starts with establishing a command climate that promotes learning, allows honest mistakes, and encourages open communications and disagreement without fear of retribution."<sup>89</sup>

Leaders are actively engaged in the learning environment through their personal participation and demonstrated example. They must recognize their own and their subordinate's experience gaps and find ways to fill them that don't necessarily impose on already stressed line and staff organizations.<sup>90</sup> More importantly, leaders must decide on whether they are appointing individuals to positions of responsibility as a means to develop them or as

***Regretfully, Canada's military remains quite conservative in most regards...***

a means to achieve short-term productivity. This choice involves the assumption of risk of short term failures in exchange for longer term leader

development, an attribute that is not necessarily rewarded in a zero-defect, risk averse institution. There is little empirical evidence to demonstrate that this attitude prevails or is largely supported by the CF chain of command today. While the reluctance to assume unnecessary risk in combat operations is understandable, the CF can become much more risk tolerant in its peacetime training and conduct of staff activities. Regretfully, Canada's military remains quite conservative in most regards and, as pointed out by McCall, "conservative approaches teach people to be conservative."<sup>91</sup>

As discussed in the section on an OPD policy framework, the learning environment is sustained through regular and credible sessions of coaching, mentoring and multi-rater feedback and assessment. A policy on these activities is not enough; institutional leadership must be skilled in their application, must have a unified orientation in their execution, and must link them to the organization's as well as the individual's development needs.<sup>92</sup> Here again, the chain of command prevails in the successful application of the OPD system, as it should.

In simple terms, the holistic application of a professional development philosophy requires an institutionalized framework that defines and guides the parts and the whole of professional

### ***Contemporary and future conflicts require immediate leader readiness...***

development activities. The framework must include a structure that drives and regulates policy and objectives, and an executing body that is inclusive of academic and training institutions, training and education staffs, as well as the chain of command. The prosecution of professional development activities must be carried out in an environment that is demonstrably risk tolerant, communicative, and able to observe and apply lessons learned to improving the development environment.

## **CONCLUSION**

The challenge is to move into the 21st Century with a good record of practice, not just a solid platform of theory.<sup>93</sup>

General Ulmer

**D**emands of the last decade and of the decades to come will require new and improved officer skills. These require an increased investment in the officer's intellectual and physical capacity, as well as highly adaptive and creative behavioural qualities. Canada's OPDS and intentions for OPD 2020 recognize these demands and conclude that they must be developed within a system that includes training, education, experience and self-development. The shortcoming with the Canadian approach, however, is that the OPDS and its 2020 strategies deal almost exclusively with training and education and provide no formal policy nor regulation to the management of experience as a key component to OPD.

The case for experience-based OPD is overwhelming. Subjective analysis finds that experience is the key element from which an individual derives his/her confidence and competence to perform. Only with this experience based confidence is a leader able to act decisively and develop the cognitive and behavioural complexity that effective visioning and communicating demand.

The research community supports subjective views by situating schooling as a mind-broadening activity that supports experienced based learning. Leaders learn through failure and success. It is by doing and deciding that they fully develop their conceptual capacity. Researchers add that in order for experience to be of value to leader development, it must be planned and programmed with a development objective. More importantly, the chain of command must assume ownership of the experience-based development and be accountable to support their subordinates' development through coaching, mentoring and assessment feedback.

Even as an acknowledged pillar of OPD, employment experience is becoming more and more limited due to increased demands for schoolhouse learning, operational tempo, and contemporary demands on our most valuable non-human resource—time. The US Army has found that operational employment experience at the tactical level is on the decline, and given the growing skill requirement, an experience gap has formed and is continuing to expand at an alarming rate. Canada shares the strategic and environmental circumstances that affect the US Army and is without a doubt in the same experience gap dilemma.

While western militaries on the whole recognize the importance of experience to OPD, only a few have managed to embed its regulation into their OPDS. Australia has elected to focus on leader effectiveness as the object of PD and has adopted policies that direct employment types and times for each development phase. Australia acknowledges that not all are suited or able to command and accommodates this reality by providing a mid-career opportunity for employment specialization that serves both the individual's development goals and the institution's need for effective leaders at senior levels. While unofficially applied within some branches and trades within the CF, a formal approach in this light would do much to remove the confusion from mid-career career management and focus the development of our more senior officers.

The United States has the most developed OPDS. They link training to education and employment at each development phase, with a focus on clear mandatory requirements for experience at every level. The programming of experience opportunities is a shared chain of command and personnel management system responsibility, but the management of experience opportunities to include coaching and assessment feedback is a clear chain of command obligation. The American OPDS is unique in the degree to which experience opportunities are mandated, regulated and managed and administered to all OPD participants.

The CF must now establish employment experience as the key leader development pillar of the OPDS. This can only be done by expanding the policy and management framework that regulates the OPD to include, in a clear and explicit way, professional development staffs, schoolhouses, and the chain of command as part of the OPD team. Experience objectives must be linked to institutional as well as individual development objectives and their opportunities must be managed to ensure that both the individual and the CF benefit from each employment opportunity. While the OPDS team has a key role to play in mandating and regulating experience events, it is the chain of command that determines how effectively they are applied through coaching, assessment and mentoring. This responsibility requires a clear articulation of the role and responsibility of the chain of command in our own OPD. Perhaps more importantly, the employment environment must be shaped to accommodate

experience-based learning. A zero-defect, risk-averse approach is the anathema to an effective learning environment. If the development of an effective officer corps is indeed the legacy of current military leadership, then they must lead, by their example, in establishing this learning environment.

The CF has taken great strides towards a holistic and comprehensive OPDS and is working to shape the OPD environment to guide the development of our future leaders. The current approach, however, fails to act on the stated import of experience within the system. There exists no means to quantify or qualify the absolute or relative merits of each of the PD pillars. OPD Council is served by a staff that shares both responsibilities to manage the system as a whole as well as line responsibilities to deliver key parts of the education and training pillars. There is a clear conflict of demands on this staff and the critical function they perform. The management framework

that directs and guides employment experience within the OPD is ad hoc and can not regulate the design for a balanced set of PD pillars as a system of systems. Finally, new initiatives and demands on PD time are eroding those limited experience opportunities that exist today and are contributing to a growing and alarmingly unquantifiable experience gap. Contemporary and future conflict require immediate leader readiness, that is competent and confident leaders who have gained the trust of their subordinates through their demonstrated ability to deal with the conflict environment. The CF must do more than speak rhetorically of experience in its OPDS. The CF must act on its stated importance of experience-based development and manage it, with its supporting pillars, as a system of systems serving both individual and institutional operational effectiveness.



## ABOUT THE AUTHOR...

Colonel Beare enrolled in the Canadian Forces in June 1978 and completed a Bachelor of Engineering degree at Collège militaire royal in Saint-Jean, Québec and the Royal Military College of Canada in Kingston, Ontario. His service has included duty with the 1st Regiment Royal Canadian Artillery in Lahr, West Germany, Battery Commander, E Battery (Para), 2nd Regiment Royal Canadian Horse Artillery and as Commanding Officer of the 2nd Regiment Royal Canadian Horse Artillery. Colonel Beare has served with Canadian contingents in Cyprus, the United Nations Protection Force Headquarters in Zagreb and as Chief of Staff in the Bihac Area Command until the mission in the Former Republic of Yugoslavia ended in December 1995. Colonel Beare has also served with the Directorate of Land Requirements, as the training officer for the Disaster Assistance Response Team and as a staff officer at Headquarters 1st Canadian Division. He was the first Chief of Staff of the Land Force Doctrine and Training System. Colonel Beare is a graduate of Royal Military College of Science in Shrivenham, England and is currently Commander, 1 Canadian Mechanized Brigade Group in Edmonton, Alberta.

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# Operation “Anger”: The Little Known Canadian Victory at Arnhem in 1945

by Captain S.F. King, CD

*A note from the Managing Editor: Over the last several years, a number of regiments have received battle honours that were not previously granted due to oversight or ignorance of a unit's operational record. For example, in the 1990s a staff officer at the Directorate of History and Heritage discovered that an honour had not been given to the Lincoln and Welland Regiment as no one had noticed that the official list was printed on both sides of the document! Awarding honours becomes even more difficult when a regiment such as The Princess Louise Fusiliers never fought as a battalion and provided company level support to the infantry brigades of the 5th Armoured Division. While the role of the 11th Independent Machine Gun Company (The Princess Louise Fusiliers) in the battle of Arnhem was not pivotal, its*

*story in that battle has never been fully described nor reflected in the unit's Battle Honours. Captain Sanchez King, a member of The Princess Louise Fusiliers, has spent several years attempting to prove that The Princess Louise Fusiliers were eligible for the “Arnhem 1945” award. Facing many research challenges and some mild opposition to the entire project, Captain King's determination did not waiver and the fruits of his work culminated in the award of “Arnhem 1945” to his regiment in 1999. Congratulations are due to Captain King for his skilful research, perseverance and steadfastness and to The Princess Louise Fusiliers for this distinct honour. The article below tells the story of the battle fought by The Princess Louise Fusiliers and others in 1945.*

Grave, Nijmegen and Arnhem. Running in a straight line, south to north, these towns dominated the vital bridge crossings of the several water obstacles that could halt any armoured advance. The plan called for the 101st US Airborne Division to capture Eindhoven and several bridges to the north. The 82nd US Airborne Division would secure the towns and bridges of Grave and Nijmegen. Thus secured, a path would be created for Horrocks' armour heavy forces. The key, however, was the bridge at Arnhem. Without it, Allied forces could not make their swing into the heart of Germany. The task of capturing Arnhem would be assigned to the 1st British Airborne Division, with the 1st Polish Independent Parachute Brigade Group under command.<sup>1</sup>

**A**rnhem. The name instantly conjures up images of British and Polish parachutists engaged in a doomed but heroic struggle against overwhelming enemy forces. At the same time, one might think of the Arnhem Bridge, so crucial to the Allies efforts to end the war by the end of 1944. These images are well formed in the popular culture of military history largely due to Cornelius Ryan's epic book, *A Bridge Too Far*, and the film of the same name. The glory and tragedy of the first battle of Arnhem tend to overshadow the efforts of Canadian and British ground troops, some six months later, to liberate this important Dutch town. The Battle of Arnhem 1945 is not generally the subject of historical analysis or dramatic retelling, but, as with many Canadian battles of the Second World War, it certainly deserves at least a casual examination.

After the invasion of Normandy in June 1944, Supreme Headquarters Allied Expeditionary Forces realized

that if the war were to end quickly, the Allied armies would have to reach the industrial heartland of Germany. The focus of the Allied advance was to cut off the retreating German forces in northern Holland and to swing eastward into the Ruhr Valley. Field Marshal Bernard Montgomery believed that to achieve this goal, a bold plan was required. He had one.

Montgomery's plan, which would be named “Market Garden,” looked great on paper. The “Market” part of the operation was a massive airborne assault to be carried out by the Allied First Airborne Army. The “Garden” operation consisted of ground forces, primarily the tanks of Lieutenant General Brian Horrocks' XXX Corps, racing to link up with the glider and para troops. The Dutch towns selected as targets for the airborne assaults were Eindhoven,

Initially, the plan was almost universally opposed. In late August, with the campaign in Europe stalled, General Eisenhower was forced to agree with Montgomery's plan. After several false starts, Market Garden was set for mid-September.

The airborne drops commenced on September 17th. In short order, the 82nd and 101st Divisions were able to achieve their objectives. At Arnhem, however, things did not go so well for the British. From the beginning, the British paratroops were hampered by

***The Battle of Arnhem 1945 is not generally the subject of historical analysis or dramatic retelling.***

poor communications. It took two days to drop all the 1st Airborne Division's troops, and they found themselves heavily engaged by greater than expected numbers of enemy troops. Only a small force, based on the 2nd Battalion, the Parachute Regiment,

made it into Arnhem and the vital bridge. Under the command of Lieutenant-Colonel John Frost, this group gallantly held out for nine days. By the time that XXX Corps, slowed by boggy terrain and narrow roads, reached the Arnhem Bridge, the Germans were firmly in control. Market Garden had failed, and with it, hope for a quick victory faded.<sup>2</sup>

By March 1945, the situation in Holland had changed considerably. The port of Antwerp had been liberated, and the hard fought battle of the Scheldt Estuary had been won. In the east, the Netherlands was free of the German army. In the western region of Holland, however, the German army remained entrenched, and pressure on the Allies from the Dutch government in London was mounting. The Dutch wanted the Netherlands liberated at the earliest possible opportunity, whereas Montgomery wanted to destroy the German army in the field and felt that liberating western Holland would divert scarce resources from this task. The Germans would withdraw soon enough, he reasoned.

Pressure from the Dutch continued to increase, and the enemy, not subject to Montgomery's wishes, failed to withdraw. On April 5th, Montgomery directed General Crerar's First Canadian Army to make one of its corps available to commence the methodical clearing of western Holland. This task fell to I Canadian Corps under Lieutenant-General Charles Foulkes. Foulkes' corps included the 5th Canadian Armoured Division, recently

The main channel of the Rhine comes up from the southeast to a point, sixteen kilometres east of Nijmegen, where it

## ***The Princess Louise Fusiliers [came] under command of the 49th Division Machine Gun Battalion ...***

splits into the Waal and the Neder Rijn. The Neder Rijn runs northwestwards toward Arnhem, and the IJssel River splits off just above the city. The Neder Rijn turns westward past Arnhem. North of Arnhem, the land rises to a height of approximately 100 metres above sea level, but along the channels of the Rhine and up the IJssel, the countryside is a network of canals and irrigation ditches.<sup>4</sup>

Part of the grandly titled *Festung Holland* (Fortress Holland), the area around Arnhem, was defended by the German 346th Division, consisting of the 858th Grenadier Regiment and miscellaneous units, including a divisional Battle School. The exact strength and composition of the German forces at Arnhem were not known, so little would be left to chance.<sup>5</sup>

Initial planning for the operation against Arnhem had been underway since late March. The I Canadian Corps plan was to secure the "Island" south of the Neder Rijn. Known as Operation "Destroyer," this was to take place in early April. Once 5th Armoured secured the "Island", the 49th Division, under the command of Major-General S.B. Rawlins, would conduct the assault on Arnhem. Once the British troops had secured the bridgehead, 5th Armoured would push through and

conducted in three phases. First, 56 Infantry Brigade Group was to conduct the assault crossing of the Neder Rijn

west of Arnhem, secure a limited bridgehead and clear the southern sector of the town. Next, 146 Infantry Brigade Group was to pass through 56 Brigade and enlarge the bridgehead. Finally, the 147 Infantry Brigade Group would secure the high ground west of Arnhem.<sup>7</sup>

Support for the operation was considerable. Under command was an assortment of engineer units, amphibious vehicle units (including both Buffaloes and DUKW amphibious vehicles) and two Canadian units, the 11th Canadian Armoured Regiment (Ontario Regiment) and the 11th Independent Machine Gun Company (The Princess Louise Fusiliers).<sup>8</sup> For the operation, the Ontario Regiment was to support the brigades in the assault, while The Princess Louise Fusiliers (PL Fus) were to be under command of the 49th Division machine gun battalion, 2nd Battalion, Kensington Regiment.<sup>9</sup>

In support were several Canadian units including the artillery groups of the First Canadian Army and 5th Armoured<sup>10</sup> as well as the 1st and 10th Field Squadrons, Royal Canadian Engineers. The Royal Navy was to provide the 552 Landing Craft Flotilla and the Royal Air Force would provide air support in the form of Spitfires and Typhoons.<sup>11</sup>

## ***In the western region of Holland, however, the German army remained entrenched ...***

arrived from Italy, and the British 49th (West Riding) Division. The Corps had arrived in the Arnhem area on April 2nd and had taken part in operations to expand the "Island" south of the Neder Rijn (Lower Rhine) River.<sup>3</sup>

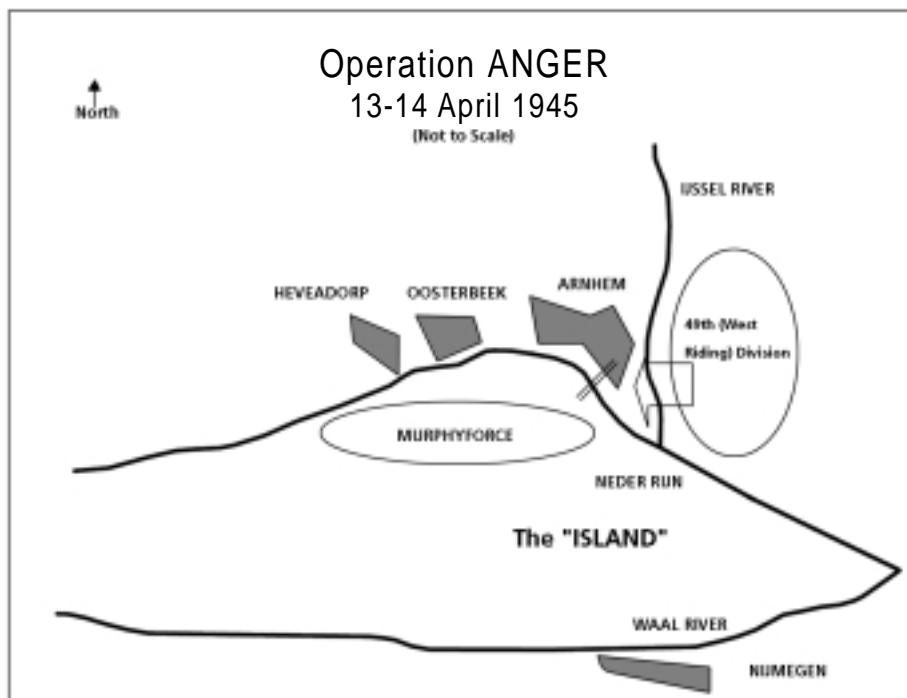
Geographically, the area between Nijmegen and Arnhem is part of the Rhine Delta and known as the "Island."

make a dash for the Dutch town of Otterloo.

On April 2nd and 3rd, Operation "Destroyer" was conducted, allowing the corps to secure and expand the "Island." Detailed planning for the 49th Division assault began immediately. Operation "Anger,"<sup>6</sup> as it would be known, was to be an assault river crossing. Rawlins plan was to be

Preparations for Operation "Anger" included the creation of one rather unique structure; Canadian engineers had prefabricated a Bailey pontoon bridge upstream at Doornenberg and had floated it to a waiting position near the IJssel. The intent was to slip this bridge downstream and into position, thus taking the enemy by surprise and dramatically increasing the 49th Division's ability to get troops and vehicles across the river.<sup>12</sup>

During the evening of April 4th and early morning of April 5th, patrols from



several of the infantry battalions crossed the Neder Rijn in an effort to gain more accurate information concerning enemy positions. Little concrete intelligence was gathered except to confirm that the enemy occupied a factory complex on the eastern side of Arnhem.<sup>13</sup>

Late on April 7th, the plan had to be amended. General Foulkes decided that Arnhem should be approached from the east, across the IJssel River, rather than from the west. The Germans, protecting the route into the Ruhr, had designed the positions at Arnhem to defeat an enemy approaching from the west. Foulkes had also become concerned that smokescreening efforts, intended to cover reconnaissance and dumping activity along the Neder Rijn, had not been effective. He feared that the defenders would have plenty of time to prepare for a western assault. Foulkes set H-Hour for after dark on the 11th of April.<sup>14</sup>

The days of April 8th to 10th were spent in regrouping and adjusting within the formations. On April 10th, H-Hour was amended. More time was required for several other Canadian units and formations to get into position to support the operation. On the left, along the southern bank of the Neder Rijn, an organization, known as Murphyforce, had relieved elements of 5th Armoured.

Murphyforce was a mixture of armour and infantry, largely from the 1st Canadian Armoured Brigade, whose job would be to provide a diversion. Additionally, more time was needed for the 11th and 12th Regiments, Special Air Service, to jump in behind the enemy so as to support the division's activities. The new H-Hour was fixed at 2240 hours on the 12th of April.<sup>15</sup>

During the daylight hours of April 12th, the RAF supplied 36 Spitfire and 83 Typhoon sorties to soften up the German positions around Arnhem, focussing much of their attention on a strongpoint located in an old Dutch fort. At 1940 hours, Murphyforce opened up with their diversionary fire plan in the area of Heveadorp, the original location for the 56 Brigade assault. The retaliation from the German positions certainly hinted that they were well prepared for an assault from the west. At 2040 hours, the artillery and supporting fire plans kicked off. The sound of the salvoes fired by the rocket batteries had a distinct psychological effect, even on the friendly troops. The machine guns and mortars of the Kensingtons and The Princess Louise's concentrated their fire in an effort to suppress the enemy firepower during the initial

crossing. Several problems, however, began to develop. Twelve landing craft, due to arrive at 2100 hours, turned up late. They had encountered a "traffic jam" on the river with several barges loaded with divisional supplies. The late arrival was compounded by the discovery that charges on the enemy side of the bank, designed to facilitate the landing, had been disrupted by the RAF sorties and had failed to detonate. The Buffaloes had to find whatever pathway they could, delaying the landings.<sup>16</sup> It was not until 2315 hours that the first battalion of infantry gained a foothold on the north bank of the IJssel.<sup>17</sup>

Despite the piecemeal landings, the build-up was proceeding well. The heaviest resistance encountered at the onset was at the old fort. Supported by The Princess Louise's machine guns positioned well forward,<sup>18</sup> troops of 56 Brigade overcame enemy land mines and heavy fire to pacify the strongpoint. Soon the situation was stabilized to the point that by 0050 hours on the 13th, the prefabricated pontoon bridge could be launched. By 0700 hours, all three infantry battalions of 56 Brigade had landed but tank support, in the form of A Squadron, the Ontario Regiment, would not arrive until the ferries were operational, at approximately 0845 hours. By 1045 hours, the engineers and the Royal Navy had moved their bridge into

### ***Fighting in the built-up areas of Arnhem proved to be a challenge.***

position, enabling phase two to commence. 146th Brigade, along with C Squadron, the Ontario Regiment, were able to quickly cross the bridge, and by midday, they had passed through 56th Brigade.<sup>19</sup>

Fighting in the built-up areas of Arnhem proved to be a challenge. The Ontario Regiment official history records that: "Fighting throughout the city was slow, due to the necessity for clearing machine gun posts and snipers from the buildings as the advance progressed."<sup>20</sup>

At a factory east of Arnhem, operations had stalled. This complex “had been converted into an improvised fortress. It was so desperately defended that the advance was still halted at 1100 hours.”<sup>21</sup>

By the afternoon of April 13th, the 4th Lincoln Regiment, a battalion of 146 Brigade, was tasked to capture the factory east of Arnhem. The 4th Lincolns were supported by a troop of Canadian tanks commanded by Lieutenant H.W. MacDonald. It was during this action that an interesting example of infantry-tank co-operation occurred.

[Lieutenant MacDonald’s] tank was working through the city with a platoon of infantry when both the platoon officer and the sergeant were killed. The platoon became disorganized and the advance halted. Leadership was promptly provided by Lieutenant MacDonald. He vaulted out of his tank, rounded up the stragglers and laid down a new plan of action with the section leaders. Within a few minutes the platoon was back in action. During the day, Lieut. MacDonald’s troop collected 200 prisoners.<sup>22</sup>

For his actions that day, MacDonald was awarded the Military Cross.

By nightfall of April 13th, German resistance had largely crumbled. The hours of darkness were used, primarily, to consolidate the bridge-head and to move 147 Brigade across

the Ijssel and into position to breakout the next morning. Infantry patrols found little sign of the enemy and by dawn, the brigades were ready to continue with the clearance of Arnhem. By 1600 hours, the brigades had met their objectives and Allied traffic was now moving across Arnhem

the innovative use of the prefabricated pontoon bridge, but much of the operation was simply by the book. Assault water crossings, fighting in built-up areas and infantry-tank co-operation, by this stage of the war, were all second nature to these troops. What is interesting about Operation “Anger”

***The legend of Arnhem may always be the domain of the Parachute Regiment, but the pride of victory belongs to the regiments who carry Arnhem 1945 as a battle honour.***

Bridge. In all, 49th Division had captured 601 German prisoners. 5th Armoured was now prepared to move through 49th Division and carry on toward Otterloo. Operation “Anger” was complete.<sup>23</sup>

The war had taken a great toll on the town. The war diary of 49th Division noted that “the enemy had systematically and wantonly looted every house and building in Arnhem, carrying off much furniture, destroying the majority of what they left, and damaging every house ... a town had never been more wantonly destroyed.”<sup>24</sup>

In the final analysis, Operation “Anger” and the capture of Arnhem was not a spectacular action. Certainly, there were noteworthy aspects, such as

is that it provides a glimpse at these Canadian and British units and formations as well trained, experienced organizations, possibly at the peak of their efficiency; methodical, yet with a touch of originality. The legend of Arnhem may always be the domain of the Parachute Regiment, but the pride of victory belongs to the regiments who carry Arnhem 1945 as a battle honour.<sup>25</sup>



## ABOUT THE AUTHOR...

Captain Sanchez King joined The Princess Louise Fusiliers in 1982 and was commissioned in 1984. He received a degree in History from Mount Saint Vincent University before pursuing advanced studies at the Atlantic School of Theology. Captain King is also a graduate of the Canadian Land Forces Command and Staff College. He has held numerous command appointments within his Regiment and within various training establishments. He has also held staff appointments at brigade, division and land force area level. Currently, he is the Civil-Military Cooperation Plans Officer at Land Force Atlantic Area Headquarters.

## ENDNOTES

1. Cornelius Ryan, *A Bridge Too Far* (New York: Simon and Schuster, 1974), pp. 88-130.
2. Leo Heaps, *The Grey Goose of Arnhem* (London: Weidefeld and Nicolson), 1976, pp. 16-22.
3. C.P. Stacy, *The Canadian Army 1939-1945* (Ottawa: King's Printer, 1948), pp. 264-265.
4. L. Schragg, *History of the Ontario Regiment 1866-1951* (General Printers Limited, No Date).
5. C.P. Stacy, *The Victory Campaign* (Ottawa: Queen's Printer, 1960), pp. 570-571.
6. Both the code names "Anger" and "Quick Anger" were used for the attack on Arnhem. 49th Division used the name "Anger" throughout the operation.
7. C.P. Stacy, *The Victory Campaign*, p. 570.
8. The Princess Louise Fusiliers were mobilized on 1 January 1941, eventually becoming a motor battalion in the 5th Canadian Armoured Division. With the reorganization of Canadian armoured divisions in 1943, it became excess to establishment and was redesignated as the 11th Infantry Brigade Support Group (The Princess Louise Fusiliers) on 31 January 1943. This company-sized unit provided machine gun and mortar support to the infantry battalions of the 5th Canadian Armoured Division. On 1 July 1944 it was redesignated the 11th Independent Machine Gun Company (The Princess Louise Fusiliers). When a second infantry brigade was added to the division, another PLF element, the 12th Independent Machine Gun Company (The Princess Louise Fusiliers) was formed in July 1944 and disbanded in March 1945.
9. 2 Kensingtons, Operations Order No. 8 Op "Anger", WO 171/5218, 11 April 1945.
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12. C.P. Stacy, *The Victory Campaign*, p. 571.
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17. Schragg, *Op. Cit.*, p. 259.
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19. 49th (West Riding) Infantry Division, War Diary, *Op. Cit.*, 13 April 1945.
20. Schragg, *Op. Cit.*, p. 260.
21. *Ibid.* p. 260.
22. *Ibid.* p. 261.
23. 49th (West Riding) Infantry Division, War Diary, *Op. Cit.*, 14-15 April 1945.
24. *Ibid.* 13 April 1945.
25. In 1999, 54 years after the battle and following considerable research, The Princess Louise Fusiliers finally received the Battle Honour "Arnhem 1945."

# The Anti-Armour Squadron at Brigade Group Level

by Captain J.R. McKay

## INTRODUCTION

While many can identify problems within the Canadian Army, solutions are not as prevalent. This is a partial product of the natural tendency to compartmentalize problems in order to facilitate problem definition and comprehension. There nevertheless are potential solutions for some problems pertaining to combat capability, force structure and roles. Two related problems will be discussed in particular:

- the current structure of the three regular Canadian Mechanized Brigade Groups (CMBG) and armoured regiments does not provide a force structure that can successfully deal with a mechanized enemy; and
- some difficulties associated with roles and equipment for the reserve units of the Royal Canadian Armoured Corps (RCAC).

This article will explore these two problems with a view to advocating change. It will offer, as an optimal solution, the creation of three anti-armour squadrons in the Reserve Force to complement the Regular Force brigade groups.

## CURRENT STRUCTURE OF THE CANADIAN MECHANIZED BRIGADE GROUP

Before discussing brigade group structure, it must be borne in mind that the current structure developed as a result of decision-making relating to equipment rather than personnel. As such, it remains a political decision whether or not to purchase such expensive systems as a main battle tank (MBT). Therefore, serving personnel must treat such decisions as immutable. The end-result of failing to maintain a

large fleet of MBTs (200 or more) is that the Regular Force brigades, the bulk of the Canadian Army's fighting forces, lack sufficient heavy armour to deal with a mechanized adversary.<sup>1</sup> Each of the three Regular Force armoured regiments (The Royal Canadian Dragoons, Lord Strathcona's Horse (Royal Canadians) and the 12<sup>e</sup> Régiment Blindé du Canada) currently hold approximately 20 Leopard C2 tanks and two squadrons' worth of Coyote reconnaissance vehicles, both *masted* and *non-masted* variants. The number of Leopards means that the regiment can be configured with either one or two tank squadrons, depending on the size of the troops (either with three or four tanks per troop). With the removal of one of the Coyote squadrons as the Brigade Reconnaissance squadron, the armour regiment in question is left with one or two Leopard squadrons (depending on their size) and a Coyote squadron (without the surveillance

capability associated with their masts). The brigade commander can therefore only form one or two infantry battle groups and cannot form an armour-heavy battle group at all. This presents a difficult tactical situation. Without four tank squadrons, the brigade group lacks significant firepower and mobility, cannot form an armoured battle group for

***Without four tank squadrons, the brigade group lacks significant firepower and mobility...***

offensive punch or counter-moves, and thus cannot realistically deal with a mechanized threat without additional firepower. While infantry Kodiaks will be helpful, they cannot be relied upon to stop an adversary equipped with MBTs. The current iteration of the armour regiment does not therefore provide the true capability to deal with enemy mechanized formations appropriately in all phases of war.

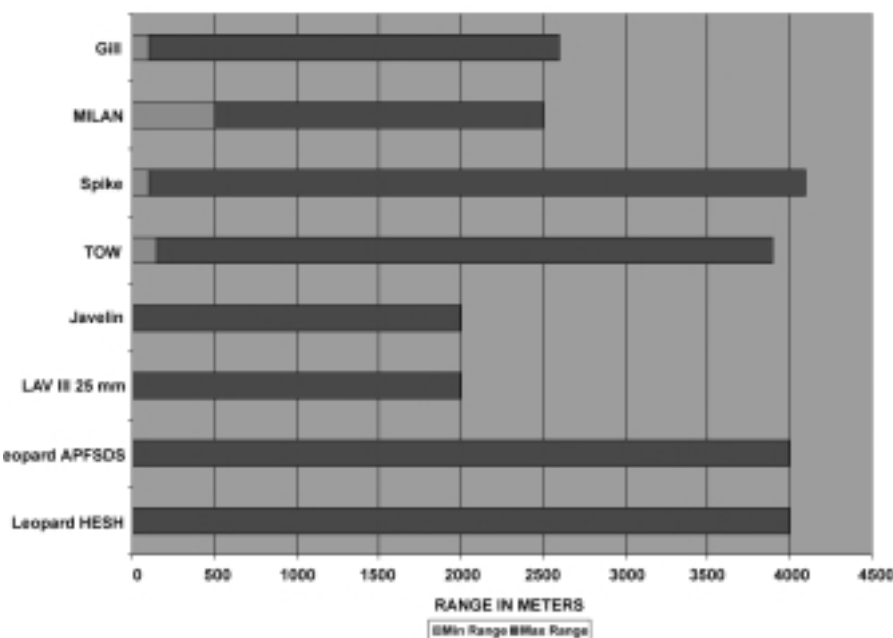


Figure 1: Canadian Anti-Armour Assets<sup>2</sup>

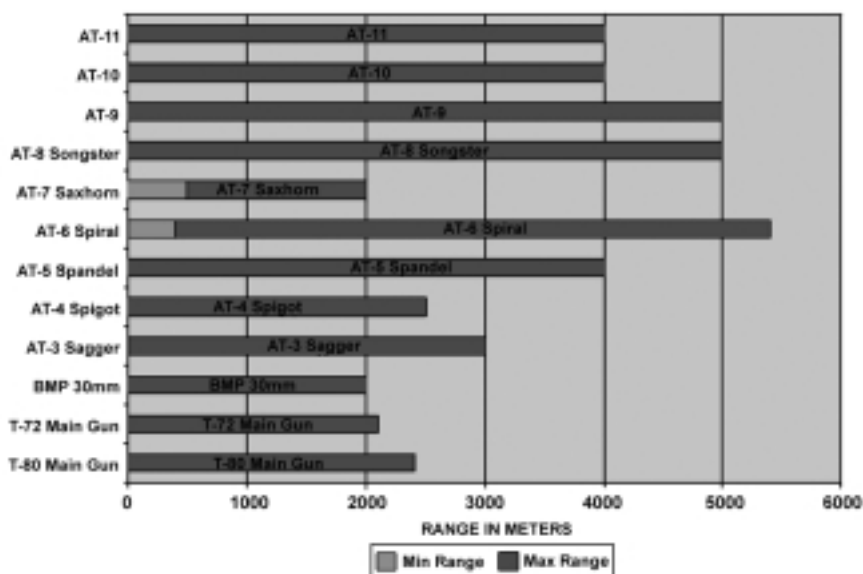


Figure 2: GENFORCE Anti-Armour Weapons

## ANTI-ARMOUR ASSETS IN THE CANADIAN ARMY

There are other assets within the brigade group that can assist in the destruction of an adversary equipped with MBTs. Anti-armour platoons exist within each of the three infantry battalions of the brigade group, each with eight vehicles, thus giving a total of 24 weapon systems. These eight anti-armour vehicles, currently equipped with TOW (which will go out of service in the near future), provide each infantry battalion a significant long-range anti-armour capability to augment the already significant capability afforded by the Eryx missile (150-600m) allocated to the infantry section. See Figure 1 for their ranges.

One must also be aware of the major limitation with all of the Canadian anti-armour systems, be they tanks or missiles. When compared to the weapons systems of our potential adversaries (based on those equipped with materiel from the former Warsaw Pact—see Figure 2), ours, while effective, are out-ranged by some adversary systems. This means that an adversary, under certain conditions, could use their anti-armour weapons without fear of being engaged with effective direct fire.

Under current doctrine, TOW is generally employed as a platoon under battle group control. This poses significant limitations. While individual

battle groups may have the theoretical ability to influence events 3000 meters ahead of them, there is no brigade group resource with the same capability.

There are, in addition, some significant concerns and issues with the current systems in service. Given its time of flight, TOW's life span is short indeed, as fire-and-forget technology has rendered the system obsolescent. Its obsolescence is based on the fact that it takes one and a half seconds for the launch motor to ignite, following which the missile will travel 200 meters per second. If targets are to be engaged at a distance, then the time of flight affords the enemy time to detect the missile launch and return fire, either destroying the vehicle or breaking the operator's target lock, thus wasting the missile. If targets are to be engaged more closely, the enemy has less time to detect and fire on the vehicle, but it is more likely that such fire will be effective in, at the very least, distracting operators, if not killing them outright. See Figure 3 for a comparison of distances to a target and the time of flight. There is a definite trade-off between effectiveness and survivability that limits the effective use of the TOW missile. The missile's launch signature is significant, and the fact that it is wire-guided produces additional limitations on its employment.

While TOW has limitations, for successor systems, whether Gill/Spike or Javelin, different considerations apply.

Both systems are *fire-and-forget*, which means that the missile can be fired without having the operator maintain the point of aim on the target, thus solving the problem of time of flight. Yet a survivability problem still exists. This problem stems primarily from the fact that the launchers tend to be employed in smaller quantities, which reduces their effectiveness. Eight anti-armour vehicles are not difficult to detect and deal with, particularly if mounted on an AFV. Several launchers on smaller and more agile platforms, working under more centralized control, are much harder for an adversary to negate. Regardless of the speed of the missile, the very act of launching a missile will generate some form of detectable signature, therefore attracting attention in the form of direct and/or indirect fire. It is not so much a problem of survivability based on the time of flight as it is a command and control problem. To effectively employ anti-armour systems to their maximum potential, centralized control is required.

## ROLES AND EQUIPMENT OF RCAC RESERVE UNITS

With the implementation of the Army Reserve Establishment and the impending Land Force Reserve Restructure, it appears that there are far

Distance in Meters	Time of Flight (Seconds)
200	2.5
400	3.5
600	4.5
800	5.5
1000	6.5
1200	7.5
1400	8.5
1600	9.5
1800	10.5
2000	11.5
2200	12.5
2400	13.5
2600	14.5
2800	15.5
3000	16.5
3200	17.5
3400	18.5
3600	19.5
3750	20.25

Figure 3: Distance and Time of Flight

more armoured sub-units in the reserve than there are vehicles in training pools. For example, in LFCA, there are five Cougar-rolled squadrons and only 20 vehicles (see Figure 4 for details).

In practical terms, this means that a Cougar squadron from any of the three Cougar units can only get access to the vehicles once every five weeks. With the VOR rate associated with an aging fleet of vehicles, 20 is a very optimistic estimate for the number of available systems. This makes it very difficult for all of the Cougar-rolled units to meet the requirements for individual training, let alone the genuine achievement of MLOC 2. The current situation shows no signs of improvement. This suggests that another option for some of the Cougar units might merit investigation.

There are a number of solutions that the Canadian Army could adopt for this problem given the fact that the Cougar will be phased out of reserve service by 2010. The first solution would be to train the Reserves on Coyote or LAV III in order to increase their ability to augment Regular Force units in operations. On the surface, there is some merit to this idea, but some concerns remain. First, it fails to address the fundamental problem with the current Cougar role, as readily available equipment will still be lacking. Second, given the complexity of LAV III, it will be difficult to keep LAV crew skills current in the Regular Force infantry battalions, and the limited time available to reserve units may prove insurmountable.

The second solution would be to re-role Cougar units. This could be a politico-military nightmare, however, as the majority of Cougar-rolled regiments would likely dispute adopting new roles that they find unpalatable, generating sufficient political opposition to

stalemate the process unless there were some attractive options. Conversion to an interesting and achievable combat arms role would attract more support from all concerned.

## CONCLUSION

How then can one address these two problems? In order to improve the anti-armour capability of the Regular CMBGs, and at the same time enhance the Reserve Force RCAC structure, I suggest that three RCAC reserve anti-armour squadrons be formed. This proposal is based on a hybrid, using the reconnaissance squadron organization as a model, but with TOW systems instead of scout vehicles. The anti-armour squadron would be a brigade group resource. It is not intended that this squadron replace the existing 24 anti-armour systems in the infantry battalion anti-armour platoons, but rather that the squadron provides an additional unit to supplement the brigade's ability to deal with mechanized forces. The proposed structure, with three nine-vehicle troops (8 x TOW, 1 x Ammo), is shown in Figure 5. To avoid the zero-sum game created by equipment shortages, it is recommended that the reserve squadrons be equipped with the pedestal mounted TOW in the interim, and subsequently be re-equipped with whatever system is chosen under the Anti-Armour Weapons System project. This also creates greater flexibility in terms of vehicles and employment.

Survivability would be achieved by mass. The squadron could be massed in terms of fire, much like a Reconnaissance Squadron masses its observation. If all 32 launchers were to be controlled by the squadron commander, then fires could be massed for effect similar to how a Forward Observation Officer masses artillery fires in space and time. If the fires were controlled centrally and units

were massed, individual survivability would be less of a concern, as it would be offset by the ability of the squadron and/or troop to detect and destroy enemy vehicles. It would also be possible to create anti-armour plans with real depth that would attrite the enemy progressively. One is tempted to employ an organic analogy to the situation, where one compares the individual launcher to a bee or wasp. After one sting, the individual insect (or launcher) is easy to detect and destroy. If massed, then multiple stings can bring down a much larger opponent. The key to the problem of achieving mass and the capability to inflict multiple stings is the centralization of control under a single entity. In many ways, this is the intent of the current anti-armour platoon structure in the mechanized infantry battalions.

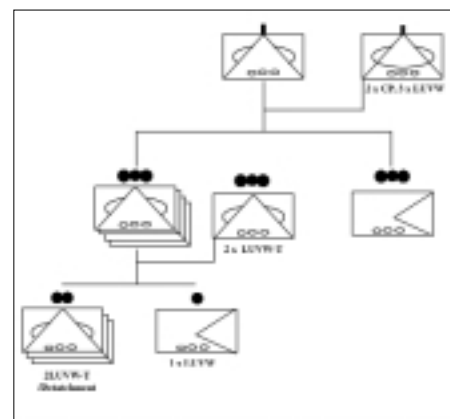


Figure 5: Proposed Structure

While such an organization is not capable of the shock action that tanks inflict on an adversary, at the very least these anti-armour squadrons offset the lack of direct firepower created by the absence of sufficient tanks in the Canadian Army. It would deny the adversary the ability to do the same, as massed launchers, reaching out to nearly the same range as the GENFORCE capability, would be capable of inflicting significant damage on enemy units that stray within 4,000 meters of our forces. While this may not seem like the ideal situation, it does offer the ability to fight a guard or covering force.

The Canadian Army, like any military organization, fears changes to the status quo. It has not gone unnoticed that in any military

	Cougar	Recce	Vehicles (Org)
LFCA TC Meaford			20 (Depends on VOR)
GGHG	2 x 18 Veh Sqn		1
Ont R	1 x 18 Veh Sqn	1 x Sqn	1
1H	1 x 18 Veh Sqn		2

Figure 4: Land Force Central Area Armour Allocation



organization, the main imperative is the preservation and/or enhancement of force structure as opposed to the overall effectiveness of the force. This effect is naturally increased in times of

Under-Armour (TUA), there are 89 pedestal mounted TOW launchers in the supply system (primarily held by the Regular Force infantry battalions). These launchers could be used to equip the

While these would be Reserve units embedded within the structure of each of the regular force brigades, they could be attached to the regionally based reserve brigade groups for administrative purposes. The unit commanding officer would be responsible to the Regular Force brigade commander for operational effectiveness, but would receive the administrative support required to function like any other reserve unit.

## ***It is a complete fallacy that anti-armour missiles are the exclusive province of the Infantry branch.***

peace as opposed to times of war, when pragmatism and the avoidance of failure, defeat, and massive casualties become the main imperatives.

It is a complete fallacy that anti-armour missiles are the exclusive province of the Infantry branch. It does not matter what branch missileers are to belong to, as it is the skill-sets that are most important. Anti-armour detachments must be capable of moving without being detected, firing accurately, and communicating. The relevant skill sets indigenous to the Armoured Corps are tactical driving, crew-served weaponry and communications. While these skills also exist in the infantry, it takes more resources to train a QL 3 Infantry-qualified rifleman as an Anti-Armour operator than it would a QL 3 Armour-qualified crewman.

The training problem could easily be addressed by having the reserve unit train with the LUVW with a TOW launcher mounted for the time being. While the Regular Force mechanized infantry battalions are equipped with TOW-

proposed squadrons provided there are sufficient stocks of parts for both the TUA-mounted launchers and the pedestal-mounted launchers. In addition, each anti-armour roled unit would have to be allocated TOW simulators in order to ensure operator skills. Unfortunately, the cost of the missiles makes live practice extremely prohibitive, but this is true for the Regular Force infantry battalions as well. As the future systems become available, then TOW could be replaced with the successor system.

The training of individual anti-armour crewmen remains a concern, but is not an insurmountable obstacle. There are three anti-armour platoons in each land force area that could be tasked to conduct or support the conduct of the initial TOW operator courses. As skills are developed within the reserve units, then those units could conduct subsequent serials. It must be noted that availability of ammunition could pose problems, but through simulations, skills could be developed and practiced periodically.



*The author would like to thank Lieutenant-Colonel R.W. McBride, Chief of Staff 31 Canadian Brigade Group, Lieutenant-Colonel C.O. Judd, Commanding Officer of the 1st Hussars, Major P.H. McAdam of the Directorate of Army Doctrine, and MWO Juraszko, G4 Supply 2 at 31 Canadian Brigade Headquarters, for their input and assistance.*

### **ABOUT THE AUTHOR...**

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### **ENDNOTES**

1. No MBTs exist within the structure of the Reserve brigade groups. For details on the structure of the Regular Force armour regiments, see: Capt Paul Gillies, "The New Armoured Regiment", "Armour Bulletin", Volume 33, Number 1, (2000), pp. 19-22.
2. The Canadian Army currently does not hold MILAN, Gill/Spike or the Javelin anti-tank systems. Gill/Spike and Javelin are currently under consideration by the Anti-Armour Weapon System project, and MILAN has been included for information purposes only.

# Light Punching: The Case for an Improved 105 mm Tank Round

by Major L.R. Mader, CD

## INTRODUCTION

Western military thought has been wrestling for some time with whether we are experiencing a Revolution in Military Affairs (RMA). Numerous articles have appeared in Canadian military journals, and those of other Western countries, discussing whether an RMA is occurring, what it offers and what are its potential risks.<sup>1</sup> RMA proponents often state that the widespread advent of computer-based military equipment has made a fundamental change in how wars will be fought. The Tofflers, in their influential book *War and Anti-War*, effectively argued that Information Age militaries will defeat Industrial Age or Agricultural Age militaries with the same ease that Industrial Age militaries defeated those "stuck" in the Agricultural Age.<sup>2</sup>

Such a thesis offers a rosy future for the Information Age armies involved. For them, war is seen as antiseptic and nearly bloodless; hordes of ignorant Agricultural and Industrial Age enemies will march forward to be defeated by an all-seeing Information Age armed force that suffers few or no casualties. This kind of war would unfold something like a Tom Clancy novel.<sup>3</sup> The use of mission command and the manoeuvrist approach to operations<sup>4</sup> are seen as increasing the chance of reducing friendly casualties by avoiding bloody head-to-head combat and offering a more subtle attack against the enemy's morale.

Clearly, such a near-bloodless way of war has great attraction for armed forces; especially those called upon to conduct operations that do not involve an obviously vital national interest. Thus, all that can be done to attain the promise held by the proponents of RMA and the manoeuvrist approach to operations should be pursued. Such pursuit must not, however, be blind to the possibility of a wise enemy or a desperate (possibly unwinnable) war or conflict. The promise of RMA is not a guarantee. Military forces must be capable of carrying out combat operations and winning a military victory. The threat of such force can be used by national leaders to obtain a cessation of conflict and an improvement in the situation over the status quo ante. Cunning manoeuvres and total knowledge of the battlefield mean little if our forces lack the ability to inflict losses<sup>5</sup> when necessary, to shape events along the lines of operation towards the enemy's centre of gravity.<sup>6</sup>

This overriding military imperative, to be able to take lethal action when necessary, raises the question of whether the Canadian Land Force can carry out such combat missions with the equipment at hand. Many articles in the Army Doctrine and Training Bulletin, and elsewhere, have discussed

the state of the army's equipment and ways to make this equipment more capable of fighting and of supporting fighting units.

In order to do this, such equipment must be able to deal with, among other things, any tanks deployed against a Canadian force. If it cannot,

***Military forces must be capable of carrying out combat operations and winning a military victory.***

then our smallest combat units and sub-units will always have to depend on outside support to deal effectively with hostile armour. Such a situation leaves these units and sub-units open to defeat and needless losses as the friction of war will inevitably lead to not everything working out as well as the theorists postulate.<sup>7</sup>

This article aims to consider the Land Force's ability to engage hostile tanks in situations where combat operations do occur and to suggest a possible improvement.

## THE THREAT, OPERATIONAL RESEARCH AND WHERE WE GO FROM HERE

A review of unclassified source material indicates that there are some 41,894 modern tanks in the world that are armed with a 120 mm/125 mm cannon. The general distribution of these tanks is shown in Table 1. Even if

Type	Russia	CIS (less Russia)	Indian Sub- Continent	NATO	Balkans	Europe (Rest)	Africa	Middle East	Asia
Total	14 900	6 903	1 988	10 638	797	1 289	607	4 132	640

Table1: Distribution of 120 mm (+)- Armed Tanks<sup>8</sup>

all of these tanks are not in front-line service, Table 1 indicates that there are conservatively at least 5,000 modern tanks that are in, or could be provided to, countries where the Canadian Forces might find themselves operating.

Not shown in Table 1 are the tens of thousands of older tanks that are present in many countries around the world.<sup>9</sup> While not of first-line capability, such tanks can cause serious losses to forces not able to deal with them effectively.

Recent war game-based operational research studies, conducted by the Operational Research Division (ORD), have highlighted the importance of the 105 mm-armed Direct Fire Support Vehicles (DFSVs) available to the Canadian Forces in countering the threat posed by these tanks. These studies have also provided useful insights into the use of such armoured fighting vehicles (AFV) in combat operations. This article will draw on these insights to make some deductions about the use of the Leopard C2 tank or a 105 mm-armed Armoured Combat Vehicle (ACV) for combat operations.

Six recent ORD studies have information of interest to this discussion:

- Iron Noble<sup>10</sup> (ACV in Operations Other Than War [OOTW]) - ACV (or Cougar) squadrons carrying out OOTW tasks with varied groups of friendly troops;
- Bronze Pike<sup>11</sup> (armoured reconnaissance [recce] squadron operations) - two different recce squadron structures, one of which used the ACV for the counter-recce/anti-tank role;
- Quarré de fer<sup>12</sup> (ACV in warfighting) - ACV (or M1A2 tank) battle group carrying out flank guard operations;
- Iron Renaissance<sup>13</sup> (LAV III in combat operations) - elements of a LAV III battle group, including a Leopard C2 tank squadron, carrying out battle group defensive and company group offensive operations;
- Bronze Shield<sup>14</sup> (a classified study on volumetric munitions) - based on the Iron Renaissance defensive vignette. The battle group's DFSV squadron used various tanks and DFSVs in different runs; and
- Iron Unguis<sup>15</sup> (an infantry anti-armour mix study) - elements of a LAV III battle group, including a Leopard C2 tank squadron (-), carrying out flank guard operations.

These studies made use of research wargaming, employing the Janus computer war game, to gather data for operational research analysis. In each of the studies, Canadian soldiers carried out combat operations against a sponsor-mandated mechanized Red force. Both sides' forces were equipped with different mixtures and types of AFVs. For study purposes, Blue's forces did not have the full suite of combat equipment that we would hope would be available to Canadian soldiers carrying out combat operations as part of a coalition or alliance. Red's forces were similarly limited. These restrictions did not affect the validity of the studies but instead supported the particular questions the sponsors needed answered. At the same time, these studies can give us some feel for how our ground forces would fare in a battle where they did not benefit from the full panoply of allied or coalition supporting equipment.<sup>16</sup> From these studies it is useful to summarize, specifically, the experience of the Leopard C2/ACV.

In some of the studies, the Leopard C2/ACV was armed with and without a through-the-barrel missile (TBM). In the remainder of the studies, the DFSV used was not provided with such a missile at all.

The first point to note about the presence of the Leopard C2/ACV, which may appear obvious, was its importance to the conduct of Blue's operations, even in studies that did not focus on it. Despite the presence of 155 mm artillery and a suite of infantry anti-armour weapons, including the TOW missile, the Leopard C2/ACV was generally the single most important Blue system in terms of destroying Red systems. In these

studies, its contribution ranged from 37.5% of the key Red systems destroyed by the mechanized battle group (-) in Iron Unguis, to over 80% of the key Red systems destroyed by the armoured battle group in Quarré de Fer.<sup>17</sup> Even when just six ACVs were used as part of an armoured recce squadron that had 39 other AFVs,<sup>18</sup> they inflicted losses on selected Red systems ranging from 7% to 33.3% to 69.6% of total squadron kills, depending on the squadron's mission.<sup>19</sup>

This high level of contribution came, however, at a corresponding cost to the Leopard C2/ACV squadrons involved. The weakness of the 105 mm L7 tank gun against the armour of modern main battle tanks, like the T80U and the thin armour of the Leopard C2/ACV, meant that Blue was at a serious disadvantage when faced by a modern Red force. Losses to the involved Leopard C2s/ACVs ranged from 17% to over 70% during the battles in question.<sup>20</sup> When required, in Quarré de Fer, to assault a hastily deployed force less than one-quarter its strength, an ACV half squadron lost over 55% of its strength.<sup>21</sup> Even in the stealthier arena of armoured recce, the ACV element of the Bronze Pike recce squadron lost from 11.1% to 22.2% to 77.8% of its strength,<sup>22</sup> the range of losses again depended on the squadron's mission. The contribution and subsequent overmatching of Canada's principal land warfare weapon system is aptly summarized in the following quote from the Quarré de Fer report:

The shortcomings of the ACV (*Note: equally applicable to the Leopard C2*) severely limited the tactical flexibility of the BLUE force and created serious deployment problems for defensive operations ... using a flanking ambush tactic and firing from defilade, the ACV was successful at destroying RED and in particular the T80U. However, once detected, superior RED firepower and greater stand-off range combined with the lack of armour protection made the ACV extremely vulnerable ... from any range or aspect.<sup>23</sup>

Considering the limited number of DFSVs available to a Canadian formation, the level of losses experienced in these studies is not sustainable. Undertaking combat operations, expecting such losses, would raise serious moral and morale issues. Therefore, ways must be found to avoid such losses. Assuming that a more capable vehicle is not a politically acceptable or technologically feasible option, ways must be found to make the Leopard C2 or the ACV more survivable and lethal. Quarré de Fer looked at this question. It considered adding the following:

- enough armour over the ACV's frontal 60° to stop a 125 mm SABOT round at 1,000 m; or
- a through-the-barrel missile (TBM) capable of penetrating the frontal armour of a T80U; or
- adding both the extra armour and a TBM.<sup>24</sup>

Quarré de Fer found that adding a TBM was the most practical and effective enhancement of the three options.<sup>25</sup> Let us now consider whether the other studies mentioned support such a conclusion.

For study reasons, Iron Noble did not use an ACV armed with a TBM. However, the project's report often commented that the provision of a TBM would have been desirable for the OOTW (operations other than war) being considered.<sup>26</sup> A similar situation occurred with Bronze Pike where the

ACV was not equipped with a TBM either. This study often commented on the utility of the ACV having a long-range capability, such as is offered by this type of weapon.<sup>27</sup> This capability would have given Blue the choice to inflict early attrition, the value of which, in terms of reduced Blue losses and an improved loss exchange ratio, was clearly demonstrated during the Iron Unguis study.<sup>28</sup> While this latter study did not specifically mention TBMs, it did recommend that the Land Force “investigate ways of providing the LEO C2 with the ability to destroy modern (tanks) frontally.”<sup>29</sup> A TBM would offer such a capability.

Iron Renaissance used one Leopard C2 equipped with a TBM and one without. This comparative situation emphasized the value of a TBM. It showed that in defensive operations, even with relatively short (compared to the missile's maximum effective range) fields of fire, when the Leopard C2 did not have a TBM, the Blue force suffered 1.5 times the losses compared to when a TBM was present. Further, when deployed without a TBM, the Leopard C2 squadron lost 16 tanks (of 19) during the battle, compared with 12 in the Iron Renaissance reference case.<sup>30</sup>

Bronze Shield further supported this conclusion. In terms of both Blue mission success and the Blue loss exchange ratio, Blue did much worse during defensive operations in those cases where a Leopard C2/ACV without a TBM was present, compared to when a TBM-armed Leopard C2 was used.<sup>31</sup>

The use of TBMs is not a pie-in-the-sky concept. Russian tanks have been equipped with the AT-8, AT-10 and AT-11 missiles for years. Two TBM designs compatible with the 105 mm L7 tank gun are being developed. These are the Russian/German Spear and the Israeli LAHAT. Key details about these TBMs are shown at Table 2.

Care must be taken not to see the provision of a TBM as addressing all the weaknesses of a Leopard C2 or ACV. Only indirectly, by achieving early attrition and inflicting more casualties – hopefully at long range, does such a technology reduce Blue losses. The Leopard C2 and ACV remain vulnerable to any modern large calibre tank/anti-tank weapon. Thus, when the ACV (and by extension the Leopard C2) is forced to manoeuvre in the presence of the enemy, Quarré de Fer found that “it was still very vulnerable to both direct and indirect fire.”<sup>33</sup> However, in a situation where the CF is unable to address all of its current weaknesses, addressing significant outstanding combat power issues is still an improvement.

## CONCLUSION

It is frequently claimed that an RMA is occurring and is changing how wars are conducted and experienced by armies that have a mastery of Information Age equipment and weapons. RMA proponents sometimes paint a very rosy picture of future wars unfolding with a bloodless inevitability of victory.

However, the writings of Clausewitz, the Canadian Army's own overarching doctrine manuals and numerous examples from history all warn us that the conduct of military operations does not always turn out as intended. This unpredictability means that it is imprudent to enter battle depending on others for basic combat capability. Thus, the Canadian Army formations committed to combat operations should do so with full control of the basic combat functions they need to fight, survive and succeed. One such function is the ability to destroy enemy tanks and other AFVs.

Performance Characteristic	Spear	LAHAT
Range	5,000 m	At least 6,000 m
Launching Calibre	105 mm	105 mm / 120 mm
Penetration	650 – 700 mm	Not stated
Warhead Type	Tandem HEAT	Tandem HEAT
Guidance Method	Laser beam rider	Laser guided by launching vehicle or other laser designator
Status	Marketed by Russia and Germany	Test firings carried out

Table 2: Summary of Key Information – TBM<sup>32</sup>

Unclassified estimates show that the world's armies hold over 40,000 modern main battle tanks and tens of thousands of older, but still lethal, tanks. Many of these tanks are, or could be, present in areas where the Canadian Forces might be required to operate, possibly belonging to nations or groups whose aims are hostile to those of the deployed Canadian force.

Recent Canadian operational research studies provide some insights on how Canadian soldiers would fare in dealing with these tanks. They indicate that Canadian formations and battle groups may have to depend significantly on the performance of their integral DFSV, currently the Leopard C2 tank and possibly an ACV in the future, to defeat these tanks and their supporting mechanized forces. In these studies, the Leopard C2/ACV often inflicted over 48% of the enemy's casualties.

In these same studies, the Leopard C2/ACV suffered heavy losses, at times losing up to 60% – 70% of the Leopard C2s/ACVs deployed. Thus, there is good reason to believe that Leopard C2/ACV squadrons deployed in combat operations will suffer unsustainable losses. As their importance places them in the forefront of battle and attracts hostile attention, the weakness of their armour protection and the lack of armour penetration of their 105 mm cannon will leave them at a disadvantage.

During some of these studies, the Leopard C2 tanks and ACVs were provided with a through-the-barrel missile, like the Israeli LAHAT or Russo-German Spear, as a means of improving their performance. This addition greatly increased their ability to destroy hostile fighting vehicles, especially enemy tanks. This enhanced performance also significantly reduced

(up to 33%) Canadian losses, which further aided in the defeat of the enemy and gave the Canadian force greater capability to carry on with subsequent missions.

Adding such a missile does not address all of the weaknesses of a Leopard C2/ACV. However, in the absence of the ability or will to procure a suitable replacement vehicle, providing them with the capability to inflict early attrition on an enemy force is worthwhile.

Therefore, this author recommends that the army seriously consider the provision of a through-the-barrel missile to the Leopard C2 and to any prospective ACV.



## ABOUT THE AUTHOR...

Major Les Mader is a graduate of the Collège militaire royal de Saint-Jean and the Army Command and Staff Course Division II at Shrivenham. He has served with air defence and field artillery units in Germany, Valcartier and Cyprus. He is presently serving with the Research Wargames Team in the Operational Research Division at National Defence Headquarters.

## ENDNOTES

1. Captain Simon Bernard's interesting article, *The Revolution in Military Affairs: Approach With Caution*, in the Winter 2000/Spring 2001 edition of the *Army Doctrine and Training Bulletin* (Vol. 3, No. 4/Vol. 4, No. 1) is a useful introduction to this discussion and presents a thoughtful viewpoint on the topic of RMA. Dr E.C. Sloan, D Strat A Project, Report No. 2000/14 *Canada and the Revolution in Military Affairs*, (Ottawa: Canadian Government Publications, 2000), presents another, frequently heard viewpoint.
  2. Personal paraphrasing from numerous discussions of the Tofflers' book and Captain Simon Bernard's article above.
  3. See for example: Tom Clancy, *The Bear and The Dragon*, (New York: G.P. Putnam's Sons, 2000).
  4. See B-GL-300-001/FP-000, *Conduct of Land Operations*, Ch. 1 and 2.
  5. See B-GL-300-000/FP-000, *Canada's Army: We Stand on Guard For Thee*, (Ottawa: DGPA Creative Services, 1998), p. 114.
  6. See *Conduct of Land Operations*, Chapters 3 and 5 for further details of the linkage of lines of operation, decisive points and centres of gravity to the accomplishment of a campaign plan.
  7. See Clausewitz's view on friction. An example reference: ed. Anatol Rapoport, *Clausewitz On War*, (Middlesex England: Penguin Books, 1968). Another reference highlighting the importance of friction is: *Canada's Army: We Stand on Guard For Thee*, (Ottawa: DGPA Creative Services, 1998), p. 77.
- A recent article in the *Marine Corps Gazette* highlights the possibility

that even formal agreements for support between nations and armed forces can fall apart under the stress of a crisis. In the case cited, US Army commitments to provide transportation support to the Marines were not properly met during Operation Desert Shield; *Marine Corps Gazette*, May 2001, p. 77.

8. Table 1 considers M1A1/M1A2, Challenger 1 and 2, T64, T72, T80, T90, Japanese Type 90, LeClerc, Leopard 2, Chinese Type 88C, Type 98 and Type 85-IIAP, and Merkava 3 main battle tanks. It was developed from Jane's on the Defence Intranet 2001 and *The Military Balance 2000 – 2001*, (London: Oxford University Press, 2001).
  9. For example, Jane's on the Defence Intranet stills shows that there are over 20,000 T54/T55 in service around the world.
  10. Major D.C. Wilkinson and M.K. Ormrod, ORD Project Report PR 9607 IRON NOBLE: *Armoured Combat Vehicle Study*, (Ottawa: Canadian Government Publications, 1996).
  11. Major R.J. Round and F.W.P. Cameron, ORD Project Report PR 9708 BRONZE PIKE – *LAV Recce Vehicle (COYOTE) Study*, (Ottawa: Canadian Government Publications, 1997).
  12. M.K. Ormrod, P.R.S. and Noël de Tilly Major J.J.L.C. Bender, ORD Project Report PR 9817 QUARRÉ de FER: *Analysis of the ACV in Warfighting Tasks*, (Ottawa: Canadian Government Publications, 1998).
  13. M.K. Ormrod, P.R.S. Bender and Major D.T. Davison, ORD Project Report PR 9905 IRON RENAISSANCE: *Evaluation of the LAV III Combat Team in Conventional War Operations*, (Ottawa: Canadian Government Publications, 1999).
  14. Major L.R. Mader, P.S. Ladouceur and P. Bender, ORD Project Report PR 0002 BRONZE SHIELD: *Evaluation of the Threat From Volumetric Munitions in a Combined Arms Battle (U)*, (Ottawa: Canadian Government Publications, 2000), (SECRET AUSCANUKUS).
  15. Major J. De Carufel, M.K. Ormrod and P.R.S. Bender, ORD Project Report PR 2001/06, IRON UNGUIS *An Examination of Proposed Anti-armour Weapon Options for the Infantry*, (Ottawa: Canadian Government Publications, 2001).
  16. Notably, attack helicopters, fixed wing aircraft and high end ISTAR equipment.
  17. In IRON NOBLE, the ACV inflicted 49% and 55% of Red AFV losses during combat team/company group defensive and offensive operations in OOTW, respectively. IRON NOBLE report, Tables VI and XVIII.
- In IRON RENAISSANCE, the Leopard C2 caused 52.4% of the

losses of Red key systems during Blue defensive operations. IRON RENAISSANCE report, Fig. 6.

In QUARRÉ de FER, the ACV inflicted 85.6% and 86.8% of the losses to key Red systems during defensive and offensive operations by an armoured battle group. QUARRÉ de FER report, Fig. 5 and 9.

In IRON UNGUIS, the Leopard C2 inflicted, on average, 37.5% of the losses of key RED systems during hasty defensive operations. IRON UNGUIS report, Fig. 10.

In BRONZE SHIELD defensive operations, the Leopard C2s inflicted, on average, 48% of total Red losses. BRONZE SHIELD report, Fig. 11.

18. Twenty-two Coyotes, 12 armoured scout cars, four support troop section carriers and one LAV III. BRONZE PIKE report, Fig. 2.

19. *Ibid.* pp. G-4 – G-6, G-16 and G-29.

20. The ACV suffered 57.6% and 17.4% losses during combat team/company group defensive and offensive operations in OOTW, respectively. IRON NOBLE report, Tables VII and XIX.

In the IRON RENAISSANCE defensive vignette, Blue lost 12 of 19 Leopards. IRON RENAISSANCE report, p. 36.

Losses of ACVs in QUARRÉ de FER were 26% in the defensive vignette and 37% in the counter-attack vignette, deduced from the Blue force structure and the losses shown in Figures 6 and 10 of the QUARRÉ de FER report.

In the IRON UNGUIS hasty defence vignette, Blue lost, on average, 60.8% of the 12 involved Leopard C2s. IRON UNGUIS report, Figure 11.

In BRONZE SHIELD BLUE lost over 70% of his Leopard C2s during defensive operations. BRONZE SHIELD report, Figure 7.

21. QUARRÉ de FER report, Table 3.

22. Extracted from BRONZE PIKE report, pp. G-8, G-16 and G-29 – G-30.

23. QUARRÉ de FER report, p. 19.

24. *Ibid.* p. 8.

25. *Ibid.* p. 40.

26. IRON NOBLE report, pp. 38, 49, 62 and 84.

27. BRONZE PIKE, pp. 37, 53, 57, 68 and G-26.

28. IRON UNGUIS report, p. iii.

29. *Ibid.* p. 41.

30. IRON RENAISSANCE report, p. 36.

31. BRONZE SHIELD report, Figures 15 and 16.

32. Information from Jane's on the Defence Intranet and *Jane's International Defence Review* 12/1998, p. 17.

33. QUARRÉ de FER report, p. 38.

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# The Continuum of Leadership: A Model for the Future

by Sergeant Arthur Majoor

*Managing Editor's Note: Readers are advised that, for purposes of this article, the author's use of the term "non-commissioned officer or NCO" has been expanded to include warrant officers. NCOs traditionally include corporals, senior NCOs and sergeants, while warrant officers are a distinct group (consisting of three ranks). Within the Canadian Forces, our use of the term "senior NCOs" to include both sergeants and warrant officers is incorrect and should be avoided.*

## INTRODUCTION

**T**he confluence of changes in demographics, technology and the domestic and international security environment will require a massive change in the way the Canadian Forces are organized. A smaller Canadian Forces will have to be able to respond swiftly to being deployed in a crisis, then take the initiative in theatre in order to achieve desired goals.

Future successful organizations will rely on their ability to collect, analyse and act on information rapidly. This may require non-hierarchical organizations and structures which transfer decision making to the lowest level possible. In the future, will the number of NCO rank levels be diminished?<sup>1</sup>

In order to create a smaller, faster and "smarter" army to deal with the changing security environment, traditional hierarchies and organizations have to be dismantled to facilitate rapid decision-making, increase accountability, improve tactical and strategic mobility and conserve manpower. One result will be the flattening of the rank structure and the elimination the traditional non-commissioned officer (NCO). This will be a two-stage process.

In creating the Army of Tomorrow, streamlining of current organizations will be required to conserve scarce manpower and effectively deploy and use Revolution in Military Affairs' (RMA) command, control, communications, computer, information (C4I) architecture. In the Army of the Future, a self-contained cellular, rather than a hierarchical, structure will be the norm, with unit control by self organization based on simple rule sets understood by all members, at all levels.

## FROM THE ARMY OF THE PAST TO THE ARMY OF TODAY

**M**odern armies have been evolving since the age of black powder warfare to become highly vertical, hierarchical organizations. NCOs have been the backbone of this system since regiments first were introduced in the 1600s, providing training and close supervision of masses of ill educated and often poorly motivated soldiers. The supernumerary file on parade is

derived from the sergeant's role in a musket firing line: to dress the line for maximum firepower and prevent any soldier from turning or fleeing, by force, if necessary. Large numbers of NCOs also provided cohesion and leadership for units when casualties were sustained.

General staffs developed during the 1800s in order to coordinate and control armies of increasing size and to harness the resources of nations to support these armies in the field. As staffs increased in size and importance, technical members began to be attached to the staff to ensure the smooth flow of information. These NCOs first handled filing and correspondence, then became responsible for establishing and operating telegraphs, telephones, radios and now, information technology (IT) equipment. NCOs also perform other supporting functions for staffs, which have continued to grow throughout the last century, to integrate resources to support the commander's intent.



**Do the technological and social changes of the last four centuries also demand a change in the roles and relationships of officers and non-commissioned personnel? (Courtesy National Archives of Canada)**

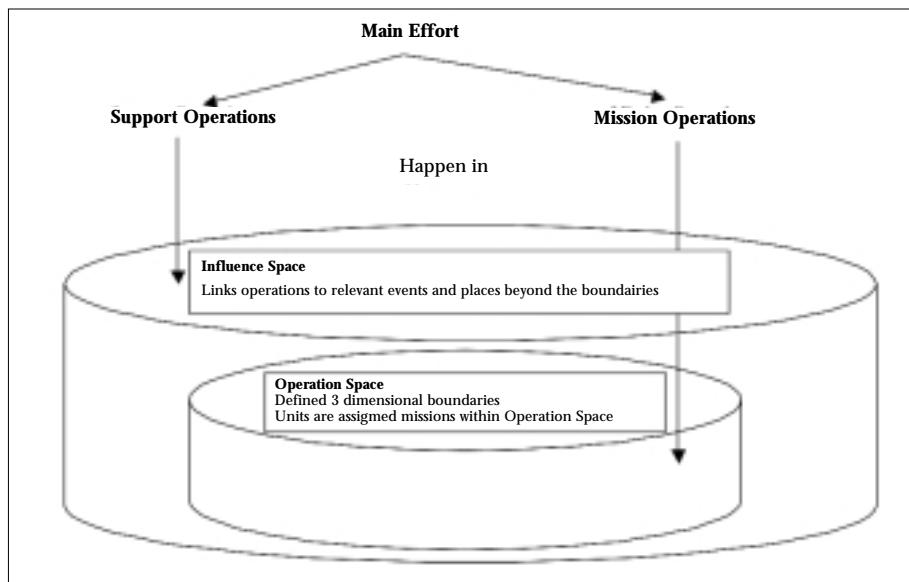


Figure 1. Conceptual Framework<sup>2</sup>

The last source of growth of the NCO corps was the introduction of mechanization. As machine age armies developed, skilled people were required to maintain the equipment, and more were required to perform the essential bookkeeping tasks to provide fuel, ammunition and spare parts through the length of the logistics tail. Without experienced NCOs to train and lead this technical cadre, mechanized forces would not be able to function. Large numbers of soldiers who required supervision, supporting large amounts of complex equipment and the need for error checking at many levels in the organization, have bred a large infrastructure of NCOs. An elaborate hierarchy of ranks and appointments to mark out responsibility, provide internal cohesion and create a path for career advancement has grown along with the size of the NCO corps.

#### FACTORS AFFECTING ORGANIZATION IN THE ARMY OF TOMORROW

Fewer people of military age will be available in the future because of Canada's changing demographic profile.<sup>3</sup> The Canadian Forces will be competing with the civilian economy for a smaller pool of skilled people. The Canadian Forces will have a smaller resource base on which to grow, yet may face an accelerating operational tempo as factors inflaming conflicts increase.<sup>4</sup>

The types of operations conducted will be different, too. Canadian soldiers will face asymmetric and unconventional threats. Low force/space ratio and high mobility by both sides make linear battles rare occurrences. Modalities of conflict can be global in nature, especially attacks through cyberspace, but can also take the form of transnational organizations, such as criminal cartels and terrorist organizations like the Liberation Tigers of

Tamil Eelam (LTTE), caching men and equipment in one nation and conducting operations elsewhere on the globe. Higher tempos of operation will require faster decision-making. Military encounters will probably take the form of short, high intensity ambushes or running 360 firefights.<sup>5</sup> Power *must* be pushed down to the lowest level so sub and sub-sub units can rapidly make and execute decisions even in the absence of complete information.

Technological changes will also be a factor in changing the structure of the Army of the Future. Automated command and control architecture will

be implemented for routine activities, reducing the need for dedicated personnel to monitor and supervise some staff and logistics tasks. Within the combat arms, there will be a blurring of roles. Arms are becoming defacto combined arms teams (e.g., LAV Infantry battalions).<sup>6</sup> Traditional hierarchies and organizations for branches will no longer be appropriate. Arms of service must change orientation from "means" based to "outcome" based.<sup>7</sup>

#### CONCEPTUAL FRAMEWORK

Each level of activity falls into "operation space" (i.e., the physical place where activities happen) and "influence space," which includes links to all activities and places to support events in "operation space." Operation space and influence space are determined by the size of the organizations involved. Large operations involving battlegroups or coalition organizations may well have multiple layers of operation space and influence space together, like a set of nested cups (Figure 1).<sup>8</sup>

Leadership roles in this framework will be divided between activities in operation space and influence space. For speed of decision-making, co-

***Fewer people of military age will be available in the future because of Canada's changing demographic profile.***

ordination of action and accountability, there should be a minimum number of people involved, the absolute minimum being two. All units at all levels would follow the "rule of two."

Within operation space, leadership would be vested in the "executive officer." This officer would have mission orientation and tactical command of the unit within the assigned operation space. The executive officer would receive direction from higher echelons but conduct missions, communicate horizontally with peers in adjoining areas to gain situational awareness and effect "swarming" tactics against identified enemies.



Within influence space, leadership would be vested in the “support officer.” This officer would coordinate assets and resources for the executive officer. In order to support the unit on extended operations, the support officer would communicate vertically to higher echelons to obtain outside resources and horizontally, with peers, to share existing resources.

## THE CONTINUUM OF LEADERSHIP

Since the same model of leadership roles and responsibilities is applied throughout the organization, it would be possible to have a continuous progression of leadership from the lowest to the highest levels. Differentiation between “commissioned” and “non-commissioned” officers would become moot. The first leadership position would be section support officer, corresponding to a current master corporal. The individual in that role would have the opportunity to advance based on the successful completion of tasks and duties. *Command authority* is achieved through the process of selection, screening and training, while *command appointment* is vested in the duties and responsibilities at level of leadership achieved.

Each person selected for advancement would first be trained and appointed to be a support officer of the appropriate level. After a successful tour as support officer, that person would then be eligible for training and promotion to become an executive officer for that level. Executive officers would have the important secondary duty to prepare their support officers to take over as executives. In turn, the executive officer would be promoted to become a support officer for the next level of command.<sup>9</sup> Thus a section support officer would become a section executive officer (current sergeant), before becoming a platoon support officer (current warrant officer), then a platoon executive officer (current lieutenant), and so on. If the requirement for leaders to have diplomas or degrees is considered essential, then advancing leaders would be given the opportunity to take courses through distance learning. Alternatively,

leadership training could be devised in such a manner that leadership courses count as credits towards a degree or diploma.

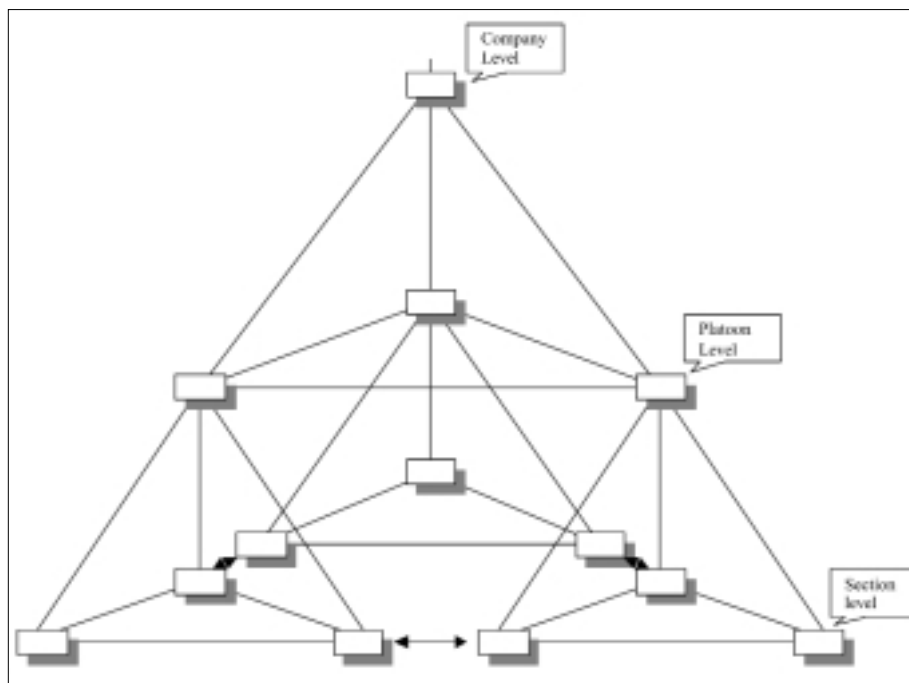
The traditional roles of warrant officers and senior NCOs to train, advise and support junior officers and subordinate NCOs would be taken by the chain of command established between executive officers and their support officers. As well, the vertical relationship between support officers at different levels is another channel for training, advice and support. Unit executive officers would receive the benefit of these support channels during their tour as support officers and would support each other as peers during their tours as executive officers.

In order to envision the relationship between executive and support elements within the organization, the traditional “flat” organization chart has to be discarded. Instead, a “three dimensional” chart has to be constructed. The reader should visualize a lattice of tetrahedrons (geometric solids with four faces made up of equilateral triangles), with each vertex representing a sub or sub-sub unit and the edges representing lines of communication (Figure 2). The

executive officers would primarily communicate along the sheets formed by joining the bases of the tetrahedrons, while the support officers would primarily communicate up and down the vertical legs. Like a physical pyramid, the structure would be inherently strong since work and information can be spread along multiple paths.

## CHANGES IN STAFF

Headquarters staffs will become far smaller in the Army of Tomorrow. Many factors will drive this change. Decision-making and accountability is faster in a small organization. Small staffs have greater tactical and strategic mobility. As well, a physically smaller staff has greater protection from enemy action, being easier to move and conceal. Several technological factors will also drive this change. The introduction of automated C4I architecture makes data handling faster and more accurate, without dedicated human intervention at each step. Streamlining of staff functions and reduction of extraneous work<sup>10</sup> will be required to make automated systems work in the most efficient manner. External factors will also be driving the change. There will be a need to



**Figure 2: “Lattice” Org Chart. One company-sized organization shown for clarity. Horizontal lines of communication link Executive Officers, while vertical lines of communication link Support Officers.**

conserve manpower for the “sharp end” due to a smaller recruit base. Smaller staffs also provide financial savings for the organization as a whole, through de-layering and absolute reduction of the number of positions, as well as associated overhead costs.

Each staff cell (including the command cell) would have only have two people in the leadership positions, following the “rule of two” (i.e., an executive officer to direct events in operation space and a support officer to tie in support through influence space). Other staff members within the branches may operate as technical specialists or advisors to the executive or support officers, depending on their roles. Branch advisors and specialists serve under their respective officers and do not have command appointments themselves.

NCOs, civilians under contract and leadership personnel undergoing extended training (such as staff college) can be placed here. As well, former executive and support officers who have “topped out” and are no longer interested in or suitable for advancement can also find a role in the staff.

Automation of routine functions will result in steep reductions in manpower requirements. This will allow a re-allocation of the remaining personnel to positions where skilled human intervention is still essential. These areas would include the G2 branch since the collection, processing and distribution of information are the ultimate force multipliers in an RMA enabled army. The G5 branch will require many specialists to interface between the Canadian Forces and civil authorities and Non-Governmental Organizations (NGOs), particularly in operations other than war, or as part of “three-block war” scenarios. Liaison with local and international police forces will also be important when operating against “Criminal Enterprise Armies” (CEAs). The G8 branch will also have a high level of importance, as operations become more coalition driven, or unilateral operations cross national and international boundaries (such as hot pursuit of CEAs).

Technology will shrink the G1 branch, due to the extensive use of personnel databases and other automated personnel functions. Pay, medical and personnel data may be contained in soldier’s “smart cards”, and the principle of “supply pull” by unit support officers will replace “staff push,” when supporting soldiers and units. The G3 branch will be relatively small since strategic goals will have been defined in advance of launching an operation. Operations in support of the strategy will be typically generated and executed by unit executive officers, acting in conjunction with their peers. The G4 branch will shrink due to high levels of automation being applied to supply flows

and functions. This will mirror practices found in many business organizations. Technological innovations like IPv6 give enough computer addresses that each round of ammunition could be given a unique identifier, if required.<sup>11</sup> The G6 branch will perhaps be the most important

## ***In order for the Canadian Forces to gain and maintain the information advantage, many changes will have to be made.***

functional branch since this will be where the infrastructure for automated C4I architecture is planned and implemented. Technological advances such as self-programming neural networks and embedded system functionality could reduce the requirement for large numbers of IT specialists.<sup>12</sup>

### **THE ROLE OF THE SUPPORT SPECIALISTS**

Combat service support personnel, branch advisors and specialists are required for their technical expertise, rather than their ability to lead. There is no real requirement for these people to have leadership authority, although it would be “best practice” to screen them periodically for leadership potential and place the best into the leadership stream for training and advancement.

Their career progression model would be based on a progressive series of incentives, allowing these personnel to receive pay increments and speciality pay, to reflect increases in education, skill and experience in their jobs. This would also allow for lateral recruitment of specialists from the civilian economy and provide a means of keeping talented people inside the armed forces by offering incentives similar to the market place.

Granting each person a great deal of responsibility allows for the reduction in the number of supervisory ranks. Use of the following factors will generate internal cohesion and loyalty:



What do we want them to do and how will they do it? (Courtesy CFPU)

- Treat everyone fairly, all participating team members share rewards.
- Cross-train all team members to ensure mutual understanding and build co-operation.
- Have all members contribute towards finding solutions to problems and challenges.
- Give team members responsibility that matters.

Companies as varied as Volvo, Saturn, Consolidated Diesel<sup>13</sup> and Norsk Hydro<sup>14</sup> use this team approach to empower workers. The results are high productivity, low employee turnover and a sharp reduction in the required number of supervisory personnel. Teams can rapidly adapt to changes caused by market forces or internal events (e.g., power outages and broken machinery) with little fuss or disruption to the overall organization.

## FACTORS AFFECTING ORGANIZATION IN THE ARMY OF THE FUTURE

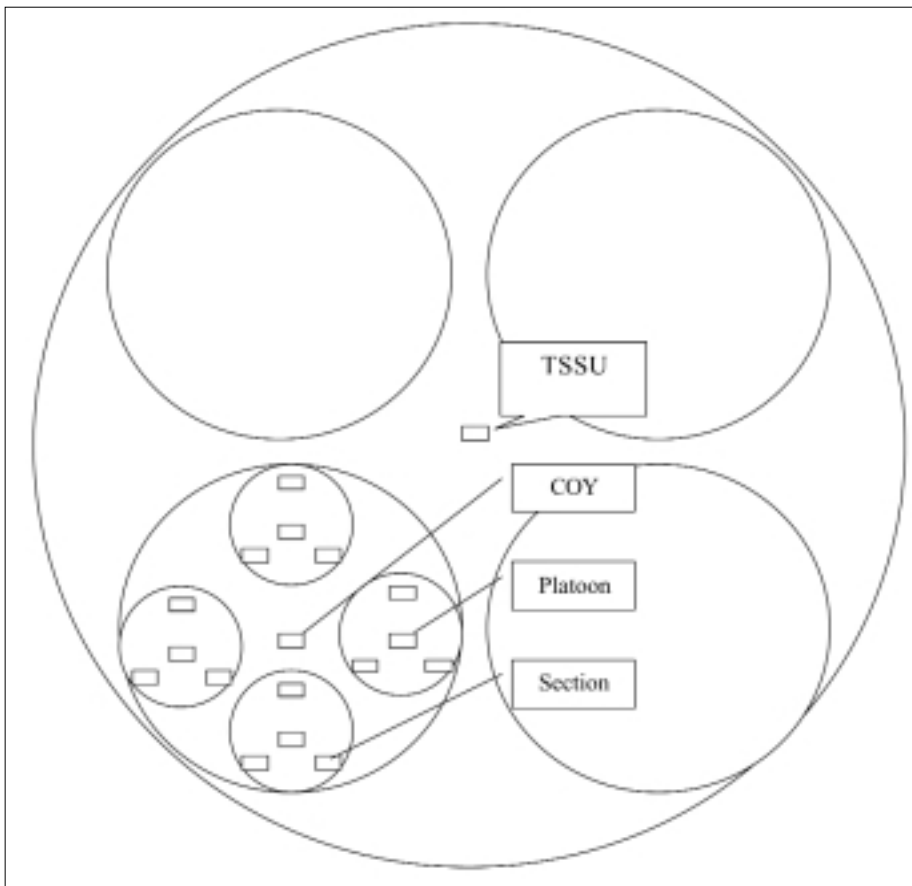
To counter the Western advantage of highly mobile, sensor driven, RMA enabled forces, potential opponents will be forced to operate in places that degrade sensor technology and develop tactics against information assets. High quality information advantages will be required to find opponents and take effective action against them.

In order for the Canadian Forces to gain and maintain the information advantage, many changes will have to be made. RMA will introduce automated command and control architecture for most activities. Dense “mesh” communication topologies will be created for transfer of information. All equipment will have high order functionality built-in to automatically create information grids.

Units will be reshaped through integration of newly mature technologies with the automated command and control architecture of the Army of Tomorrow to evolve into a more cellular organization. The blurring of “arms” will continue, to the point that it may no longer be possible to speak of a unit as belonging to an arm at all. One possibility would be to mount infantry soldiers in vertical take-off aircraft. The aircraft would be armed with an electromagnetic cannon and equipped with extensive sensor capability. Such a unit would combine the features of air-mobile infantry with the firepower and fire support capabilities of armour and artillery.<sup>15</sup> An alternative vision would be to equip units with cybernetic and robotic assistants that provide extended sensor capability and give section-sized units both long and short-range fire-power.<sup>16</sup>

The CF concept of operations calls for fielding “Tactical Self Sufficient Units” (TSSU).<sup>17</sup> To create and operate such units, the advanced C4I architecture developed for the Army of Tomorrow will be wedded with mature technologies that free units from the supply chain. Future technological advances, such as “on the spot” manufacturing of advanced electronics,<sup>18</sup> stereolithography,<sup>19</sup> portable fuel reformulation,<sup>20</sup> broadcast energy to power vehicles and systems, and nanotechnology,<sup>21</sup> change the entire concept of having a “logistics tail,” and the need for dedicated personnel to operate it. Units may be almost self sufficient, only requiring inputs of raw material, energy and design templates to operate. The size of such a cellular unit would depend on the size and complexity of the supporting devices. Portable fabricators the size of trucks would limit the size of the cellular unit to the equivalent of a company, while printer-sized fabricators could be carried in backpacks and make a section the basic cellular unit. The concept of influence space will lean more towards information, as dense “mesh” communications topologies proliferate.

Dense “mesh” communication topologies would be automatically created as units and systems join together for operations. This mesh would enable the passage of high quality



**Figure 3: TSSU with three levels of recursion.** This figure represents a battalion-sized TSSU, built around platoon sized cellular units. For clarity, only one complete sub-unit is fully diagrammed. The relationships between the various elements are traced on the surface and through the middle of the sphere they inhabit, with the HQ element considered to be in the center of its sphere and at the same time, on the surface of the next larger one.

information, allowing self directed teams to make decisions based on accurate data, application of the rules set and interpretation of the commander's intent. In order to envision the communications topologies without losing flexibility, organizations might be best represented by placing sub-sub-units

### ***Staffs, as presently constituted, will no longer exist.***

on the surface of a sphere, with the headquarters' sub-unit in the centre. Lines of communications are marked by tracing paths both across the surface and through the centre of the sphere. The headquarters' sub-unit is to be placed on the surface of a larger sphere with other units of similar position, reporting to an HQ which is in the centre of that sphere (Figure 3) and also on the surface of a larger sphere representing the next higher echelon. This model allows multiple levels of recursion from cell to company to TSSU to battlegroup to area or coalition formation, and so on.<sup>22</sup> It also avoids the rigidity of models based on solid geometry, since in order to fit a geometric pattern, a unit must have an arbitrary number of sub-units based on the number of available vertices, rather than operational requirements.

Staffs, as presently constituted, will no longer exist. Most coordination of units and resources will be through application of the common rule sets by units sharing similar configurations. Unusual situations will be dealt with through forming "tiger teams," pooling available information and computational power and moving through influence space to access high-level (i.e., national or coalition) resources. Liaison with Allied forces, police and NGOs will be the responsibility of the support officer on the ground, assisted by special advisors, if required.

Non-hierarchical structures can continue to function even if large parts are damaged or destroyed. Units achieve self-organization and coordination through simple rules-based organization. Self-contained, cellular organizations will be able to carry out missions and

work in a co-operative fashion through the use of self organization, in the same

fashion that a flock of birds or school of fish can remain a cohesive unit without central direction. Programming individuals, in a simulation called "Boids," to follow four simple rules can mimic the behaviour of a flock of birds in a computer program:

- Don't get too close to anything, including other boids.
- Try to match your velocity to that of other boids around you.
- Always move toward the centre of the pack of nearby boids.
- Avoid obstacles.<sup>23</sup>

Simple algorithms, mimicking the behaviour of ant colonies, have demonstrated a great deal of power in such diverse areas as pattern analysis, route planning and the co-operative distribution of resources.<sup>24</sup> As more knowledge of this field accumulates, self organization on larger and larger scales will become possible by training people and programming systems to follow the same simple rule sets overlaid with a clear commander's intent.<sup>25</sup>

### **CONCLUSION**

The reduction in rank structure for RMA-enabled Canadian Forces rests on the convergence of many factors. Fewer people of military age will be available in the future, given demographic changes and competition

for skilled people with the civilian economy. There will no longer be large numbers of soldiers who require supervision, large amounts of complex equipment that require an elaborate logistics tail, nor the need for error checking at many levels in the organization. Streamlined and automated functions reduce the need for dedicated personnel to direct and monitor many tasks that require one or more NCOs today. Supervision of large numbers of unskilled people will give way to self-direction by skilled teams and individuals to perform tasks.

Creating these new organizations will be a two-stage process. Reductions in available manpower and introduction of automated C4I architecture will be the driving forces in reorganizing rank structure in the Army of Tomorrow. Advances in organization, communication and logistics technology will be the basis from which to create cellular structures to replace traditional hierarchies in the Army of the Future.

Military organizations built along these lines will be able to rapidly collect, analyze and act upon information. Smaller, faster moving and "smarter" than the units they replace, they will be able to respond quickly when being deployed and take the initiative in theatre to achieve desired goals. Traditional hierarchies and rank structures will no longer be applicable or appropriate in these new organizations. The end result will be a flattening of the rank structure and a loss of the traditional NCO.



## ABOUT THE AUTHOR...

Sergeant Arthur Majoor holds a Business Finance Diploma from Fanshawe College and is currently enrolled in the Microsoft Certified Systems Engineer course. He joined the Canadian Forces in 1981 and served in the Regular Force until 1986, before transferring to the Reserve Force. His operational service includes a tour in Cyprus and disaster assistance during the Ice Storm in 1998. Sergeant Majoor is currently employed as the G6 IT Administrator with 31 Canadian Brigade Group Headquarters in London, Ontario.

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# Pre-deployment Training for Peace Support Operations: A Revisionist's Analysis

by Captain A.J. Vivian

*Deploying on a peace support operation is hardly a unique experience among combat arms personnel having served from 1992 to present in the Regular Force. Recently, the then Lieutenant Vivian had the opportunity to share in this experience that so many others have done before him. However, there are some aspects of my experience as a platoon commander prior to deploying overseas that do qualify it as being truly unique. As a platoon commander in the 2nd Battalion Princess Patricia's Canadian Light Infantry, the author was tasked with conducting pre-deployment training for a complete platoon that would deploy with the 3rd Battalion Princess Patricia's Canadian Light Infantry Battle Group on Rotation 6. The limitations of this task dictated that all of the training would have to be conducted at the platoon level in Winnipeg, independent from the remainder of the battle group. Having planned pre-deployment training as a platoon commander, and conducted it in its entirety at the platoon level, has given the author a vantage point not common among junior officers from which to preach his analysis and call for reform.*

## INTRODUCTION

The current model of pre-deployment training, designed to prepare a unit, sub-unit or group of individual soldiers for a peace support mission abroad, is costly, time consuming and largely redundant. Hypothesizing that the Canadian Forces will continue to commit its members to sustained missions like Bosnia, in combination with missions that call for a relatively rapid deployment like Kosovo, leads to one overwhelming conclusion: a more efficient pre-deployment training model is in strong demand. Indeed one that is less time consuming, and above all, one that allows units and sub-units to continually keep themselves within days of being



**Pre-deployment training. Members of the 3rd Battalion, Royal 22<sup>e</sup> Régiment, sprint forward after dismounting from an armoured vehicle in a section attack. (Courtesy CFPU).**

operationally ready, vice weeks or months. This proposed model would fit within an annual or continual training cycle in units, with the primary aim of ensuring they continually maintain a high standard of readiness prior to any overseas deployment, and a secondary aim of minimizing the disruption associated with the current model of pre-deployment training.

## INDIVIDUAL BATTLE TASK STANDARDS

That an army such as ours prescribes to two different battle task standards within the same organization or formation (one that is acceptable for

standard for infantry battle task standards within all units. Conversely, there exists another higher standard for units to attain prior to deploying on peace support missions: deployment level operational capability (DLOC).

The minimum acceptable battle task standards for all soldiers should reflect the minimum acceptable skill level to carry out tasks associated with their primary combat function. That is, the number of live grenades thrown or hand-held anti-armor weapons fired should not fluctuate between units training in Canada during field training exercises and units preparing to deploy on peace support operations. Certainly,

***The current model of pre-deployment training ... is costly, time consuming and largely redundant.***

non-deploying units, and one for deploying units) is paradoxical. Minimum level operational capabilities (MLOC) prescribes the minimum level

if a series of battle task standards are justified for units training in Canada to fight in a mid-to-high intensity conflict, it follows that the same or even lower



**Live Training.** A member of 2 Combat Engineer Regiment, warns his fellow soldiers to take cover as he races away from the Bangalore torpedo he has just ignited. This was part of a three-day live-fire and training exercise held to allow troops of the Canadian Battle Group stationed at Drvar, Bosnia-Herzegovina, to practise section and platoon attacks. (Courtesy CFPU).

degree of standards are applicable for low intensity conflicts or peace support operations.

Under a more efficient model of the pre-deployment training agenda, there would exist only one standard for individual battle tasks for all units conducting training cycles in Canada, including those preparing to embark on an operational tour. Soldiers in the Regular Force would all be trained to the same level; the same level that would be expected should they deploy anywhere on any type of mission. The net result would not only cut out a considerably large portion of pre-deployment training under the old model but would provide commanders with consistently trained units with an enhanced state of readiness.

## COLLECTIVE WARFIGHTING SKILLS

Combined operations at the combat team level, and collective warfighting skills from platoon down to half section and fire team level, including live fire, are key portions of gateway training prior to deploying on peace support operations. Training collectively in operational and tactical groups enhances all arms co-operation and sub-unit cohesion and further instills lateral confidence across formations at all command levels. It only

makes sense to train for high intensity conflict scenarios when attempting to impose peace sanctions in a relatively unstable and sometimes belligerent and unwelcome political climate. The validity of this type of high intensity training is not unsound in terms of its relevance prior to deployment on peace support operations. Rather, it is the absence of this continual training during Regular Force routine training cycles that is flawed.

Under a new model of pre-deployment training, collective all-arms dry and live fire exercises would be habitually

conducted and evaluated at battle group level and below. This, in addition to providing a continual training focus, would in theory keep operational units in the order of battle trained to a standard deployment level of readiness in terms of warfighting capability, thereby significantly streamlining the old pre-deployment model. Instead of spending time away from home for prolonged collective all arms warfighting exercises with the aim of establishing an acceptable standard just prior to deployment, units would focus on maintaining these skills at a level that would not require last minute evaluation.

As with individual battle task standards, the paradox between MLOC and DLOC standards for collective

***... mission specific training would evolve from a mere component of the phase-oriented current system to the main effort.***

warfighting skills is no longer acceptable. Units must continually train for a level that would allow deployment in any political climate at short notice, without an unnecessarily prolonged pre-deployment training phase.

## MISSION SPECIFIC TRAINING

Under a revisionist model of pre-deployment training, mission specific training would evolve from a mere component of the phase-oriented current system to the main effort. Mission-specific training exercises, aimed at creating accurate depictions of both the combination of the rural and urban geography, and incorporating probable unit and sub-unit missions with a trained cadre of exercise players, would form the basis of this training methodology. This methodology would aim at honing tailored, mission specific skill sets unique to peace support operations in specific geopolitical climates.

The aim of mission specific training, under the proposed system, would remain largely unchanged: to prepare deploying units for highly specialized jobs in often relatively complex or unfamiliar methods of operation, incorporating rules of engagement. The revisionist approach to mission specific training, however, will facilitate a far more in-depth understanding of specific target geopolitical climates and better prepare commanders and soldiers for not only the mission, but for region specific challenges as well.

The new system would continue to rely on training by the Peace Support Training Center (PSTC) for the majority of the "crash course," lecture-type training on local language, customs and rules of engagement (ROE) theory. However, a much greater emphasis would be placed on the practical application of force escalation procedures, mediation techniques and information

operations campaigns through the medium of 'free-play' exercises. These new style exercises could also facilitate the introduction of skill acquisition and development in formerly neglected areas of skill sets that remain crucial to the

success of peace support operations, such as crowd confrontation and human intelligence gathering.

These “free-play” exercises, although admittedly manpower intensive with exercise players and referees as control measures, would act as the transition lever between continual maintenance of deployment-level warfighting capability to peace support operations. This portion of pre-deployment training would be considerably longer under this new model vice the current one, but would still be more efficient. A portion of the time wasted on redundant, substandard and expensive training (MLOC – DLOC transition) under the current model could be reallocated to more effectively train for specific mission demands.

## ADMINISTRATIVE CONSIDERATIONS

Individual administrative problems associated with the current model of pre-deployment training are, by far, the most inexcusable aspect that requires immediate reform. Under the existing system, units’ standards regarding personal administrative deployment capability is only reviewed once a unit has

Under a revised pre-deployment system, all the personal administration associated with declaring a soldier operationally ready would already be complete and continually updated. New soldiers entering units would complete passport application and receive all necessary deployment level dental and medical appointments as part of their in-clearance procedures. Continual monitoring of the level of individual administrative readiness would be accomplished through methodical Departure Assistance Group’s (DAG) procedures, held three to four times in an annual training cycle. All personnel within units would be required to attend a specified, minimum number of these departure assistant groups to ensure their administrative affairs were in order. Documentation, such as passports and inoculation records, would annex a member’s personnel file, and, in the event of group or individual deployment, the applicable files could just be drawn from the unit’s orderly room. Not only would this increase the operational readiness of line units through continual monitoring of individual administrative readiness, it would also allow commanders to identify individual administrative problems for key personnel, prior to the reception of a warning order. They would then be



**What role for the Reserves? A soldier of The Queen’s Own Rifles of Canada serving with Para Company, 3rd Battalion, The Royal Canadian Regiment, guards the helicopter pad at Camp Normandy at Tomislavgrad, in Bosnia-Herzegovina, April 2001. (Courtesy CFPU).**

## *The Canadian Forces can no longer justify funding programs that do not contribute to our operational readiness.*

been alerted that it will embark overseas on peace support operations. Instead of focusing all resources on attaining a standardized mission specific skill set, the main effort morphs in to re-booking dental appointments, finding times for group inoculations and convincing the passport agency to issue individual passports in the absence of Canadian citizenship identification cards. The end result of units’ continual neglect of an enforced individual administrative standard is that the operational readiness of units, which depends on the readiness of its personnel, has been undermined by the absence of any kind of ongoing control measure. Consequently, the lack of an administrative standard has contributed to the shift of the main effort from quality training, to “tick in the box” training.

empowered to pressure individuals to maintain their responsibility to adhere to a basic level of deployment level administrative standards.

## FUNDING

This new system of continual readiness that is being proposed has one serious limitation: funding. In fact, even my young contemporaries have been quick to criticize this plan for being conceived in a financial vacuum. My contention is the opposite and that those funds formerly used for redundant and expensive individual battle task standard (IBTS) training be reallocated toward a training cycle dedicated to maintaining a high degree of readiness. Maintaining a high degree of readiness would allow units to forgo lengthy and expensive IBTS

training altogether during pre-deployment training, and even forgo specific collective warfighting training that was covered in the relatively recent past on field training exercises. The portion of the funding that is now heaped out on units for redundant misuse of pre-deployment training would be reallocated and divided up among all units expected to maintain this high state of readiness.

If necessary, funding for operational readiness would increase at the expense of other, non-essential aspects of the Canadian Forces. The Canadian Forces can no longer justify funding programs that do not contribute to our operational readiness. If Canadian Forces’ funded activities do not contribute to the aim and to achieving the end-state of maintaining a high standard of operational readiness, then they must be discarded in favor of our operational mandate under this new system. Indicative of having a professional standing army is the moral responsibility of its leadership to remain committed to



operational readiness vice wasteful ventures that do not improve its ability to deploy its soldiers and units to operations of varied threat levels, on short notice.

## RESERVE FORCES AND SUPPORT UNITS

Finally, the role of the Reserve Force and non-combat arms units under this proposed system must be addressed. Reserve Force and non-combat arms units would be unable to keep pace with Regular Force combat arms units in terms of continual operational readiness, under this proposed system. Due to Reserve Force units' limited number annual training days and their relative small size, it is very unlikely, despite their best efforts, that they would be able to produce skill levels required of individual soldiers to leap directly into operationally ready combined arms Regular Force battle groups. Although soldiers in Regular Force support units do possess ample training days to remain committed to operational readiness, their main effort must be operational readiness in their own primary role—whether that be surveying and constructing new airstrips or improving their ability to consolidate and interpret intelligence.

Reserve Force augmentees, in combination with individuals belonging to Regular Force units, who are not able to maintain a high standard of continual readiness concerning IBTS, must be identified early enough prior to any deployment and incorporated into collective training with combat arms units, with sufficient time to allow complete integration. On short notice deployments, there would be no augmentation of Reserve Force personnel, except in extreme cases (which indirectly makes a strong argument for units to be manned to proper levels as part of achieving a state of continual enhanced readiness, regardless of resulting funding cuts in non-mission essential Canadian Forces funded endeavors).

## CONCLUSION

There is a definite need to streamline the current cumbersome and problematic system of pre-deployment training into a system that, not only increases overall operational readiness of regular army units as a whole, but that also endeavors to eliminate personal disruption and redundancy. The acceptance of one standard for individual and collective warfighting skill sets, along

with an ongoing commitment to operational readiness, are the first steps in allowing the present state pre-deployment training to become more abbreviated, while simultaneously producing enhanced operational capability. Greater emphasis on practical, mission specific training, prior to deployment, is the key to producing soldiers better prepared to carry out missions specific to certain theatres of operation. And finally, a cycle of continual administrative measures, methodically and meticulously maintained to ensure a high state of individual operational readiness, would be the final step in creating a new modus operandi. There is no question that a revised pre-deployment training model, like the one proposed here, would come at considerable cost to non-essential Canadian-funded programs. It is a question of mission survival—eliminate programs that do not contribute to operational readiness and accept the limitations of Reserve Forces, or cease to be ready. Operational readiness and efficiency are at the core of military effectiveness, and this proposal offers Canada's Army a method to improve both.



## ABOUT THE AUTHOR...

Captain Vivian enrolled in the Canadian Forces in June 1993. He holds a BA in Military and Strategic Studies from The Royal Military College of Canada. His service includes various positions with the 2nd Battalion Princess Patricia's Canadian Light Infantry in Winnipeg, Manitoba. During January 2000, he was tasked with the formation, training and command of a rifle platoon formed specifically for service with the 3rd Battalion Princess Patricia's Canadian Light Infantry on Operation "Palladium," Rotation 6. His article was written based on his experiences with this tour. Upon his return to Canada, Captain Vivian completed the Advanced Mortar Course and was then employed as the rear party training officer until 2nd Battalion Princess Patricia's Canadian Light Infantry returned from Operation "Palladium," Rotation 7. Captain Vivian was promoted to his current rank in May 2001 and is commander of the Mortar Platoon in the 2nd Battalion, Princess Patricia's Canadian Light Infantry.

# Tank: The Canadian Army's Four-Letter Word

by Major Lee J. Hammond, CD

## INTRODUCTION

Since joining the Armed Forces in 1986, I have been confidently told, by many experienced army officers, that the day of the tank is over and that our current Leopard C2 is the last tank that will ever serve Canada. While I generally dismissed most of these officers as having a poor grasp on the true potential of tanks, unfortunately, in recent years, there have been many indicators that these officers may indeed be right. The most important of these indicators came in 1996, when the Army 2000 Campaign Plan stated that "the Leopard would not be replaced with a heavy tracked tank. Instead, the MBT (main battle tank) would be replaced with a 'modern, mobile, armoured direct fire support vehicle to complement the wheeled APC (armoured personnel carrier) and Coyote.'"<sup>1</sup> The result of this commitment was the evolutionary vehicle that came to be known as the armoured combat vehicle (ACV).

Another indicator that opponents of the tank are now using to justify their views is the recent American initiative of the interim brigade combat teams (IBCTs), which will be equipped with different versions of the LAV (light armoured vehicle) III, including a version armed with a 105 mm direct fire cannon. Although the Canadian Army has recently taken a pause in the ACV program, due to many of the limitations that will be outlined in this article, I fear that the new American initiative of the IBCT will again raise calls for the introduction of the ACV. In my opinion, should the Canadian Army follow this route, and we lose our MBT capabilities, we will be well on the way to becoming a constabulary, non-warfighting army. Moreover, I believe that the loss of MBT capability in the

Canadian Army is largely based on misinformation, a lack of understanding of the technical shortcomings of its supposed replacement (the ACV) and an overall climate where the tank has been demonized as a Cold War relic that is no longer a suitable weapon on the modern battlefield.

As an artillery officer, it is my belief that I can address this issue in an unbiased fashion since my only interest is the overall fighting capability of the Canadian Army and not cap badge parochialism. In my experience, the only defenders of the MBT have been the Armoured Corps who are, quite predictably, dismissed on this issue as being biased.

## AIM AND SCOPE

This paper will examine the utility of the tank as a crucial weapon system that is needed now and in the future. I will begin by summarizing the Canadian perception of the tank, a view that inspired the writing of this paper. I will follow with a brief examination of newly developed doctrine and where the tank fits into how we will fight. The technical aspects of the tank will then be examined along with a discussion of what the tank continues to offer the battlefield. Some of the arguments that have been presented on why the tank is no longer a relevant battlefield weapon will then be examined. The ACV, a one-time uniquely Canadian solution to the requirement for a tank-like vehicle, will also be discussed. The paper will then

***... the loss of MBT capability in the Canadian Army is largely based on misinformation ...***

conclude with recommendations on where finite resources should be spent on maintaining a MBT capability.

## THE PERCEPTION OF THE TANK IN CANADA

The tank's place within Canada has been unique amongst all weapon systems deployed by the Canadian Armed Forces since the Trudeau era. Indeed, in a country where laser-guided bombs, Maverick missiles, and Harpoon anti-shiping missiles have been acquired with barely a whimper by anyone, the tank, in contrast, is seen as an offensive weapon good only during the Cold War era. It is described by many as a weapon totally out of context for the requirements of the modern world and is seen as an inappropriate tool for our primary task of peacekeeping.

In terms of its history in Canada, one does well to remember that our current Leopard 1 fleet was purchased reluctantly by the Trudeau government as the price to be paid for closer economic ties to Europe.<sup>2</sup> Moreover, in the curious economics of defence procurement, over 500 Centurion tanks were replaced by only 114 Leopard 1s for our forces in Germany. The rest of the Armoured Corps had to live with the Cougar. Thus, with the pullout of our forces from Germany, in 1992, the rationale for a peacekeeping-oriented army to employ tanks was lost on many so-called defence experts.

It is suggested that many of the perceptions of the tank in Canada outlined above are entirely incorrect. While the utility of the tank may be questioned here at home, the rest of the world's nations have no such doubts. Indeed, every major European army has continued to retain the tank as a central weapon system. Moreover, countries such as Sweden, Spain, England, Turkey, Greece, Cyprus, France, India, and Pakistan, to name but a few, have all



**Do we really need these? (Courtesy CFPU)**

acquired new tanks in the last five years.<sup>3</sup> This leads to the question: Are we the only army in the western world who is right in surmising that the day of the tank is over?

Up until recently, even within the Canadian Army, the tank was officially recognized as a critically important warfighting tool. For example, until 1996, the ACV and tank projects were separate and had different requirements under two different project numbers.<sup>4</sup> Moreover, the requirement for a tank-like vehicle was not disputed then. Indeed, in the statement of requirement (SOR) for the ACV is stated that “a mobile, protected, direct fire capability, or armour, is an essential element, permitting the defeat of the enemy and security of our soldiers through aggressive use of firepower and battlefield mobility.”<sup>5</sup> As well, in the realm of operations other than war (OOTW), the same SOR states that “the army must be able to deploy an armour capability that can detect and defeat current and proposed threat armoured vehicles so as to permit all-arms combat teams and battle groups to operate successfully and safely.”<sup>6</sup>

Thus, it appears that unique perceptions of the tank have led us to adopt a vehicle that is more politically and socially acceptable in the form of the ACV. In my view, the Canadian

Army is moving in the wrong direction. The following paragraphs of this paper will outline why the tank remains the better choice over the ACV for this “mobile, protected, direct fire”<sup>7</sup> weapon system.

## **OUR MANOEUVRE WARFARE DOCTRINE AND THE TANK**

Watching the Armoured and Infantry Corps’ struggle to develop doctrine for the newly introduced Coyote demonstrates that not all Army equipment acquisition projects of the past have been measured against the doctrine litmus test. To be fair, the Army was going through a radical change in its doctrine during the introduction of the Coyote. However, this is no longer the case. We have been firmly established as a manoeuvre warfare army. Thus, in examining the utility of the tank versus the ACV, we now have an ability to compare the characteristics of these vehicles to the requirements of our doctrine.

While a detailed examination of manoeuvre warfare is beyond the scope of this paper, suffice it to say that under manoeuvre warfare we are trying to achieve some basic objectives. Concepts such as the exploitation of enemy surfaces and gaps, by attacking where the enemy is weak, are central to manoeuvre warfare. Preemption, dislocation, and disruption are also basic dynamic forces.

Therefore, in order to achieve the above objectives, many things have to happen, the most basic of which is fixing the enemy and then striking them. Few officers would disagree that the tank is a central part of the strike function because of its inherent ability to strike while moving. Moreover, although there is a lot more to manoeuvre warfare than just moving, the physical movement of forces is a big part of it. In his book *Fighting by Minutes*, Robert R. Leonard states that a fighting force is always concerned about three inter-related activities, which include protect, move, and strike. The tank (and, to a significantly lesser degree, the ACV) possesses all three capabilities at any one time. Thus, doctrinally, the tank makes sense in an army that purports to be a combat capable force that uses manoeuvre warfare to defeat its enemies.

There are other aspects of manoeuvre warfare that must also be considered when examining the continuing utility of the tank. Once again, Leonard gives us two more important concepts. The first is that armies conduct fighting in two different ways: the protective fight and the dislocation fight. Protective fighting is characterized by like-system combat; in other words, tanks typically fight tanks. During the dislocation fight, unlike-system combat takes place. This is where one sees tanks destroying artillery and logistic units, which leads to the defeat and, hopefully, the rout of the enemy force. If we look back to many of the battles over our history, we will see evidence of these concepts during the battles in Normandy, the Soviet Union, and the Middle East Wars. Thus, the important conclusions from the above discussion are that, doctrinally, Canadian tanks (or whatever we have in place of them) are required to fight enemy tanks during the protective phase of combat.

Therefore, in examining our doctrine, it appears quite clear that a tank-like vehicle is very important to the conduct of land fighting within the context of manoeuvre warfare. The only questions that remain are what that vehicle should look like and are these arguments simply a wheeled versus tracked discussion? There is much more to this argument than

simply the suspension system being used. However, before getting into the specifics of comparing the two vehicles, the basic characteristics of the tank should be discussed first.

## THE TANK AND ITS CHARACTERISTICS

The British first employed the tank in 1917 during the First World War. Since that time, the tank has embodied the three basic characteristics of firepower, mobility, and protection. The constant difficulty tank designers face is how to balance these three characteristics. Trade offs have always been necessary. For its entire history, the tank has continually striven for the perfect balance. For example, the German tanks employed by Rommel during the desert fighting in Africa had excellent mobility, adequate firepower, and reasonable protection. The Sherman tanks used by Canada had excellent mobility but poor firepower and abysmal protection when compared to their counterparts the Tigers and Panthers. What is most significant about getting the firepower, mobility, and protection factors right is that the designer will never achieve perfection in all three areas. From a manoeuvre warfare perspective, this is not critical. Armies still win, despite the individual shortcomings in the design of their tanks, through aggressive and bold leadership and by executing well-planned operations. Thus, the firepower requirements of a Canadian tank have to be close to its opponents but not necessarily a complete over match. The armour of a Canadian tank need not be as thick if our tanks have guns that can outrange enemy tanks. Moreover, if boldly and aggressively used, the superior mobility of Canadian tanks can make up for some of its shortcomings in armour. The important point is that technology is not the overriding factor in victory in land warfare (witness the German defeat of France in 1940, despite the French Army being a bigger and better armed force than the German Army).

Nevertheless, there are caveats about the impact of the quality of a tank and its contribution to combat. There is a point where bold action and excellent leadership will not matter if forces are too technologically apart. For example, Allied Shermans suffered grievously

during the fighting in Normandy when they faced their German counterparts. The Germans suffered a similar shock the first time they faced the Soviet T-34. Moreover, no matter how well led, trained, or motivated the Iraqi Army might have been (and they were not!), their T-55 tanks had no chance against the far superior American M1s and British Challengers. Thus, there is a danger in falling too far behind in the technological capabilities of land combat systems.

The tanks in operation today throughout the world's armies embody all of the characteristics described above. Indeed, they have better mobility, protection, and firepower than at anytime in history. Because they are still an exceedingly difficult target to hit and kill, they continue to form the basic building block of all major armies. However, in Canada, there is a strong body of opinion that states we no longer require the capabilities embodied in the tank because we have a better way. This vision is based on many of the apparent shortcomings of the tank that are presented below.

## ARGUMENTS AGAINST THE TANK

There are many arguments presented by the opponents of the tank. These arguments come from professional military officers and scholars, as well as the less informed. For the sake of completeness, all of the most common arguments will be addressed, even if they do seem rather obvious to some readers.

The first, and most common, argument against the tank is that it is heavy and difficult to transport. The most common variation on this theme is that Canada needs an air transportable vehicle that can be quickly sent to our peacekeeping missions abroad. This line of reasoning is perhaps the largest falsehood perpetuated in the Canadian Army in the 1980s and 1990s. To begin with, air transportability is neither the normal nor the preferred method of deploying armoured vehicles to the world's hot spots. Even the SOR for the ACV states that "Sea Transportation is the usual

method for strategic movement of assets worldwide, [and] if rapid air deployment of the ACV to a theatre of operation is critical to the success of the mission, Canada will have to rely on coalition or civilian airlift."<sup>8</sup> The reasons are as follows: even the largest air forces are not big enough to move a significant number of armoured vehicles and their support vehicles into a theatre of operation. For example, the new C-17 Globemaster III transport aircraft can only carry five LAV 25 Class armoured vehicles.<sup>9</sup> Thus, using a conservative figure of 150 vehicles for a battle group, it would take 30 chucks of C-17 lifts to get a battle group in theatre. Even then, this estimate does not include the supplies that the battle group would need to sustain itself. No Canadian battle group has ever had its vehicles airlifted into theatre, nor is this likely to happen since this capability is beyond even the biggest air forces. Moreover, if the normal mode of transport is sealift, then the difference in weight between a fully capable MBT and the ACV is not a factor at all. Indeed, the main lesson here is that our sealift capabilities should be improved, not that we need an air transportable vehicle.

One area where the weight of a tank is of interest is the tactical mobility limitations of the really large tanks in theatres such as the Former Republic of Yugoslavia and Somalia. This is a significant issue. For example, the latest versions of the M1A2 with depleted uranium armour weigh over 70 tons. They are clearly too heavy. This fact leads opponents of the tank to conclude that the only way tanks of the future can protect themselves is to get even heavier. This argument is not supported for the following reasons. First, it assumes that the only way to improve the armour is to use heavier materials. The history of composite armours, explosive reactive armour, and the history of the tank itself indicate that armour designers will always find new ways to defeat the anti-tank rounds of the day. In fact, this battle has been going on since the dawn of the tank. There is an old maxim in armoured vehicle design which states the following: First—don't be seen; if seen, don't be hit; if hit, minimize

damage. At this stage in the development of tanks, we have only seen developments in the armour itself. In my view, technologies such as stealth, signature reduction (especially thermal and radar reduction), improved camouflage, electronic countermeasures, and active defence measures will ensure the ability of the tank to protect itself and keep its weight within accepted maximums. Moreover, as discussed above in the doctrine of manoeuvre warfare, tanks need not be designed to counter all possible threats.

In Canada, the next most common critique of the tank's capabilities is its vulnerability to many of the modern anti-tank weapons that now exist. It must be clearly stated at this point that these vulnerabilities are recognized. Of course, this has always been the case. In the Second World War, there were always certain weapons, such as the German 88, which could kill tanks. However, this did not lead to the abandonment of the tank as a platform. Moreover, despite advances in technology, tanks remain a difficult target to kill. Were this not the case, and if the tank was not a lethal threat, then it is doubtful that armies would spend so much time thinking about (and spending significant sums of money on) the problem of destroying tanks.

The most dangerous anti-tank weapon in all its forms (other than enemy tanks) is the anti-tank guided missile (ATGM). Easily able to kill a tank, these missiles may be launched by everything from dismounted soldiers, to armoured vehicles, to attack helicopters. However, it is my belief that ATGMs suffer from an enormous number of limitations that affect their efficiency in killing tanks. To begin with, most ATGMs take an inordinately long time to reach their targets, which, in the case of missiles like the TOW (tube-launched optically-tracked wire-guided missile), can take up to eighteen seconds. This means that the tank has to be exposed for a very long time for an effective engagement. Moreover, because of the long time of flight, most ATGM systems suffer from a very low rate of fire. Thus, in the time it takes one missile to fly to its target, the tanks could return four rounds of fire

on the ATGM position. As well, many of the supposed advantages of the ATGM simply do not exist in practice. For example, for many years I was taught that the TOW, with its range of 3 750 metres, had a range advantage over tanks, which typically engaged targets at two kilometres. However, during the Gulf War, British Challenger tanks successfully engaged ATGM-equipped BMPs[10] at five kilometres! There are some ATGMs, like our own air defence anti-tank system (ADATS), which can fire at targets eight kilometres distant. Moreover, the latest versions of the Russian AT-16 Vikhr anti-tank (AT) missile have a maximum daylight range of up to 10 kilometres (five kilometres at night).<sup>11</sup> Nevertheless, how many places offer eight kilometre direct fire shots? I suggest that there are very few.

The biggest disadvantage faced by ATGMs (even those, like line-of-site anti-tank [LOSAT], which fire hypervelocity missiles) is the vulnerability of the firing platforms. The dismounted infantry, the light armoured vehicle, and the attack helicopter are all extremely vulnerable to indirect fire and the fire of tanks themselves. This vulnerability stems either from a lack of armour or a lack of tactical mobility, which are less than those of a tank. Moreover, in the case of the attack helicopter, this weapon system is very vulnerable to any kind of air defence system (witness the lack of deployment of the Apaches into Kosovo until ground forces were in place). As well, tank designers have not attempted to kill the launch system itself when providing a countermeasure to the attack helicopter. Instead, tank designers have begun work on defeating the weapon of the helicopter—the ATGM—through the use of active and passive defensive aid suites. Within this area of endeavour, armies are just beginning to address the issue of hostile missiles, which our colleagues in the Navy and Airforce have been addressing for decades. Thus, the ATGM is not the panacea that many of its proponents make it out to

be. While it can kill tanks, its launch platforms are very vulnerable to the tank itself and to combined arms tactics. Finally, the advent of defensive

### ***...none of the technologies for destroying the tank have made it fundamentally obsolete on the modern battlefield.***

aid suites and other passive measures further threatens to erode the effectiveness of the ATGM.

Another class of weapons that many people believe will defeat the tank are top attack munitions. These weapons come in different forms: they include top-attack missiles such as the BILL (Bofors Infantry Light and Lethal), TOW IIA, and Hellfire as well as self-forging-fragment-type weapons such as SADARM (Sense and Destroy Armour Munition), BONUS (Bofors Nutating Shell), and the Sensor Fused Weapon, which are delivered by artillery and aircraft, respectively. Defeating these types of weapons, on a simplistic level, would mean adding further weight to the tank by increasing the armour on the top. While this is certainly an option, there are also technical countermeasures, the most obvious of which is electronic spoofing of the fuzes using a system such as SHORTSTOP<sup>12</sup> and, even more simply, by using combined arms tactics. The answer to artillery deep attack and air delivered weapons is a good air defence, shooting down the artillery drones (in effect blinding the enemy artillery) and preventing the attack by enemy aircraft on friendly armoured units. The answers to the top attack BILL ATGM are indirect fire, tank suppressive fire, and speed of movement and supporting infantry. Thus, none of the technologies for destroying the tank have made it fundamentally obsolete on the modern battlefield. Moreover, it must also be emphasized that if the tank is vulnerable to any of the technologies outlined above, then the ACV is even more so.

There are also political arguments that many opponents of the tank often present. Those arguments tend to

revolve around the notion that Canada will not likely be involved in serious ground combat. A related thesis is that should we be involved, we should choose a support role where we will not be up front slugging it out with the enemy. As a counter argument, it is

### ***Canada ... can afford an army with three armoured regiments fully equipped with MBTs.***

submitted that the Canadian Army until now has stated that it is a combat capable army. This means that we must be capable of fighting. Assuming that we will not have to fight is a very dangerous proposition to take from a planning point of view. To illustrate, what would Canada have done if the Serbian Army had not left Kosovo voluntarily, and instead, ground forces had been required to kick them out? Do people honestly believe that the Americans, British, and other nations would not have expected us to do our part in a war that nobody wanted to fight? Canada has already come under criticism, on numerous occasions, from the NATO Secretary General and the United States for inadequate defence spending. Pressure from our allies to participate in combat operations would be intense during a conflict.

As well, a related issue to the above arguments is that all of the world's armies have been significantly reduced in capability, including the Americans. This means that our allies are even more likely to expect Canada to contribute. Thus, it is highly unlikely that Canada would be able to avoid major combat in a future war. What is more likely is that we will use what we have, as we did in Bosnia with the Cougar. Even the Army admits that "the Cougar [was] not required to perform any firepower tasks against medium or large calibre weapons systems, where the potential for mission failure and casualties [would have been] very high."<sup>13</sup> Therefore, if the Canadian Army does give up its tanks and moves towards low risk warfighting roles and plays a secondary role, then one would have to conclude that we have made the move to being a constabulary force.

Yet another interesting argument against the tank, which was recently made, is that the increasing urbanization of the world's potential battlefields is making true tank "country" an increasingly rare commodity. There are no arguments against this fact. It is true that tanks often do not have the advantages of the Russian Steppe nor the open deserts of the Middle East.

However, in my view, the fact that the world is increasingly urbanized makes a stronger case for the tank over the ACV, rather than the reverse. To begin with, let there be no doubt that urban fighting is the *forté* of the infantry. However, from time to time, the infantry does need the intimate support of a direct fire asset such as the tank. While it is true that the ACV, or even M109 howitzers, could theoretically carry out this function, both vehicles are many times more vulnerable to the close range anti-armour weapons found in urban fighting, than is the tank. Anyone who has seen the burned and charred BMPs and BTRs in Grozny knows this to be true. Thus, with urbanization, the tank is clearly the better tool for supporting the infantry.

With the advent of the Coyote and the LAV III, a new argument against the tank is that Canada needs a wheeled fire support vehicle to keep up with these two vehicles. The fact that the LAV III does not have comparable tactical mobility to a tank means that the clear choice is to go all wheeled. It is submitted that this is a ludicrous argument unique to Canada. For decades, the Russian Army has had BTR 60/70/80 equipped motor rifle regiments that have had no apparent difficulty in working with tanks. Moreover, the French Army does not consider this argument to have any merit. Indeed, current plans within the French Army include the replacement of their AMX (10P full-tracked infantry combat vehicle with an 8x8 wheeled infantry fighting vehicle, which is being bought to specifically work with their new Leclerc MBTs.<sup>14</sup> Lastly, although the LAV III and Coyote are capable of travelling 100 kilometres per hour, this

fact cannot be used as an argument that they will advance in hostile country at that speed. Travelling at such high speeds in the face of the enemy would be suicidal since all caution would have to be abandoned.

The final argument against the tank that is presented is that of cost. Many might believe that this factor is the most important of all in our cash strapped army. To summarize this argument, many officers within the Army, and opponents of the tank in general, argue that the Canadian Army cannot afford tanks. In addressing this issue, my arguments are based on the following two fundamental assumptions:

- As a G-8 nation, Canada, which is one of the richest nations on the planet, can afford an army with three armoured regiments fully equipped with MBTs; and
- The above can be achieved with our current defence budget.

In examining the above two assumptions, the views presented are based on the fact that many nations have stretched their defence dollars far further than Canada has. The most obvious recent example, which has been mentioned in the press, has been the Australian Armed Forces. The fundamental factor in achieving the second objective is the elimination of waste and the focusing of our fiscal resources on priorities, which should include tanks. As an example, there is seldom a shortage of money for new desks, new computers, and the landscaping requirements of bases. Buildings have been built with beautiful wood panelling and elaborate glass brick construction. Thus, in my view, we are far from the limits of our resources in trying to achieve the fiscal resources to acquire major combat systems. Some will argue that these funds come from different pots of money and that a hundred thousand dollars here and a hundred thousand there is trump change. It all adds up! Moreover, if acquiring a critical combat capability like the MBT became the Army's *Schwerpunkt*, then our bean counters (in and out of uniform) could make it happen. However, in order to achieve



**What is good tank country? (Courtesy National Archives of Canada)**

success, everyone in the Army needs to be on side and agree that this is our main effort until the objective is taken. Thus, the cap badge parochialism that often exists as various branches of the Army compete against each other must be set aside. The best illustration of this is our own navy, which continuously manages to acquire new and very expensive equipment, while the Army argues with itself over priorities. (The latest example being the \$500 million Evolved Sea Sparrow Project for our practically brand new frigates.) Thus, the Army, as an institution, needs to recognize the importance of a MBT capability, and everyone needs to get on board.

On the more technical level of comparing the cost of the ACV against the tank, there will likely not be significant savings. While it is true that the operation and maintenance of a wheeled vehicle fleet is generally less than that of tracked vehicle, the ACV will have a sophisticated turret system incorporating stealth, defensive aid suites, day-night fire control, and an ATGM. Thus, in terms of expensive and complex components, the ACV would have at least 80% in common with many of the most complex MBTs. Moreover, as far as unit costs go, the ACV is not likely to be cheap. Project staff have indicated that the vehicles could cost as much as \$5 million each, which does not sound impractical given the in-service date of 2006.<sup>15</sup> Thus, in terms of up-front costs, the ACV is not the cheapest option available to the Canadian Army. Moreover, operating costs may in fact be higher in some instances than for a MBT. For example, the ACV is projected to have an ATGM. No doubt, this will come with a training bill for the crews that will operate the ACV. Thus, instead of a MBT firing

\$1,500 training rounds, the ACV will have to fire the same training rounds PLUS \$100,000 missiles from time to time. Finally, the ACV, when compared with the MBT, will demonstrate some definite false economies if it ever goes into action against MBT equipped forces. After all, how much money is saved if a vehicle is eliminated the first time it encounters its opponents? As the following paragraphs will demonstrate, this is a very likely outcome if the ACV ever goes into combat against tanks.

#### **THE ARMoured COMBAT VEHICLE—CANADA'S SOLUTION**

**I**n reviewing the draft SOR of the ACV, it should be stated categorically that this vehicle was not envisioned to replace the tank; however, with the decision to not replace the Leopard with another tank, the ACV could become the de facto tank in the Canadian Army at some point in the future. Thus, in this section of the paper I intend to review the results of operational research conducted by the Canadian Army into the effectiveness of the ACV as a tank replacement. In these studies, the ACV was compared to the American M1A2 tank in offensive and defensive warfighting scenarios (in a flank security context) against a GENFORCE enemy equipped with T-80s and BMPs. Fifteen different tasks under an operations other than war (OOTW) scenario were also run.

Prior to discussing the results of these tests, a little history on the development of the ACV is in order. The ACV is in fact meant to be a replacement for the Cougar, which was bought as a tank trainer in 1978. It should be noted that the Cougar was a vehicle with more limitations than

capabilities. Suffering from poor tactical mobility, very little protection, a primitive fire control system, and an inadequate gun, the Cougar was never meant for deployment outside of Canada. However, "because there was no other vehicle available, it has seen operational service in Oka, Somalia, and the Former Republic of Yugoslavia."<sup>16</sup> Because of these shortcomings, project L2636 was initiated in 1992 to replace the Cougar with a new and more capable vehicle for tasks in OOTW with an in-service date of 2006, which has now been delayed.<sup>17</sup> In warfighting, the ACV is supposed to be suitable for "a more restricted number of armour tasks such as flank protection, rear area security, and economy of force"<sup>18</sup> operations. As well, the SOR for the ACV stated that it would be a light armoured vehicle armed with a 105 mm gun and that it was designed to handle, as its most dangerous opponent, the T-72M1 Russian Tank.<sup>19</sup> The T-72M1 was chosen because it is the most "representative of the upper limits of armoured vehicles found in Third World countries where the army might be deployed in OOTW."<sup>20</sup>

Now that the ACV's history and scope, and what it is supposed to accomplish for the Canadian Army, has been presented, the limitations of the ACV will be explored by examining the three categories of firepower, mobility, and protection. In doing so, the differences between the ACV and a modern MBT will become more than apparent. First of all, in terms of firepower, the ACV is to be equipped with a 105-mm gun and a long range ATGM. Its principal target capability is supposed to be the T-72M1, which is indeed a curious choice. While it is argued that the T-72M1 is likely to be

the most common tank found in developing countries, a pessimist might believe that this requirement has more to do with the fact that no wheeled vehicle has ever mounted a 120 mm gun, and, thus, the target is in fact the maximum that can be handled by the main gun of the ACV. Moreover, with a planned in-service date of 2006, the ACV was designed to handle a target that will be 35 years old the day the ACV comes into service, and a target which, in fact, out-guns the ACV. Likewise, by the time the ACV goes out of service in 2030, the target it was designed to handle will be 65 years old! Proponents of the ACV argue that the ATGM will handle the more modern tanks, like the T-80s used in operational research. However, this too is an inadequate solution since those same tanks mount a through-the-barrel ATGM. Thus, in the firepower category, the ACV is very much outclassed, not only by its anticipated target, the T-72M1, but also by the current leader in Russian tank sales, the T-80. As an example, in one operational research scenario, four up-armoured ACVs engaged two T-80Us in a head-on engagement. All four of the ACVs were lost without any casualties to the T-80Us. This outcome was due to the fact that, even with extra armour, the ACV was outgunned by the 125mm sabot and the ATGMs of the T-80U.

Secondly, in terms of mobility, the ACV is outclassed by all MBTs, in every sense, at the tactical level. As well, with a vehicle cone index (VCI) of approximately 45, the ACV will have significantly less tactical mobility than

***... it is highly questionable that the ACV is a good choice for the Canadian Army ...***

the LAV III with a VCI of only 32.<sup>21</sup> In order to improve its tactical mobility, the ACV will feature a central tire inflation system that will have a run-flat tire capability. This feature is often touted as the reason why wheeled AFVs are just as good as tracked vehicles. However, what proponents of the wheeled AFV seldom mention is that any bullet, mortar, or artillery fragment can pierce the tires, and, if this

happens, the vehicle can only continue for a maximum distance of 40 kilometres before the tires have to be replaced. Thus, the smallest projectile can turn the ACV into a vehicle casualty. The same is not true of tanks.

Finally, despite the above shortcomings, it is in its armour protection where the ACV falls far short of the acceptable minimums to replace the tank. Indeed, European commentators describe wheeled LAVs as an acceptable warfighting tool "as long as they keep out of the direct fire zone."<sup>22</sup> However, since the ACV is a direct fire support weapon, Canada clearly intends to employ it in just such an environment. Moreover, experts also generally agree that a practical weight limit of 32 tons exists before any wheeled vehicle becomes so heavy that it loses its tactical mobility.<sup>23</sup> Thus, the ACV will always have less potential for armour protection than its tracked opponents will. And, indeed, our own operational research indicated that the ACV "could not carry the amount of armour needed to protect it from [T-80 and BMP 2 Class] weapons."<sup>24</sup> As well, the 105-mm kinetic energy service ammunition was unable to successfully deal with the frontal armour of the T-80 class of tanks.<sup>25</sup> Thus, the ATGM was used as the preferable option. However, the addition of a guided missile was also not considered to have been enough "to overcome the ACV's general vulnerability on the battlefield."<sup>26</sup> Therefore, "as a consequence of higher losses [in both the defence and offense],

ACV battle group[s] [were] considered combat ineffective"<sup>27</sup> after only one engagement during operational research testing.

Even more disturbing, in terms of its *raison d'être*—OOTW—the ACV was considered superior to the M1A1 in only four of fifteen tasks that were tested, while the M1A2 was considered the superior tool in nine of fifteen

tasks.<sup>28</sup> Thus, it is highly questionable that the ACV is a good choice for the Canadian Army, even if it is only used in its intended role of OOTW. One of the warfighting tasks was a flank defence, something the ACV should be able to handle. In terms of our doctrine of manoeuvre warfare, the ACV was also a failure. In short, "the ACV was unable to manoeuvre in the face of the enemy. When it did so, it was destroyed."<sup>29</sup> Moreover, the ACV suffered 1.7 to 3.1

***... we are in dire straits in an area that is critical to our ability to implement our own manoeuvre warfare doctrine.***

times the casualties during operational research scenarios when compared with a modern MBT, such as the American M1A2.<sup>30</sup> Once detected, "the lack of armour protection made the ACV extremely vulnerable to both direct and indirect fire from any range and aspect. It could not manoeuvre in the presence of the enemy, and therefore it had little capacity to counter attack or perform a blocking manoeuvre."<sup>31</sup>

Therefore, in reviewing the performance of the ACV during operational testing, it is quite clear that a modern MBT is clearly superior to the ACV in both warfighting and OOTW. The ACV could kill the enemy; however, Canadian casualties were up to three times higher than for an M1-equipped force. As well, the bold and aggressive use of the ACV was found to be totally impractical and perhaps even suicidal. The only engagements that were successful were short-range ambush tactics that increased our own casualties. Thus, the ACV must be seen as a totally unsuitable tool for our own doctrine in which movement plays a critical part.

To be fair, despite the above critical shortcomings, the ACV does have some advantages over the MBT. These include greater operational mobility than that of MBTs and lower operating costs.<sup>32</sup> Moreover, the ACV will be air portable, although the SOR only states that it is desirable that it fit into a C-130 aircraft, whereas it is essential that it fits onto the



C-141 and C-5 aircraft.<sup>33</sup> Nevertheless, these few advantages of the ACV over the MBT clearly do not outweigh the

### ***... all major armies of the world continue to invest in the tank.***

fact that the MBT is the superior tool in virtually all categories, not the least of which is that more Canadians will survive in a tank than in the ACV.

Given the above arguments, the reader may question why the Americans have gone down the route of LAVs in their IBCTs. Indeed, a recent Jane's Defence Weekly article on the subject featured a vehicle which looks very much like the ACV. Yet, in reviewing what the Americans are doing, the whole context must be taken into account. For example, while the Americans are forming up to three IBCTs, they will continue to have heavy divisions capable of high intensity fighting. As well, the IBCTs help to bridge a significant gap in American capabilities. Until the formation of the IBCTs, American commanders could only choose between heavy divisions equipped with mechanized tracked vehicles and light/airmobile/airborne divisions, which were not in themselves easy to move overseas quickly due to their reliance on a large number of helicopters (with their huge administrative tail) and their lack of low level (section and platoon) firepower. Thus, the IBCTs form a bridge between these capabilities.

Moreover, the very name of the new formations INTERIM Brigade Combat Teams gives a hint that the Americans have much bigger plans. Many of these plans centre on a concept known as the Future Combat System (FCS). At the current time, this system is touted as a replacement for the heavy capabilities of heavy divisions, while being light enough to quickly deploy overseas. The key units that will test these concepts are the IBCTs, and, thus, these formations can be seen as somewhat of an experimental force. Moreover, the FCS concept, at the present time, is very all encompassing and broad ranging. The FCS is not, in itself, a replacement for

the tank as a single platform but offers instead a whole host of capabilities, such as drones, direct and indirect fire missiles, and other sensors all brought together as a system. The point is, at

the present time, the FCS is a concept and an experiment, and not something that will be fielded for many years to come.

### **THE CURRENT SITUATION**

With the decision to slow down the ACV project, possibly with a view to watching the developments of the FCS, the Canadian Army is now facing a critical lack of direct fire power capability. The negligible increases in capability that even the ACV would have offered would only come into service in 2006. With this delay, a real replacement for the Cougar, and possibly the Leopard, is even further off. While the Armoured Corps works to maintain its relevance with its skillful handling of the Leopard Upgrade Project, it must be recognized that we are in dire straits in an area that is critical to our ability to implement our own manoeuvre warfare doctrine. Although the Airforce and the Navy have their own problems, in my view, neither is so far from achieving its minimum essential capabilities than the Army.

### **RECOMMENDATIONS**

Canada must, at the very least, maintain its current minimum level of MBT capability. Indeed, it has been argued above, there are even strong reasons to forgo the ACV altogether and increase the MBT fleet at the expense of the ACV. Thus, it is recommended that the following courses of action be adopted:

- Continue with the upgrading of the Leopard C1 fleet to the C2 standard. For relatively little cost, these tanks can continue to be used, not only for training, but also in wartime as excellent tools for pursuit and exploitation tasks and during the dislocation phase of fighting;

- Scrap the ACV concept altogether. Take the \$500 million to \$1 billion that would be spent on that project and purchase an additional minimum of three squadrons of modern MBTs. In accomplishing this goal, the following options should be explored:

- Buy used Leopard IIs or M1s and upgrade over time as the funds become available. There are many of these tanks on the market that can be purchased for less money than the cost of a new ACV; or
- Purchase the French Leclerc tank. Its lightweight and modular armour system seems particularly suitable both for Canadian doctrine and its likely employment in theatres where tactical weight restrictions are very important. Moreover, the modular armour concept means that strategic and operational transport can be facilitated by mission specific armour options as well as new armour technologies that will be developed in the future;
- Re-assign the convoy escort task during OOTW to LAV III and Coyote equipped sub-units;
- Dispose of the Cougar altogether since its capabilities are so limited that they outweigh any training advantages it might offer to the reserves.

### **CONCLUSION**

This paper has covered the many reasons why opponents of the tank believe it is no longer a suitable or relevant weapon system. In refuting these arguments, many of the opinions expressed against the tank's future are uniquely Canadian and are in fact based on highly fallacious arguments. India has recently bought 255 T90S MBTs while Pakistan has purchased 320 T-80UDs.<sup>34</sup> Clearly these countries, and many others, believe that the future of land warfare includes the tank as a central component of their armies. The Canadian idea (the ACV) is clearly a

failure based on poor arguments to justify its existence. Similar vehicles being adopted by the US Army are filling a niche and experimental role while the FCS continues to be developed. While the Canadian Army may feel that its contribution to coalition operations would be best served by an IBCT-like organization, it is important that each weapon system within this concept be able to really accomplish the missions assigned to it.

In my view, the ACV fails in this regard. Moreover, all major armies of the world continue to invest in the tank. The development of the ACV has more to do with political considerations than military effectiveness. As well, from a doctrinal point of view, the ACV makes no sense. The ACV is "unable to generate the mass and shock action of an MBT-equipped armoured regiment [and] is not considered an appropriate replacement for a Main Battle Tank."<sup>35</sup>

Indeed, the ACV "(can)not be used boldly and aggressively in warfighting situations."<sup>36</sup> Finally, "being deliberately aware of the ACV's limitations and deliberately purchasing it as an alternative to the MBT in warfighting would be morally and ethically wrong and courts defeat."<sup>27</sup>



### ABOUT THE AUTHOR...

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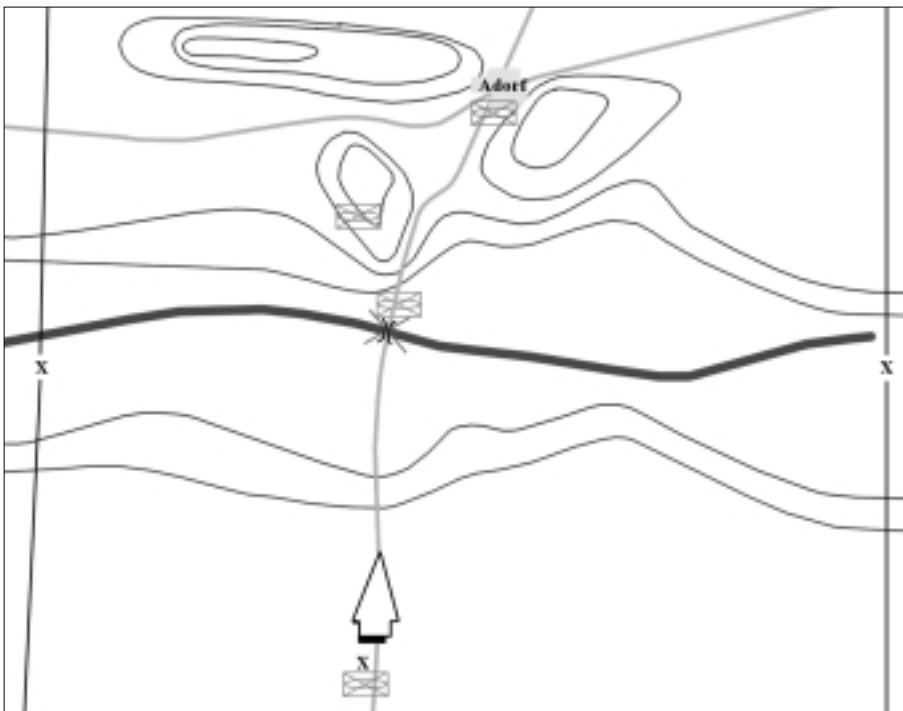
### ENDNOTES

1. 3552-22243 (DGOR/DOR [J&L]) Operational Research Division (ORD) Project Report 9817, 23 February 1999, Executive Summary, p. ii.
2. In an effort to decrease the increasing reliance of Canadian exporters on the United States, Prime Minister Trudeau pursued his so-called "Third Option." Under this plan, the Canadian Government tried to increase trade ties with the European Economic Union. The price Canada had to pay for this increase in trade was increased commitment to NATO through the tangible purchase of West German Leopard 1 tanks.
3. Over the last two years, the periodical *Jane's Defence Weekly* has been filled with announcements of the purchase of new MBTs by the countries concerned.
4. ORD, p. 1.
5. Draft 4.0 (13 April 99) Statement of Requirement (SOR) DSP 00002636, NO PSD 00002636, Armoured Combat Vehicle, p. 1.
6. SOR, p. 1.
7. Draft 4.0 (13 April 99) Statement of Requirement DSP 00002636, NO PSD 00002636 Armoured Combat Vehicle, p. 1.
8. SOR, footnotes 47 and 49.
9. *Jane's International Defense Review*, Vol. 32, April 1999.
10. Russian infantry fighting vehicle. Jane's Defence Glossary (online) Available from <http://www.janes.com/defence/glossary/>.
11. *Jane's Defence Weekly*, Vol. 31, 14 April 1999.
12. SHORTSTOP is a system that absorbs the radar emissions of a variable time air burst, fuzes and retransmits them to the projectile at an amplified strength, which causes the rounds to burst prematurely above the optimum height of burst.
13. SOR, p. 1.
14. *Jane's Defence Weekly*, Vol. 31, 31 March 1999.
15. A very rough estimate by PMO LAV LCol Carruthers during a discussion following a presentation in Gagetown in 1999.
16. SOR, p. 1.
17. ORD, p. 1.
18. SOR, p. 1.
19. ORD p. 1 and SOR p. 6.
20. SOR, footnote 12, p. A-2.
21. SOR, p. 21 and p. A-4.
22. *Jane's International Defense Review*, Vol. 32, March 1999.
23. *Jane's International Defense Review*, Vol. 32, March 1999.
24. ORD, Executive Summary, p. iii.
25. ORD, Executive Summary, p. iv.
26. ORD, Executive Summary, p. iv.
27. ORD, p. 40.
28. ORD, p. 39. The tasks for which the ACV was considered to be the preferable system were: conduct convoy escort, provide mounted and dismounted OPs, provide mounted patrol, and contribute to a rapid reaction force. The M1A2 was considered to be superior in the following: demonstrate resolve, defend with other troops, conduct hasty defence, provide fire support to a checkpoint, establish a road block, conduct a hasty attack, provide direct fire support to the infantry in an attack, reduce strong points, bunkers, trenches, and secure a route.
29. ORD, Executive Summary, p. ii.
30. ORD, Executive Summary, p. iii.
31. ORD, p. 19.
32. SOR, p. 12.
33. SOR, p. 23.
34. *Jane's Defence Weekly*, Vol. 31, 14 April 1999.
35. ORD, p. 41.
36. ORD, Executive Summary, p. iv.
37. ORD, Executive Summary, p. iv.

# A Simple Tactical Problem

## "Selection of the Aim"

by Tacitus



*Our old friend Tacitus has been absent lately. He is back with a deceptively simple problem. The choice of a mission is often ill-considered since many consider the mission to be obvious. Sometimes the obvious is not as self-evident as may appear at first blush:*

### A Note on Tactical Problems....

Following requests from the field force, "Tactical Problems" was a feature introduced in The Army Doctrine and Training Bulletin, beginning with Volume 3, Number 2 (Summer 2000). The intent was to provide a forum to debate solutions either at the unit or in the pages of the Bulletin. Readers are invited to submit solutions, which will be published in future issues. We look forward to hearing from you.

### Situation

You are the Commander of a Mechanized Infantry Brigade Group.

You have no information on the enemy except what you see here.

The river, 400 meters wide, is not fordable.

### Task

Your superior Commander wants you to cross the river and seize the village of ADORF since it controls the road network.

### Problem

You must prepare and send a Warning Order to your COs.

Is your probable mission going to be:

1. An assault water crossing?
2. An attack on the village?
3. Some other mission?

### Critical

Whatever you choose, the key will be your ability to explain why you chose the particular mission.

### Required

Prepare a Warning Order and in less than 200 words explain why you chose the mission that you did.



# The Stand-Up Table

## Commentary, Opinion and Rebuttal

### Gauging the New World Order: Transforming the Canadian Forces: No time to wait

*Sergeant Arthur Majoor of 31 Canadian Brigade Group Headquarters writes...*

**O**n 11 September 2001, the world watched as a new age of warfare was ushered in. The attackers, apparently living under cover in the West, were trained and backed by a dispossessed warrior army in Afghanistan, and had as their ultimate goal the overthrow of Western society. It was a combination of the worst nightmares of Martin Van Creveld,<sup>1</sup> Ralph Peters,<sup>2</sup> and Douglas Waller.<sup>3</sup> The Canadian Forces (CF) shifted to a higher state of alert, but there was a sense of unreality to the response. This was a scenario that we were not trained or equipped to handle, except in the most limited way.

We need to make great changes, and quickly, in order to be able to deal with this menace. At the same time, we must not forget about other threats. Hot spots throughout the world remain active, and might even flare up in response to the events of 11 September 2001, as players try to take advantage of our distraction, or attempt to induce us into their conflicts as a condition of assisting the Western Alliance against terrorism. Non-Western states attempt to extend their military capabilities in order to achieve parity with the Western Alliance. Threats against Canada and Canadian interests now extend from long range missile attack to prolonged terrorist campaigns at home and abroad. The choice facing us is not whether to add missile defense or counter terrorists to our force structure, but rather how much of each we must add to our conventional forces.

Some changes to meet these challenges we can begin right away. Other changes will require time and

preparation, as well as a high profile effort to educate the public and Parliament in order to get the tools and resources required.

#### TRAINING

**T**he first change that must be undertaken is an overhaul of our training. The rather minimalist training that candidates undergo at the Canadian Forces Language and Recruit School (CFLRS), or in summer concentration at places like Area Training Centre (ATC) Meaford has to be replaced by training which is both physically and mentally challenging. One goal of the terrorist attack on 11 September was to shock and overwhelm Western forces through the sheer scale of the event. Our service members may be in the front line of any future event, and need to be steeled against shock and fatigue in order to continue to effectively operate in such situations.

A rigorous training program similar to that of "Outward Bound," which promotes individual development and teamwork skills, and constant repetition of battle and survival drills to make these skills instinctive actions on the part of the soldiers, is a bare minimum. Soldiers need to be able to operate quickly and accurately in complex situations and environments, as well as be able to spot potential threats and engage targets without a great deal of direction. This training emphasis must continue throughout the soldier's career. It is not acceptable that a Corporal can graduate from the Junior Leaders Course having led only one section attack, as happened with

the Corporals who were sent to Meaford in the summer of 2001. With the new Junior Leaders course only projected to have an 11-day field module, it is hard to see how candidates from the new course will be able to achieve more. A prolonged field module stressing constant challenge should be developed to replace it.

We also need to steer the appropriate manpower and resources into training. Having a 20 person section, as at CFLRS, or a 15 person section, as at ATC Meaford, is a guarantee of low standards.<sup>4</sup> Even the finest instructor will have great difficulty maintaining a high standard if he can assist each candidate for only one minute or less per period of instruction. The situation is exacerbated by the lack of training equipment, reducing the amount of time any candidate has to do "hands on" training.

While the shrinking of the Armed Forces is rightly a cause of concern, large numbers of poorly trained new soldiers add little to our effectiveness. Properly trained and conditioned soldiers arriving from basic training allow field units the freedom to conduct more advanced training, rather than spending training time bringing new soldiers up to the level needed to carry out normal duties. It should not take four months to prepare the soldiers of a battlegroup for a six-month overseas tour.

In addition to creating a new generation of soldiers who are "harder" than before, we also need to prepare the soldiers already in the Canadian

Forces for the new environment. Old arguments about “training for war” versus “training for peacekeeping and special tasks” will have to be rethought. While individual and collective training should be as challenging as possible, the type and focus of training may have to be modified. Since it will be difficult to predict the sort of battlefield Canadian troops may be deployed on, and impossible to train for every conceivable eventuality, training should focus on team-building exercises in a military setting. Soldiers should be given progressively more difficult challenges to exercise their problem solving abilities, along with the practice of battle drills and survival skills. “Training for War” should come to mean building traits of mental flexibility and adaptability as the soldier’s foundation, upon which task specific skills can be added as required.

## INFRASTRUCTURE

The terrorists struck at two of the symbols of American power, the World Trade Center in New York City, and the Pentagon in Washington D.C. The attacks were designed to do as much physical damage as possible, and at the time of this writing, approximately 6 000 people were missing and presumed dead in New York.

Our military infrastructure is concentrated in a small number of “Super-bases,” a plan that was adopted in order to reduce ongoing expenses. A direct attack against a “super-base” will damage a large portion of our military with one blow. As well, military action or help in the event of a large-scale attack can be frustrated by intentionally creating a transportation bottleneck between the super-base and the site of the attack, magnifying the effects of terrorist action against major metropolitan centres like Calgary or Toronto.

For force protection, and to achieve quick response to incidents, Canadian Forces units must be dispersed from the current concentration of assets. In the short term, old bases and Militia armouries can be re-activated, or units housed in industrial parks and warehouses until

more suitable modern facilities can be created. By co-locating in Militia armouries, closer ties can be created between various Reserve units and their Regular Force counterparts, providing improved training for the Reservists, and giving the Regular Force greater flexibility through exposure to the various non-military skills Reservists have gained in their civilian lives.

Dispersing units also means dispersing logistics and communications. Logistics, especially through alternate service delivery (ASD) needs to be examined closely in order to see how it affects security, and if it is structured to be able to meet unpredictable surge requirements. While “just-in-time” logistics has merit in the business world, the Canadian Forces live in a “just-in-case” environment. Using contractors to provide logistic services may be possible if there is a revitalized military logistics service to act as a robust “buffer” between the contractors and the forces on the ground.

Communications, especially those using information technology, is also a point of vulnerability. The Canadian Forces is currently committed to the use of Microsoft products, but the world “hacker” community has demonstrated and exploited vulnerabilities in all the Microsoft product lines: Windows, Internet Explorer, Office, Outlook, Exchange and Internet Information Service (IIS). As “hacking” and “cracking” tools proliferate on the Internet, and more and more people become familiar with their use, it is not a big step for terrorists or other organizations to deploy the tools needed to cripple the Canadian Forces through Cyber attacks, if they have not already done so.<sup>5</sup> Fortunately, robust and secure alternatives such as UNIX and LINUX are available, and the Canadian Forces IT infrastructure can be hardened through the adoption of this software. The number of UNIX “hackers” and “hacker” tools are far smaller than in the Windows “hacker” community, keeping the defense problem within manageable boundaries. With training and preparation, the CF can actually field customized versions of UNIX family software that will make it even harder for enemies to attack the

IT architecture. While no software is invulnerable to Cyber attack, there is no reason to continue using the most vulnerable products.

## FORCE STRUCTURES

The Canadian Forces are still structured to fight a conventional war, with only limited abilities in terms of power projection, force generation, or force sustainment. To date, this has not been detrimental to conducting the sorts of missions the government sets for us. The current structure is adaptable for “peacekeeping” and “peace enforcement” duties, timely arrival in theatre is decided by diplomatic means, and new operations are being shortened to single six month tours in recognition of the difficulties in raising and sustaining battlegroups for extended periods of time.

On 11 September, we discovered we no longer had the luxury of choosing the times and places where we wish to go. Terrorists have the ability to cross borders and strike at unexpected times and places. The proliferation of ballistic and cruise missiles give hostile governments the ability to threaten the interests of the Western powers directly, and attempt to limit the military options the Western Alliance may attempt to undertake. The Canadian Forces requires the ability to engage in “high-end” warfare against missile attacks, as well as against protracted Low Intensity Conflict (LIC) campaigns. Means have to be put in place to move units across the globe and sustain forces for prolonged campaigns.

Preparing to deal with LIC and domestic incidents is the easiest task. Troops need to be raised and trained to fight in a LIC campaign in conjunction with other elements such as intelligence, law enforcement, financial investigation and other support arms. An expanded Reserve force can be given this task.<sup>6</sup> Other improvements include ensuring every brigade has proper intelligence resources, and every brigade creates and exercises a Civil Military Cooperation (CIMIC) cell, which helps tie in extra resources a brigade may require, should a terrorist event occur.

The problems of force projection and force sustainment are interrelated. We can expect enemies to attempt to hide in the farthest reaches and most inaccessible spots on the globe, and to move quickly once discovered. Current means of power projection are either too slow (such as ships), or limited in what can be carried (such as cargo aircraft). Canada lacks the ability to project power beyond a few C-130 loads of men and equipment, but this is perhaps a blessing in disguise. Near term solutions like C-17 "Globemaster" transport planes only provide limited improvements to our transportation woes. Canada can "borrow" heavy transport from our American allies or Russia, while examining more exotic solutions that can "jump ahead" a generation of the conventional ship or airplane solutions. Ships with exotic hull forms and advanced cargo-handling equipment,<sup>7</sup> "Wing-In-Ground effect" (WIG) transporters,<sup>8</sup> or even giant airships (like the Hindenberg, but built with 21st-century technology<sup>9</sup>) promise the ability to move bulk loads quickly across oceans. Large, effective forces and their consumables could be delivered in a matter of days rather than the weeks or months it takes today.

The technologies required to defend against missile attack are in their infancy today, and only the United States has the scientific and economic resources to undertake such a program. Canada should participate in order to keep military and political options open when threatened with missile attacks. As well, many of the related technologies will have direct bearing on other military problems. A constellation of sensor and communication satellites might not directly prevent a tragedy like the 11 September attack, but they could help provide advance warning of impending attacks and assist in the coordination of effort afterwards. Holding the "high ground" of space will directly assist the Canadian Forces in the conduct of operations throughout the spectrum of conflict, as well as in secondary duties like humanitarian assistance and peace-keeping.

## CONCLUSION

The attacks of 11 September 2001 were part of an escalating campaign of terrorism directed against the civilization of the West. Warfare as we formerly understood it has been overtaken by events where ordinary occurrences like airline flights are transformed into weapons, while CNN spreads the enemy's triumph throughout the world. Other nations have developed ballistic missiles and nuclear weapons, and with them have the ability to threaten the deployed forces and homelands of the Western Alliance.

As a member of the Western Alliance, Canada needs to develop the ability to defend itself against these threats, and take the fight to the enemy if necessary. Doing so will require a series of changes: improving training, dispersing units, improving logistics, hardening communications, and developing power projection and anti-missile capabilities. Some of the changes are a matter of degree, such as training, which we have full control over. Other changes will require a sustained political and financial commitment over many years in order to be fully implemented, such as participating in missile defense, or developing power-projection capabilities. Doing so will require a constant engagement on our part to explain to the public and Parliament why these changes are necessary. Not undertaking these changes will further diminish our standing in the Western Alliance and will come with an increasingly high political and economic price if our American and European allies decide we are not pulling our weight. To defend our nation, it is our duty to educate the public and Parliament to the threats we face, and the scale of resources required to deal with them. We must make our case successfully, or risk standing by helpless in the hour the nation needs us most.

The ultimate cost of not engaging in transforming the Canadian Forces has already been seen, on a clear September morning over New York City.



1. Martin Van Creveld, *The Transformation of War* (Free Press, 1991). The chapter Future War, pp. 192-223 explains how non-state sponsored forces like al-Qaeda grow and prosper.
2. Ralph Peters, "The New Warrior Class," *Parameters* (Summer 1994), pp. 16-20; Ralph Peters, "Out New Old Enemies," *Parameters* (Summer 1999), pp. 22-37.
3. Douglas Waller, *The Commandos* (Dell, 1995). On pp. 367, "The battlefield will include the whole enemy's society. Collapsing the enemy's social structure will be the goal..."
4. As a section commander teaching Basic Officer Training Course (BOTC) at St. Jean in the summer of 2000, I had a section of 20 to start, and at ARC 2001 in Meaford, I started with 15. In order to ensure the soldiers who graduated were "quality product" required 12-18 hour days on my part, and I cannot say every candidate was able to get 100% of my effort or attention even then.
5. Frank Vizard, War.Com, *Popular Science* (July 1999), pp. 80-84.
6. Sgt. Arthur Majoor, "A New Role for the Reserve". Unpublished. A paper presented at the 9th Military History Colloquium, Wilfrid Laurier University, May 1 1998.
7. Fastship Corporation's homepage is <http://www.fastshipatlantic.com>. This corporation has pushed the art of conventional shipbuilding and has designed a container cargo ship that can cross the Atlantic in 3 days and do a turnaround in port in a matter of hours.
8. The WIG page <http://www.se-technology.com/wig> is an excellent resource for understanding the theory and practice of WIG craft. By using the interaction of air between an airfoil and the ground, WIG craft can have the performance of an airplane using only about 30% of the engine power. Current examples are fairly small, but some, like the "Caspian Sea Monster" were 747 sized, and some proposed designs have been as large as 5000 tons.
9. The Cargolifter Corporation <http://www.cargolifter.com> is offering to build airships capable of lifting 160 tons over continental distances. Prototype machines are flying at the time of writing.

*Commentary on "An Impressive and Amazing Force: The Hoplite Warrior" by Captain Tod Strickland, Vol. 4., No. 3, Fall 2001.*

*Lieutenant-Colonel I.M. Hunt, Deputy Base Commander, CFB Kingston writes...*

I enjoyed reading Captain Strickland's article and his lessons learned in the conclusion are worth serious consideration. My comment on the article is that he should have made one more important point. What happened to the Hoplite Warrior and the Phalanx? They failed to continue to adjust to changing methods of warfare and were eventually made obsolete. This obsolescence played a major part in the collapse of the Athenian empire. I will use this as a segue to our present dilemma as demonstrated by "The Army Strategy: Interim Edition" and various other non-changes going on which indicate that we too are stuck in our own Phalanx

and may suffer disastrous consequences. I would highly recommend that anyone interested in improving their knowledge of this read the following:

MacGregor, Douglas A, Colonel (ret'd), USA. *Breaking the Phalanx: A New Design for Landpower in the 21st Century*. Westport Connecticut: Praeger Publishers, 1997.



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# BOOK REVIEWS

This issue of the *Army Doctrine and Training Bulletin* is introducing a new feature: *Book Reviews*. When this publication was initiated, effort was placed on developing articles and the introduction of this feature was purposely delayed. We now feel it is time to proceed.

While the Managing Editor will commission many of the reviews, readers are encouraged to prepare and submit reviews of books that would be of professional interest to our readership. Please note that potential authors should contact the Managing Editor before preparing a review in order to confirm the title and to obtain the guidelines for preparing reviews.

It is also hoped that alongside these reviews, we will soon be able to include our former feature: *Articles and Books of Interest*.

## A Case Study as History: Examining Armour in the Second World War

Reviewed by Major (ret'd) R.H. Caldwell

Dr. Roman Jarymowycz is a charming, well-educated Canadian armour officer who is described in the foreword as a brilliant *beau sabreur*. I know him, and I know that he has forgotten more about armour matters than many of us will ever know. The reader of *Tank Tactics* will soon discover, however, that a *beau sabreur's* explanation of the past does not always conform to conventional historical standards or methodologies. If you have not read *beau sabreur* history before, then you are in for a wild ride.

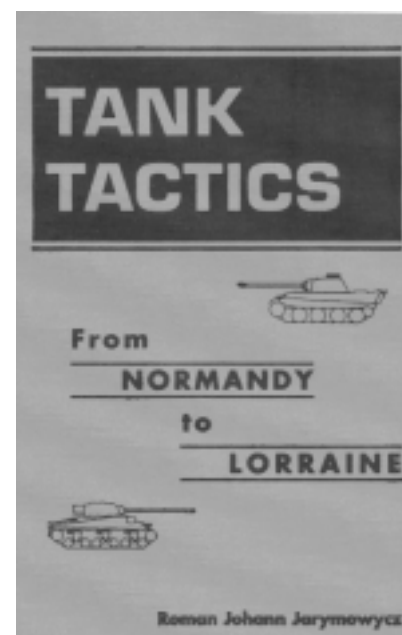
This book opens with a foreword by Dr. John A. English, followed by an acknowledgements section, an introduction, fifteen chapters, seven appendices, a bibliography, an index, and, finally, an abstract entitled "About the Book." There are about a dozen photographs of armoured fighting vehicles (AFVs). There is no glossary. According to Jarymowycz, the aim of the book is "to explain cavalry's status and *raison d'être* within the evolution of armour as the essence of maneuver and creativity on the battlefield, and to examine the doctrinal evolution of North American armour—that of Canada and the United States."<sup>1</sup>

In an attempt to meet these ambitious goals, the author examines how seven nations grappled with the question

of how they were led—or not—to accept notions of operational art and manoeuvre in the Second World War. Jarymowycz concentrates on the experience of the United States, Britain, Russia, Germany, and Canada in Normandy in 1944.

Reading this book is a bit like attending an old-style army Happy Hour in the days when we had officers' messes and well-entrenched assumptions about professionalism. On these occasions, small groups of officers would banter back and forth about tactics, and important points were often lost amidst the light-hearted chatter, only to be sought out later. The dialogue moved fast. Someone new would join in, someone might leave, and the experience and education level—and therefore the level of analysis—would change constantly. There was never any context. Jarymowycz' book is like that: set out in similar, short, rapid-fire bursts. Broad in scope, the text often takes off on tangents, and readers are carried along on the author's lonely trek, wherever his research leads him. As he changes subjects and shifts mental gears over the course of the book, readers are treated to a wealth of information and many fascinating insights.

But doubts arise in the historian's mind as it becomes apparent that the author has not consulted a definitive primary or secondary source on a



*Tank Tactics: from Normandy to Lorraine*, by Roman Johann Jarymowycz. Lynne Reinner Publishers, Boulder, Colorado, USA, 2001. 362 pages, \$59.99 (US).

particular subject, or that he has made an error.<sup>2</sup> While Jarymowycz makes many valid points, this rapidly changing experience has a cumulative effect on the reader, detracting from the weight of the work. The result is the sense that the work does not adhere to the standards of rigorous historical scholarship. The work does, however, meet acceptable standards for operational research or analysis, which



are little known but established disciplines. In my opinion, this prodigious work should be read as an operational case study.

Operational case studies, by nature, do not cast a wide net in search of historical truth. The aim of a case study is to impose a sophisticated device for understanding modern war onto events and personalities of the past. Their authors tend only to use evidence that is pertinent to their aim. Evidence that does not fit is excluded. In battle studies, they do not attempt to explain the burden of context that weighed upon commanders and staffs. By modern standards, historic figures are deemed to have failed if they did not react to battlefield developments in the way that we would expect to, given what we know today. The fact that no one at the time thought in terms of operational art and operational manoeuvre does not matter.

The analyst of operational art asks the simple doctrinal question: Was operational art practised and did it achieve operational manoeuvre? Jarymowycz' answer to this question gives us the framework for his assessments of , and opinions on, the use of armour in Normandy. He admires the vital ingredients of operational art: *Auftragstaktik*, battle group doctrine, and a well thought-out capability for strategic offensives. Based on these standards, he judges Soviet armour doctrine to be superior. Although the Soviets were not in Normandy, he cannot resist the temptation to compare their operational art to the allied "malpractice" that he found there.<sup>3</sup>

The Americans, including the modern US Army, also gain Jarymowycz' approval. The Germans rate a poor third. Jarymowycz admires French thinking and experience up to 1940 but found nothing to respect in the British armoured experience at any time. It is not clear where he rates Canada, but it is low. This is perhaps because his mentor on the Second World War is John A. English, who described British and Canadian armour in Normandy as "the weakest link in the Anglo-Canadian order of battle."<sup>4</sup>

Although this claim is unjustly reductive, Jarymowycz picks up where English left off. He pursues the line that

the use of Anglo-Canadian armour doctrine was deeply flawed. But does it matter? What does this assertion tell us about the Canadian all-arms experience in Normandy? Can we use this as the sole reason to explain why the Anglo-Canadian armies failed to break through and break out?

In my experience, examining armour in the past is no easy task. For example, I have found that the relationship between AFV design and development and armoured warfare is critical. It can be explained by considering two pairs of functions or factors. The first pair consists of the tank technology imperative and the events of the battlefield. The two are linked using after-action reports and lessons-learned correspondence. The second pair embraces military thought and doctrine, on the one hand, and organization and all-arms tactics, on the other. The link between these is the persistent two-pronged problem for the British (and the Allies) after 1941: how to defeat German anti-tank screens and defensive positions in depth, and how to integrate anti-armour weapons (towed and tracked) in all the arms organizations.<sup>5</sup> Case studies do not set out to explain whole military experiences, so whether one is right or wrong does not really matter. However, as an historian, I would expect at least some attempt at providing as complete and accurate an explanation as possible.

Canadian armour historians, or readers of the recent Corps history by Martenson and McNorgan,<sup>6</sup> no doubt will read the chapters on ATLANTIC and SPRING with considerable interest. Jarymowycz describes these battles for Verrières ridge from a doctrinal perspective. The chapter is laced with sentences like these: "Only the Normandy campaign offered tank commanders the opportunity to demonstrate the validity of armour as an arm of operational and strategic decision," and "Montgomery's great success is the set-piece battle buttressed by a considerable superiority in men and material, total air supremacy, and an embarrassment of artillery." He concludes that: "At the end of Spring, Von Kluge had both hurt the Canadian II Corps ... and retained freedom of action for operational maneuver. He could send his panzers anywhere he wished, and he

had panzers to send."<sup>7</sup> This was all well and good, but how in the world did Jarymowycz miss the decisive tank-on-tank fighting that took place on 21 and 22 July 1944? Brigadier Radley-Walters, one of our most respected tank commanders, has always claimed that this fighting was the best that he did in the whole campaign, from D-Day to VE Day. This fact was not lost on the Armoured Corps historians, who quoted heavily from Radley-Walter's account:

...we saw two groups of tanks ... One group had eight tanks, the other six, about 300 yards apart ... after two hours the enemy was engaged on three sides, with the battle going in our favour ... we'd accounted for eight Panthers ... the next morning [my squadron] was down to six tanks ... Enemy tanks again appeared ... about fourteen this time ... We engaged them for about an hour, and five or more were burning ... Around 1800 hours ... two of their tanks got to within a hundred yards ... we destroyed two of them, but they knocked out one of ours.<sup>8</sup>

Clearly, Canadian Shermans—skillfully handled—could stop a German counter-attack. Jarymowycz might have mentioned this brilliant little cameo of a battle and used it to point out the unevenness of the whole experience. While Canadian tactics at the squadron level were often effective, doctrinal problems at a higher level could discount that capability. Omissions like this bring into question his methodology—why did he select some operations and reject others?

The same criticism stands for secondary sources. Case studies do not need to use wide-ranging or foreign secondary sources. Yet, as historians, we can measure any study against works that we know to be reliable. Confidence is diminished when we can find no reference to these works. For example, in his discussion of British armour doctrine, I found no reference to J.P. Harris' work nor any contact that Jarymowycz might have had with Harris nor, for that matter, with other well-known authors.<sup>9</sup> Oddly, from a Canadian perspective, he did not cite the masterful examination of the South Alberta Regiment, completed by Don E. Graves several years ago.<sup>10</sup>

Moreover the book is not about tank tactics per se, because the book does not discuss:

- the slow development of fire and movement, the modern basis of all tank tactics;
- the effect of night on daylight doctrine and tactics;
- tactical drills, or lack of them;
- ways and means—in the past—of teaching about tanks; and
- specifics. For example, how was a three-tank troop with one Firefly deployed? Did the Firefly get the best fire position? How did a squadron commander with five troops, and thus five Fireflies, move and fight?

Jarymowycz' use of staff college terms sweeps across the page like German anti-tank fire across the wheat fields of Normandy. For example, when he is describing Monty's doctrinal dilemma in Normandy, he refers back to North Africa: "The breakout, often called the third El Alamein, featured an almost pathetic inability to use a force de chasse composed of two armoured divisions designed to follow the British 8th Army Schwerpunkt and overrun the remnants of the German-Italian army as it fled to Tripoli."<sup>11</sup> If the enigmatic Monty were to read this today, it is doubtful that he would understand it, let alone agree with it. What we need to know here is what additional determinants—other than the

weight of flawed doctrine—shaped Monty's views? Can Monty's experience and performance be explained through a narrow case study on operational manoeuvre?

Case studies are often published as a set of papers done by experts in narrow fields. They are sometimes delivered at a conference with a specific theme. We, perhaps, should remember that this massive work was done by one analyst, thus the risk is high that he missed something. While I have no problem with much of the material in the study, what is not in the study bothers me. I think that Jarymowycz and the publisher will receive much critical mail about this book, although less so from American readers because an effort appears to have been made to flatter the American armour experience. However, waiting to lunge at the author will be armour specialists who will consider the work as history—not a case study—and eagerly point out where he missed a particular causal or contextual point.

Nevertheless, when I read the work as an operational case study, I liked it. The book is, perhaps, misnamed. It could better have been called, "Normandy - a Case Study for Analysis into the Use of Operational Manoeuvre in the Second World War." Or it might simply have been entitled, "Thoughts on Armour," or better still: "An Armour Officer's Research Notes for a Staff College Study," since it consists of dozens of subjective research notes, neatly divided into sections with headings. In my opinion,

Chapter 13, "Who Killed Tiger? The Great Tank Scandal" with its outstanding endnotes is worth the price of the book.

Is the book important? Yes. Does the book let us get into the minds of the practitioners of armour doctrine at the time? No. Does the book revise our knowledge and enable us to rethink our assessments of ATLANTIC, SPRING, TOTALIZE, and TRACTABLE? Not really. Is it useful to teach from or to use as a reference for a tactics and doctrine study? Perhaps, so long as great care is taken and research time available to confirm the assertions in the specific section to be used. Jarymowycz, as most Canadian military readers will know, is an accomplished graphic artist, so the book includes many useful sketches and charts.

In summary, this *beau sabreur* history appears to be a limited operational case study of one aspect of armour experience in Normandy—doctrine. Evidence was selected carefully to support the study. Many sources were not consulted nor applied; on the other hand, those that were cited are now available to us. There are a lot of errors.

Perhaps there will be more studies like this one, devoted to the other arms and services in the 20th century and possibly the Second World War. I doubt it though. Like its author, this book is one-of-a-kind.



## ABOUT THE AUTHOR...

*Major (ret'd) Bob Caldwell served in the Armoured Corps for over 30 years and is currently a historian at the Directorate of History and Heritage.*

## ENDNOTES

1. Roman Johann Jarymowycz, *Tank Tactics: From Normandy to Lorraine* (Boulder: Lynne Rienner Publications, 2001), p. 1.
2. There are too many clangers in the book, a result perhaps of not sending the book out to readers—at least Canadian or British readers. For example, one that Canadian reviewers will fasten onto is the reference to "Canloan" on page 77. This is an important paragraph, spoiled by the author's careless use of the term "Canloan." The "Canloan" program evolved in response to the British Army's need for infantry and ordnance corps subalterns in 1943, after the battles of the Western Desert were over. However, Canadian officers, warrant officers and senior NCOs did do short observer exchanges with the British and Commonwealth forces in North Africa in 1942, and possibly earlier. This program had no name, little research has been done on it, and we are not sure how many served in that theatre. The total figure probably was not in the thousands. Evidence of some of their observer reports has survived, and so Jarymowycz was correct to raise the point. If I were the author of this book, I might have taken the point further because the reports, although sent back to their home units and not to a higher headquarters, nevertheless formed a sort

of early "Tradoc Loop." The whole subject should be pursued—it would make a good RMC MA War Studies thesis.

3. Jarymowycz, Ch. 14, "Stavka in Normandy."
4. J.A. English, *The Canadian Army and the Normandy Campaign – A Study of Failure in High Command* (New York: Praeger, 1991), p. 312.
5. R.H. Caldwell, "Technical Determinism: Examining the Armour in Armoured Warfare," *Material History Review*, Fall 1995, pp. 124-128.
6. John Martenson and Michael R. McNorgan, *The Royal Canadian Armoured Corps: An Illustrated History* (Toronto: Robin Brass Studio, 2000).
7. Jarymowycz, p. 138.
8. Martenson and McNorgan, p. 254.
9. J.P. Harris and F.N. Toase, *Armoured Warfare* (New York, 1990). This work is a collection of authoritative essays on British, German, Soviet, American, and Israeli armour. See also J.P. Harris, *Men, Ideas and Tanks* (New York: Manchester University Press, 1995); David French, *Raising Churchill's Army – The British Army and the War Against Germany 1919-1945*, (Oxford: Oxford University Press, 2000), pp. 240-273; J.J.G. MacKenzie and Brian Holden Reid, *The British Army and the Operational Level of War* (London: Tri-Service, 1989), Ch. 5; Col P.A.J. Cordingley, "Armoured Forces and the Counter Stroke," Correlli Barnett, et al., *Old Battles and New Defences – Can We Learn From Military History?* (London: Washington, D.C.: Brassey's Defence Publishing, 1986). Readers might also note Robert M. Citino, *Armoured Forces - History and Sourcebook* (Westport, 1994). This book was part text and part reference work. The latter section includes a fifty page bibliographical section.
10. Donald E. Graves, *South Albertas – A Canadian Regiment at War* (Toronto: Robin Brass, 1998).
11. Jarymowycz, p. 111.

# Guns Across the River

## The Battle of the Windmill, 1838

Reviewed by Lieutenant-Colonel Mike Dabros

Those familiar with previous books by Donald E. Graves will not be surprised by the thoroughly enjoyable narrative account contained in his latest offering, *Guns Across the River*. This is yet another rousing dose of history as it was meant to be written. Readers who are less aware of Graves' previously demonstrated strengths as an author and Canadian military historian of note will be suitably impressed by his readability, comprehensiveness and attention to detail.

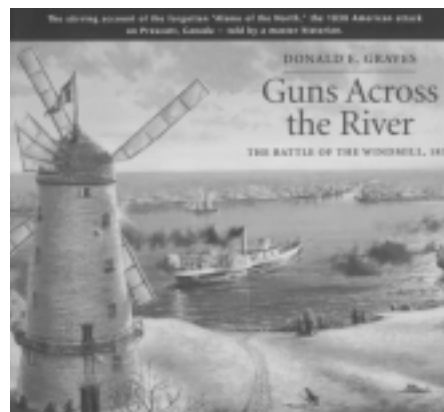
The subject of this book is the high-water event of the 1837-40 border troubles between the United States and the Canadas—namely the November 1838 attack on Prescott, Ontario, by a clandestine American organization called the Patriot Hunters. The action, dubbed “the Alamo of the North” by the author, involved an ad hoc band of nearly 300 mercenary invaders of mixed nationality, on the one hand, and a mixed force of British regulars and Canadian Militia on the other. The invaders' intent was to foment a popular rebellion in Upper Canada that would result in the overthrow of British rule. In the end, the militia acquitted itself well, protecting their farms and community while bearing the brunt of the non-Patriot casualties. However, it was the leadership and professionalism of the British regulars and the Royal Navy that eventually decided the outcome.

This book is not built upon Graves' earlier works, as one would expect from an author who has focused almost exclusively on the War of 1812 and the Second World War. Rather, it is a fresh and insightful look at a significant yet nearly forgotten event, one that is situated during a critical time period in the long process of Canadian nation-building. Despite the author's own concerns about attempting to go

outside his period of recognized expertise, *Guns Across the River* is a solid work, well worth reading, and fills a definite void in the historical record.

The book devotes roughly equal time to describing the historical and political background to the battle, the battle itself, and the aftermath and administration of justice by the crown. Those interested in a much broader analysis of the troubles of 1837-40 may not find it here, although more than sufficient detail of related events is provided to situate the Battle of the Windmill as a major incursion within the context of this period. Throughout the book, a wealth of vignettes and tangential accounts contribute to a more detailed understanding of the battle and its aftermath. Included is a discussion of the history and nature of the punishments—specifically transportation and hanging—that were meted out to convicted Patriots. The associated brief look at the evolution and decline of hanging as a preferred form of capital punishment in Britain and her colonies is of particular general historical interest.

A number of characterizations made in the book are not strictly in keeping with the accepted historical assessment of several key personalities. For example, in contrast to today's prevalent judgement of William Lyon Mackenzie as a reform-minded citizen whose thoughts and actions presaged responsible government in Canada, Graves' analysis reveals a less complimentary persona—one prepared to resort to violence to subvert the majority will of the people. In fact, and in consideration of his actions following the Upper Canada Rebellion of 1837, Graves concludes that much of the blame for the sequence of events that resulted in the tragedy at the Windmill rests predominantly with Mackenzie. This is clearly inconsistent with the



***Guns Across the River: The Battle of the Windmill, 1838*, by Donald E. Graves. The Friends of the Battle of the Windmill, Prescott, 2001. 263 pages, \$24.95**

potentially revisionist *Canadian hero* status that Mackenzie enjoys today, a status that perhaps merits serious re-examination based upon Graves' study.

Similarly, Graves' conclusions regarding the Patriot leader Nils Von Schoultz, who led the abortive attempt on Prescott, is curiously at odds with the cited primary sources that describe his skills, personality and motivation. The author uses the evidence to argue a lack of moral courage on the part of Von Schoultz. This interpretation appears in conflict with Von Schoultz's displayed sense of duty when compared to all of the other Patriot leaders, and is complicated by his likely mistaken understanding of the strength of the Patriot cause. Indeed, one is left wondering about the possibility that he was genuinely unaware of the true nature of Canadian acceptance of British rule until it was much too late for he and his followers to reverse their course. Clearly, Von Schoultz eventually came to recognize the folly of his actions and fully accepted the consequences that placed him at the end of a hangman's rope. In the end, much of the mystery surrounding this

key player in the battle remains, and the reader is left largely undecided as to the true character of the man. The detailed examinations of both Mackenzie and Von Schoultz, among others, are also poignant reminders of the impact of individual personalities on the course of historical events.

The book itself features a journalistic two-column format and an odd size and shape that, while not detracting from the enjoyment of the book, will make it somewhat inconvenient to shelve in a personal library. The book is rich in graphics that lend themselves nicely to the reader's grasp of events and circumstances. Through the many maps, pictures and illustrations, the reader is provided an unobtrusive visual appreciation of the ground, as well as the state of development and rural character of 1830s Upper Canada.

Particularly noteworthy are a series of paintings by Ontario artist Peter Rindlisbacher that provide scale and texture to the story. As with Graves' previous offerings, the devotee of detailed history will spend much time immersed in a large number of appendices that include orders of battle, organization charts and tactics, and songs of the battle, as well as tables providing the names and fates of those who took part.

The author's reputation as a War of 1812 historian creates a level of expectancy regarding tactical detail in his description of the actual fighting. In contrast to his previous works, I found the same level of tactical detail to be not as much in evidence in *Guns Across the River*, resulting in a mental image that situates the reader just a little further from the action. This is quite possibly an indication of the relative lack of

primary sources associated with this particular battle, and by no means detracts from the enjoyment of the book. To the contrary, it is perhaps a testament to both the niche filled by this book and the reasons for the apparent loss of Canadian consciousness regarding these events

If you are a lover of readable Canadian history, especially history that borders on the forgotten or more obscure, this is a book to be savoured. It provides a fresh point of reference for continued remembrance and understanding of the chain of events that culminated in the Battle of the Windmill, and may already be a definitive piece on this nearly forgotten and poorly understood event.



#### ABOUT THE AUTHOR...

*Lieutenant-Colonel Mike Dabros is the Chief of Staff, 1 Wing Headquarters, Kingston, Ontario, and has a passion for 19th century Canadian military history.*