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The Canadian Army Journal

Canada's Professional Journal On Army Issues

The Canadian Army Journal, a refereed forum of ideas and issues, is the official quarterly publication of Land Force Command. This periodical is dedicated to the expression of mature professional thought on the art and science of land warfare, the dissemination and discussion of doctrinal and training concepts, as well as ideas, concepts, and opinions by all army personnel and those civilians with an interest in such matters. Articles on related subjects such as leadership, ethics, technology, and military history are also invited and presented. *The Canadian Army Journal* is central to the intellectual health of the Army and the production of valid future concepts, doctrine, and training policies. It serves as a vehicle for the continuing education and professional development of all ranks and personnel in the Army, as well as members from other environments, government agencies, and academia concerned with army, defence, and security affairs.

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EDITORIAL

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THE ART OF WAR

BOOK REVIEWS

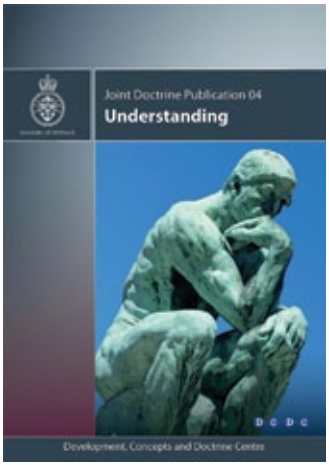
CONCEIVING AND DESIGNING FIGHTING POWER

Major A.B Godefroy, CD, PhD, jrcsp
Editor-in-Chief

Major Andrew B. Godefroy

At the beginning of the fifth century Augustine remarked that everyone who wages war claims to do so in the cause of peace, but the problem is that people have different ideas as to what constitutes peace. We believe that he did not make this remark in the spirit of cynicism; rather he sought to raise an important question—how do we understand peace and how might others understand it? More important, perhaps, what is it exactly, and how is it made, built, and kept? Fifteen centuries later it seems sometimes that we have yet to come up with a very good answer to this question. And the Canadian Forces' most recent analyses of the future security environment suggest that it may be some time still before we will.

As I progress through my Joint Command and Staff Program (JCSP) this year I am often reminded of these important questions, as well as how they shape both joint and service level environments throughout history. On the one hand many problems such as Augustine's paradox have endured, eluding simple "fad" solutions and buzzwords and forcing us to re-examine our belief systems both from within and without. On the other hand many other problems still are more cyclical and prone to change as solutions are found. As well, these solutions may eliminate an old problem for the present or even force new ones to the surface. Yet regardless of whether the problem is enduring or cyclical, both require a commitment to developing ideas and debate in a relevant forum if we are to gain any judgments and insight towards solving them.



Given the absolute necessity of this mental exercise, I find it interesting that we are all too willing too often to sacrifice this exercise in the interest of expediency. Perhaps the worst criminal in this offence is the 2-page executive summary. Often defended as a necessary tool "in the interest of time", I somehow doubt any soldier would be allowed to treat physical fitness or marksmanship the same way we have a tendency to treat knowledge. No soldier, for example, could justify, "I'm really busy, so I'm just going to do the 10 minute battle fitness test instead of the whole thing." Nor would we ever allow soldiers to fire only 3 or 4 rounds to qualify for a personal weapons test. Why then do we so easily allow the short-cut in the development of mental agility, analysis, and argument? Why has the executive summary replaced the long form mental exercise in so many places? Lack of time is no excuse, nor is the often trotted out mantra that it has to be kept short for the sake of others. Not only is this unproven, it smacks of deflection from focusing on the real issue.

Taking shortcuts with knowledge development, especially within capability development, has the potential for seriously negative long term effects. Some of our allies already seem to suffer from this, while others have not only admitted to the problem but are already taking steps to recover from it. Take for example the UK Ministry of Defence's recently released, *Joint Doctrine Publication 04: Understanding.* This 81 page document reminds senior commanders not only of the importance of understanding a problem, but also the importance of committing sufficient resources to develop that understanding in depth. Beginning with the simple sentence, "It is often said that knowledge is power", this five chapter study will undoubtedly become a critical guide in Britain's future force development.

Similarly, this issue of the Canadian Army Journal commits itself to the examination and analysis of many subjects that cannot be resolved in a 2-page executive summary—the main one this issue being the critical topic of fighting power. A traditionally difficult nut to crack, Captain John Rickard begins by framing the problem for readers using a mixed method of quantitative and qualitative research and analysis. This is followed by an in-depth investigation of the subject as it affects the infantry—our army's core capability—by Major Vic Sattler. In addition to this key debate a number of other emerging ideas surrounding fighting power are considered at length. Adam Elkus' examination of complexity in the U.S. military context reveals many pitfalls, as well as how the experience of one nation may not necessarily elucidate the experiences of another. Next, Vincent Curtis further challenges traditional approaches to understanding fighting power in his article examining the basis for a military science. Finally, we have two case studies, one examining Haiti and another Africa, where fighting power could or could not have been applied. Finally, Colonel Poirer provides readers with a brief but detailed overview of how fighting power is often transformed under arctic conditions. All of these articles give us pause for thought.

Beyond the main article, this issue of the journal includes a number of interesting articles examining various aspects of the Canadian Army's history and evolution. Sergeant Kurt Grant and Mister Robert Vineberg both write on important figures from our army's past, revealing the tremendous commitment of individuals to service in uniform as well as the innovation they have spurred. Similarly, this issue's art of war brings readers back to the days of UNPROFOR, while the book review section shares a number of new titles on a wide range of subjects. Included are reviews of books that were previously on the editor's desk. Speaking of which …

ON THE EDITOR'S DESK…

Admittedly, readings for JCSP as well as some of the documents mentioned above have left me with rather limited time to explore new books of interest over the past few months. That said, I did pick up Christopher R. Kilford's; *The Other Cold War: Canada's Military Assistance to the Developing World, 1945–75.* This study of Canada's peacetime military engagement activities over three decades brings attention to an important part of our past. Additionally, Kilford promises important judgments and insight regarding the nature and characteristics of military assistance that should prove tremendously useful to current military campaign planners. Other books I have had the opportunity to review in detail may be found at the back of the journal. I also encourage you to check out other titles we have recently received. Please enjoy this issue of the *Canadian Army Journal* and let us know what you think.

Major A.B Godefroy, CD, PhD, jrcsp
Editor-in-Chief

Honours and Awards

MILITARY VALOUR DECORATIONS

Medal of Bravery
Sergeant Steve Desgagné, M.B.
Montréal, Quebec

On 16 August 2008, Sergeant Steve Desgagné, an off-duty member of the Canadian Forces, prevented a man from committing an armed robbery and possibly harming a store clerk, at a convenience store in Montréal. The man had approached the clerk, held up a knife, and told him that this was a holdup. When Sergeant Desgagné noticed the robbery in progress, he put his hand in his pocket and pretended that he had a gun. Approaching the individual, Sergeant Desgagné ordered him to put down his knife. The robber dropped his weapon and started to flee. Sergeant Desgagné ran after the man, not knowing if he carried another weapon. After a brief struggle, the robber was subdued and held until the police arrived.

MERITORIOUS SERVICE DECORATIONS

Meritorious Service Medal (Military Division)
Lieutenant-Colonel Daniel S. Hurlbut, M.S.M.
Fort Benning, Georgia and Salt Lake City, Utah, United States of America

While deployed to Afghanistan from July 2008 to June 2009, Lieutenant-Colonel Hurlbut, commanding officer of an American infantry battalion, provided outstanding support to the Canadian Forces. Tasked with defining the combat zone in Maywand district for the Canadian contingent, he demonstrated an exceptional understanding of the insurgency and of the region's complex political situation. He expertly led his soldiers in multiple counter-insurgency operations while simultaneously expanding the Afghan government's influence. Lieutenant-Colonel Hurlbut's leadership and dedication contributed to Canada's operational success in Afghanistan, enhancing Canadian-American relations.

FACT SHEET ON THE QUEEN ELIZABETH II DIAMOND JUBILEE MEDAL

A new commemorative medal is being created to mark the 2012 celebrations of the 60th anniversary of Her Majesty Queen Elizabeth II accession to the Throne. The Queen Elizabeth II Diamond Jubilee Medal will be a tangible way for Canada to honour Her Majesty for her service to this country. At the same time, it will serve to recognize significant contributions and achievements by Canadians.

The Chancellery of Honours, as part of the Office of the Secretary to the Governor General, will administer the Queen Elizabeth II Diamond Jubilee Medal program.

The inaugural presentation ceremony of the Diamond Jubilee Medal will take place in 2012. Further details will be announced in due course.

DESCRIPTION OF THE MEDAL

The obverse depicts a crowned image of the Sovereign, in whose name the medal is bestowed. The reverse marks the sixtieth, or diamond, anniversary of the accession to the Throne of Her Majesty Queen Elizabeth II. The anniversary is expressed by the central diamond shape, by the background composed of a pattern of diamonds, and by the two dates. The Royal Cypher consists of the Royal Crown above the letters EIIR (i.e., Elizabeth II Regina, the latter word meaning Queen in Latin). The maple leaves refer to Canada, while the motto VIVAT REGINA means "Long live The Queen!"

The ribbon uses a new arrangement of the blue, red and white colours found in the 1953 Coronation Medal, the 1977 Silver Jubilee Medal, and the 2002 Golden Jubilee Medal.

The design of the Diamond Jubilee Medal was created by the Canadian Heraldic Authority, as part of the Chancellery of Honours.

ELIGIBILITY, SELECTION CRITERIA AND DISTRIBUTION PROCESS

Information on the nomination process, eligibility and selection criteria, and distribution of the Diamond Jubilee Medal will be available at www.gg.ca/diamondjubilee at a later date.

Source: Combat Camera

FIGHTING POWER, MILITARY RESILIENCE AND THE UTILITY OF QUANTIFICATION

Captain J.N. Rickard, CD, PhD

This article is the outgrowth of direction the author received while serving in Directorate of Army Training (DAT) Professional Development (PD). In the summer of 2007 I was assigned the task, along with Major Luc Cyr, of investigating resilience in the Canadian Army. Since then we have liaised with the Individual Operational Readiness Section of Defence Research and Development Canada (DRDC) Toronto, Land Personnel Concepts and Plans (LPCP), the Army lead for Human Dimension in Operational Research, the Chief of Land Staff (CLS) Medical Advisor, and many other interested parties. The catalyst for this initiative was senior leadership concern that the Land Force's resilience, particularly psychological resilience, was insufficient to protect our troops from the stress of the Contemporary Operating Environment (COE) and multiple tours in Afghanistan. Concerns about high rates of voluntary personnel and administrative attrition, and a negative interpretation of PTSD rates, most certainly shaped this initiative.

Land Operations 2021—Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow, was very explicit in enunciating the Land Force's future human dimension requirements. Tomorrow's soldiers "must possess… emotional competency, i.e., resiliency, hardiness and ability to cope with stress."[1] In a very real sense, we are moving toward what Dave Grossman refers to as the new field of Warrior Science in his latest book *On Combat: The Psychology and Physiology of Deadly Conflict in War and Peace*. We need to focus more on "empowering warriors to participate in the toxic, corrosive, destructive environment of combat."[2] The purpose of this paper is to provide army members with some indication of the scope of the ongoing, multi-disciplinary work on resilience, and also some problems associated with quantification in a study of this kind.

With task in hand DAT made the initial assumption that senior leadership was looking for ways to *increase* resilience. We looked primarily at individual resilience, but recognized the importance of unit and institutional resilience. We further assumed that some type of metric was required to demonstrate such an increase. The lack of a Land Force-centric definition of resilience beyond the Canadian Oxford Dictionary, which the author considered insufficient to guide further research, was an initial hurdle to overcome. The Land Force did not know what it wanted resilience to mean, so DAT PD, under a mandate from the Army Training Authority (ATA), developed a definition which was approved by the Army Terminology Panel in early 2009:

> *Military Resilience is the capacity to recover quickly, resist and possibly even thrive in the face of direct/ indirect traumatic events and adverse situations in garrison and operational environments.*

Despite the new definition, Military Resilience remains an abstract concept in the Land Force, a fact which led me to consider ways to legitimize it.

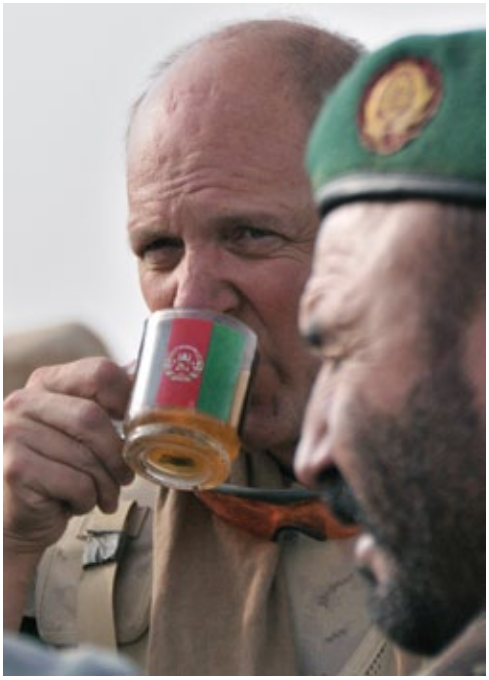
The author felt it was essential to anchor Military Resilience in our doctrine. Since our efforts are focused on transitioning from research to practical training, the Fighting Power model appeared to me to be the most logical tie-in. However, our Fighting Power model, in my opinion, is immature and requires substantial fleshing out of key concepts. The Land Force currently defines Fighting Power as "the ability to fight" consisting of three essential, inter-related components (or 'planes'), the physical, intellectual and moral.[3] However, the author prefers Martin van Creveld's definition: the "sum total of mental qualities that make armies fight." Built on mental, intellectual and organizational foundations, Fighting Power is manifested "in one combination or another" as: discipline and cohesion; morale and initiative; courage and toughness; and willingness to fight and readiness to die.[4] I believe Fighting Power is *primarily* a moral quality influenced in a secondary manner by Combat Power, which of course equates to tangible elements such as equipment, units, manpower and firepower.[5]

The balance between Fighting Power and Combat Power needs to be carefully considered as well, because mutual exclusivity is often employed for ease of conceptualization of one or the other. The result has frequently been an either/or model rather than a holistic one. As far back as 1910 Lieutenant-General Ian Hamilton declared that "Blindness to moral forces and worship of material forces inevitably lead in war to destruction …. War is essentially the triumph … not of a line of men entrenched behind wire entanglements and fire-swept zones over men exposing themselves in the open, but of one will over another weaker will."[6] Even General Sir Archibald Wavell veered toward this either/or model when he declared that "The final deciding factor of all engagements, battles and wars is the morale of the opposing forces. Better weapons, better food, and superiority in numbers will influence morale, but it is a sheer determination to win … that counts in the end."[7]

It is hard to dispute either Hamilton or Wavell but the idea that moral force by itself could overcome "a line of men entrenched behind wire entanglements and fire-swept zones" was taken to the extreme during the First World War. French Marshal Ferdinand Foch preached that the "will to conquer is the first condition of victory." His doctrine of *l'offensive à l'outrance* under all conditions terribly misjudged the superiority of the defence at that period in time and almost ruined the French Army in 1914.[8] Combat Power can exist without Fighting Power as evidenced by the seeming lack of will to fight of the Arab armies in their wars with Israel between 1948 and 1973.[9] Fighting Power, however, needs Combat Power. Napoleon may have declared that "Moral force, rather than numbers decides victory", but he certainly would have sacrificed some moral force for an extra corps at Waterloo.[10] The French Army in 1940 perhaps would have benefited from more Fighting Power and less Combat Power.

My observation that Fighting Power rests primarily in moral elements is hardly an epiphany. What is important to recognize, however, is that the aetiology, not only of Fighting Power, but of Military Resilience as well, is not fully understood in the Land Force. Therefore, I employ reductionism to understand the interdependent and variable parts in the complex Fighting Power system. The goal of this methodology is to identify and understand those key individual coefficients, or those self-organizing, evolving structures within the Fighting Power model that affect Military Resilience the most.

Major Cyr and the author were not limited to studying Military Resilience in combat only. We believed it necessary to study the problem by book-ending combat resilience with pre- and post combat resilience. Therefore a biological, psychological, and social whole human approach was adopted to explore all the factors affecting the effectiveness of Canadian soldiers. Following the scientific method the author made the initial observation that Fighting Power, and therefore Military Resilience, was not measurable The following section simply lays out some initial research used to test that observation and restrict the discussion to actual combat.



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MOTIVATION TO FIGHT

Historians and analysts love to refer to Napoleon's famous observation that the moral is to the physical as three is to one. This is quantification at its most basic level and in fact sounds profound until one begins to dissect it. One then confronts Clausewitz's caution that moral elements "will not yield to academic wisdom. They cannot be classified or counted. They have to been seen or felt." He continued:

> *If you want to overcome your enemy you must match your effort against his power of resistance, which can be explained as the product of two inseparable factors, viz. the total means at his disposal and the strength of his will. The extent of the means at his disposal is a matter—though not exclusively—of figures, and should be measurable. But the strength of his will is much less easy to determine and can only be gauged approximately by the strength of the motive animating it.*[11]

This is not archaic Prussian rhetoric; it speaks directly to that initial, animating moral force which sets the conditions for success or failure, and the author believes, Military Resilience. We should ask ourselves whether or not the Taliban's motive for fighting in Afghanistan is stronger than ours.

In the First World War the American General Staff set up the Military Morale Section under the Military Intelligence Branch to build and sustain the fighting spirit of American troops. In 1918 Colonel Edward L. Munson, Director of Training at the Medical Corps, submitted a memorandum in which he argued that it was vital that the "widespread application of psychologic measures" be implemented immediately:

> *The efficiency of an army as a fighting force obviously depends on the willingness of its component individuals to contend—and if necessary to die—for an idea and an ideal. In our service no systematic effort is made to create, elaborate and explain such ideals. These are left to chance, hazard and environment … This country … thinks only in terms of men, money and munitions, which it assumes make the soldier. This is only a part truth, for such a combination does not necessarily make a fighting soldier. But the psychologic stimulus is what makes the soldier fight and morale is the driving force behind the spear point.*

Munson admitted that the moral plane "is the intangible, imponderable," even while being the "dominating power" that brings victory.[12]

Let us consider the relationship between morale, "the driving force behind the spear point," and Military Resilience. If we agree that morale at any given moment can be quantified through soldier surveys, and if we further agree that morale is critical to Military Resilience, than can we not logically conclude that Military Resilience is quantifiable? My own answer is "I don't know", because my sense is that our morale in Afghanistan has been, and continues to be, generally high *per tour* yet personnel attrition post-tour is high, suggesting that the individual soldier can possess a very acute type of Military Resilience.

As an aside, the author also believes we need to differentiate between artificial morale and true morale. Artificial morale is a product of the entire welfare program for the troops. We should consider the words of historian Richard Glover, writing in 1931, that a "new danger in modern times" was that "the efficiency of troops may be damaged by the amount of comfort and sheer, debilitating luxury masquerading as 'welfare' which statesmen may think it a political necessity to inflict upon their armies."[13] We *assume* that the sum total of our soldier/family welfare/Quality of Life programs and initiatives is all good, without giving the slightest thought to masquerading elements. True morale comes from common experience, hardships, a superlative state of training (as Rommel said), and a sense of belonging.

INDIVIDUAL LIMITS

Lord Moran's First World War observation that every soldier has his breaking point represents quantification of a sort.[14] The breaking point phenomenon was recognized long before Moran said it, but as methodologies in the behavioural sciences improved greatly during the interwar period it was possible to quantify a soldier's average breaking point based on direct evidence.[15] As the stigmatization of mental injury began to give way to more sophisticated psychiatric analysis in the Second World War, emphasis shifted to quantifying a soldier's psychological limits in an operational environment. The official American study on combat exhaustion declared that "Most men were ineffective after 180 or even 140 days (of combat)." Ninety days was identified as the point of peak efficiency. The number of men on duty after 200 to 240 days of combat "was small and their value to their units was negligible."[16]

The Canadian Army did not set a limit based on the number of days in combat because, as military historian Terry Copp has observed, "none of the psychiatrists with front line experience thought the idea was useful."[17] We should therefore ask ourselves what value such a metric has to our current experience. Our own psychiatrists during the Second World War concluded that the breaking point was directly related to a realization that the misery and danger would never end, and a growing sense of personal vulnerability. Every soldier could become an exhaustion casualty if he experienced enough stress. The argument was that the soldier's ability to "take" cumulative pressure, before he reached his theoretical limit, was directly related to his constitution (physical, mental and temperamental), his character, and his personal morale, heavily influenced by unit morale.[18]

Identifying the average number of days that a soldier can "last" in a combat environment is drastically different than being able to pre-identify who will be able to sustain effort in that environment up to their breaking point. As the official history of the Canadian Medical Services in the Second World War stated: "No test or battery of tests now in use … will predict with accuracy the soldier's ability to withstand the stress of war."[19] I am aware of no modern research which has improved on this statement, although Wilfrid Eggleston suggested as far back as 1950 that "some individuals are equipped by nature to withstand the strains (of war) better than others, and so the physiologists and psychologist, by devising suitable screens for non-susceptibility, superior acuteness of senses, endurance, and other qualities, can select the best men for certain tasks."[20] Today the concern is not only with how much cumulative pressure the soldier can take during a single tour, but also the cumulative stress effects of multiple tours.

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ACTUAL COMBAT

Inside the parameters of the breaking point concept is a soldier's actual performance in combat. After the Second World War American Brigadier-General Samuel Lyman Atwood Marshall attempted to quantify the human dimension of combat by apparently using mass interview techniques with approximately 400 rifle companies in the Pacific and European Theatres. In *Men Against Fire: The Problem of Battle Command in Future War*, he developed a ratio of fire, concluding that "on an average not more than 15 percent of the men had actually fired at the enemy positions or personnel with rifles, carbines, grenades, bazookas, BARs, or machine guns during the course of an entire engagement …. The best showing that could be made by the most spirited and aggressive companies was that one man in four had made at least some use of his firepower."[21]

Marshall's claims exerted significant influence on later generations, and many historians and analysts have accepted them without reservation. Lieutenant-Colonel John A. English cited Marshall's statistics uncritically in his 1981 study *A Perspective on Infantry*. More importantly, Dave Grossman has leveraged Marshall's findings to establish the entire basis of his theory that it is extremely difficult to get men to fire and therefore kill in modern Western armies.[22] Marshall's findings have not been accepted by all, and he has steadily amassed a number of detractors challenging both his scholarship and personal integrity.[23] The experience of Commonwealth armies in the Second World War, with some exceptions, appears to be different.[24] Robert Engen's 2009 study, *Canadians Under Fire: Infantry Effectiveness in the Second World War*, offers a powerful counterpoint to Marshall's findings.[25] If Marshall is indeed wrong we will need to rethink Grossman's psychological cost of killing.[26] This is particularly important because Grossman has spoken to audiences of Canadian soldiers and may be sending the wrong message. Indeed, every Canadian Afghanistan combat veteran I have asked to comment on Marshall's thesis has rejected it entirely; there seems to be too much fire, not too little. The high rates of fire (how much is effective is difficult to determine) have been explained to me as psychological protection, as well as a tactical (win the firefight) requirement. At least Grossman was correct when he concluded that "Certainly this subject needs more research and study."[27] I concur, and believe this holds for our operations in Afghanistan as well.

A study similar to Marshall's was undertaken by the U.S. Army Leadership Human Research Unit in Korea. They produced a study entitled *Fighter I: An Analysis of Combat Fighters and Non-Fighters*. Its conclusions are worth considering. According to the study a fighter tended to have the following characteristics:

- More intelligent;
- More masculine;
- A "doer";
- More socially mature;
- Preferred socially and in combat by his peers;
- More emotionally stable;
- More leadership potential;
- Better health and vitality;
- More stable home life;
- Greater fund of military knowledge; and
- Greater speed and accuracy in manual and physical performance.

The "most striking difference" between the fighter and the non-fighter, the study claimed, was the level of intelligence.[28] The implication of the *Fighter I* study is that men possessed of superior intelligence and physical attributes fight better. This implication is also present in the American official history of the Second World War.[29] *Fighter I* concluded that "the qualities of fighters are potentially measurable and gives promise of the possibility of identifying fighters by appropriately developed tests."[30]

The author is not sure that this can be done, based on my own experience as a football coach looking for "hitters." I never knew who was going to be a natural hitter until the pads went on. A few were natural, aggressive hitters, most were teachable, and a few were not and never got over the fear of contact; therefore, I do accept a range of combat behaviour. A very recent study of Second World War combat by two scholars at the British Defence Operational Analysis Centre developed a more sophisticated breakdown of the phenomenon. They developed a spectrum of behaviour with avoidance of combat at one extreme and heroic performance at the other extreme, with a range of behaviours identified in between. The authors contend that the research is "remarkably consistent, especially as regards the proportion (of soldiers) likely to prove completely ineffective."[31] We can use the following figure for demonstration purposes subject to modification.

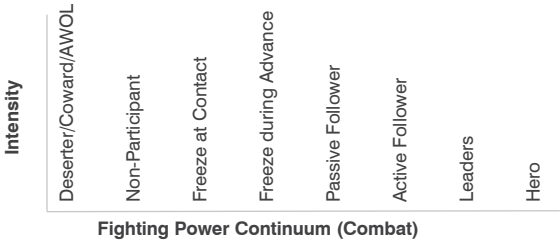

Figure 1: Fighting Power Continuum (Combat). *Source*: Adapted from Rowland and Speight, "*Surveying the Spectrum of Human Behaviour in Front Line Combat*," p. 55.

Colonel Trevor N. Dupuy tackled the problem of quantifying moral factors in developing the Quantitative Judgement Model of Analysis (QJMA) in the 1970s while at the Historical Evaluation Research Organization (HERO). He went to great lengths to identify Combat Variables. Under Intangible Factors he listed combat effectiveness, leadership, training/experience, morale, and initiative, and coded them as follows:

Combat effectiveness	Some times calculable
Leadership	Probably calculable
Training/Experience	Probably calculable
Morale	Intangible; probably individually incalculable

Through complex mathematical calculations Dupuy determined a Relative Combat Effectiveness Value (CEV) for the Second World War and the Arab-Israeli Wars. He argued that the Germans possessed a CEV of 1.2 over the Western Allies. In other words, 100 Germans were the equivalent of 120 American or British (Canadian) soldiers in battle.[32] His conclusions, like Marshall's, have generated fierce debate.[33] In his subsequent study, *Understanding War: History and Theory of Combat*, Dupuy argued that:

> *The fundamental problem in any effort to generalize and formulate theories of combat is the influence of presumably unpredictable human behaviour on outcomes of battle…the perverse refusal of human beings to fit themselves into consistent patterns of behaviour on the battlefield makes the search a long and difficult one. Until a method of determining such patterns can be established, the search for a theory of combat will never be satisfied.*[34]

One area that fascinates me is the interpretation of instrumented tactical trials. Many argue that lasers almost perfectly reflect the precision of weapon systems; although I have heard others, with first-hand experience of Weapons Effects Simulation (WES) at CMTC, dispute this. I understand the tactical implications of this type of training and what it reveals, but I am more interested in the human dimension. The US Army employed laser simulators in the Test Activity Field Instrumented System (TAFIS) at Fort Hood in the late 1970s. One armoured battalion CO recalled that he quickly identified a trend where 20% of his tank crews were consistently responsible for 80% of enemy kills, while the other 80% of his own crews were almost always defeated. Based on these observations he developed his own metric, classifying his tank commanders as "killers", "fillers", or "fodder."[35]

A major problem with instrumented trials from the human dimension, however, is realism, and therefore the author is uncertain of the validity of the armoured battalion CO's observations. Dupuy was correct when he declared that field trials "can never reproduce the essential ingredient of war, which is *fear* in a lethal environment."[36] Those practicing Operational Research (OR) accept this as well, admitting that there is "a world of difference between the physical and psychological environments

encountered in even the most realistic of trials and those that are normally faced by soldiers in genuine combat."[37] OR can quantify behaviour to a certain extent, but only in terms of combat degradation, defined as the difference between physically realistic behaviour and that experienced in equivalent live fire battles.[38] Unfortunately, I am not aware of any studies on the presence of fear in the CMTC simulated environment.[39]

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HUMAN DIMENSION QUANTIFICATION

As the author made his way through the vast literature on the subject of combat performance I began to develop a sense for what was quantifiable and what was not. The eternal aspects of the moral plane, such as leadership, morale, psychological effects, and the difficulty and confusion which battle entails, are not quantifiable as I understand it now, but are nevertheless identifiable by pattern. Patterns in human behaviour are definitely discernable throughout military history, but adequately describing them has been a serious deficiency. However, based on research so far, the author believes that the following patterns are quantifiable to varying degrees:

- Battle Exhaustion/OSI/PTSD rates;[40]
- Individual Intelligence;
- General Health and Illness;
- Personnel attrition (organizational, non-combat specific);
- Physical casualties in different types of engagements;
- Weapons effects through OR;[41]
- Physiological responses and limits;
- Breaches of Code of Service Discipline;
- Soldier opinion through surveys;
- Acts of heroism through distribution of certain medals;[42]
- A continuum of Fighting Power capturing a range of human behaviour, including Military Resilience; and
- Military Effectiveness.

I am sure there are others. The first ten patterns provide a high degree of accuracy because of a large amount of fairly reliable data upon which to build sound models. It is possible to measure attitudes, for example, through anonymous questionnaire surveys.[43] HDO surveys started in the CF back in 1996. Stress and coping strategies were, and continued to be, studied in order to build unit climate profiles.[44] However, attitudes do not necessarily perfectly mirror action. Soldiers have *always* complained. Moreover, we are just beginning to investigate critical sub-elements of the moral component. DRDC recently undertook the difficult first step of measuring trust in teams and trust in leaders to address the lack of an established and accepted measurement tool.[45] While this is intuitive, DRDC as late as 2006 concluded that "future research will need to use more sophisticated methodologies and measurement strategies" in order to fully comprehend psychological resilience.[46] That research is ongoing.

Military effectiveness is a metric we use to rate group performance. An effective army should have high Fighting Power and Resilience. One of the authors of *Sharpening the Combat Edge: The Use of Analysis to Reinforce Military Judgement*, Major-General Ira Hunt, Jr., recently tried to convince me that the effectiveness of units *is* quantifiable and *predictable* in combat, but depended upon the "proficiency and spirit of soldiers."[47] I understand his point, but a proper question to ask is: effective against what opponent? I believe that since war is a competitive activity one can make no serious judgements about the Land Force's Fighting Power and Resilience without judging it relative to the Fighting Power and Resilience of our adversary, which for the next year or so, will be the Taliban.[48] In the First World War the Canadian Expeditionary Force (CEF) was extremely effective after a time, clearly demonstrated superior fighting power against a first-class opponent, and possessed resilience of the scale necessary to absorb the loss of 60,000 killed, the equivalent of 9.28% of total personnel enlisted.[49] Eighty-eight years later in Afghanistan, Lieutenant-Colonel Ian Hope, commander of Task Force Orion, stated that the fear of casualties created a culture "hard-pressed to deal with the reality of sustained combat."[50] I refer to this only to suggest that Fighting Power and Military Resilience appear to change through time, and the demands on both change with the opponent.

There is a natural tendency to dismiss quantification of the human dimension because of the difficulty involved. Yet I do not think we should avoid the attempt. I feel that real insights are achievable by leveraging those elements that submit readily to quantification. The end-state is practical training. Although much of what has been discussed here may seem too abstract, it is a necessary exercise and no harm can come from asking questions. While the author explores the higher level concepts, Major Cyr and his colleagues from the AFC-directed Mental Health Education Advisory Committee (MH EAC) are pressing ahead with resiliency initiatives for immediate implementation. A standardized pre-deployment resilience training program titled Road to Mental Readiness (R2MR) is being developed for inclusion in the Road to High Readiness, and should be ready for full implementation with TF 1-11. R2MR will be an integral element of an overarching mental health training/education strategy aimed at providing all CF members with the training they require on mental health issues at key points in their career development and as part of any deployment cycle.

Combat Camera IS2005-A040

ABOUT THE AUTHOR…

Captain Rickard is currently an armoured officer serving with the Directorate of Army Training. He holds a PhD in military history from the University of New Brunswick and is the author of two books, one examining the command of General A.G.L. McNaughton and another on Patton's leadership in battle. He seeks further input on this subject, especially from members who have served overseas. Comments on whether their personal experience in combat aligns or does not align with his exploration of quantification would be very useful. You can contact Captain Rickard via e-mail.

ENDNOTES

1. Major Andrew B. Godefroy, ed., *Land Operations 2021—Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow* (Kingston: Directorate of Land Concepts and Design, 2007), 25. We are in line with the US Army in recognizing this requirement. *The U.S. Army Study of the Human Dimension in the Future, 2015–2024*, states that the army "will require extraordinary strength in the moral, physical and cognitive components of the human dimension." TRADOC Pamphlet 525-3-7-01, *The U.S. Army Study of the Human Dimension in the Future, 2015–2024*, (U.S. Army TRADOC, 1 April 2008), iii.
2. His endstate is a new warrior class capable of heightened performance under the worst possible conditions. He differentiates between true warriors and normal soldiers. True warriors represent a very small percentage of any force. He concluded that "Some may occur naturally, but there can ne no doubt that they can also be made, constructed, crafted, nurtured and trained." Dave Grossman, *On Combat: The Psychology and Physiology of Deadly Conflict in War and Peace*, 2nd Edition (PPCT Research Publications, 2007), xii, 130.
3. B-GL-300-001/FP-001 *Land Operations*, 2008, 4–1, 4–2. This definition is based on NATO Allied Administrative Publication 6 –AAP, *Glossary of Definitions and Terms,* 2006). A 2001 Land Force study of future army capabilities stressed that the cognitive (moral component) "involves the psychological or mental processes whereby beliefs, motives, ideas and emotions coalesce to establish resolve." *Future Force: Concepts for Future Army Capabilities*, 79. This study advocates the substitution of the term cognitive for moral "as it better describes "the where and how will is created."
4. Martin van Creveld, *Fighting Power: U.S.-German Performance, 1939–1945* (Westport, Connecticut: Greenwood, 1982), 3. This focus on the mental side influenced the current author in proposing the following definition: "Fighting Power represents the moral complement to combat power. It is the synergy of moral factors within a military unit that creates moral force. Moral force allows a unit to withstand casualties and setbacks and successfully engage in extended combat. The generation of fighting power allows a unit to impose its will upon the opponent." Captain John N. Rickard, "The Canadian Army and Fighting Power," *The Army Doctrine and Training Bulletin* VI, 3 (Fall/Winter, 2003): 34.
5. *Land Operations* states that the moral (or psychological) component "provides the ethical and cultural base from which we derive morale, cohesion, esprit de corps, and fighting spirit." *Land Operations*, 4–1, 4–2.
6. Sir Ian Hamilton, *Compulsory Service: A Study of the Question in the Light of Experience* (London: John Murray, 1910), 121–122.
7. Sir Archibald Wavell, *Speaking Generally* (London: Macmillan, 1946), 79.
8. James Marshall-Cornwall, *Foch as Military Commander* (London: B.T. Batsford, 1972), 18–22.
9. For a good discussion see Kenneth M. Pollack, *Arabs at War: Military Effectiveness, 1948–1991*, (Lincoln: University of Nebraska Press, 2002), 568–70.
10. David G. Chandler, *The Campaigns of Napoleon* (New York: The Macmillan Company, 1966), 157.
11. Carl von Clausewitz, *On War*, edited by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1984), 184. Baron Antoine Henri de Jomini prescribed certain measures to sustain what he called "military spirit": "By inuring armies to labor and fatigue, by keeping them from stagnation in garrison in times of peace, by inculcating their superiority over their enemies, without depreciating too much the latter, by inspiring a love of great exploits,—in a word, by exciting their enthusiasm by every means in harmony with their tone of mind, by honouring courage, punishing weakness, and disgracing cowardice,—we may expect to maintain a high military spirit." Antoine Henri de Jomini, *The Art of War*, (London: Greenhill Books, 1992), 63.
12. Thomas M. Camfield, "'Will to Win'—The U.S. Army Troop Morale Program of World War I", *Military Affairs*, XLI, 3 (October 1977), 126.
13. Richard Glover, "War and Civilian Historians," *Journal of the History of Ideas*, XVIII, 1 (January 1957), 86.
14. Lord Moran, *Anatomy of Courage*, 3rd Edition (New York: Avery Publications, 1987), xvi.
15. Kurt Lang, *Military Institutions and the Sociology of War: A Review of the Literature with Annotated Bibliography*, (London: Sage Publications, 1972), 18.
16. Quoted in John Keegan, *The Face of Battle* (New York: Viking, 1976), 329.
17. Terry Copp, e-mail to author, June 10, 2010.

18. Terry Copp and Bill McAndrew, *Battle Exhaustion: Soldiers and Psychiatrists in the Canadian Army, 1939–1945*, (Montreal and Kingston: McGill-Queen's University Press, 1990), 144–46.

19. W.R. Feasby, *Official History of the Canadian Medical Services, 1939–1945, II: Clinical Subjects*, (Ottawa: Queen's Printer, 1953), 89.

20. Wilfrid Eggelston, *Scientists at War* (London: Oxford University Press, 1950), 211.

21. Brigadier-General S.L.A. Marshall, *Men Against Fire: The Problem of Battle Command in Future War*, (New York: William Morrow & Company, 1947), 50–56.

22. John A. English, A *Perspective on Infantry* (Westport, Connecticut: Praeger, 1981), 145; Dave Grossman, *On Killing: The Psychological Cost of Learning to Kill* (Boston: Little, Brown and Company, 1995), 1, 3, 15–16.

23. See Harold P. Leinbaugh and John D. Campbell, *The Men of Company K*. (New York: Bantam Books, 1987); Eric Smoler, "The Secret of the Soldiers Who Did Not Shoot," *American Heritage*, XL (March 1989): 40–45; Roger J. Spiller, "S.L.A. Marshall and the Ratio of Fire," *RUSI Journal*, 133 (Winter 1988): 63–71; John Whiteclay Chamber II, "S.L.A. Marshall's Men Against Fire: New Evidence Regarding Fire Ratios," Parameters, XXXIII, 3 (Autumn 2003): 113–121; Michael D. Doubler, *Closing with the Enemy: How GIs Fought the War in Europe, 1944–1945* (Lawrence: University Press of Kansas, 1994), 289–91; Peter R. Mansoor, *The GI Offensive in Europe: The Triumph of American Infantry Divisions, 1941–1945* (Lawrence: University Press of Kansas, 1999), 260–262. For a good overview of Marshall's impact see F.D.G. Williams, *SLAM: The Influence of S.L.A. Marshall on the United States Army*, TRADOC Historical Monograph Series (Fort Monroe, Virginia: Office of the Command Historian, U.S. Army Training and Doctrine Command, 1994).

24. Captain Lionel Wigram of the British Army made similar observations in North Africa. He claimed that "there are only from four to six men in the platoon who can be absolutely relied on to do as they are told under enemy fire." Quoted in David French, *Raising Churchill's Army: The British Army and the War against Germany, 1919–1945*, (London: Oxford University Press, 2000), 207.

25. Robert Engen, *Canadians Under Fire: Infantry Effectiveness in the Second World War* (Montreal: McGill-Queen's University Press, 2009), 8–9.

26. Grossman does address the Marshall debate but argues that "at every turn my research has uncovered information that would corroborate Marshall's basic thesis, if not his exact percentages". Grossman, 333.

27. Grossman, 333.

28. Robert L. Egbert, et al., *Fighter I: An Analysis of Combat Fighters and Non-Fighters* (For author: insert place of publication: Human Resources Research Office Technical Report 44, December 1957), 26.

29. Many of the physically and intellectually superior recruits in the Western armies in the Second World War gravitated to the air force, navy, marines, airborne, and rangers. The technical services took the cream of available manpower in terms of intelligence. See Robert R. Palmer, Bell I. Wiley and William R. Keast, *United States Army in World War II: The Procurement and Training of Ground Combat Troops* (Washington: Government Printing Office, 1948), 3.

30. Egbert, iii. There does seem to be some link between professional development, judgement and resilience. See George F. Hofmann, "Armor History and Operations in 1944: The 6th Armored Division Experience in the European Theater of Operations: A Study in Leadership Development and Execution," *Armor* (September–October 1994): 11.

31. See D. Rowland and L.R. Speight, "Surveying the Spectrum of Human Behaviour in Front Line Combat," *Military Operations Research*, XII, 4 (2007): 55–57.

32. Colonel Trevor N. Dupuy, Numbers, *Predictions and War: Using History to Evaluate Combat Factors and Predict the Outcome of Battles* (Indianapolis: The Bobbs-Merrill Company, 1979), 62. Dupuy's calculated CEV was even higher versus the Soviets.

33. The U.S. Army used Dupuy's model in the early 1980s for Force Comparison (FORCECOMP) but came to question the statistical basis. John Sloan Brown, "Colonel Trevor N. Dupuy and the Mythos of Wehrmacht Superiority: A Reconsideration," *Military Affairs*, L, 1 (January 1986),16–20; "The Wehrmacht Mythos Revisited: A Challenge for Colonel Trevor N. Dupuy," *Military Affairs*, LI, 3 (July 1987): 146–47.

34. Colonel Trevor N. Dupuy, *Understanding War: History and Theory of Combat*, (New York: Paragon House Publishers, 1987), 58.

35. Colonel Thomas A. Horner, "Killers, Fillers, and Fodder," *Parameters*, XII, 3 (September 1982): 31.

36. Dupuy, *Understanding War*, xxii. Our own doctrine admits that "Random variables generate unforeseen effects that make the reality of warfare and military operations something very different from that envisioned in plans and textbooks … Indeed, the closer the battle comes to face-to-face human interaction, the greater will be the chance for chaos and uncertainty to grow." B-GL-300-003/FP-001 *Command in Land Operations*, July 27, 2007, 1-5, 1-6.

37. L.R. Speight and D. Rowland, "Modelling the Rural Infantry Battle: The Effects of Live Combat on Military Skills and Behaviour During the Approach Phase," *Military Operations Research*, XIII, 4 (2008): 79.

38. David Rowland, *The Stress of Battle: Quantifying the Human Element in Combat* (London: The Stationary Office, 2006), 18. Rowland differentiates between Historical Analysis (HA) and history proper, arguing that while history "forms the major input into historical analysis, it is the objective data derived from it which is the important part. Historians' judgements and views are also useful but as hypotheses to test and not as direct input." Dupuy declared that "Military history is essential to the development of military science because—unlike most other sciences—military science is unable to test its theories and hypotheses in laboratory experiments."
39. Dr. Megan Thompson to author, 27 October 2009; Lieutenant-Colonel I. Hope, *Dancing with the Dushman: Command Imperatives for the Counter-Insurgency Fight in Afghanistan* (Kingston: CDA Press, 2008), 151. Our own experience with such Mobile Automated Instrumentation Suite (MAIS) trials was conducted in 2001 at Gagetown. While not specifically focused on the human dimension, some were observed. The increased frontages used by the Blue Force company over the time of the trial was potentially seen as the result of increased soldier's confidence in each other. Fred Cameron, Roger L. Roy, LCol Rick Bowes and Major Bruce Chapman, "Half a Decade of Operational Research for Developing New Command Support Capabilities in the Canadian Army," n.d.
40. This is subject to a given definition.
41. Canadian soldiers suffering from Battle Exhaustion in Normandy were explicit in their fear of German mortars and the 88 mm Flak gun.
42. Though high awards for valour and courage are thoroughly investigated, this does not mean that the heroism of other deserving soldiers has been properly identified. Heroism awards most likely suffer from rank as well.
43. Surveys are an old methodology. See Ardant du Picq, *Battle Studies* (Harrisburg:). The U.S. Army discovered through such means that there was considerable disrespect for officers shown by enlisted men during the Second World War. T.W. Harrell, "Applications of Psychology in the American Army," *Psychological Bulletin*, No. 42 (1945): 458; Samuel A. Stouffer, et al., *The American Soldier: Adjustment to Army Life*, I (Princeton: Princeton University Press, 1949), 379.
44. Major J.R.S. Blanc and Heather McCuaig Edge, "Battlefield Ethics: Summary of HDO Survey Results," May 2009.
45. Barbara D. Adams and Megan Thompson, *The Development and Validation of the Trust in Teams Scale and Trust in Leaders Scale—Preliminary Report* (Toronto: DRDC, July 2008).
46. Jaye Wald, et al, "Literature Review of Concepts: Psychological Resiliency, Final Report," abstract, (Toronto: DRDC, 1 July 2006).
47. Lieutenant-General Julian J. Ewell and Major-General Ira A. Hunt, Jr., *Sharpening the Combat Edge: The Use of Analysis to Reinforce Military Judgement* (Washington: Center of Military History, 1974), 233; Major-General Hunt, letter to author, 2 October 2009. Major-General Hunt was the Deputy TRADOC and worked with Dupuy. MGen Hunt, telephone conversation with author, 17 September 2009.
48. Pollack, 13.
49. Colonel G.W.L. Nicholson, *Official History of the Canadian Army in the First World War: Canadian Expeditionary Force 1914–1919* (Ottawa: Queen's Printer, 1962), 534–35.
50. Hope, 147. TF Orion sustained 10% casualties in six and one-half months.

Source: Combat Camera

ORGANIZING MODERN INFANTRY: AN ANALYSIS OF SECTION FIGHTING POWER

Major V. Sattler, CD,
and Captain M. O'Leary, CD

As the 21st century unfolds, Canada continues to face an international arena marked by uncertainty, volatility and risk. While many threats have receded, others have grown in importance, and still others have arisen in their place. The threats we now face are complex and often asymmetrical in nature. It is within this uncertain context that the Land Force must continue to operate to meet Canada's national security needs and expectations. However, this entails an inherent requirement to do so not only in the short-term but also in the long-term. As such, the Army must constantly work towards a fuller understanding of the character of the future security environment and its implications for armed conflict. Moreover, it must foster operational concepts and doctrine that are clear, relevant and always forward-looking. Finally, it must seek capability building blocks, such as an infantry section, that ensures the Army's effectiveness in the future battlespace at home and abroad.

This article presents an in-depth review and comparative analysis of several factors affecting modern infantry section organization and capabilities in order to offer conceptual and design considerations for the army infantry section to operate successfully in future full-spectrum operations.

FUTURE SECURITY ENVIRONMENT

Ongoing trends (e.g., globalization, rapid scientific and technological innovation, demographic change, shifting regional power balances and the growing prominence of non-state actors) are leading to considerable change in the nature of conflict and its conduct. The result is that the likelihood of large force-on-force exchanges will be eclipsed by irregular warfare conducted by highly adaptive, technologically enabled adversaries: media-savvy foes intent less on

defeating armed forces than eroding an adversary's will to fight; rogue states bent on challenging the status quo; and trans-national criminal organizations ready, willing and able to buy, sell and trade everything from drugs to armaments for their own gain. Furthermore, turmoil will often occur in urban areas, with adversaries taking full advantage of the complex physical, moral and informational environments that large, densely populated cities provide.

Throughout history, foot soldiers have always formed the core military capability and the basic building block of any land combat organization. To be sure, many of the broad contours of future conflict will resemble those present today. Yet a key difference will be that potential adversaries are likely to be even more adaptive and the threats they pose even more varied. Both globalization and exponential technological change will offer a wide array of actors the capacity to achieve a degree of influence and reach unlike anything seen in the past. This, combined with human ingenuity, will provide adversaries with an increased capacity to organize, network and mount significant challenges on a range of fronts—moral, political and military. With greater access to a range of enablers—including cell phones, the Internet and a wide array of weapons and weapon-related technologies—adversary mobility, reach and lethality will increase.

Grounded on the lessons that we have captured from today's operations and to mitigate against the unpredictability of future conflict and prepare the Army for the challenges it might face in the future, this document will act as impetus for discussion for infantry section development. In essence, it is a conceptual guide, from which force generation must evolve, acknowledging where we are, what we have achieved and what we must do to ensure continued success in the future.

"The infantry section is the heart of the Canadian Army."

—Lieutenant-General Andrew Leslie[1]

WHAT IS AN INFANTRY RIFLE SECTION FOR?

As part of an infantry platoon, the infantry section's extant role is to close with and destroy the enemy. It does this across full-spectrum operations by manoeuvre to seize an objective with a view to holding ground.[2] In the last century, technology has brought enhanced mobility, firepower and protection primarily with the addition of organic supporting vehicles. The manoeuvre that these vehicles bring is an integral addition to the dismounted soldiers of the section. The weapon is the infantry section. The vehicle's capabilities are part of a fighting system. Nevertheless, infantry is not defined by the platform that delivers it to battle. Regardless of how infantry may arrive at an objective, all infantry ultimately operates dismounted. That is what defines the infantry.

While there have been numerous discussions as to mission, role and task of the infantry section as an introduction to the organization and equipment, the most common arguments put forth to support infantry section size and structure over the past few decades have been limited to defining the infantry section as a fixed number of personnel with a specific weapon set. "To argue against this organization of the rifle section is to face repealing many battle-proven and entrenched philosophies inherent in western military systems."[3] These philosophies have been reinforced repeatedly until they have been considered by some as unchallengeable canons. Numerous studies and experiments have espoused core principles against which we have historically measured the effectiveness of manning and equipping, as well as the efficiency of, the infantry section. The Canadian Army's *The Section and Platoon in Battle* covers section organization and the basics of both mounted and dismounted tactics without any detailed examination of how a single section would be organized to do everything. His entrenchment of the section size and narrow scope of training tactics remains a critical element in examining the organizational structure of the infantry section. While the role of the infantry section will not change—otherwise that infantry

section would not be infantry—doctrinally, there are endless options for the tactical employment of an infantry rifle section. There are numerous supporting elements that lend to flexibility and agility and ultimately the utility of the infantry to deal with complex environments. Regardless of what outcome the strategic debate for force structures takes, there will always be a requirement for boots on the ground.

HISTORY: THE ADVENT OF MODERN INFANTRY

The formation of the modern infantry platoon and section finds its origins back to small groups of Roman legionnaires commanded by a *decanus*.[4] There are also examples of the same in the "Corporal's Guard" of the 19th century. Through the World Wars, as the variety of weapons and tactical options for the employment of infantry within the battalion became more complex, the organizational structure of the infantry company became increasingly subdivided for task execution.[5] This evolution offered greater flexibility on the battlefield and devolved greater responsibilities to platoon- and section-level commanders, who shared in those responsibilities in order to achieve tactical mission success. In short, as the complexity of the environment increased, responsibility was divided.[6]

This evolution to the platoon, and sometimes section, as the lowest level unit with discrete tasks as part of a commander's plan demanded greater flexibility within the infantry section but also led to a consistency of organization and weapon assignments that in themselves increased tactical options. A commander could employ a section in a variety of tasks knowing that, if equally equipped and trained, any section could handle the assigned tasks. Though much is made of the adoption of the Lewis Gun by infantry sections to provide fire support, the real breakthrough that saw the first major alteration of the infantry section was the advent of the grenade. The "cult of the bomb," as it became known, also led to the advent of the infantry mantra, "fire suppresses, grenades kill," something the US Marine Corps, for example, still advocates today.

During the First World War and between the two World Wars, the Canadian infantry platoon had four sections:[7] two rifle sections of seven soldiers commanded by a sergeant providing movement[8] elements, and two Lewis Gun sections providing firepower elements to support the forward movement of the rifle sections.[9] Relying on the experience of the First World War, the Lewis Gun sections, each with one machine-gun, required a section of seven soldiers (all ranks) to ensure an adequate supply of ammunition in field operations.[10]

With regard to firepower in the Canadian Army's experience, the replacement of the Lewis Gun (13 kg) with the Bren Gun (10 kg) and finally the FNC2 (7 kg) meant that the soldier with the weapon could carry more ammunition, thus resulting in a loss of assigned ammunition carriers (although these still do exist in the machine-gun platoon construct). Of course, firepower and movement are inextricably linked. As for movement, the result was three identical sections, each with two automatic rifles, forming a fire support group under the section 2IC, and a movement (assault) group of the remaining riflemen under the section commander. Hence, with improved firepower to suppress the enemy came safer movement.

The infantry's ten-soldier section, organized as support and assault elements, permitted the section commander to deploy a fire support element to cover the movement of his assault group. Such an arrangement allowed the section to conduct its own manoeuvre—movement supported by fire to gain a position of advantage. Alternatively, it was recognized that when employed as part of a larger assaulting organization (platoon, company and battalion), the section could remain as a single element, with both the fire support group and the assault group moving together within the higher commander's plan. The flexibility allowed by the two-element section organization was not taken as a requirement that they always would be employed in the support and assault configuration.

Further fundamental change to the infantry section structure would occur when it became mechanized. The Canadian infantry M113 had a driver and crew commander/gunner who would remain mounted, leaving eight soldiers as the standard dismounted section. Doctrinally, these two mounted soldiers were always considered as "bayonets first" and expected to dismount when required rather than be inextricable from the vehicles. The reality was there was no one else assigned to drive the vehicles if the entire section dismounted.

With regard to manoeuvre, the section would always be part of larger organization, it would "never" operate in isolation, and it would be required to form a single extended line only in the final approach and assault. Hence, flanking manoeuvre at the section level was unnecessary. This concept of manoeuvre assumed mass forces taking part in large-scale conflict during the period of the Cold War. This concept was further developed in the section to the point where the elimination of the requirement for a separately defined fire support element resulted in two identical fire groups of four: each fire group would be armed with one C9 light machine-gun and three C7 assault rifles. Later, one C7 would also mount the M203 grenade launcher, leaving only three riflemen[11] per fire group (one being the section commander or the second-in-command) and two soldiers carrying heavier weapons which were better suited to fire support tasks. This later concept also allows the section to operate as two groups of four, with each group having fire support, communications and movement. This section organization, which has prevailed since the 1990s, is perceived as well-armed and flexible in that it carries a balanced, full suite of weapons, of which one or more would be suited to any particular task. This balanced capability offers more tactical options to the section and platoon through the apportioned communications, firepower and manoeuvre demanded in a complex environment.

The doctrinal organization of the infantry section, combined with a single-option section assault tactic,[12] leads to a very specific conceptualization of what a section can do. In fact, soldiers and NCOs learn to follow the checklist-mandated expectations in training and then return to units where employment of sections might seldom reflect the repetitive activities seen in training. To some extent this has resulted in a growing divergence between theoretical warfighting requirements which dictate training methods on one hand, and what is being executed in infantry battalions that focus on a much broader concept of employment of infantry sections on the other. The reality is that this divergence is almost universally true of all school environments that require doctrinal foundations and have difficulty keeping up with current operations. While any perceived training delta is currently being addressed in pre-deployment training, there may be a gap remaining between the training baseline and doctrine, and the real-world requirements once the current pre-deployment training ends.

As the 21st century unfolds, it is expected that future land operations will be "characterized by the deliberate use of dispersion and aggregation undertaken by adaptive forces in order to create and sustain tactical advantage over an, adaptive adversaries."[13] To that end, the infantry section as the focal building block of all operations must be well grounded in the lessons we have captured from past operations.

ABCA[14] INFANTRY SECTION ORGANIZATIONS

Note on Terminology: The ABCA nations do not consistently use the labels "assault group," "fire team" and "fire group" for the same section elements. For the purposes of this article, "assault group" will refer to a four- or three-personnel dismounted manoeuvre element, and "fire team" will be used to describe a two-personnel team within the section. The term "section" will also be used to refer to the US Army and USMC squad. For simplicity, section weapons will be generally referred to as the assault rifle, the (under slung) M203 grenade launcher and the light machine-gun (LMG) without reference to specific national variants of the general weapon types.

DISMOUNTED INFANTRY SECTIONS

The following graphic depicts the doctrinal dismounted section for ABCA infantry:

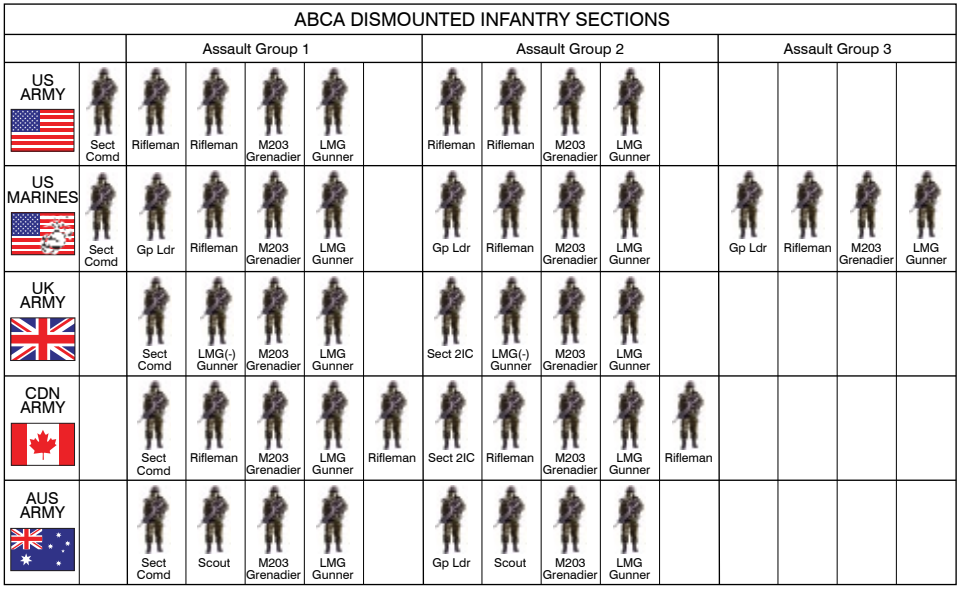

Figure 1: ABCA Dismounted Infantry Section Organization

US Army. The US Army rifle section (squad) consists of a section leader and two four-personnel assault groups. Each assault group consists of two assault rifles, one M203 grenadier and one automatic rifleman (M249).[15]

US Marine Corps. The US Marine section (squad) consists of a commander and twelve troops in three assault groups (totalling 13 personnel). Each assault group consists of four Marines: the group leader/rifleman (M4/M16), one rifleman (M4/M16), one grenadier (M4/M16 with M203) and one light machine-gunner (M249).[16]

British Army. The British Army infantry section consists of eight soldiers: a section commander, a second-in-command and six soldiers. In conventional warfare, the section is split into two four-personnel assault groups. These assault groups each consist of the section commander (or 2IC) armed with a L85A2 5.56 mm rifle and three riflemen armed with a L85A2 5.56 mm rifle with 40 mm under slung grenade launcher, a L110A1 5.56 mm light machine-gun, and a L86A2 5.56 mm light support weapon.[17]

Of particular note is that, as a result of combat operations in Afghanistan (Op HERRICK), the British Army's actual arming of the section is markedly different. The section commander and 2IC are armed with SA 80A2 5.56 mm rifle. There are two light machine-guns (similar to Canada's C9), two under slung grenade launchers (M203 equivalents), one general purpose machine-gun (same weapon as Canada's C6), and one sharp shooter with a L129A1 7.62 mm assault rifle (procured as an immediate operational requirement for the operation). The SA80 A2 light support weapon, which has a heavier and longer barrel allowing greater muzzle velocity and accuracy than the standard SA80, is still in inventory but is not used in theatre or domestically.

Canadian Army. The Canadian infantry section consists of ten soldiers: a commander, a second-in-command and eight soldiers, including a driver and a gunner.[18]

Australian Army. The Australian Army infantry section is made up of eight personnel divided into two four-personnel assault groups. Each assault group consists of a team leader, a scout with enhanced optics, a grenadier with a M203 and a LSW gunner with F89 Minimi light support weapon.[19]

MECHANIZED INFANTRY SECTIONS

The following graphic depicts the ABCA mechanized infantry sections:

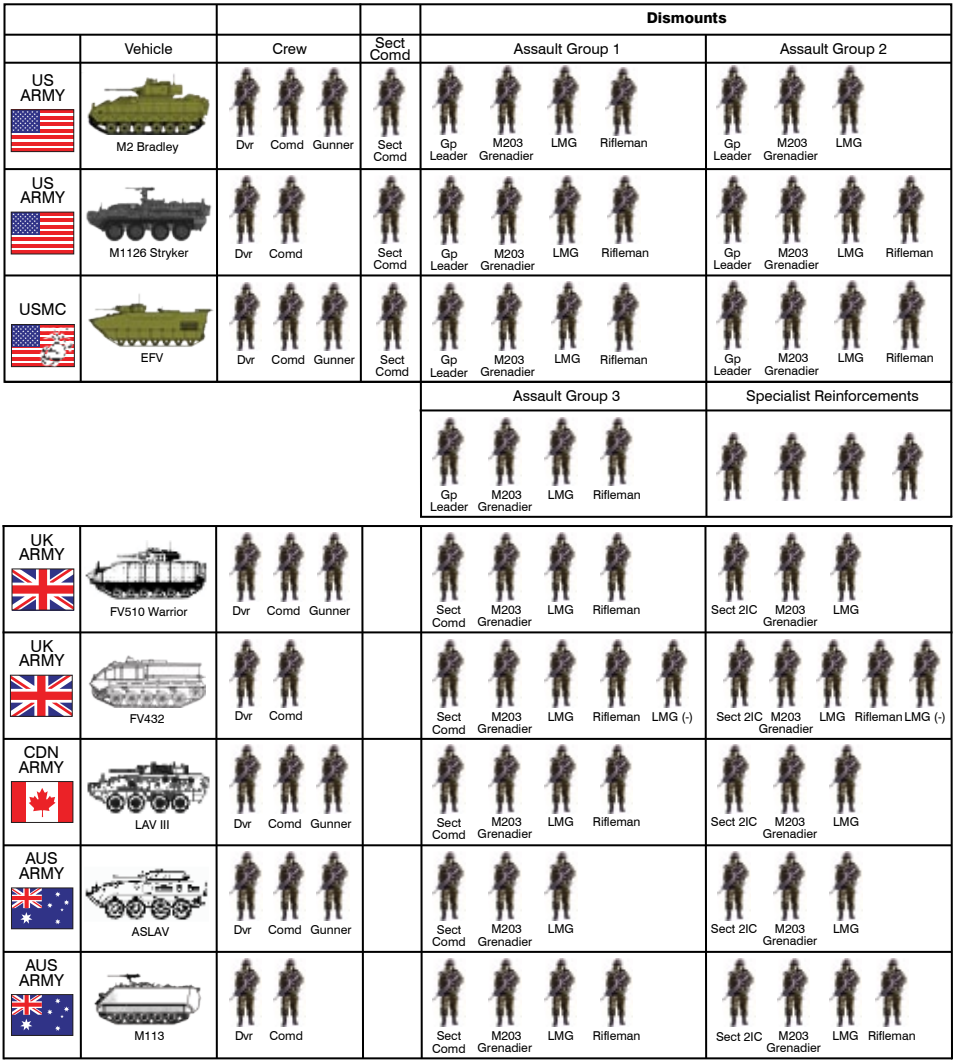

Figure 2: ABCA Mechanized Infantry Section Organization

US Army. The principal US Army infantry fighting vehicle is the M2 Bradley. The Bradley has a crew of three and, depending on the variant, carries six or seven dismounts. The US Army also employs the Stryker armoured personnel carrier, which has a crew of two and carries nine dismounts.

US Marine Corps. The US Marines employ the Expeditionary Fighting Vehicle (EFV), representing the signature mission of the USMC. Formerly called the Advanced Amphibious Assault Vehicle, it is capable of transporting 18 Marines (a reinforced squad) and a crew of three over water at speeds of 29 mph (46.7 kph) with agility and mobility equal or greater than that of the M1 main battle tank.[20]

British Army. The British Army employs the FV510 Warrior infantry fighting vehicle. It has a crew of three with seven dismounts. Like the LAV III, the Warrior does not carry the eight-personnel section organization as its dismountable element. The requirement for a third vehicle crewman was again offset by the reduction of one assault group to three soldiers in the Warrior mounted section. Note that the vehicle is considered integral to the section. The British Army is also continuing to upgrade its remaining FV432 Bulldog armoured personnel carriers (APC), which have a crew of two and ten dismounts. (This vehicle was used in Iraq but is not used in Afghanistan.)

Canadian Army. For the Canadian Army, "the rifle section is normally organized as two assault groups, one of four soldiers and one of three soldiers, as well as a vehicle group of three (gunner and driver, crew commander/sect 3 IC). Each assault group is further divided into two fire teams of two soldiers each. The section commander commands Assault Group 1 and the section 2IC commands Assault Group 2. This is the grouping that will take out one enemy position, with either group assaulting the position while the other group supports. This basic grouping is the easiest to command and control."[21]

Note that in this latest draft of *Section and Platoon in Battle*, the section vehicle is the LAV III, and a crew of three now remains with the vehicle. This results in a dismounted section of two assault groups, one of four and one of three personnel, when the section is at full strength. For sustained tasks, operations have often found a fourth soldier necessary to provide rear security on halts and to assist with ammunition loading. Also note that the vehicle is considered part of the section and it provides intimate support to permit manoeuvre.

Australian Army. With the Australian Light Armoured Vehicle (ASLAV) employed as an armoured personnel carrier, the vehicle capacity is described as three crew plus six dismounts. This results in two three-personnel assault groups being dismounted from each section carrier. The Australian Army also employs upgraded M113 (eight dismounts with a crew of two) and the Bushmaster Infantry Mobility Vehicle (IMV) (11 dismounts and a crew of one).

THE AUSTRALIAN VIRTUAL INFANTRY SECTION EXPERIMENT (VISE)

The Australian Army has executed a series of simulation exercises to compare the relative effectiveness of various-sized dismounted sections. In an experiment to assess the relative effectiveness of various section sizes and organizations, the Australian Army Virtual Infantry Section Experiment (VISE) employed an adapted first-person shooter video game system to compare the tactical effectiveness of eight-, nine- and 12-personnel sections. Reported at the SimTecT 2004 Conference,[22] a paper presenting some of the experiment's results offers some food for thought, but its results should be accepted with caution. While the authors note that the nine-personnel section marginally performed better against the assessment criteria than did the eight- or 12-personnel organizations, they did not attempt to explore all of the reasons why this may have occurred.

The three dismounted section organizations in the experiment were fundamentally different in nature:

- The eight-personnel section consisted of two four-personnel assault groups, with the notable difference that one assault group had a light machine-gun and a medium machine-gun, while the second had only a light machine-gun. Each group also had an M203 grenade launcher. (This is the current Australian Army section organization, less the medium machine-gun, i.e., two balanced assault groups.)
- The nine-personnel section was in three elements (command, assault and support) of three personnel each. The assault and support groups were identically equipped, each having a light machine-gun and an M203 grenade launcher. The command group consists of the section commander and two scouts. (This was the Australian Army section organization in use at the time of the experiment, and the one that soldiers were most comfortable operating within.)[23]

- The 12-personnel section was divided in to three four-personnel assaultgroups, one group with a light machine-gun and a medium machine-gun, the other two with a light machine-gun each. Each group also had an M203 grenade launcher.

(Note that these were all designed as dismounted sections, without addition of the potential available firepower of section vehicles.)

The nine-personnel section was determined to produce better overall results in the study's analysis. While this is probably based primarily on the fact that it was the familiar section organization for the participating soldiers, there is another factor to be considered. The nine-personnel section allows the commander the flexibility to remain outside the assault groups' fighting process while directing them. The commander also has the two section scouts as his own reserve, to be used to deal with new threats or to reinforce the assault groups as dictated by the tactical situation.[24] This allows the commander to balance his attention between the immediate fight and command responsibilities, thus improving the commander's situational awareness and flexibility to react to the evolving situation. This section structure gives the commander a significant advantage over the eight-personnel section structure, which places the commander in the immediate fight as an assault group commander, while having to also command the entire section and to monitor the actions and demands of the parent platoon.

In the VISE report, the authors do note that the participating soldiers had no learned doctrine for a 12-personnel infantry section organization and thus found it unwieldy. The available report also describes higher ammunition usage (and a resulting lower measured efficiency based on "mean effective rounds per enemy death") by the larger section, but without connecting it to the simple and obvious factor of more weapons in action compared to the smaller sections.

While the VISE did not examine the capability of sections smaller than eight soldiers, it can be noted that the core capability component of the nine-personnel section was its two three-personnel assault groups. Directed by a commander who remained outside these core elements[25] and supported by the various possible roles of the scouts, these three-personnel assault groups were the basis of the most effective section organization tested in the experiment.

OBSERVATIONS ON SECTION ORGANIZATIONS ACROSS THE ABCA NATIONS

Over a span of decades, the slow evolution from a platoon of four seven-personnel sections in a foot-borne platoon to a mounted platoon deploying three sections of seven-personnel dismounted, no commander (or staff) oversaw more than one element of change. Each change was likely perceived as minor and balanced by concurrent offsets (fewer sections balanced by more firepower) or required by other organizational changes (reduction from ten, to eight, to seven dismounted soldiers per sectionas vehicle crew responsibilities arose and limited by the vehicle's space for carrying additional soldiers). Inevitably, none of those who managed each of these evolutionary changes were in a position to oversee or predict the overall change to three-quarters of the original number of soldiers on the ground in an infantry platoon.[26] The development of the section structure seems to have been done more in the context of the new equipment that required manning than in the larger, coherent review of the infantry battalion as a fighting system in an operational context.

While there has been considerable debate over infantry section size and organization since World War II, across ABCA armies the section size of eight dismounted soldiers in two assault groups largely had its origins in a ten-personnel section with two re-assigned as vehicle crew. Currently, with the exception of the US Marine squad having three assault groups, each of these section organizations are virtually identical down to the allocation of weapon types (assault rifle, M203 grenade launcher and light machine-gun) within each four-personnel assault group. The current generation of infantry fighting vehicles—most notably based on the LAV-25/LAV III family—are large enough to accept the existing

section organization with the loss of one more soldier to a third vehicle crew position. Hence a further evolution to a seven-personnel dismounted section without any significant re-examination of the section organization. It is worth restating that in Canadian Army doctrinal design, the infantry section is ten personnel, and the vehicle enhances its manoeuvre and is part of the section.

As a result of lessons learned from recent operations in Afghanistan, there has been keen interest across ABCA nations to provide the section with a heavier rifle for one soldier to act as a marksman when required (the "sharp shooter"). This proposal returns to mechanized infantry units a consideration that marksmanship and the effective use of the aimed shot have not been fully replaced by volume of automatic fire.[27]

While any accepted tactical doctrine will evolve to best employ in-service vehicles, weapons and equipment, there is an underlying need to maintain a broader understanding of the relationship between those elements and doctrine. Doctrine is guidance as to how those capabilities will be applied. ABCA armies are rationalizing section size and capabilities to meet the potentially smaller capacities of some proposed and existing next generation infantry fighting vehicles (IFV). The evolution from a ten-personnel dismounted section, to eight (or seven) dismounted soldiers (plus vehicle crew) has been rationalized by the explanation that new weapons meant little reduction in firepower. A further explanation commonly heard in our oral narratives surrounding the evolution of the section, and often posited as a counter to criticism of the shrinking section and platoon, is that today's soldiers are generally better trained and equipped, bringing a further combat multiplier into the equation. However, in complex terrain, mountains, jungles and the arctic, the vehicle's support of fire power, protection, mobility and logistics is removed, leaving dismounted infantry equipped with what they can carry tailored for that task.

The presence of the infantry fighting vehicle, in most theorized tactical scenarios and born out of recent operational experience, was also presumed to ensure the firepower and capability balance were maintained for the smaller dismounted platoon and section organizations. But these rationalizations have never been attended by the development of a fundamental understanding of how far that concept can be taken. The finite limit is, of course, that a rifle section must have the capacity to hold ground.[28]

The key factor in developing a model for a minimum section size will be the determination of the essential tasks and roles expected of an infantry section in each proposed organization.

How small can the infantry section be and remain effective in its key, primary tactical tasks? Neither was the claimed contribution of the vehicle (armoured personnel carrier or infantry fighting vehicle) taken as an absolute requirement. The dismounted infantry platoon was continually assumed to have all of its core capabilities once dismounted and operating removed from its vehicles. For small armies like Canada's, this core generalist capability is the key to our flexibility to respond to very different threats. These rationalizations were accepted as each generation made minor changes in organization and equipment. The primary task of an infantry section in combat operations is to manoeuvre to secure an objective and to hold ground.[29] In stabilization operations, the task may evolve to providing a presence by extension. The key factor in developing a model for a minimum section size will be the determination of the essential tasks expected of that infantry section in each proposed organization, whether mechanized, dismounted, light, etc. To further this point, it will be necessary to define the essential differences between:

- *Panzergrenadier* infantry, for whom vehicles remain an essential combat power element;
- APC/IFV borne infantry, who dismount and fight with or without vehicle support;[30] and
- APC infantry, for whom the vehicle is merely a taxi leaving the infantry to fight solely dismounted.

As these core expectations evolve, so may the acceptable limit for section size change.

SECTION SIZE AND ATTRITION

Throughout this discussion of infantry section size and organization, it is necessary to keep in mind that the numbers given are for the dismounted sections at full strength. These numbers do not account for the inevitable decreases caused by injuries, illness, leave or other causes.

The Canadian Army's 2009 draft of "Section and Platoon in Battle" does address attrition in a limited sense: "Platoon strength and organization may change for specific missions and resource availability. Due to casualties, the platoon is seldom at strength during operations. When the strength falls below 20, the platoon commander should consider reorganizing into two rifle sections, and adjust his tactical drills accordingly."[31] The current Canadian LAV III dismounted mechanized section size of one four-personnel assault group and one three-personnel assault group leaves very little flexibility to accept losses by attrition. The quoted passage above, recommending a platoon commander regroup to two sections when his platoon strength falls below 20[32] dismounted members, indicates some consideration that sections of less than six members begins to lose tactical effectiveness (three six-personnel sections, plus platoon commander and platoon warrant officer, or smaller sections if a weapons detachment is maintained). This expectation allows each LAV III dismounted rifle section to lose one member, decreasing from seven to six members, before the tactical effectiveness of the platoon is considered to be affected and regrouping is the recommended action. Regrouping removes one of the platoon commander's three primary tactical sub-units and reduces tactical options for the platoon. It should be restated that the vehicle's two or three crew are part of and support the section. Additionally, the Canadian Infantry doctrinal dismounted section is eight soldiers plus two crew.[33]

The narrow margin between the dismounted platoon strength and the point at which the platoon commander will be required to restructure makes attrition a critical point of failure in maintaining effective platoon combat power. To mitigate this factor, there is a need to rationalize the doctrinal establishments for the infantry platoon. Any doctrinal structure must maintain a balance between firepower capabilities and essential flexibility for the available number of soldiers when the potential of casualties is considered. Examination of the US Marine Corps' infantry section strength, vis-à-vis the US Army's, reveals a larger structure in the Marine Corps designed to absorb attrition caused by the inherent risks of intense assault operations or the loss of a landing craft. The reality is most nations do not have the abundance of resources nor can they afford to man for attrition. Considering only force employment scenarios, there are other factors than the enemy that attrit the section size: illness, leave, training courses, etc.

Vehicle capacities do limit the platoon strength as deployed outside the wire, but they do not limit the actual strength of the platoon. If the platoon is over-strength on deployment, it will have a standing reserve of personnel to immediately replace losses in the sections from known and anticipated causes of attrition. This over-strength manpower, which would return the infantry to the "left out of battle (LOB)" concept[34] used in the First and Second World Wars, can be based on average documented rates for illness, leave, etc., without the delays for an operational reinforcement system to fill permanent establishment shortfalls.

The current Canadian infantry section, as dismounted from the LAV III with seven soldiers, can be considered to have a very small margin for attrition before effectiveness is affected. In the evolution from the M113[35] to LAV III, the capacity of the section vehicle became a widely accepted, if seldom critically examined, limitation on section size. Simply, it was a constraint of the vehicle system. Comparatively, any proposal for the employment of a smaller infantry section would have a proportionally greater need to ensure that mitigating measures are in place to minimize the effects of attrition.

TRENDS AFFECTING CLOSE COMBAT

The current size and organization of the dismounted infantry section has been the result of a number of converging trends.

Firepower Capabilities of the Section. Firepower increases have also affected the infantry section. Increases in firepower capabilities have readily been offered as an offset to the shrinking section. From the combination of Bren Gun and Lee-Enfield, or even the C1 and C2, to the C7, C9 and M203, excluding the support weapon of an armoured personnel carrier or infantry fighting vehicle, the modern eight-personnel infantry section dismounting from its section vehicle can produce a significantly greater amount of firepower than its predecessors. This does come with an attendant cost in the individual soldier's load to bring the ammunition to the fight that supports this firepower argument.

Personnel Requirements for Mechanization. The established principle for the infantry (and the Army) is "equip the man, not man the equipment." Mechanization has been a significant factor in recent years by requiring vehicle crew positions to be manned by each section. It was, perhaps, coincidental that M113, and later the LAV, fit the doctrinal section of ten personnel as long as the crew was inclusive to that number. Any alternatives to maintain the pre-mechanization dismount strength would have required a significant increase in vehicles for a battalion or in vehicle size plus additional crew personnel. One more vehicle per platoon would equate to roughly a 25% increase in vehicle requirements or a 20% decrease in the number of mounted platoons (25 platoons would require 125 vehicles vice 100, or 100 vehicles could only provide for 20 platoons). Undoubtedly, the convergence of vehicle program costs and the mathematics of a ten-personnel section becoming an eight- or seven-personnel section plus crew were too convenient for planners to ignore. It is undeniable that the LAV III is a combat multiplier and brings greater combat power to the fight including:

- greater mobility to get the section to its objective;
- greater protection, reducing potential casualties;
- more fire power in terms of volume, type, range, lethality and precision;
- increased technological advantages from its onboard command, control, communication and information systems; and
- its ability to carry additional ammunition, supplies and specialist equipment.

However, once reaching the objective, the infantry section dismounts. Infantry is defined by its boots on the ground. Once dismounted, the advantages imparted from its APC/IFV are reduced or lost. The section is not enabled by the vehicle. To accomplish its role, it is dependant on sufficient dismounted section strength. Diminishing that cuts the capabilities of the roles, missions and tasks of the infantry.

Competing Demands for Limited Personnel. There have been competing requirements for manning across the Canadian Army, and infantry battalions have lost organic supporting capability (anti armour platoon, pioneer platoon and mortar platoon) in recent years. However, the overall strength of the infantry platoon has remained relatively constant since World War II. This is not a factor in designing an organization. The issue is retaining sufficient maning.

Technology. Technology is being leveraged to gain the full strategic and tactical advantages of a mobile, agile and flexible force. Advances in technology have enabled the improvement of many basic items of equipment used by the infantry. While some of these advances (e.g., clothing textiles) would not be unusual to an infantry soldier of the 1930s, and others (e.g., automatic rifles) might be perceived as expected advances from known items, others and their operating requirements would be completely foreign to an observer from the past. Night vision equipment, complex radio systems and global positioning devices are such items that can be complex modern enablers for the infantry section. These technological advances also include the requirements to maintain, employ and fight a section vehicle. However, the cost of many of these advances is demanding training requirements (for effective employment beyond simple functional skills), both to learn and to maintain skills. In fact, much of a mechanized infantry battalion's efforts are centered on the supporting requirements for its vehicles, much like an armoured unit.

These technological advances also include the requirements to maintain, employ and fight a section vehicle. …many of these advances have demanding training requirements…

Cognitive Demands. New technology also demands cognitive skills above and beyond what were expected of infantry soldiers of past generations. Additionally, such technology further complicates an already complex operating environment by requiring personnel, especially the section commander, to maintain a broader and more detailed situational awareness in addition to the exercising the direct responsibilities of command. These effects, taken one by one, are each quite manageable. In total, they encompass a considerable demand on the infantry section and its commander. The reality is that as things become more complex, our cultural ability to grasp them improves equally quickly. "Capability development was/is not driven solely by imitation or resuscitation, but also by unique adaptation and indigenous innovation."[36] This has always been the case in history. These new demands do need to be defined by operational research and analysis so that we can better understand them.

Simplistically, the evolution of the platoon through the 1980s, 1990s and into the 2000s maintained the organization and basic weapon mix of the infantry platoon with upgrades to weapons and equipment. In battalions equipped with the M113, the result was not a visibly evolved mechanized infantry organization or doctrine, as it was the original dismounted platoon **plus** its assigned vehicles. With the fielding of the LAV III, tactics, training and procedures were written for its deliberate employment in the combat team. Of course, when separated from its vehicles for any reason, the platoon and its core capabilities remained unchanged. It remains extant that the role for the section is to manoeuvre dismounted and hold ground. This has resulted in reinforcing the reality that the infantry platoon, and its constituent sections, is a relatively inviolable doctrinal unit.

Innovations in technology and doctrine are the harbingers of change in warfare. Potential developments of new technologies will continue to extend down to the section level, not only in the context of shared situational awareness (SA) but also in the provision of real-time capabilities to contribute collected information including in the human dimension. To ensure the projected "integrated soldier"[37] is viable in addition to the existing scope of duties, new information-sharing devices will add to the soldier's load, whether every soldier or select soldiers are equipped for this task. To be sustainable, this addition will require enormous attendant power and transmission capabilities. Power is the Achilles heel. All this technology only works if there is power. These support requirements will be more readily sustainable if the section is expected to operate in close proximity to its vehicle, using the vehicle as the primary power supply, data storage and communications capability to share data beyond the section. Regardless of technology, the nature of war does not change, and the infantry will dismount from its vehicles and have to close with and destroy the enemy, old style.

Early experiments in "wearable computers"[38] for soldiers were hindered by the existing technologies which prevented developing systems with acceptably low weights and user friendly interfaces. The rapidly evolving technological revolution in personal electronics (e.g., iPhone 3GS) also meant that while a future utility of computerized aids for soldiers could be envisioned, specific requirements and applications may not have been developed to the point of building a solid case for further development at the time that would convince the military establishment to promote change. More recent and widespread advancements have seen the development of not only improved computer and communications technologies but a much more technologically aware and prepared population from which future soldiers will be selected.

The cellular telephone market has demonstrated the potential for miniaturization of personal electronic devices, with rugged examples now being available that have better chances to perform well in a military environment. With the acceptance that technological advancements will continue to be an enabler of combat operations, further work is being done in many relevant fields.[39] Marked advances in wireless communications and networked systems have also opened a realm of possibilities for a networked operating environment to support the infantry section.

Following network management approaches used for internet wireless networks, many low power networks can exist within the same bandwidth. Individual soldier systems could be programmed to connect by default to their section vehicle. In the event that a connection to the section vehicle cannot

be established, the soldier's device can be designed to default to another vehicle in the platoon, then the company and finally to any nearby friendly vehicle to maintain contact with the network. Such a system of default connections, with access to more sensitive information dependent upon network protocols being input by the user (similar to radio network keys), will ensure a flexible network that will not drop soldiers completely from contact if their vehicle is removed from the network by any cause. (To facilitate training and skill development with such a system, this integrated soldier would need to be a part of garrison network nodes which could be established to promote use of the devices as an automatic and practiced skill set and not only used when deployed with section vehicles.)

Employing the section vehicle as the primary data storage and communications node for the section can allow most data to be held in the vehicle's data storage and only displayed to the soldier on request. This minimizes the essential data to be stored on individual units for no-fail access as required. (However, with technology like the 32 GB iPhone 3GS, the individual can access tremendous data, applications and communication capabilities.) Embedded communications requirements, such as GPS locations of vehicles and personnel, can be collated and sent by the vehicle system without any specific demand on the members of the section. For security of information and information sharing, section vehicles within a platoon can be networks of virtual and self-managing RAID arrays,[40] automatically maintaining redundant data storage. This technology should be viewed as an enabler. The danger, of course, is inextricably slaving the soldier to the vehicle node, creating a critical vulnerability and impacting the flexibility of the infantry section to perform its function.

A significant advantage to operating in close proximity to the section vehicle is the potential for it to provide the power necessary to maintain individual network devices and other electronics. This may be as simple as providing the means to carry extra batteries, to power battery recharging units or even, in future, to provide an automatic recharging capability for any devices within the vehicle.[41]

The key factor in developing and extending network support to the infantry soldier is to balance the additional skill requirements and cognitive demands such that they do not become primary responsibilities in and of themselves. Automation of data exchange, minimizing input requirements at critical times and maintaining the network as a system in support of primary roles will all have to be managed as critical aspects of future development in order to ensure that they do not impose greater cognitive penalties than they offset.

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THE HUMAN DIMENSION

The demands on tomorrow's soldiers are discussed in *Land Operations 2021: The Force Employment Concept for Canada's Army of Tomorrow*. This publication describes the requirement that the soldier must be prepared that in future "the centre of gravity for tomorrow's soldier is the command environment."[42] Military operations are predicted to increase in complexity, and the future challenge for the profession of arms will be to maintain soldiers' leadership capabilities at all levels to achieve success. The impact on the infantry section (and the Land Force as a whole) is to "produce a soldier with a broader body of knowledge and skills."[43] In fact it has always been the case that new demands require new effort. These new demands do not require an increased need for academics, but rather they are to be addressed through training and self-development from enriched fundamental training and experience of operations. Significantly, the document notes the following: "Tactical competencies and individual and collective war fighting skills that have traditionally defined the soldier as a warrior will be broadened to include the 'soldier as a diplomat' and 'the soldier as a scholar."[44]

In fact, Canadian soldiers have always had to be warriors, diplomats and scholars. It was only during the Cold War period that certain capabilities of the soldier were allowed to atrophy to the point that the image of the soldier became one of merely a warrior.

The infantry soldier has been the target of many new demands on his or her cognitive capabilities over the past two decades. Increasingly complicated weapons, radios, GPS, vehicle systems (including weapons and ancillary equipment in addition to the vehicle itself) have all placed demands on the section and its soldiers. Well-designed technology (laser range finders, newer GPS, etc.) greatly increase capability with simple training requirements. Well-designed technology is intuitive to the user. Poorly designed technology (e.g., complicated radio systems) burdens the soldier with substantial training requirements. These increases in trade-specific learning requirements, and knowledge and skill demands, are compounded by a parallel increase in general knowledge and skill requirements (e.g., detailed and formalized rules of engagement, cultural sensitivity, vehicle check points and improvised explosive devices) that the infantry has not previously taught its soldiers.[45]

Throughout this era, we have maintained the same educational standards for acceptance into the infantry. For soldiers joining combat arms occupations, that standard is completion of Grade 10 (Secondary III in Quebec).[46] In addition, candidates must pass the Canadian Forces Aptitude Test (CFAT). Historically, infantry candidates have required one of the lowest passing scores on the CFAT to be accepted for enrolment. The reality is most NCO applicants are secondary school graduates. In fact, the CF recognizes the current level of cognitive demands being placed on our soldiers and the expectation that the future operating environment will increase those demands. While current personnel policies encourage and support life-long learning and academic self-improvement, these policies will have their greatest effect when applied to the best possible candidates through careful initial selection.

In a perfect world, historically, the ten-personnel dismounted section had a section commander, a 2IC, two automatic riflemen and six riflemen. Of the ten soldiers in the section, only the section commander and the 2IC are required to have training beyond Basic Infantry Qualification to do their jobs (in the ideal scenario, the 2IC would have the appropriate section commander's qualification). With each generational change of leaders, those six riflemen were the manpower base to replace the 2IC (who became the section commander in a simplified environment) and maintain skilled soldiers on the automatic rifles. (Note that the FNC2 automatic rifle was functionally the same weapon as the FNC1 service rifle, thus limiting additional skill and knowledge requirements for this task.) At each rotation of the section's personnel, the best remaining rifleman became the #1 rifleman, to be groomed as the most likely next 2IC. For each rotation, the manpower base of five riflemen needed to provide only one of their numbers to move into the #1 rifleman's position, making one in five an expected norm for advancement within the section. Even with any normal level of attrition among the soldiers (release for voluntary or unsuitability reasons, inter-company posting to combat support or service support positions, trade reassignment, etc.), the section's capability to produce its own replacement leaders and automatic riflemen is not seriously affected: it can afford to lose two to three riflemen

per cycle, who were not going to be in the line of succession, as long as the training system replaces them with new soldiers ready to gain experience through the next cycle.

Advancing a few decades to the LAV III section, the functional capabilities of the infantry section has greatly expanded. That same ten-personnel section in a mechanized unit now has a section commander, a 2IC, two machine-gunners, a driver, a vehicle gunner, a vehicle crew commander (for whenever the section commander is not in the turret) and three riflemen (two of which carry M203 grenade launchers). Of these ten soldiers, at least five require additional courses (leadership, weapon or vehicle) to carry out their primary tasks. Four dismounted soldiers carry weapons more complex than the service rifle. The section now has only one "rifleman" carrying just the service rifle, and even newly trained soldiers joining the section are liable to be assigned a grenade launcher or machine-gun as soon as they arrive.

The training requirements have become overwhelming. This same section must also provide candidates for new machine-gunners, drivers and crew commanders for succession internally and higher. It is undeniable that current and future cognitive demands placed by technology have a large continual training requirement. Add the need and expectation of the soldier to comprehend the complexities of the environment, and the burden of training/education becomes exceptionally heavy. The bottom line is the demands we place on the infantry section can only be successfully achieved if we have soldiers who are capable of meeting those demands. The infantry recruit applicant is primarily being enrolled to fill a rifleman's position. His or her aptitude and potential are also considered. Once basic training is complete, and for the rest of that soldier's career, further advancement is dependent upon demonstrated aptitude and proficiencies.

FUTURE VEHICLES

Adaptive dispersed operations (ADO) envisions a highly adaptive Land Force in terms of time, space and purpose, throughout the width and depth of the battlespace, in order to create and exploit opportunities, control the tempo of operations and overwhelm the adversary's understanding of the battlespace. The essence of ADO is the ability to conduct coordinated, interdependent, full-spectrum actions by widely dispersed teams across the moral, physical and informational planes of the battlespace. For the foreseeable future, the infantry section will continue to be the smallest building block to address such operations. While what defines the infantry is its ability to hold ground, dismounted, the synergistic integration of the future vehicles with the soldier is a combat enabler and will provide the additional physical capabilities necessary for the infantry to have:

- greater strategic deployability and operational and tactical mobility;
- better survivability (protection); and
- more precise or lethal firepower.

To that end, these vehicles must be balanced, agile and possess a full-spectrum capability. They must leverage technology to deliver high levels of lethality and protection. As part of the larger future family of vehicles, they will need to be interoperable, modular and have component commonality.

While all infantry fighting vehicles / armoured personnel carriers are a balance of mobility, protection and firepower, there will be limits to which any or all of these characteristics can be increased while maintaining an acceptable per vehicle cost (which will dictate numbers available for a given project cost) and weight (to maintain desired deployability). Based on foreseeable technology, it is unlikely that any future vehicle would provide significant increases in all three categories. Available information on possible next generation infantry fighting vehicle designs shows that one likely future evolution in section vehicles will be maintenance of mobility and firepower characteristics while increasing protection.[47] The offset may well be in available space for dismount soldiers.

The greatest change to the infantry section organization over the past 40 years has been the addition of a section vehicle. As transportation, this capability was maintained and subsequently improved through the ¾ ton truck, the M113 and, currently, the LAV III. With each new generation of section vehicle, protection has improved, and the capability to provide intimate fire support has been introduced and upgraded. As discussed above, the ten-personnel section fit each of these vehicles with the reassignment of riflemen to vehicle crew positions. The perspective is that a fighting vehicle brings greater protection, mobility and firepower and, ultimately, greater manoeuvrability as a fighting system integral to its dismounting soldiers. While, doctrinally, the dismounted Canadian infantry section is ten personnel—and that is based on the number required to accomplish its role—the reality has been that the addition of a vehicle has entailed less and less dismounting infantry soldiers. Current and future operations still depend on infantry sections to operate dismounted, especially in complex environments. It is interesting that the Infantry Corps has not openly opposed the dwindling number of dismounts.

It is very likely that some of the next generation infantry section vehicles will not have the capacity to fit the existing section organization into one vehicle. The loss of dismounting soldiers to vehicle crew positions has resulted in the mandate that any changes to organizations must remain person year neutral.

Tactical Armoured Patrol Vehicle (TAPV). Canada is embarking on a program to purchase a TAPV. While different variants will be procured under the project, the armoured personnel carrier variant is pertinent to this discussion. The Canadian Forces backgrounder[48] on the TAPV project states that the APC variant will have a crew of three and be able to carry four dismount soldiers. Designed to replace the RG-31, the Coyote and to complement the G-Wagon, the TAPV is not intended to be an infantry combat vehicle and may only see use in the infantry units for specialist groups. It is possible that the TAPV could be used to carry an infantry assault group, but extrapolation of this possibility would require doubling the number of vehicles carrying an infantry platoon.[49] Employing TAPV as a section vehicle will also increase vehicle crew requirements, even if the crew per vehicle decreases to two positions. The TAPV may have two or three crew and carry four to six dismounted soldiers.

Close Combat Vehicle (CCV). Canada is also seeking to purchase a new CCV, with a primary purpose of enabling the infantry to operate in intimate support of armour equipped with the Leopard 2. Possible contenders for the CCV, which have been identified in various sources, include:

Manufacturer	Vehicle	Characteristics	Crew	Dismounts
Rheinmetall	Puma	Tracked IFV. Primary armament: 30 mm auto cannon. Secondary armament: 5.56 mm machine-gun; anti-tank missile; 76 mm grenade launcher; smoke-grenade launchers.	3	6
	Boxer	Wheeled IFV (8 x 8). Primary armament: 40 mm automatic grenade launcher or 12.7 mm heavy machine-gun.	3	8
BAE Systems Hagglunds	CV90	Tracked IFV. Primary armament: 40 mm auto cannon or 30 mm Bushmaster cannon. Secondary armament: 7.62 mm machine-gun.	3	7
Nexter	VBCI	Wheeled IFV (8 x 8). Primary armament: 25 mm NATO cannon. Secondary armament: co-axial 7.62 mm machine–gun.	2	9

Note: Vehicle characteristics as published at Wikipedia. Actual capabilities and weapon systems may change before any CF decisions for acquisition are made.

Any upgrades identified as project requirements to these vehicle types (of these listed vehicles or any other contenders identified in the formal process) could also result in smaller capacities for the dismounted section.[50] Simply increasing the number of vehicles per platoon may not be a suitable solution because of cost limitations on vehicle replacement programs. Larger platoon groups of vehicles would also create a more demanding command and control requirement and tactical challenges associated with increases in the number of vehicles for any unit size (platoon, company and battalion).

If one section is to dismount from one vehicle, and the number of dismounted soldiers carried by the section vehicle is considered an essential requirement, then anything less should be a critical shortfall. Section size, however, has never been considered an absolute requirement. As mentioned, reducing the size of the dismounted section has repeatedly been accepted as an offset to the addition of increased mobility, firepower and protection. The justification for the number of dismounts is based on the role of the infantry: to operate dismounted with a minimum level of combat power.[51]

GENERALIST VERSUS SPECIALIST INFANTRY

There is an ongoing need to re-examine how effectively we are training the infantry section and platoon for the tasks we expect these organizations to perform in more and more complex environments. For many years, infantry training in the school houses was bound by a relatively inflexible mindset on what constitutes an infantry section, its organization and fundamentals of its tactical employment. In the past decade of counter-insurgency (COIN) operations, much of the core skills (generalist) training and mission-specific (specialist) training has become much more complex to teach soldiers, commanders and staffs what capabilities we should expect from the infantry section in contemporary scenarios. This training has become more demanding as a cognitive issue, while no less demanding physically. Fundamentally, regardless of the campaign type, the role of the infantry section has remained extant. Hence we train the fundamentals but in multiple scenarios to deal with contemporary operating environment realities.

The Canadian Army has always considered its line infantry to be generalists, expected to be able to meet any assigned tactical challenges in combat while remaining flexible enough to operate across the full spectrum of operations. To this end, there have been no major attempts at specialization in role or equipment and weapons.[52] While a generalist infantry can result in being less prepared to execute particular complex roles, the modern solution is the institutionalization of complex pre-deployment training, sometimes lasting longer than the operational deployment.[53] This solution, however, is only possible when the political and financial support for operations permits its implementation.

When specialization was desirable, long entrenched attitudes prevented or slowed the change process. Specialization did not include any detailed re-examination of platoon or section organization and tactics. Doctrines that were developed for airborne, airmobile and mechanized infantry were at the tactics, training and procedures level, where they were most needed. The overarching doctrinal constructs remained extant because the basic tactical role of the military and the infantry remained extant. The infantry never departed from the core dismounted tactical doctrine it started with since close combat is conducted dismounted.

The Canadian Army serves to act as an instrument of national power in support of national defence. Since Canada does not plan to start any wars, it is difficult for its army to make such investments in specialization, especially when there is no military or strategic reason to do so. Hence, the Canadian infantry never developed a distinct specialist doctrine because it never departed from a generalist dismounted doctrine. In a small army, specialization requires an additional burden on person years (PYs), finances and resources that may simply not be available when committed for sustained operations. For Canada, the general infantry doctrine remained extant as the role of infantry remains extant. What was developed for mechanized infantry, B-GL-321-007 LAV Company Tactics (Interim) was written when the LAV was introduced into service. It addressed the divergence between the dismounted infantry section (i.e., vehicle support optional) and the newly defined mechanized infantry section (i.e., with the vehicle as an integral component of the section's combat power).

Undoubtedly, fundamental principles including fire and movement, basic skill sets, and general tactical employment will form a common baseline for training purposes. As for areas of specialization, they are evolving to enable the mechanized section to work closely and effectively with its vehicle in all operations. In parallel with this is the need to develop a more refined command awareness at all levels that some infantry companies will be better suited in certain environments for the same task. The Canadian Army solution to this is specialization through cross training.

FACTORS AFFECTING INFANTRY SECTION SIZE

Fundamentally, the infantry section should not be considered outside the infantry company framework and its ability to support platoon and section actions. From that perspective, the current Canadian infantry section is the result of a complex set of circumstances and compromises of what capabilities it should have, while seldom, if ever, letting go of any acquired capability or piece of equipment. The result is a heavily laden section of eight dismounted soldiers formed into two identical and well-armed assault groups (or seven soldiers in groups of four and three). Dismounted and without its vehicle, it has little depth to accept attrition without decreases in fundamental firepower capabilities and requires a high average degree of competency of all members to build and maintain the necessary experience base to efficiently support its own internal lines of succession.

A variety of factors should be examined continually and must be held in balance within a section of any size. These factors include but are not limited to the following:

Span of Control. The section commander must have a manageable span of control, even when rapidly changing circumstances increase demands on the section commanders' attention. The Canadian Army's generally accepted span of control of any commander is five active subordinates.[54] As the infantry section dismounts, the section commander initially commands the section as two groups and fighting vehicle. While these three elements remain under the section commander's orders at all times, as the fighting intensity increases closer to the objective, at some point the section command assigns portions of the objective to the other assault group. Typically, one assault group supports whilst the other seizes. When this close fight is so intense, assault and support may go down to the two-personnel fire team level. With mission command orders, each soldier knows the intent of the operation. So it is not necessary for the section commander to use directive control on each element at all times.

The US Army and Marine Corps dismounted or mounted section and the Australian nine-personnel section organizations separate the commander from subordinate fighting elements. In the US Marine Corps infantry section, the section commander has three four-personnel assault groups under command and only fights the section battle, not having to simultaneously fight an assault group and a fire team. Similarly, the Australian nine-personnel section places two 3-personnel assault groups under the section commander with two section scouts.[55] Removing the section commander from leading an assault group may increase his/her ability to make timely decisions and have a greater impact than having to simultaneously be decisively engaged in an assault group or fire team action. This separation of the section commander from the section's assault groups is an important distinction, worthy of further examination with operational research and analysis.

Size of Section Elements. The current doctrinal dismounted Canadian section is based on two four-personnel assault groups, with the expectation that it will seize one enemy trench. The acceptance of a seven-personnel dismounted section in current Canadian mechanized units demonstrates that a three-personnel fire group is also considered an effective section element so long as the troops are protected in a vehicle prior to dismount and are given intimate fire support from the section vehicle.[56] As previously discussed, this has also been effectively employed in the Australian nine-personnel section and is a likely element employed in the German *panzergrenadier* units with six dismount soldiers. While any reduction in size of section elements decreases the ability to suffer attrition (by any cause) and still operate effectively, this can be mitigated by having a ready reserve that ensures losses are quickly

replaced. For tactical tasks, it is possible that a three-personnel assault group may be a minimum size for that section element,[57] and reduction of the principal section sub-component to a pair is untenable. With a minimum of three, the soldiers share the core tasks of movement, readiness to provide covering fire for the moving soldier and maintaining surrounding situational awareness to the limit that that may affect the assault group's intended actions. A section commander external to the assault groups, the section vehicle and/or a section scout/marksman may assist assault groups in executing those core functions but also limits the primary roles of those appointments outside the assault groups' tasks. In a dismounted section organization limited to only two assault groups, reducing the assault group size to a pair may not be a feasible reduction because it can no longer accomplish its role as an infantry section. This may establish the point at which a section will require two vehicles to maintain an effective dismounted section size.

Individual Soldier Skills. While the physical requirements of infantry soldiers have not changed, certainly the increasing number of cognitive skills to operate effectively in a modern combat environment has increased. Without care in the selection of the best suited recruit applicants, there will be a follow-on limitation in the capabilities of the average infantry soldier to function in this demanding environment and still demonstrate the potential to assume more complex technical or leadership roles. The potential for a more cognitively challenging operating environment, further increases in skill demands being placed on the soldier and the loss of basic rifleman positions as a learning stage (or permanent billet) for soldiers makes the identification of recruit potential even more important to avoid undermining the section's potential effectiveness. By a similar argument that some have posited that the light infantry soldier must be fitter than average, it may be necessary to establish that the modern mechanized infantry soldier will have to be smarter than average to operate all the attendant technology.

The Soldier's Load. The traditional problem with technological innovations that allow the infantryman to become more lethal results in an increase to the soldier's load. The soldier's load will also directly affect the agility of the infantry section, potentially limiting both speed of movement and the ability of some soldiers to operate to best effect in close terrain and close combat depending on their weapons and weight load. Reducing the soldier's load of personal equipment, and ammunition and ancillary equipment for fire support weapons, can result in a much more agile section, one better prepared for operating on the objective terrain to which their vehicle will deliver them. There has been considerable critical examination and quantitative assessments with a view to establishing minimum effective loads. "Modern medical opinion has long ago decided that a soldier should not carry more than 33% of his own weight … A rough estimate would fix the weight of the soldier's load at about 45 pounds …" [58] While a soldier's load remains a remit of the company or platoon commander to determine in his estimate process, the supposition that the infantry must always be prepared to operate for periods away from their vehicles causes an upward creep in the soldier's load.[59] In this final battle, heavier section support weapons may be ungainly and not employed to best effect. Advancing weapons technology is steadily giving us more destructive power for less size and weight. In such circumstances, lightly equipped soldiers with assault rifles, moving quickly and reacting to circumstances while supported by their vehicles' weapons systems may be a better solution. However there are limitations to access to vehicles in marginal or complex terrain.

While new technologies can add new items to the soldier's load, they seldom replace items with lighter versions and often add new capabilities on top of existing equipment at the cost of increased total weight. Relative comparisons of the soldier's load to past maximum and average weight loads, even as recently as used in dismounted operations in Afghanistan, do not give credible comparison data to determine the best balance of essential weight versus capability for a section that might be employed in a substantially different primary role. This is because past assessments are either from pre-mechanization eras or presume a dismounted role either by design or for the purpose of preparedness. Again, a soldier's load is determined by his/her commander's estimate. Returning to the assumption that infantry sections can be closely linked to their vehicles allows a critical re-examination of the load carried by each soldier.

Section Tactical Employment. Past and current iterations of the infantry section have been limited by the training approach to their tactics. While learning to command the fire support and assault group section organization required an understanding of various tactical options, these often devolved to simple flanking manoeuvres to complete training assessments. The eight-personnel dismounted section in two balanced assault groups resulted in an even simpler, and solitary, section tactic, a direct assault by the section, in the context of a platoon attack. To consider the possibility of an even smaller dismounted section, though intimately supported by its vehicle, a more flexible system of tactical employment must be envisioned. But a smaller section would give less flexibility and fewer options. It is necessary to move away from formulaic section-attack tactics and develop a more flexible concept of small-unit tactics that can be applied to any number of soldiers in an infantry section role.[60]

Flexibility of Tactics. With tactical options and a more open approach to training, the section need not be limited to fixed element groups, either in size or personnel. Any combination of the section's soldiers should be able to execute variations of standard drills (cover and movement, entry drills, room or trench clearing drills, etc.) without having to shuffle orders of march or relative positioning to launch. Smooth transitions between drills and responsive application of fire and movement could ensure a more responsive section in operations, potentially resulting in a faster return to the protective armour and fire of the section vehicle. If section drills in training are based on a single, specific organization and a limited range of tactics, this becomes the entrenched method of employing the section.

Firepower. The current eight-personnel dismounted infantry section has considerable firepower compared to its predecessors. Increased firepower has increased tactical flexibility, permitting more freedom of movement and enhancing overall manoeuvrability. Increasing and maintaining the infantry section's firepower has been generally accepted as an essential characteristic to the point of dismissing the section vehicle's firepower as readily assignable to ancillary tasks in the higher commander's tactical plan (if this is a deduction out of the estimate process). The firepower of the infantry section can be maintained by establishing the section vehicle's weapons as integral to the section's capabilities rather than a separable part. Establishing the section vehicle as the principal firepower capability for each section permits reducing the dismounted support weapons and their associated weight load and associated effects. Employment of the fire of the section vehicle will also establish a limit on the effective range of the dismounted section (from its vehicle) and on the section commander's ability to exercise effective command and control to coordinate vehicle firepower with the movement of dismounted elements.

Weapons. Fundamentally linked to the section's firepower capability is the weaponry carried by section members. As discussed, the section's mix of individual weapons can affect dismounted mobility, agility in operations and the range of roles and tasks the dismounted section can be assigned. The inclusion of the section vehicle's weapon systems as an integral part of the section's firepower can balance the deployment of lighter weapons for more soldiers on an appropriate objective.

Attrition Mitigation. The ability of an infantry section to absorb attrition and maintain essential capabilities becomes more critical with a decreasing section size. As the section is reduced to a smaller doctrinal size, it is necessary to have replacement personnel positioned well forward, prepared to backfill even temporary absences without delay. Larger sections with heavy integral firepower may accept short- or long-term shortfalls of one or two soldiers without significant reduction in effective firepower by maintaining the section's heavier weapons in a drill based operating environment. Smaller, more lightly armed sections will rely more on the maintenance of the combination of agility, tactical flexibility and a more responsive cognitive environment to apply less dismounted firepower with greater precision under the protective covering fire of the section vehicle. Smaller sections will have less flexibility to accept attrition by any cause and will need a very responsive reinforcement system to ensure the number of soldiers deployed in a section is maintained.

Each of the aforementioned factors is interlinked and will need to be considered in determining the size, organization and roles of the infantry section. Whether it be selection of suitable infantry recruits,

weapons, section size based on vehicle types or the training of the section's tactical employment, it quickly becomes evident that one factor may enable or limit others, with no single ideal solution being discernible without first establishing which factors are determined by fixed criteria for a given scenario. Any analysis must begin with the philosophy of full-spectrum operations and the requirement to manoeuvre, seize an objective and hold ground (provide a presence) within a platoon construct. Even when fixed criteria are allowed, there is a need to document the reasoning for these limits so that when their underlying principles do change, those factors' roles in determining section size and organization can be reassessed. This must be captured in experimentation methodology.

Infantry Fighting Vehicles (IFVs) and Infantry Dismounts. The role of any infantry fighting vehicle is to enable manoeuvre of the section. The intent of the close combat vehicle is to offer a more capable vehicle that best supports or can be supported by armour (dependant on the terrain). A mechanized infantry platoon is fundamentally a fully capable dismounted platoon with a means of protected transportation and significant firepower capabilities. While earlier doctrine advocated separating mechanized infantry companies and their vehicles into two mutually supporting manoeuvre elements on the battlefield, today's doctrine emphasizes the default that the vehicle supports the section. Firepower and mobility of the section vehicle are considered integral components of the section. In a symbiotic relationship, the dismounted section does not have to be consistently equipped for any and all traditional dismounted infantry tasks.

To redefine this relationship and firmly establish a symbiosis between the section and its vehicle is to approach the German concept of the *Panzergrenadier*. This relationship and its importance to success in that role are described in German Army field manuals:

"According to the *HDv 231/100,* the fighting of a *Panzergrenadier-Battalion*[61] is characterized by the following aspects:

> "The fighting of the battalion is characterized by:
>
> - the combination of fire and movement,
> - attacking in conjunction with main battle tanks,
> - swift changes between mounted and dismounted combat,
> - close cooperation between mounted and dismounted forces,
> - the particularly mobile combat . . . "[62]

Number of Dismounts. The close combat vehicle project may result in smaller section vehicles and fewer dismounted soldiers per vehicle. If this reduction in section size is offset by making the section vehicle the primary firepower element in the section, then the dismounted soldiers become the manoeuvre element in the close fight on the objective, providing close protection to their vehicle and providing additional observation and direction to ensure the best application of the vehicle's combat power. Of course, the justification to reduce the section size is lost once the section is out of direct support of the vehicle.

With emphasis on the protection provided by the vehicle by its fire support capability, the dismounted section should be employed in order to minimize its exposure to enemy fire and not in any long-range engagements with the aim of winning the firefight. This, combined with a primary employment in the final stages of actions on the objective, prompts examination of the usefulness of having dismounted soldiers permanently assigned to carrying heavier, longer-ranged individual weapons. The close battle will be characterized by a balance of agility, both individual and in the tactics of small-unit elements, speed of reaction and firepower. To this end, the benefits of having the current 50% of a section's dismounted soldiers carrying weapons heavier than the assault rifle, with their attendant ammunition loads, will need to be re-examined.

Soldiers armed with a compact assault rifle will have the greatest advantage in moving through close terrain (buildings, trench systems, etc.) once delivered there by their armoured vehicles. In very close quarters, the C9 and M203 can become hindrances due to their weight and size. These weapons certainly have advantages over the service rifle when their firepower characteristics can be employed to advantage, but it will need to be determined if maintaining flexible mechanized sections requires the constant assignment of soldiers to these weapons. Alternatively, the section could normally be armed fully with assault rifles with a section allocation of one light machine-gun and one unmounted M203 grenade launcher for when the commander determines their deployment to be necessary.

The Section Vehicle as Mobility and Agility Asset. When the section vehicle is used as a mobility asset for the infantry section rather than simply as transportation to the point of battle, it can also be used to decrease the individual soldier's load. Keep in mind that infantry operates dismounted on its objective. Based on the task, a commander will decide what equipment is essential for an operation. There is a danger in removing the prevalent assumption that soldiers must always be prepared to operate away from their vehicles. Leaving equipment behind in a vehicle may represent an unmanageable loss of capability for that section.

DIFFERENT SECTIONS FOR DIFFERENT ROLES[63]

The close combat vehicle program may field an infantry section vehicle with less capacity for the dismounted section than the LAV III. It is very possible that the **tactical armoured patrol vehicle**, if employed as an APC/IFV, will result in an infantry section divided between two vehicles, with two crews for the vehicles and the requirement to coordinate the additional firepower options[64] made possible by deploying additional vehicles in support of the section. This establishes a potential point of divergence in what has long been considered a specific construct titled "the infantry section."
At any given time in our corps' history, the infantry section has been a singular organization with specific tactics. A tactical armoured patrol vehicle section (possibly deployed in two vehicles per section), a close combat vehicle infantry section (presumed to operate in close cooperation with its vehicle) and a LAV III section (possibly maintaining the capability for more extensive dismounted functions) can have different primary roles and therefore need not have the same organizations, weapons or tactical options.
While these vehicles entail somewhat different organizational structures at the platoon and company level, the tactical role of the infantry section is extant across our forces. There is no intent to develop infantry sections for specific activities beyond their current role.

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All infantry sections must be able to meet the same set of basic tactical tasks. As previously mentioned, the dismounted infantry section is divided into two groups. To manoeuvre to assault a trench, one group assaults while the other supports. Can a smaller section operate effectively? Yes, as long as its structure and capabilities match the roles and tasks envisioned for it. However, if this section does not meet certain base tactical tasks, then it is not an infantry section. The potential offset of guaranteeing the section vehicle to replace diminished, dismounted firepower supports the assumption that smaller sections can be effective as long as that vehicle remains in intimate support. While the fire support of a vehicle system has always been greater than any dismounted system, it does have the limitations that it can only fire in one direction, has no redundancy and will not be able to go everywhere the section goes. Demanding a traditional generalist capability from a smaller section does have a line in the sand. Employing a smaller section within a specific organizational and operational framework has the potential to be effective within those boundaries as long as it is effectively supported.

To further this line of thought, to examine the makeup of the most effective dismounted section organization for each variation of the infantry company may result in platoon organizations of differing sizes and weapon mixes. These differences should not prevent any platoon organization from being tasked to perform more general infantry tasks in addition to the core role it has been designed to execute most efficiently.

Creating different section organizations does lead to a training issue. The historic approach to training section tactics has often led to successful simplistic, repetitive training requirements and assessments. To employ a training approach that addresses a variety of possible section organizations will require a more open approach to teaching small unit tactics, to assessment criteria and the adoption of a stronger focus on the problem-solving and decision-making steps without undue emphasis on a checklist style evaluation of limited tactical solutions. There is a difference between teaching core skills and mission-specific training. Beyond ensuring an effective tactical solution, the most important criterion in evaluation should not be what tactic was executed, but how the commander's plan was developed to decide upon an effective solution with the assigned section organization.

OPTIONS ANALYSIS—DIFFERENT SECTIONS DIFFERENT ROLES

The infantry section structure has remained essentially unchanged despite over a decade of operations in the modern, non-contiguous threat environment. Those factors which directly affect the general section organization, such as number of soldiers, weapons and groupings, all lead to a large number of possible permutations for section organizations.[65] Our doctrine, through tactics, techniques and procedures (TTP), clearly bears out the reality on the ground of tactical flexibility of the section. The current twin-assault-group organization is familiar and is about as heavily armed as a section can be, even though its structure is considered relatively static. In fact, it is this generalist capability that makes the infantry section so flexible. Any newly proposed section organizations should be evaluated in both simulation and live exercises to assess their firepower, flexibility and effectiveness. Trials will need to be executed with care to minimize the effect of familiarity with certain organizations and tactics creating an undue preference for new options most closely related to the old.

Possible variations of the future infantry section may include those shown in the table on the following page. These section organizations show an evolution to smaller, lighter sections as the vehicle capacity for dismounting soldiers decreases. As the section loses personnel, the role of the vehicle and its firepower as an integral asset becomes more important. Similarly, although the lighter sections depend on agility and flexibility as core characteristics to execute tasks during minimal time exposed to an enemy, heavier section weapons should be available when needed to meet commanders' needs.

If dividing the infantry section between two vehicles is an acceptable option, vehicle requirements and person year (PY) limits may require a change in the platoon organization to two larger sections. In six vehicles, the platoon could deploy two dismounted sections of eight to ten personnel, plus a command team and a weapons detachment. This platoon configuration could be considered for either

heavily armed sections (as currently structured) or lighter sections employed in close cooperation with their vehicles. With two vehicles and their weapon systems, the section commander's command and control burden increases substantially, making the extraction of the commander from the fire group a critical consideration.

Based on history and recent operations, the optimal infantry section size has been about ten dismounted personnel for combat operations. With core basic training and mission-specific training, this section is the most agile and balanced for any task. If the task is changed, there are a wide variety of factors which need to be assessed to determine if a small section, given other resources, is suitable to achieve that task. These factors will have to be assessed in view of any fixed limitations (vehicle capacities, available PYs, number of units to be equipped, etc.) that will create a baseline for the detailed assessment of other factors affecting the section's ability to conduct its essential roles and tasks. Ultimately, infantry does operate dismounted.

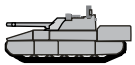
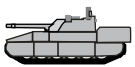
Larger sections will continue to have utility in employment where continuous support from armoured personnel carriers or infantry fighting vehicles are not available or cannot be guaranteed. In some circumstances, the seven-personnel dismounted section currently in use in mechanized units may not be large enough to absorb attrition and maintain critical capability levels. This is why it is employed within the platoon construct. Current operations, where soldiers are on leave or incapacitated due to injury, bear this out. With increased personnel, a section can cover more frontage, deploy more firepower and operate with more capability in the absence of its vehicles. Predicted growth in the cognitive and skill demands on individual soldiers, and especially on the section commander, will require critical analysis of the span of control to be exercised and methods of assisting information management.

Smaller sections will be most effective if they become more specialized and are equipped and employed within their selected roles. But if smaller sections become specialized to the point that they are no longer able to conduct the role, mission and tasks of the infantry, then they are, of course, not infantry. Smaller sections will be more dependent on the fire and protection provided by their infantry fighting vehicles and their individual loads of weapons and equipment. Lightly armed and equipped soldiers, operating under the protective umbrella of their vehicles, will have the potential to be delivered to an objective quickly and, once dismounted, be quite agile in complex terrain within the scope of their light capabilities. The loss of, or disconnection from, the section vehicle may put this smaller section at risk or even perhaps render it unable to complete its task.

The current doctrinal ten-personnel infantry section is a successfully proven compromise of troops to tasks, weaponry and equipment and the requirement to operate effectively with or without the intimate support of section vehicles. In fact, the tactics, techniques and procedures required of the infantry section have remained largely unchanged since the World War II. Distance, tempo and decentralization will likely continue to increase for section operations. This model has survived in recent counter-insurgency operations[66] due to the short duration of engagements and the high degree of supporting fire and logistics the dismounted section receives along with a robust replacement system to mitigate the effects of losses.

Despite that generalized infantry sections, which are expected to operate mounted or dismounted across the full spectrum of operations with a standard organization and weapons, have adapted to the contemporary operating environment, the future environment that infantry small-unit activities are expected to be conducted in should be considered to see if what currently works can be done better. In all likelihood, the isolation and dispersed environments and adaptive dispersed operations, in which infantry sections are currently finding themselves will only become more complex. The infantry section will need to be capable of small-unit manoeuvre integrated with air or indirect assets and other mission-enabling elements to operate independently. Care must be taken to not weaken the battle proven section as the basic building block of the infantry.[67] The rifle section is the sole manoeuvre unit through which all other levels of command are enabled.

POSSIBLE FUTURE INFANTRY SECTION ORGANIZATIONS

	Sect Str	Vehicle Crew	Vehicle	Comd ext to Aslt Gps	Dismounted Section		Scouts/ Marksman	Sect Wpns held in Vehicle	Remarks
					Assault Group 1	Assault Group 2			
1. Status Quo	10 (7 dsmt)	 Crew Comd Gunner Driver	 LAV III		 Sect Comd Rifleman M203 Grenadier LMG	 Sect 2IC M203 Grenadier LMG			• No assumption that veh remains with dsmt sect.
2. Status Quo org in Heavy/ Light Groups	10 (7 dsmt)	 Crew Comd Gunner Driver	 LAV III		 Sect Comd Rifleman Rifleman M203 Grenadier	 Sect 2IC LMG LMG			• Optional reorg of assault gps to concentrate firepower in one strong gp. • No assumption veh remains with dsmt sect.
3. Status Quo, comd external to assault groups	10 (7 dsmt)	 Crew Comd Gunner Driver	 LAV III	 Sect Comd	 Aslt Gp Comd M203 Grenadier LMG	 Sect 2IC M203 Grenadier LMG			• Sect Comd has better span of con. • No assumption veh remains with dsmt sect.
4. Two 3-man assault groups	9 (6 dsmt)	 Crew Comd Gunner Driver	 CCV		 Sect Comd M203 Grenadier LMG	 Sect 2IC M203 Grenadier LMG			• Six dismts. • Two balanced fire gps. • Heavily armed and laden sect. • No assumption veh remains with dsmt sect.
5. Two lightly armed 3-man assault gps	9 (6 dsmt)	 Crew Comd Gunner Driver	 CCV		 Sect Comd Rifleman Rifleman	 Sect 2IC Rifleman Rifleman		 LMG  M203 Grenade Launcher	• Flexible, lightly armed for speed and agility. • Fire sp of veh integral to sect ops. • Sect Comd has complex span of con. • LMG and M203 retain in sect veh unless ordered deployed.
6. Current doctrinal 8-man dismount section, two vehicles (TAPV)	12 (8 dsmt)	 Crew Comd Driver	 TAPV		 Sect Comd Rifleman M203 Grenadier LMG				• No assumption veh remains with dsmt sect.
		 Crew Comd Driver	 TAPV			 Sect 2IC Rifleman M203 Grenadier LMG			

THE WAY AHEAD

OPERATIONAL PRINCIPLES

If the Army can forecast the future security environment and understand what its force is expected to do to be effective in that environment, then the force structure can be created to properly function and have the ability to respond to future potential threats. This vision is based on the examination of threat, evolving doctrine and consideration of technology as a starting point for future force development. Force developers attempt to marry the synergy of new equipment and untested doctrine to help determine the right structure, weapons and tactics for our soldiers. In the foreseeable future of adaptive, dispersed operations, the role of the Canadian infantry will remain to close with the enemy by means of fire and manoeuvre in order to destroy or capture him or to repel his assault by fire, close combat and counter attack. To that end, as a generalist army to retain maximum flexibility for operations, the Canadian infantry must prepare for the combat in high-intensity conflict and create an organization that is flexible enough to respond to any crisis. This has resulted in reinforcing the reality that the infantry platoon, and its constituent sections, is a relatively inviolable doctrinal unit.

ORGANIZATIONAL PRINCIPLES

The infantry section is the core building block capability of all land operations and is the smallest unit to conduct tactical operations under command of its own leader. Its organization is built upon its role, mission and tasks, given a set of tools and considering basic functional command structure. To be combat effective, an infantry section requires optimizing its organization to consider the following inter-related criteria:

- **Sustainability and Survivability**. The size of the section should be the result of organizing it to meet certain essential criteria derived from its role, mission and tasks. It must have the ability to attack (fire and manoeuvre) an objective and handle combat or other losses and continue to function as it was designed. The ten-personnel section, with two fire teams, is the optimal composition for the organization. It can also easily sustain itself for a 24-hour period or longer.
- **Controllability**. To effectively command and control a section, a commander's span of control (leader-to-led ratio) should have no more than five parts, ideally no more than three of which are active at one time (e.g., assaulting group, supporting group and supporting vehicle). Embedded for controllability of the elements is the requirement to have effective communications.
- **Manoeuvre**. The section should have two balanced groups, each able to function as a fire base or as an assault element, but not necessarily identical in numbers or weapons.
- **Firepower and Equipment**. Projecting the section's equipment and weapons is critical to further define the possibilities of organizational structure. It is important to establish the equipment available because it impacts heavily on the section's flexibility in capabilities to deal with changing conditions on the battlefield. The equipment must match the organizational development and not dictate the section's structure.

CHARACTERISTICS AND LIMITATIONS

- **Tactical Agility**. Sections need be equipped with the right weapons for the right tasks.
- **Tactical Mobility**. The weight of equipment a soldier carries directly affects his/her mobility. The assault load should not exceed 1/3 of the soldier's weight. The best protection for the infantryman in close battle is his/her ability to move quickly and stealthily, utilizing cover and suppressive firepower while moving.
- **Operational Mobility**. The section, as part of the platoon, will acquire speed (the ability to rapidly mass through deployment) by the increased mobility offered by vehicles.

- **Technology**. The goal of technology is to offer useful and practical things to the individual soldier to improve his/her overall effectiveness. Developers of equipment systems must therefore employ a holistic approach to the integration of all equipment the infantryman carries so that it can fit onto the soldier by design. If technology is to be truly useful, it must not encumber our soldiers.
- **Information Dominance**. With information dominance, the section will be able to bring only what they need to the fight and will free them from worst-case logistics planning. Success on the modern battlefield will exploit the increase of velocity and speed afforded us by information-age technology.
- **Soldier's Skills**. Soldiers of the future, as in the past, will be called upon to be flexible and versatile. They will be counted upon to display mental agility and ingenuity as they seek alternative methods, often low technology, to cope with the circumstances that surround them. These skills will be taught though individual and collective training.
- **Attrition Mitigation**. The ten-personnel section, with two balanced fire teams, is the optimal composition for the organization. The section must retain the ability to handle combat or other losses and continue to function as it was designed. Once the section is no longer able to simultaneously conduct fire and manoeuvre among its two groups, it is ineffective.
- **Firepower**. The most important quality of firepower is its lethality. Firepower is the measure of suppression potential based on numbers and types of weapon systems carried by the section. The ability to achieve fire superiority facilitates manoeuvre and rapid destruction of the enemy. The importance of organic firepower in establishing dominance in the close fight is clear.
- **Protection**. The addition of protective equipment, including transportation, can greatly enhance survivability.
- **Logistics**. Dismounted, the section must be able to carry all organic individual and section equipment, weapons and ammunition using a weight limitation to sustain itself in combat. While the additional support of an organic vehicle may relieve this burden if the vehicle can remain in direct support, infantry inevitably operate dismounted.

CONCLUDING FUNDAMENTALS

The Canadian Army describes the future security environment to require a strategy of adaptive, dispersed operations to deal with the non-contiguous, non-linear character of the modern battlefield. These decentralized operations will find the infantry section, the foundation capability building block of all land operations, dispersed on the battlefield. This dispersion will necessitate and continue to define the infantry section's size and organization so that it is sufficiently capable to accomplish its role, missions and tasks. A well trained, properly equipped and fully manned section will continue to be an imperative to deliver the last 300 metres of Canadian foreign policy. Certainly, new technology will continue to improve mobility, firepower, protection, situational awareness, communications ability and logistics. The last 3000 years of combat have shown the nature of war to remain the same and the infantry section as a relatively inviolable doctrinal unit. The section has been repeatedly tried, tested and proven. For the foreseeable future, the infantry section will still have to close with and destroy the enemy.

ABOUT THE AUTHORS ...

Captain O'Leary has served in the CF since joining the Princess Louise Fusiliers as a soldier in 1979. Transferring to the Regular Force in 1982, he was commissioned in The Royal Canadian Regiment the following year. Capt O'Leary has served in the 1st and 2nd Battalions of his regiment, at the Infantry School and as Reserve Support Staff (RSS)/Regular Force Cadre (RFC) with the 2 NSH (CB) and the PLF. Other appointments have included G3 Domestic Plans at LFAA HQ, Range Control Officer at LFCA TC Meaford and Training Officer at the Canadian Land Force Command and Staff College (CLFCSC), Kingston. A graduate of CLFCSC, Capt O'Leary was serving as Regimental Adjutant for The RCR at the time of his retirement from the Regular Force in 2008. He continues to serve with the 4th Battalion, The RCR.

Major Victor Sattler enrolled in the Canadian Forces in 1988, joining Princess Patricia's Canadian Light Infantry as a Direct Entry Officer. He has served in a number of staff positions, including Infantry Doctrine, Infantry Training, the Canadian Land Force Command and Staff College, the Canadian Forces College and J3 Arms Control Verification. Major Sattler's operational duties include: United Nations forces in Cyprus, deployment throughout Europe as part of the UK's infantry commitment to Allied Command Europe Mobile Force (Land), NATO Stabilization Force in Bosnia-Herzegovina, and International Security Assistance Force in Afghanistan. Major Sattler is a graduate of Queen's University (political science) in Kingston, the Canadian Land Force Command and Staff College, the Combined Arms Tactics Course at Warminster, UK, and he is a distinguished graduate of the United States Marine Corps' Command and Staff College. He is currently serving as a staff officer in the Designs Section at Director Land Concepts and Designs and working on a master's degree in National Security Studies.

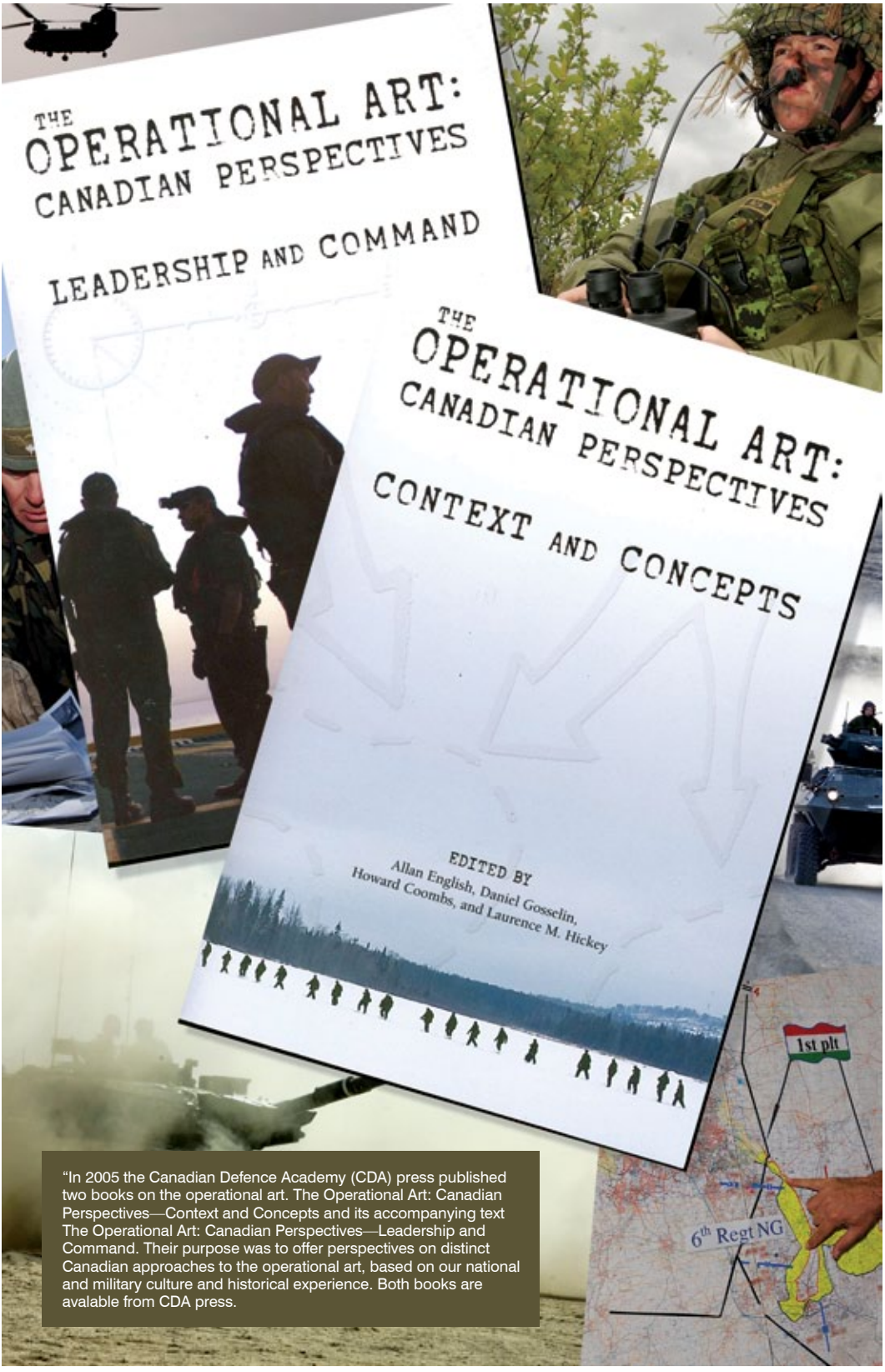
ENDNOTES

1. LGen Andrew Leslie, Army Commander, Canadian Association of Defence and Security Industries (CADSI) Conference, 15 May 2008.
2. Moving to less dangerous environments in the spectrum of conflict finds "providing presence to secure a population" in counter-insurgency operations.
3. Chris Shaw, "Adapting the British Light Infantry Section and Platoon Structure for the Contemporary and Future Operating Environment," *Small Wars Journal*, posted June 7, 2009, available at smallwarsjournal.com: http://smallwarsjournal.com/blog/2009/06/adapting-the-british-light-inf/.
4. Equivalent to a modern day sergeant, the leader of a *contubernium*, a squad of eight legionaries, the smallest unit of the Roman army.
5. See Bill Rawling, *Surviving Trench Warfare: Technology and the Canadian Corps, 1914–1918* (Toronto: University of Toronto Press, 1992) and Paddy Griffith, *Battle Tactics of the Western Front: The British Army's Art of Attack 1916–1918* (New Haven, CT: Yale University Press, 1994) for more accurate explanation of the section evolution. The popular myth that the Germans pioneered the section as an autonomous manoeuvre element in World War I and continued to develop this during the Reichsheer years is in fact false. The Imperial German Army was in fact quite slow to change its force structures due mostly to constraints imposed by their class-based army system.
6. If you look at the recent publication of General Sir William Heneker's *Bush Warfare* from circa 1908, this proved to be the case in jungle fighting—the complexity of the environment allowed responsibility for engagements to devolve.
7. The British infantry originally had four sections but went down to three when they became short on manpower. Canadian infantry battalions had 16 numbered sections split into four lettered companies. From *Section Leading*, published by the War Office, London, UK, 1928. Also see John English and Bruce Gudmundsson, *On Infantry* (Connecticut: Praeger Publishers, 1994).
8. See AAP-6 definition. Manoeuvre occurs when movement is combined with fire support. Without fire support, it is merely movement.
9. Machine-guns were developed from collective units and sub-units (i.e., MG companies) down to the platoon level to support the independent employment of platoons in a variety of tactical roles not needed in World War I, i.e. "policing duties," which today would be called tactical stability ops. See Lt Col Papineau, *Notes on Training*, Fifth Edition, [n.p.], 1934.
10. Additionally, spare gunners were trained should the primary become a casualty. This was the advent of all-arms training for all section members.
11. A grenadier is still considered a rifleman.
12. Fighting in built-up areas (FIBUA) training routinely demanded the flexibility of breaking out of the single-option frontal assault.
13. Canada, Department of National Defence, Directorate of Land Concepts and Design, B-GL-310-001/AG-001 *Land Operations 2021—Adaptive Dispersed Operations—The Force Employment Concept for Canada's Army of Tomorrow*, Maj Andrew B. Godefroy ed. (Kingston, Ontario: Army Publishing Office, 2007), p.2.
14. ABCA refers to the American, British, Canadian, Australian and New Zealand Armies' Standardization Program.
15. US Army Field Manual 7–8. For a historical recount of the US Army squad evolution, see Brian Mennes, The United States Army Infantry Squad: Year 2015, Master's Thesis, Army Command and Staff College, Fort Levenworth, KS, 1999.
16. Wikipedia, http://en.wikipedia.org/wiki/Organization_of_the_United_States_Marine_Corps, accessed 7 May 2010, 12:47:54 GMT.
17. Wikipedia, http://en.wikipedia.org/wiki/Section_(military_unit), accessed 7 May 2010, 13:47:43 GMT.

18. Canada, Department of National Defence B-GL-309-003/FT-00 *Section and Platoon in Battle* (Draft 2009).
19. Wikipedia, http://en.wikipedia.org/wiki/Section_(military_unit), accessed 7 May 2010, 13:47:43 GMT.
20. The EFV would support ship-to-shore type operations and those immediately thereafter, but the USMC has identified that a smaller tactical vehicle might be desirable for other mission types. To this end, the Marines had divided a reinforced squad into packages. This would allow the usage of smaller vehicles, which would reduce the size of any vehicle required to provide mobility and would also increase survivability. A single vehicle carrying 17 marines means that those marines are rendered less effective or ineffective if their vehicle becomes damaged or destroyed. Splitting them up into more vehicles increases the survivability of the team itself.
See http://www.globalsecurity.org/military/systems/ground/ctv.htm, accessed 14 May 2010.
21. B-GL-309-003/FT-00 *Section and Platoon in Battle*.
22. Michale Barlow, Peter Morrison, Matthew Luck and Alistair Dickie, *Constructing the Virtual Section*, Land Warfare Development Centre, Australian Army, 2004.
23. Canadian doctrine also recognizes a two-personnel scout detachment at section level. Soldiers rotate through the task due to its danger and strains, both physical and mental. Thus to have a dedicated pair of scouts is questionable.
24. The logical next step for this experiment is to determine if the three-personnel assault group is more effective than the four-personnel assault group.
25. This may be true for tactics in an open environment, but once close terrain is encountered, command may have to devolve to the four-personnel group.
26. In part, the reduction of the platoon's two dedicated machine-gun sections was offset not only by the establishment of the third rifle section but also by the creation of the platoon's weapons detachment.
27. Or perhaps an unintended consequence of going from 7.62 mm to 5.56 mm. The range gap is identified for dismounted operations, away from the support weapon of the vehicle, in the 300- to 600-metre distance.
28. Without the ability to hold ground, an infantry section would be no different than the Armour Corps. Additionally, a logical extension of this "hold ground" concept is the need to provide a presence, be it to secure ground or secure a population, i.e., to stand on a street corner.
29. B-GL-309-003/FT-00 *Section and Platoon in Battle* defines an objective as an enemy trench.
30. Canadian Army tradition has generally been for infantry vehicles to remain with infantry sections. Otherwise, the vehicle is merely a taxi that another corps could potentially drive and own.
31. B-GL-309-003/FT-00 *Section and Platoon in Battle*.
32. Soldier Information Requirements (SIREQ) support this. SIREQ reports indicate that a six-personnel section is unsustainable with one casualty.
33. B-GL-309-003/FT-00 *Section and Platoon in Battle*.
34. LOB personnel (spanning all ranks) were on the unit establishment and intentionally left out of battle for the purpose of establishing an indoctrinated manpower pool to immediately rebuild the unit after casualties or other losses occurred.
35. M113 generally had eight or nine dismounts and a driver, all of whom belonged to that section.
36. See Editorial: "Strategically Relevant and Tactically Decisive," *Canadian Army Journal* 12.1 (Spring 2009).
37. Canada, Department of National Defence, Directorate of Land Concepts and Design, *Toward Land Operations 2021; Studies in Support of the Army of Tomorrow, Force Employment Concept*, Andrew Godefroy and Peter Gizewski eds. (Kingston, ON: Army Publishing Office, 2009).
38. "The Evolution of Army Wearable Computers," *Pervasive Computing*, Oct to Dec 2002, available at http://computer.org/pervasive.
39. "Warfighters demand greater processing power and reliability in rugged battlefield computers," available at http://www.optoiq.com/index/display/article-display/349240/articles/military-aerospace-electronics/exclusive-content/warfighters-demand-greater-processing-power-and-reliability-in-rugged-battlefield-computers.html.
40. RAID is now used as an umbrella term for computer data storage schemes that can divide and replicate data among multiple hard disk drives. The different schemes/architectures are named by the word "RAID" followed by a number, e.g., RAID 0, RAID 1, etc. RAID's various designs involve two key design goals: increase data reliability and/or increase input/output performance. When multiple physical disks are set up to use RAID technology, they are said to be in a RAID array. See http://en.wikipedia.org/wiki/RAID.
41. "Powermat is a complete solution for simultaneously delivering real time, wireless charging to multiple electronics, including mobile phones, music players, handheld games, electronic readers, GPS devices, Bluetooth headsets, netbooks and laptops. Powermat technology has been miniaturized to a level where it can be embedded into virtually any device, as well as walls and table top surfaces. Powermat technology is fast, efficient, and safe and revolutionizes the way consumers charge and power." See http://www.powermat.com/us/about-powermat/.

42. B-GL-310-001/AG-001 *Land Operations 2021—Adaptive Dispersed Operations—The Force Employment Concept for Canada's Army of Tomorrow*, pg. 24.
43. *Ibid*.
44. *Ibid*.
45. Today's force developers were, by and large, born prior to the Internet and thus sit on the wrong side of the digital divide. As a group, we seem more concerned about our soldier's abilities to grasp the complexities of new technologies. Hence this issue is often overstated.
46. Canadian Forces Recruiting Website.
47. These limitations are based on current technology.
48. See: http://www.forces.gc.ca/site/news-nouvelles/view-news-afficher-nouvelles-eng.asp?id=3039.
49. This was the CDR light forces design and the current plans by Director Land Force Development (DLFD).
50. Unless contract specifications set a minimum size.
51. As previously mentioned, a six-personnel section has proven to be the smallest size that can still do its role—to hold ground and have presence.
52. This is not completely true in that the Canadian Army has done specialist training with airborne and airmobile forces. Mechanized infantry may also be considered as a form of specialization. But for specialization beyond this, the Canadian Army is simply too small. Also of note is that we never had Light Infantry, rather equipment constrained battalions.
53. This has also been driven by other factors such as whole-fleet management and managed readiness. But a key question here is if pre-deployment training is so lengthy, are we now at a juncture where generalist training for all and specialist training before every task are becoming unwieldy and inefficient?
54. Generally, business management practices suggest that the span of control of more than four or five to one can't be fully effective, no matter how much formal training is provided. See http://www.chally.com/benchnet.htm, accessed 14:09 hrs, 5 Aug 10. The military formula also uses a 5:1 span of control, but the operational span of control is only 3:1 (that is, the number of active subordinate units that actually carry out the fundamental mission of the organization). The remaining two (roughly) staff positions under each commander are actually information processing assistants necessary to make even the 3:1 span of control effective. See B-GL-300-003/FP-001 *Command in Land Operations*, Chapter 3, para 2, Section 304, pg. 3–6.
55. They may be considered a reserve if not employed as scouts.
56. This is probably not stated clearly enough in 309–3.
57. Tactical armoured patrol vehicles (TAPVs) and close combat vehicles (CCVs) may see a reduction in the number of dismounting soldiers from each vehicle.
58. For a good historical examination of the soldier's load, see Major G. Tylden, "The Accoutrements of the British Infantryman, 1640 to 1940," *Journal of the Society for Army Historical Research*, Vol XLVII, No. 189 (Spring 1969). Also, from Maj R.J. Vogel, Maj J.E. Wright and Lt Col G. Curtis, "Soldier Load: When Technology Fails," *Infantry*, Vol 77, No. 2 (March–April 1987): "On the basis of previous research and combat experience, the Infantry School has established the following goals for the weight to be carried by infantrymen: 45 percent of a soldier's body weight on approach marches (for the average soldier, about 72 pounds [32.7 kg]), and 30 percent (about 48 pounds [21.8 kg]) as a tactical load in a combat zone."
59. FIBUA doctrine discusses the flexibility that commanders have in adjusting soldiers' kit.
60. The new draft of 309–3 will address this, and it is certainly being reflected in the range of stability activities under full-spectrum operations.
61. Note that the late model Marder IFV (1A1, 1A3) employed by German *Panzergrenadier* units has a crew of three and five to six dismounting infantry. It is to be replaced by the Puma IFV, with a crew of three and six dismounts.
62. HDv 231/100 (zE), *Das Panzergrenadierbataillon*, state of 2001-03-01, Nr.1003. See http://en.wikipedia.org/wiki/Panzegrenadier assessed 10:53 hrs, 06/08/10.
63. The Canadian Army has come to the realization that it cannot afford the specialization of light forces. Doctrine is now geared toward symmetrical infantry battalions. Asymmetry at even lower levels of command is considered undesirable.
64. Early indicators are that TAPV would only have weapons for self-defence, not fire support.
65. This argument can be situated at the sub-unit level, but the section level is critical to focus on for capability determination.
66. In counter-insurgency operations, the tactics and skills of an infantry section may be diametrically opposed.
67. See S. Biddle and J. Freidman, *The 2006 Lebanon Campaign and the Future of Warfare: Implications for Army and Defense Policy* (Carlisle, PA: Strategic Studies Institute, September 2008).

Source: Combat Camera



"In 2005 the Canadian Defence Academy (CDA) press published two books on the operational art. The Operational Art: Canadian Perspectives—Context and Concepts and its accompanying text The Operational Art: Canadian Perspectives—Leadership and Command. Their purpose was to offer perspectives on distinct Canadian approaches to the operational art, based on our national and military culture and historical experience. Both books are avalable from CDA press.

COMPLEXITY, DESIGN, AND MODERN OPERATIONAL ART: U.S. EVOLUTION OR FALSE START?

Mr. A. Elkus

Counter-insurgency and the campaign in Afghanistan remains the biggest topic of debate in military affairs. However, a deeper discussion has begun over the foundations of operational art and doctrine in the American Army. It is an argument that focuses mainly on land warfare doctrine,though the conceptual processes discussed have broader application. The debate concerns the operational methodology of Design, an American doctrine that is also the object of some curiosity among other land forces.

With the release of Field Manual (FM) 5-0 *The Operations Process*, Design has been codified into American Army doctrine. And as General James Mattis recently noted in a U.S. Joint Forces Command (JFCOM) memo, it may be in the process of being incorporated into joint doctrine.[1] While Design, broadly derived from Israeli theorist Shimon Naveh's Systemic Operational Design (SOD) may seem to be another doctrinal fad, there is a deeper pattern behind Design's rise.

Design is the result of two converging trends—the influence of complexity theory and new insights on social behaviour on the military art.[2] Military theorists are looking at war through a new conceptual lens informed by current science and social science, and attempting to craft operational doctrine that is informed by a modern understanding of the social world. In turn, these concepts are congruent with the larger conceptual direction in American and broader Anglosphere thinking about operational warfare. Design and its associated cousins are part of the first wave of operational concepts informed by these influences. As a "first draft," however, its incorporation into operations is both promising and also somewhat risky.

THE OPERATIONAL ART AS COGNITIVE SHIFT

To set the context to talk about the influence of complexity science and social science on the operational art, we need to first discuss the cognitive shift in Western warfare behind the conception of "operational art" itself.

James J. Schneider argues that operational manoeuvre arose from eclipse of the "strategy of a single point." This mode of operations was determined by the need to concentrate a mass of troops in a central place for the decisive battle. "Under classical conditions, armies concentrated their physical force at a single point like a fulcrum."[3] Thus, strategy as defined by Antoine-Henri Jomini and others governed the movement of densely packed forces to the battle, and tactics the governing of the battle. The strategy of a single point reached its height with the Napoleonic paradigm of decisive battle. The political, economic, and military consequences of the industrial era, as Schneider and others argue, allowed operational as opposed to purely tactical manoeuvre and shattered the assumptions of the "strategy of a single point." The shift, Schneider notes, was to distributed campaigns of large armies using individual battles to paint a larger picture.[4]

Historians disagree about how "operational art" emerged. While most posit the growth of operational thinking and practice occurred in the late 19th century, Claus Telp argues in a recent monograph that the roots of what we consider "operational art" can be seen as early as the period of transition from the era of Frederick the Great to the Napoleonic campaigns.[5] In contrast, Schneider argues that the industrial revolution's impact on firepower, mobility, sustainability, and army size significantly changed the dynamic.[6] Milan Vego further notes in his own textbook on operational warfare that the change meant that large battles and smaller tactical actions needed to be fought to achieve a series of intermediate operational objectives that led to the achievement of the strategic objective.[7]

Finally, nationalism and popular fervour increased the political objectives of warfare, making for more destructive conflicts. This, however, is old territory that has been endlessly rehashed in articles about operational warfare since the 1980s.

Another way to look at operational warfare is the paradigm of control. What we understand as operational art was born from the need to exert greater control over the conduct of warfare. Admiral J.C. Wylie first grasped the paradigm of control in the book *Military Strategy: A General Theory of Power Control*. Wylie discusses it through the aim of imposing control on the enemy.[8] However, we can generalize this to a wider frame of reference. Military strategy functions as more than simply a method of accomplishing political aims. It is also a method of imposing a modicum of control on the chaos of conflict. And as conflict mutates into different forms over time, the need for more variegated and complex instruments of control grows. As such, the concept of "operational art" is just another control mechanism that is periodically created as both a heuristic and functional tool.

In the context of operational theory, the need for control was not just purely military—it was also political and organizational. The sovereign no longer could gallop onto a field and direct his men in the manner of Napoleon, who centralized all battlefield control.[9] This in part explains the shift in of the term *strategy* to cover the overall war policy of the state. Control over policy and all three levels of war were no longer vested in the body of a single brilliant—or incompetent—sovereign.[10] The growth of General Staffs with campaign planning powers as well as high-level civilian planning bodies made war more of a bureaucratic process. The evolving tactical dynamism that would take embryonic form in the early 20th century necessitated a new style of military art that would not only integrate successive tactical actions into operations but coordinate these large-scale actions into a cohesive whole.[11] The Israeli writer and theorist Shimon Naveh, whose ideas inform the doctrines currently discussed, sees the operational level as a complex system itself driven by the tension between the tactical command of many different moving parts and the strategic aim.[12]

To exercise instrumental control over operational warfare, a complicated set of terminology and concepts have evolved in American doctrine and the Anglosphere as a whole. Standard campaign planning employs an interpretation of mixed Jominian and Clausewitzian terms such as operational and strategic centres of gravity and lines of operation. Such juxtaposition is ironic, as the two military theorists clashed—sometimes vehemently—during their own lifetimes. It is also fitting, as political, organizational, and institutional needs and cultures have a way of mutating the ideas of even the most earnest and principled theorist beyond recognition. In addition to Jominian and Clausewitzian concepts, newer elements of planning such as John Warden's "Five Rings" operational concept, target value analysis, and logical lines of operation (LOOs) have entered the operational lexicon, to say nothing of the continuing debate over what exactly constitutes a centre of gravity (COG) and how a military can manipulate it. Operational warfare has become more and more comprehensive, in some ways "devouring" elements associated with strategy.[13] Some argue that operational-tactical elements have come to predominate over the wider strategic function that used to sit at the top level of military planning. This is a particular problem in America, where warfare tends to be popularly seen as a pristine realm separate from normal political intercourse.

Operational terms are not scientific but they are not necessarily artistic either. They are ideas that support applied human activities, and their value originates from their practical utility.[14] They draw in some ways from science, but not just because militaries are fond of using science instrumentally. Science is the lens by which we view many activities in our social world since the Enlightenment, and that world obviously includes warfare. Antoine Bousquet argues convincingly that the sciences of mechanics, thermodynamics, cybernetics, and the interrelated disciplines of chaos and complexity theory can be used as analytical paradigms to examine shifts in the "grammar" of warfare from Frederick the Great to Manoeuvre Warfare.[15] Just as the classical concepts of mass and the COG informed Clausewitz, both the emerging discipline of complexity and the social sciences have come to exert a great deal of influence over contemporary military operational theory.

COMPLEXITY SCIENCE, SOCIAL COMPLEXITY, AND OPERATIONAL ART

As Alan Beyerchen's famous essay on Clausewitz and nonlinearity reveals, ideas about complexity and warfare did not begin with the science of complexity itself.[16] Although Clausewitz himself did not invent the interrelated disciplines of complexity science, Beyerchen argues he "perceived and articulated the nature of war as an energy-consuming phenomenon involving competing and interactive factors, attention to which reveals a messy mix of order and unpredictability."[17] That is why Clausewitz preferred conflict to be studied as a whole rather than in isolation, as a system, composed of many interactive agents, that is highly responsive to initial conditions. The difficulty of reading the more theoretical sections of Clausewitz's book *On War*, in some respects, stems from the difficulty we have in general of visualizing a holistic system given the emphasis on reductionism that predominates in the way we are trained to think about problems. As helpful an analytical device as the "levels of war" are, they add to the problems of linear categorization that Clausewitz sought to overcome in his writings.

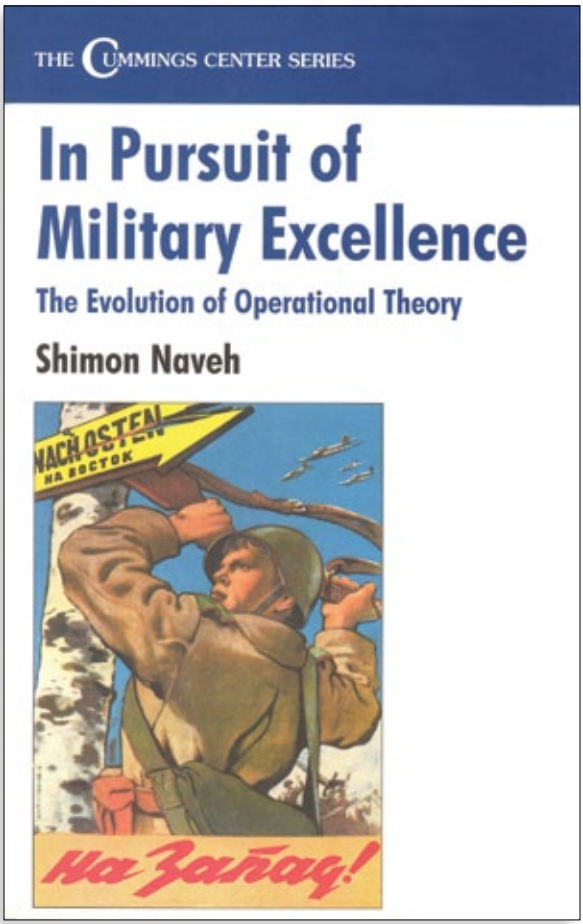
There are two types of complexity in complexity theory—structural complexity and interactive complexity. Structurally complex systems such as cars have many different complicated parts that nevertheless behave in a linear and predictable manner if all the parts are properly set up. Interactively complex systems, however, are composed of many independent agents whose interactions with each other change the system in ways that are extremely difficult to predict.[18] As discussed later, a city is a good example of an interactively complex system. This is an overly simplified definition of a field that is emerging and (no pun intended) extremely complex. It has, however, captured the imagination not only of science, but of the social and political world as well.

Military thinking about systems is very much a product of the 20th century. The first to think about systems in a military context were the strategic bombing theorists of the interwar era, who theorized about bringing the economic life of industrial nations to a halt through the mapping and targeting of crucial industrial nodes. Though they did not use the language of structural complexity, this was an application of a structurally complex model to an interactively complex system. This basic error would be repeated many times over in future military analysis. The postwar science of cybernetics—simply put as the science of feedback and control in closed systems—is another example of early military thinking about systems. Cybernetic concepts informed Secretary of Defense Robert McNamara's infamous systems analysis and the obsession with quantification seen in early Cold War strategy.[19] The backlash against this heavily quantified mode of strategy was fierce, although not so much to prevent concepts that updated McNamara's technological obsessions from emerging during the Revolution in Military Affairs (RMA). The shift away from cybernetics towards the study of complex adaptive systems and nonlinearity, however, represents a break with McNamara and the RMA.

Study of complexity, which presumes drastically less predictability than cybernetics, coincided with a postwar move away from McNamara's systems analysis back to Clausewitz and the study of Soviet and German operational theory and practice. In the 1980s and 90s, military theorists began to begin to incorporate concepts associated with what Bousquet calls "chaoplexity" in their works. Most of these works re-examined traditional military theories and concepts from the perspective of complexity theory and nonlinearity. Beyerchen's essay on Clausewitz and nonlinearity is in many respects the key document that signalled this shift, as it was a radical revision of the great Prussian military philosopher. It was also welcomed by some Clausewitzians as a long-awaited realization of the old master's thought in the natural sciences.

Some Marine Corps manuals, most notably MCDP-6 *Command and Control*, incorporated complexity theory in operational doctrine.[20] Soldiers and Marines were not looking at complexity because they thought it was a trendy concept—they were seeking to use new understandings of science in accordance with principles about war they had always believed. The decentralized practice of command idealized by Marine manuals in the 1980s, for example, meshed well with new scientific studies on self-organizing systems.[21] MCDP-6 describes the military organization as an "open system" that interacts with its surroundings and the enemy: "Like a living organism, a military organization is never in a state of stable equilibrium but is instead in a continuous state of flux—continuously adapting to its surroundings."[22]

Since Marines have always imagined themselves as operating on the edge of chaos, complexity theory served as a scientific confirmation of their ethos.



Perhaps most significant in the new application of these new concepts was again Shimon Naveh's text *In Pursuit of Military Excellence: The Evolution of Operational Theory*. Naveh not only utilized a modern understanding of systems practice in his operational research, but also made the argument that this understanding was best realized through the Soviet conception of operational art. The book demonstrated the applicability of systems concepts to conventional analysis in a concrete manner. Its usage of new scientific concepts to revisit old concepts was also broadly Kuhnian and indicative of the way that complexity was changing the vocabulary of defence analysis. Broadly influential, Naveh's text informs current discussions of land warfare doctrine and operational art.

More unhappily, misunderstandings of complexity theory also underscored the focus on network-centric warfare and effects-based operations (EBO), which assumed the rhetoric of complexity but not its practice.[23] EBO, for example, transposed airpower methods of cascading disruption of mechanical closed systems to complex adaptive systems such as military organizations and even large nation-states. Like many other similar theories of strategic paralysis that predominated at the time, EBO used a reductive concept of systems visualization as a means of achieving a decisive blow through the employment of standoff weapons. Network-centric warfare employed a cybernetic model of command and control that nevertheless couched its virtues in the rhetoric of decentralized, self-organizing complex adaptive networks. However, Bousquet points out that network-centric warfare's emphasis on swarm intelligence misunderstood the self-organizing nature of insect swarms and other complex adaptive systems, which do not have a common operating picture in the manner suggested by network-centric literature. Bousquet also convincingly draws a causal line between McNamara's visions of future warfare and network-centric warfare's own machined reams.[24] This theoretical and practical imbroglio illustrates the difficulty in taking concepts from the civilian world and transposing them to what Edward Luttwak calls the "paradoxical logic" of strategy. In a less philosophical vein, it also illustrates the unfortunate truth that strategic culture also broadly influences the moulding of new concepts. Whatever the origins of complexity theory in network-centric and EBO concepts, they were distorted by institutional culture until something unrecognizable.

It is also worth noting how scientific advancement is symbiotic with the military search for strategic paralysis. Beginning in the interwar period, military theorists saw in technology the ability to transcend what they viewed as murderous attrition and strike a *coup de main*. Technology and science was not only the enabler but also a conceptual lens from which theorists of strategic paralysis draw their operational vocabulary. EBO and many other RMA-era concepts can trace their ancestry back to interwar theorist J.F.C Fuller's concept of the enemy as a human body with various limbs and organs governing its conduct. Striking the "brain" would lead to systematic collapse. The strategic bombing theorists of the interwar period expanded significantly on systematic targeting of economic and moral nodes in their theories. More recently, John Warden's theory of parallel warfare and system targeting in the modern air campaign have taken this biological metaphor and updated it with modern technology and operational thinking.[25]

The second wave of military attempts to examine complexity, like the post-Vietnam look at nonlinear science, coincided with military difficulties. These difficulties have also spurred a look at ideas in social theory that can be considered social science analogs to the scientific ideas discussed above. Extensive involvement in nation-building and stability operations campaigns has led to a look at ideas in public policy about "wicked problems." Though military interest in "wicked problems" is recent, the literature itself dates back to the early postwar era. In economics, sociology, and urban planning, theorists ranging from the urbanist Jane Jacobs to the economist Friedrich Hayek cast doubt on the ability of centralized planners to create detailed, top-down plans.[26] Jacobs' famous final chapter in *The Death and Life of Great American Cities* declared that cities exhibited "organized complexity...[which] present 'situations in which a half-dozen or even several dozen quantities are all varying simultaneously and in subtly interconnected ways.'"[27]

As Jeremiah Pam notes, it is the interactive complexity that makes social problems "wicked." We may not possess relevant knowledge of the underlying dynamics of the problem, such knowledge is widely dispersed among many differing actors, and diversity of vantage points and contexts among them makes it difficult to communicate this knowledge in a coherent form. Often times, knowledgeable professionals will even disagree vehemently about how to define and structure the problem itself. [28] And of course, we should keep in mind that Horst Rittel and the other pioneers of "wicked problems" in social theory were talking about *domestic* problems, in which the full force of government writ can be deployed among those who for the most part accept its authority. When applied to overseas expeditionary counter-insurgencies with opponents from differing cultural backgrounds and a civilian population that may not accept the legitimacy of the expeditionary force, the complexity of "wicked problems" multiplies.

The driving force behind domestic civilian literature's analysis of what might broadly be called social complexity is a rejection of the progressive concept of the enlightened central planner. Most explicitly with Hayek's works on economics and politics, public policy scholars have spent decades analyzing the failure of large centrally planned government projects. The classic text in this literature is James C. Scott's *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, a magnum opus chronicling such epic boondoggles as the Soviet collectivization program.[29] More recently, aid sceptic William Easterly has harshly questioned the similarly top-down development and aid projects conducted by the United Nations and non-governmental organizations.[30] The point of this literature in economics and planning is that the idea of a benevolent government central planner who possesses all of the relevant information to will large-scale projects into existence through sheer exertion is a myth. And there are unfortunately many case studies, both in the West and abroad, to confirm this hypothesis. The point of the literature of social complexity is to embrace a more realistic way of viewing and influencing the social world, though this academic literature is more often than not disregarded in policy practice and public debate.

It is easy to see why the "wicked problems" analysis of social problems would appeal to doctrine writers. It is consistent with classical theory about the nature of warfare, as established earlier. The fog and friction of warfare, particularly land warfare, is interactively complex and always has posed a challenge to those seeking to scientifically map it (although many keep trying it). On a more practical

level, planning theory developed for domestic uses, such as crime as well as interactively complex international problems such as development aid, overlaps with similar problems in expeditionary environments that often feature complicated coalitions.[31] There is an analogy, though not a perfect one, between the challenge of stamping out disease in an underdeveloped and politically divided area of the world and leading a complex counter-insurgency—with the caveat that a disease does not shoot at the doctors or actively conspire to foil their plans.

When it comes to wicked problems and doctrine, T.C. Greenwood and T.X. Hammes have also explained masterfully in an *Armed Forces Journal* article why sometimes reductionist doctrine often does not measure up to the challenge of modern expeditionary conflict. Greenwood and Hammes' analysis looks at how doctrine for joint operations neglects to formalize the problem before linear planning begins. Their article illustrates how civilian concepts from the scientific and social scientific worlds might be reasonably applied to military problems.[32]

FORGING A NEW OPERATIONAL ART: PROMISE AND PROBLEMS

By now, the story of operational art in modern western militaries is very hoary. The intellectual renaissance of the 1970s and 80s reinvigorated the American Army, gave it a new doctrine that led to victory in Operation DESERT STORM (AirLand-Battle), and gave it a wider perspective of an "extended" battlefield. We are all familiar with the bare bones of this story. But, it is necessary to make some baseline observations to add to the previous discussions of complexity and doctrine. As elaborated earlier, the operational art principally involved a cognitive shift, and today's doctrine is building on elements of that shift. The space for today's emerging operational art has been carved out by the operational art of the 1980s and 90s.

For most of its existence, America has not utilized operational art, in large part because there was little need for it. Until the Civil War, the size and complexity of land battles were laughable from European perspectives. Moreover, the political context for operational art did not occur until after Vietnam. While standard Army narratives often talk about the need to move beyond narrowly tactical doctrines like "Active Defense" to counter the strength of the numerically superior Warsaw Pact conventional forces, this interpretation misses some of the interesting nuances associated with the development of operational art in America—tied very much to the Clausewitz revival of the late 1970s and early 80s.

In short, Clausewitz became key to the intellectual revolution that spawned American art—but it is questionable how well the old Prussian's words were understood. As Hew Strachan noted, Colin Powell and Caspar Weinburger, both fans of the new Peter Paret translation of *On War*, shared with Colonel Harry Summers an appreciation for the seeming clarity that *On War* offered about the relationship between war, politics, and strategic aims.[33] It is by no means radical to point out that Powell and Weinburger's emphasis on identifying American strategy purely with decisive force left it ill-equipped to deal with other contingencies that did not fit the template. But it's also apparent, as Robert Cassidy argues, an emphasis on operational art helped repair a military zone of competency that had been breached by civilian systems analysts, irregular warfare operatives, and alternatively micro-managing and strategically inept superiors in the Vietnam era.[34]

The level of operations thus became the key to building this template. As Strachan notes, many American soldiers became overly fixed on Clausewitz's operational maxims and their congruence with German military traditions of speed and decisiveness at the expense of the Prussian's more abstract dialogue on the nature of war and politics. This reached something of a climax with Tommy Franks' 2003 campaign against Iraq, in which narrowly operational themes predominated.[35] The concept of the COG—and Paret's interpretation of it—also has become crucial to American operational art. Antulio Echevarria argues that this COG concept focuses on the enemy's centre of strength, rather than what Echevarria views as a more accurate idea of the COG as simply a centre of connectivity that holds the opponent together.[36]

The disagreement between Echevarria and Paret, however, is minor compared to the divergence of the COG in joint doctrine. Echevarria argues that this interpretation, which links the COG to capabilities and weaknesses, "lack entirely Clausewitz's sense of 'unity' or 'connectivity.' By overlooking this essential prerequisite, the U.S. military assumes centers of gravity exist where none might—the enemy may not have sufficient connectivity between its parts to have a CoG. In that case the analysis does little more than focus on the most critical of the enemy's capabilities."[37] A focus on making finding the COG the Holy Grail of operational art makes it easy to lose sight of the strategic aims that violence is to achieve. Echevarria, in a biting 2003 essay, argued that there is no American way of war—rather there is an American "way of battle" focused on narrowly on operational art and tactics.[38]

Australian Brigadier General Justin Kelly and Dr. Michael James Brennan make the argument that the American-Anglosphere interpretation of operational art took this shift farther. Kelly and Brennan argue that by emphasizing operational art as the strategic domain of campaign design, as well as collections of tactical actions joined together by an operational idea, it raised the concept of the "operational level" to something else entirely—strategy. Of course, the larger question is why this happened, and Hew Strachan and others have elaborated on the political shift in who makes strategy and operations.[39] While the linguistic and historical argument that operational art has "devoured" strategy is in some ways debatable, it does make the valuable point that the notion of an intermediate level of major operations and campaigns is a very expansive territory in Western military theory. It leaves a large space for a purely military art—which, for political reasons independent of doctrinal definitions, sometimes disconnects operations from their larger political origins. When examining the genesis of Design and related doctrines, it's important to note beforehand that for structural reasons there is a large "canvas" open in Western military theory for operational artists to paint on when imagining new doctrines

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Lieutenant-Colonel (LCol) Syl Mongeon works with other military personnel from a variety of nations in the Combined Joint Operations Center (CJOC) located at the International Security Assistance Force (ISAF) Headquarters in Kabul

Emerging operational theory is trying to take this expansive canvas and apply its full cognitive weight to current military challenges. Science and social science is another vocabulary that can be employed to accomplish this task. What doctrines such as Design, the emerging discipline of "inter-agency operational art," and even the much-maligned EBO seek to do, Major Ketti Davison points out, is move

beyond mechanistic and planning paradigms rooted in top-down direction of the central planner and perceive an emergent world of complex systems.[40] Such a focus was inevitable due to the military's increasing interest in interactive complexity, although the Global War on Terror certainly hastened the process.

Inherent in this shift is also an expanded epistemology. Christopher Paparone, in reference to the 2008 FM 3-0 *Operations*, has called this new operational art, "operations on the cusp of post-positivism."[41] Such doctrine, Paparone argues, moves away from an Enlightenment-era, Jominian paradigm rooted in the disassembling of problems into small parts, to something more tolerant of ambiguity and able to perceive a situation in its totality. Of course, Design and its cousins are not post-positivist doctrines because they are still instrumental in form. Complexity theory itself, while challenging positivism, is not totally post-positivist. It is still part of the scientific worldview and can be analyzed through scientific tools and methodology—with all of the scientific worldview's implicit biases. Moreover, Design and its doctrinal cousins are also structured within the framework of industrial-era military organizations, which also are highly positivist in nature.

What is clear is that Design is a first draft of the new understanding of complexity and social complexity within Anglosphere militaries. The new Army manual FM 5-0, *The Operations Process*, contains some evidence to support Paparone's thesis. First, it describes the "operational environment" as "complex and continuously changing," making specific reference to interactive complexity.[42] "Wicked problems," viewed as ill-structured problems, to which the very definition of the problem baffles even like-minded professionals, is at the core of the manual's chapter on Design.[43] An older monograph on Systemic Operational Design (SOD) specifically cites Napoleon's inglorious incursion into Russia as an example of a complex and continuously changing operational environment, as his misunderstanding of the dynamics of the system into which he was injecting energy caused his own defeat. Napoleon's tactical victory at Borodino was meaningless because the nature of the system that governed political-military outcomes had changed in a manner that would favour the Russians.[44]

Framing of the problem as a whole within its proper environmental context, in turn, leads to an "operational approach" that can nudge the system towards a desired state.[45] The Design framework is also integrated within the standard Military Decision-Making Process (MDMP). Key to this process is the commander's "battlefield circulation," the emergent interaction of the "eye of command" with the ground-level view, and the consultation of civilian experts to gather context unavailable to headquarters normally.[46] The "operations process," FM 5-0's dominant metaphor for the operational planning process, is depicted as a kind of iterative system as well.[47] The manual's various themes point to an attempt to create a greater operational vision for the employment of force in the "hybrid" campaigns that American security policy-makers judge to be the conflicts of the future. The focus on systems dynamics also dovetails with the similarly systems-oriented theoretical explorations of counter-insurgency mastermind David Kilcullen in documents such as "Countering Global Insurgency." Kilcullen's utilization of Naveh and other systems theorists to look at insurgent ecosystems points to a convergence in the respective doctrines and theories.[48]

Of course, it is important not to overstate Design's novelty. Unlike the concept of SOD from which it is derived, Design nested within the pre-existing Army Battle Command framework and is explicitly commander-driven. Moreover, there is continuity in its focus on campaign design to the 1980s operational renaissance within the Army. The term "operational design" is not something exclusive to the current movement, as references to elements of campaign design occur as early as the 1980s.[49]

So what to make of it? The Army's movement toward a more flexible and holistic planning system obviously has promise. It is informed by harsh lessons, and recognizes that cognitive capacity is the key to executing the much-bandied about Full- Spectrum Operations (FSO). Yet, it is still a first draft of an evolving paradigm that is very much in its infancy. With its promise there are also risks in both the theoretical underpinnings of the concept and its potential applications in practice.

First, while the new Army understanding of interactive and structured complexity does much to clear away an inaccurate understanding of conflict, the observation that human systems are interactively complex is not as radical as it might seem. As observed earlier, Clausewitz articulated—though in a conceptual vocabulary limited by his time and experience—many ideas expressed about complexity and conflict today. Moreover, most successful commanders throughout history have intuitively understood the complexity of battle command and campaign planning. So our improved understanding of complexity and wicked problems represents science and social science catching up with the observed world and creating a formal language for what we have understood for a long time. It is what is done with the knowledge of complexity that matters.

Second, the focus in the manual on "persistent conflict" as "increasingly unpredictable and sudden," and "conducted by diverse actors" is debatable at best.[50] This dovetails with a larger emphasis in American defence documents about the unpredictable and highly complex nature of the contemporary operating environment. But is it? The Cold War featured many diverse actors and was far from the linear or simple contest it is often portrayed as in popular debate. The battle over the Fulda Gap was only one part of a complex contest not only between two superpowers, but a dizzying maze of proxies and assorted larger systemic processes such as decolonization, the decline of imperial powers, economic integration, and changes in political-religious ideas across the world.[51] These situations were just as interactively complex as our present contests in their array of actors whose unpredictable actions caused system changes.

The counter-argument is that globalization and mass communications have changed the nature of the game, and it contains a kernel of truth.[52] Networks, globalization, and mass communication have changed aspects of conflict on multiple levels. Military thought and research since 2001 have expanded on the multinational problems and complexity of global conflict as a persistent theme. Current military operational documents, like Australia's "Complex Warfighting" paradigm, reflect the challenges of adapting to these new currents. But when did "globalization" really begin? In a practical sense, the idea that the map had become "flat" was a staple of early 20th century airpower thinking. And mass communications have been a part of military and political reality since the telegraph. What we can see is an evolution and a sharpening of the sword rather than a revolution altogether.

In a purely military context, the emphasis on the increasing unpredictability of persistent conflict also can unintentionally make conventional warfare seem simple in comparison. But conventional warfare is also interactively complex, as it features the same diverse array of actors, agents, and processes acting in unpredictable ways. Planning for large-scale offensives such as World War I's opening German gambit involved a substantial amount of interactive complexity, and a large part of military innovation during the long period from the late 19th century to the 1930s dealt with controlling the increasing interactive complexity of war-fighting. Even on the tactical level, command and control implications of how to effect, sustain, and exploit a breakthrough was more complex than popular history merits.[53] We should strive to maintain historical perspective even as we innovate.

Additionally, it seems that the goal of Design as a methodology is to help nurture the cognitive flexibility and creativity in the design and execution of campaigns and major operations seen in Moltke the Elder's 1870 foray into France as they interface with the operational idea (scheme). In Bradley J. Meyer's words, Helmuth Moltke the Elder, "used his operational goals . . . as a goal or desired state toward which he directed operations, adjusting his operational decision-making to circumstances as he went along."[54] Meyer uses a systems metaphor as well in his description of the cognitive concept that undergirded the campaign. In a way, Design's focus on methodology is another attempt to spread the genius of the exceptional commander across in an egalitarian MDMP-like fashion. But, can what Clausewitz calls the "genius" of the commander be spread across the organization? This is especially true within the context of industrial-era organizations such as large militaries.

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Military personnel from a variety of nations work in the Combined Joint Operations Center (CJOC) located at the International Security Assistance Force (ISAF) Headquarters in Kabul

The kind of operational mapping of systems called for in the document may also be difficult to implement in practice. Mapping an operational environment as a system calls for integrating a number of factors together and expressing them in a system context, which is, as we have established earlier, difficult to due to the fact that relevant knowledge will be dispersed among a variety of different actors with different vantage points. The now-infamous "Dynamic Planning for Counterinsurgency in Afghanistan" map shows the problem of trying to clarify system relationships.[55] In the natural sciences, complex systems formal modeling is also very difficult. This brings us to the related question of whether complex operations will produce complex strategies that cannot be implemented or understood across the spectrum. Jeremiah Pam worries so, pointing out that the web of complex relationships and coalition commitments inherent in the "complex operations" and "interagency operational art" paradigms may in fact make for complex plans instead of simple and effective ones that are easily understandable.[56] This is especially important, as in war the distance and "lag time" between the internally derived concepts of the capitol city and the shifting realities and complexities of the battlefield sets inherent limits on the ability to maintain comprehensive plans. In this case, Pam notes, social science research and military history show that simpler plans (albeit prioritized to local conditions) are better suited for interactively complex situations.

There is also the uncomfortable issue of strategic paralysis and operational art. In a modern context, systems-thinking has been associated broadly with theories of strategic paralysis. These doctrines aim to discover a set of nodes or weaknesses that can make tactical actions have strategic effects, doing away with the need for the grinding attrition that characterizes even the great manoeuvre campaigns of history. If new operational art seeks to discover a kind of key to immobilizing an opponent's operational system, then it will fail. This is what the muddled mixture of EBO and SOD did in Lebanon in 2006. Israeli strategist Ron Tira's criticism of EBO in the 2006 Lebanon campaign stands as a cautionary tale. The Israeli effort to seek Hezbollah's cognitive collapse through standoff targeting of enemy nodes failed when Hezbollah refused to play along.[57] To its credit, the new Design and complex operations paradigms are informed by a much more realistic appreciation of the nature of low-intensity conflict than their antecedents. Still, Lebanon in 2006 stands as a cautionary tale about the limits of the indirect approach.

One can also question whether the strategic application of Design and its partners in large, centrally directed nation-building projects, ignores the insights of the complexity theory and the social science that it is based on. Although this is a primarily strategic question, it also has operational and tactical implications. If the primary

lesson of the complexity literature—both scientific and social—is that centrally planned projects fail because of the interactive complexity of everyday life and the challenges of culling and utilizing operational knowledge, then how does a new method of operational planning necessarily solve these issues? Foreign operational environments will most likely never be understood with the same sharpness of vision that domestic policy-makers at their best can marshal when thinking of domestic policy problems. Despite the general fascination for the development of cultural knowledge in current Anglosphere military theory, the counter-insurgency doctrine it draws from was developed as the product of long-term colonial relationships that intimately cultivated native knowledge.

Design does emphasize, however, it is a concept for limited war. Design documents such as the *Commander's Appreciation and Campaign Design* argue that terms such as "end state" provide a deceptive aura of finality to military problems that may continue to fester for much longer than anticipated. Terrorism and insurgency can be seen as an example of this, especially in "failed" states. Maintaining an equilibrium or "good enough" solution to a problem may be the only option available to a planner, and *CACD* suggests means that provide a more realistic way of looking at limited and realistic means of managing wicked problems.[58] This conception of finding a minimalist solution dovetails nicely with the emerging weariness among Western policy-makers over nation-building and their increasing preference for indirect methodologies such as drone targeting, strategic raids, and foreign military capacity-building.

Criticisms by Kelly and Brennan as well as Vego about the potentially unbounded length of new operational concepts are also important.[59] Is Design, with its strategic view, going to play into the operational-strategic dynamic Kelly and Brennan have outlined? Vego also suggests that new operational theory is an artificial bridge between operational warfare and political policy, although such a criticism could also be levied on the Anglosphere conception of operational warfare as well.[60] There is also the more mundane issue of how military bureaucracies will ingest a doctrine whose stated aim is encouraging operational creativity, bottom-up battlefield circulation, and emergence. Greenwood and Hammes pessimistically argue that paper-pushing will be the end of Design, as the clear discussion of wicked problems and complexity in *CACD* becomes templated and turned into yet another acronym-laden process for unlucky junior officers to discuss in their PowerPoints.[61]

Lastly, there is the larger issue that the new emerging operational warfare movement shares with its related counter-insurgency cousins. How applicable is it to conventional conflict? While all war is, of course, war, the new operational doctrines have developed exclusively within the context of irregular warfare campaigns. Though they draw on older operational traditions as their antecedents, the inspiration is clear. Wicked problems are not on the minds of People's Liberation Army (PLA) officers planning an opposed landing on the shores of Taiwan and interactive complexity does not concern a North Korean artillery officer with his guns trained on the outskirts of Seoul. However, it is also true that other foundational elements of Design, most notably Naveh's study of operational theory, have been mainly drawn from an exclusively conventional context of Soviet and German World War II campaigns. Unfortunately, whether or not modern operational doctrine can effectively generalize across the spectrum of conflict is a larger question that is unlikely to be answered through theoretical analysis. It is tied up on the larger grand strategic and strategic debate over the future of conflict, Western strategy in the post-Cold War era, and the ability (or inability) of Western militaries to train for a multiple set of contingencies. Such a debate is unlikely to be resolved anytime soon.

CONCLUSION

We can make some definite conclusions about the future of emerging operational art from the shape of these concepts. It is likely to be informed by some understanding of complexity theory, particularly interactive complexity, as well as concepts from social theory. It is, as Paparone noted, likely to also be more post-positivistic in shape than previous concepts. It will also increasingly straddle the line between policy and purely military concerns. And it will also seek to integrate "full spectrum" concerns within the operational planning process. Since Design and its cousins are now either doctrine or objects of study in Anglosphere military colleges, we are likely to continue to see it evolve as the military debate continues. Only time will tell how well it is integrated within the framework of Anglosphere operational warfare in both theory and practice.

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49. Major Xander Bullock, Lieutenant-Colonel Bruce Vitnor, "Design: How, Not Why," *Military Review* (March-April 2010): 102.
50. FM 5-0, 3–4.
51. See Lawrence Freedman, "Frostbitten: Decoding the Cold War, 20 Years Later," *Foreign Affairs* (March–April 2010), http://www.foreignaffairs.com/articles/66033/lawrence-d-freedman/frostbitten.
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56. Pam, 11.
57. See Ron Tira, "The Limitations of Standoff-Based Firepower Operations: On Standoff Warfare, Maneuver, and Decision," Jaffee Center Institute for National Security Studies, Memorandum 89, 2007, 31.
58. Greenwood and Hammes, "War Planning for Wicked Problems," expands on this analysis.
59. Justin Kelly and Michael J. Brennan, "The Fort Leavenworth Hersey," *Joint Force Quarterly* 56 (1st Quarter 2010): 109–116.
60. Milan Vego, "A Case Against Systemic Operational Design," *Joint Force Quarterly* 53 (2nd Quarter, 2009): 74.
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A BASIS FOR A MILITARY SCIENCE

Mr. V.J. Curtis

"True theories are exceedingly useful, not only as a means of knowledge, but as guides to life"

—Aristotle

In his classic work *On War*, Carl von Clausewitz sought to present a theory of war as applicable to the wars of Alexander as to the wars of Napoleon.[1] He laboured under the burden of having to work inductively; that is from a mass of undifferentiated empirical and descriptive knowledge to first principles. No one before him had compiled that mass of information, such as it was, and he had the additional task of evaluating the validity, the significance, and the completeness of the information he gathered and upon which his theorizing was based. The time span of 2,200 years which covered the period of his study meant that observers who reported the information upon which he had to rely were all different, with different experiences, different skills as observers of wars and battles, possessing different ideas as to what was important and ought to be reported and what was not, and having different purposes for recording the events other than as objective history meant to be mined by theoreticians looking for empirical data.

The result of Clausewitz's labours was a work of philosophy. It contained principles, definitions, postulates and insights throughout, but the work was not organized systematically as the exposition of a unified theory. Had he lived longer, perhaps he would have reorganized his work around a few central postulates, and from them expounded his analysis as the exegesis of a rational science. He treated the subjects of logistics, weaponry and military engineering as subjects subordinate to the theory of fighting wars.

The other great military theorist of the 19th century was Baron Antoine de Jomini. His work, *The Art of War,* was for the greater part of that century the standard military text of the Western world, except Prussia.[2] Prescriptive rather than descriptive, his analysis had the pretentions of a philosophical work but it was practically limited to military organizations of western powers of the 18th and 19th centuries. Though Jomini's conclusions mirror those of Clausewitz, the work of Jomini was eclipsed by that of Clausewitz after the defeat of France in the Franco-Prussian War of 1870.

Since this pinnacle of military theorizing, no one has seriously attempted a more general, more comprehensive, more systematic, that is to say more scientific, philosophical analysis of war and warfare. There exists no single work which ties together both the art and science of war, the role of scientific knowledge of military operations in decision making in war, employs a scientific exposition of military theory, or relates the relationship between military theory and military doctrine.

This article does not offer a particular military theory. It is instead an exposition of the most general theory necessary for the scientific exposition of particular military theories, whether they are applicable to Alexander, Napoleon, or to commanders of today. The general theory is developed as a specific case of the rational sciences of ethics and politics.[3] It begins with international politics and the place of war within it; and war as a political instrument is found as a first principle. From there, the nature of war and the role of military operations in it are explained in the terms of the rational science of ethics. The first principle of war, established in a previous paper, is presented as the self-evident truth it is, and the necessary teleological, deontological, and undogmatic nature of military theory is logically deduced.[4] For brevity, formal proofs are few and short, and where suitable an example rather than a formal proof is provided.

Having laid the basis for the analysis of military operations, the subject matter is divided into classifications, the classifications are related through cause and effect, and a basis is laid for a scientific analysis of each classification. Since the product of science is scientific knowledge, the role of knowledge in the military arts and in military decision making, which are not related by cause and effect, is analyzed. The relationship among military doctrine, military knowledge, and practical wisdom is examined.

Although no particular theory of war is offered, what a specific theory or analysis by others ought to look like to be scientific in character is shown. The philosophical work of Clausewitz is already in the public domain, and to advance beyond this work as a general analysis is to move from philosophy to science. Hence, future work which seeks to advance our understanding of matters military ought to be scientific in character if possible. This is not to rule out the value of more philosophical works or an addition to the stock of military knowledge though histories and memoirs, but basic military theories need to be scientific in character to constitute an advance in mode of analysis.

The product of this article is one suggestion for a basis of a rational military science. From this basis, advances in our understanding of military operations can be made in a rationally scientific manner by the development of specific theories and specific analyses expressed in the terms and the analysis of the general theory. The aim is to be able to interpret on a rational basis military decision making and the practices of the arts of war as the rational science of international politics is able to do with respect to acts of statesmen. Through an extended explanation of what a science is and is not, the existence of military ideologies and dogmatisms, which are contrary to the first principle of military operations, can be detected.

THEORY

At its simplest, a theory is a proposition of causation, indeterminate in validity and significance. S causes P. Such a proposition can exist on paper or in the mind. The proposition calls attention to the existence of a specific relationship between two things or events, S and P. The conception of a theory may be expanded to include definitions of S and P, since it may be necessary to explain what S and P are. In addition, since S and P are related in some way, the relationship presupposes a common subject matter in which S and P exist.

As a theory addresses more complex issues, it comes to include definitions, axioms, and postulates concerning a subject matter. It may come to incorporate theorems, which are subordinate functional propositions deduced ultimately from the axioms and postulates. It lays down characteristic problematic propositions, or problems, to be solved. These problematic propositions are what give significance to data obtained by observation. For example, Ohm's Law of electrical resistance declares a relationship among voltage, amperage and resistance. Mass and time are not variables of significance to Ohm's Law, but voltage, amperage, and resistance are. To report the mass of the equipment in an experiment testing Ohm's law is to reveal that that the experimenter does not understand the problem at issue. The existence of a theory or a conceptual analysis is prerequisite to the reliability and accuracy of scientific observation.

In scientific research, the data obtained must be significant with respect to the scientific proposition at issue. By significant is meant relevant to the general proposition and able to aid in the determination of probability. A second requirement is that the data be reliable and accurate; it must be objective. What differentiates scientific from historical research is that scientific research is able to test the validity of the same proposition by different investigators at different times and places. Scientific observations are made in terms of the concepts of the science, which is why a theory is prerequisite. It is difficult to estimate the validity of non-quantitative information. Its accuracy and reliability can be estimated, but only crudely, by reference to the intellectual competence and veracity of the reporter, or by reference to his documents and other material.[5] Non-quantitative knowledge, descriptions, narratives, and characterizations have no etiological significance for they do not provide evidence relevant to formulae or co-variation. Etiological propositions, on the other hand, need not be quantitative, for the interdependence of variables may not be a matter of degree but rather an all or none type of relation.

Clausewitz studied history, the observations of the time, and checking their data against his own experience, by induction reached principles which are the generalization of valid experience. These principles form the rational basis of his theory of fighting wars. Clausewitz's work is replete with induction from experience and deduction from principles.

The construction of a theory is a rational process of the human mind which transforms the material it uses. A science grows by development of its theory and improvements of technique for gaining evidence, but a science must exist before it can grow. Scientific observations are made in terms of concepts of the science, not in terms of common sense knowledge. But it is not enough merely to propose a theory. The Law of Non-Contradiction and the Principle of the Unity of Truth require that a theory comport with other things that we know. The *phlogiston* theory of heat and the *aether* theory of the transport of light waves through the vacuum of space both fell by the wayside because they failed to comport with knowledge we were surer of than of them.

The structure of the science of international politics enables the researcher to significantly interpret the actions of statesmen in terms of the concepts of the science. Military history provides empirical data in the form of descriptive propositions of military operations. Clausewitz, however, believed the practical utility of the historical data of wars prior to Frederick the Great was doubtful, in part because he questioned their validity, i.e. their accuracy as statements of facts; and because the tactical lessons, if valid, were of little significance to his age as tactics and other operations had adapted to advances in weaponry, administration, and logistics over the course of time.

What is valuable about science is that it provides knowledge of determinant validity and significance. Validity means accuracy and reliability: the truth value of the data. Significance means susceptibility to systematic interpretation. There are no absolute standards for grading validity and significance.

BASIS AND FIRST PRINCIPLES OF MILITARY THEORY

In his book *Politics Among Nations: The struggle for power and peace*, Hans J. Morgenthau said that the purpose of the *Realist* theory of international relations was: "to bring order and meaning to a mass of phenomenon otherwise disconnected or unintelligible."

The test of his theory he stated as follows:

> *…do the facts lend themselves to the interpretation of the theory put upon them, and do the inferences follow with logical necessity from its premises…is the theory consistent with facts and within itself?*

He distinguished between truth and opinion by the quality that truth was supported by evidence illuminated by reason.

Finally, he mentions that prudence was found in the weighing of consequences of alternative political actions.[6]

The *Realist* theory holds that nations employ war as a means of gaining or retaining power; while the *legalistic-moralistic* school holds that nations go to war to uphold international law or for moralistic reasons.

War is a subject of particular interest in the political science of international relations, not in its operational details but in its causes and consequences. The denotation 'war' covers all the means by which a state engages in belligerency against another state, and includes acts of diplomacy and blockade. Military operations are the primary means by which war is conducted. War is therefore political discourse through organized violence; and the violence brought about by military operations constitutes the distinguishing feature of war. Violence is the aim and the product of military operations that exhibit war in the highest degree. A political struggle may exist between two political entities without violence; but without deliberate violence organized by a political entity we do not say that actual war exists.

War involves pain—the infliction and the endurance of pain. Violence causes pain. Pain is never taken as a good; indeed pain is an evil that makes people abstain from doing what is noble. To the extent that pleasure exists in war, it is found in the successful completion of a painful task. Because pain is suffered in war, war is not undertaken except to gain the end, which is a good. The attainment of the end justifies

the pain endured to obtain it. This end is the good for which the belligerent engaged in war; and final Victory in military operations is intended to be the proximate cause of the gaining of the aim of the war. We rank the denying of the attainment of victory by the enemy as a good also.

A belligerent seems to capitulate when the pain of war becomes unendurable to him. The perception of an unlimited ability to inflict pain can be sufficient to effect capitulation, for a potentiality near to actuality of limitless unendurable pain may convince the belligerent to cease resisting. However, a continued and unwarranted infliction of pain after capitulation can be a cause for resumption, or the outbreak, of violent resistance. It is on account of pain that people abstain from undertaking right action; and discipline, training, practice, and habituation help condition people for morally virtuous purposes. Hence, military training for war involves not only practice of the military arts, but also a conditioning to the pain of war.

Victory, in its positive sense, is the *summum bonum* of war; but Victory is one good among many to the state. Victory is a terminal end. It occurs at a particular moment in time. The goodness of a terminal end is measured by its contribution to the goodness of the well-being of the state as a whole, which is a normative end. Each partial good is a means to the normative end of the well-being of the state, and taken together the attainment of each partial good is that normative end in the process of becoming. Consequently, although Victory is the *summum bonum* of war, the pain of achieving victory may be judged to be too detrimental to the good of the state to be worth pursuing, and a belligerent may therefore sue for peace or withdraw from the war while short of positive victory but in no danger of defeat. In cases involving the very existence of the state, the people of the state may judge the existence of the state as not worth the pain of endurance; and thus the state may disappear even as the people of the state live on.

Because Victory is the prime good of war, the notions of right and wrong apply derivatively to the means employed to gain Victory. Gaining Victory is more important than performing "right action;" that is, following a prescribed set of rules established because they are thought to lead to Victory. If "right action" were held to be more important than gaining Victory, it would mean that following a prescribed set of rules was the *summum bonum*, and not Victory. But Victory is the absolute end of war, while a set of rules for winning is merely a means, and is contingent and arbitrary also. Science is founded on that which is absolute, not that which is contingent and arbitrary. Hence, while Victory can be a basis of a military science, "right action" cannot be.

Victory is in the category of the relative, for we speak of victory over someone. A victory of one party over another is different from a victory by the second party over the first. Peace, on the other hand, is in the category of 'state' and is a unity. There is only one peace, and two nations that are at peace with each other share the same peace. The same condition of peace can be worked towards by cooperation between states, but the same victory cannot be gained by opposing belligerents. Because Victory is a relative, the good of war is a relative good, not a good absolutely.

The subject matter of a military science would include those acts called military operations that lead to or are aimed at violence organized by a belligerent at war, but does not include acts of diplomacy except accidentally. Clausewitz treated war and military operations as a single, continuous subject matter; and subordinated war to the service of national policy, the vagaries of which would have a profound influence on the conduct of a particular war. Jomini classified wars according to political aim, and treated military operations as the totality of war.[7] War *qua* war has no efficient or material cause. Specific wars, however, do have efficient, material, and final causes. Only specific wars are subject to etiological investigation. The same can be said of strategy *qua* strategy and tactics *qua* tactics.

The object of military theory is to provide knowledge of a determinant validity and significance of military operations. The basis of military theory consists of axioms, definitions, and postulates. The first axiom of military theory is that every military operation ought to aim at Victory, by which is meant victory in the positive sense or in the sense of avoidance of defeat. The deontological character of this

axiom should be interpreted to mean that if an operation aims at victory then it ought to be done, and if it does not then there is no obligation that it be done. Although a theory may consist of any amount of descriptive knowledge, the structure of the theory must be etiological in character, and a military theory concerns the causes of Victory.

The process of bringing order and meaning to a mass of phenomenon otherwise disconnected or unintelligible in respect of the subject matter—military operations—can begin by classifying the contents of the subject matter and saying what can be said about the classifications and their interrelationships. An empirical system of classification was developed by convention through the experience of the wars of Frederick the Great and Napoleon; and two of these classifications are tactics and strategy. Military engineering, logistics and administration can be other classifications of military operations. Other classifications and indeed other systems of classifications are possible.

Tactics is both the name of the discipline and the name of the subject matter, in the same way as the term 'anatomy' is used ambiguously as the name of a discipline of medicine and an organization of bodily organs. Tactical operations are those most directly related to the infliction of violence—that is fighting; and hence are those which exhibit the characteristic of war to the highest degree. The discipline of tactics is temporally prior to strategy for one must first know what and how things are accomplished with the means at one's disposal for them to be used rationally.

Tactics is concerned with fighting. The basis of the discipline of tactics consists of definitions, axioms and postulates. The first axiom of the discipline of tactics is that every tactical action or operation ought to aim at tactical Victory, and it is through tactical Victory that the end of the campaign is gained. Little tactical victories are themselves means to the final end of final Tactical Victory. Tactical Victory is the proximate cause of Victory in the campaign. An example of a postulate of tactics is that a turning movement tends to produce more decisive results.

Tactics can be further subdivided into offensive and defensive forms. Offensive tactics are those forms aimed at gaining victory in its positive sense, and defensive tactics those forms aimed at avoiding defeat. Another postulate of tactics is that the defensive form is inherently stronger than the offensive form.

Tactics *qua* tactics have no material or efficient causes. A specific tactic is a form of use of material causes. Only specific tactical actions have material and efficient causes, and hence tactics or a system of tactics is essentially contingent and empirical. The fighting theory developed by Shaka Zulu began with the individual warrior and his weapon, and built up into a theory of battle exhibited in the form of a method by which the Zulu tribe came to be dominant in southern Africa in the 19th century. The fighting of the Mongols, exhibited in their cavalry tactics, was like nothing seen in Europe before the 13th century. The fighting of the English armies in France at Crécy, Poitiers, and Agincourt was considerably different from what the French practiced. All these methods of fighting were swept away by the revolution of six centuries. What these examples illustrate is that there is nothing necessary about any particular method of fighting. A method contains a theory implicitly, however flawed and incomplete, and the particular theory employed by a particular military is an accident of time, place, technology, geography, experience and the genius of the inventor.

A general theory of tactics is brought to bear on a particular tactical problem through empirical knowledge of the particular situation. The most basic element of fighting is the individual combatant: the man and his weapon. Propositions concerning the capabilities and limitations of the man and his weapon form the basic level of theories of fighting. The next level of theory of fighting is formed by propositions concerning the first aggregation of individual men and their weapons. The next level is formed by propositions concerning the first aggregation of aggregates, and so on. The highest level is formed by propositions concerning the largest aggregates capable of unified combat: divisions, corps and armies. Theories concerning fighting are nowadays found in military doctrine.

Particular theories of fighting are contingent, and cause-effect relationships of these theories are contingent. Cause-effect relationships fail to hold when the underlying assumptions of the particular

theory, its particular rational base, no longer hold. The contingency of particular situations makes the etiological relationships of a particular theory of fighting resemble the case of the rational science of ethics and real life. Common sense, intelligence, and the sensitive intellect are required to confirm that the assumptions which underlie a contingent set of propositions actually hold in a particular instance before they are applied to avoid error. The reason why a theory of fighting cannot become dogmatism is that contingent circumstances may falsify the rational base of the particular theory, and proceeding knowingly on the basis of a falsified dogmatism violates the first axiom of tactics.

Without theory, a commander has nothing to go on but raw empiricism. Raw empiricism is an exclusive emphasis upon observation to the total neglect of analysis. Reliance upon raw empiricism is dangerous, and no better example of that is found than in the way in which the United States Cavalry handled its battles with the Indians in the West after the American Civil War. The US Cavalry routinely engaged Indians in battle at unsound odds. Empirically, long odds did not seem to matter. Then, at the Little Big Horn, the unsoundness caught up with them. Fighting at long odds did not contribute to Victory; and, in cases where Victory occurred anyway, it was in spite of the odds not because of them.

Science provides knowledge of the universal, while experience and observation provide knowledge of the particular. Ignorance of the particular is pitiable; but ignorance of the universal is vicious and censurable. Hence, a sound theory of tactics ought to be in the mind of the commander.

Although tactics is temporally prior to strategy, strategy is essentially prior to tactics, for strategy is concerned with campaigning. Campaign is prior to battle, for battle is contained in campaign; hence strategy is essentially prior to tactics. Strategy pertains to the arranging of tactical and other operations into a process that leads to Victory in the campaign. So long as there is a clear and sharp distinction between battle and campaign, there will be a clear and sharp distinction between tactics and strategy. If the distinction between battle and campaign disappears, the distinction between tactics and strategy disappears. Examples of a distinction being absent include river crossing operations, extended positions and manoeuvring large aggregations of troops.

Strategy *qua* strategy has no efficient or material causes. Only particular strategies of particular campaigns have material and efficient causes. The basis of a theory of strategy consists of definitions, axioms and postulates that concern campaigning. The first axiom of the discipline of strategy is that the campaign ought to aim at Victory, by which is meant victory in the positive sense or in the negative sense of the avoidance of defeat. A particular strategy is inferred from the basic postulates of theory, which serve as the major premises, through propositions of empirical knowledge, which serve as the minor premises. Postulates of a general character belong to a general theory, while postulates of a specific character belong to a particular strategy. Quantitative calculations of strategy may involve such variables as time, space, and strength of forces.

Clausewitz provides several postulates of strategy and the conclusions that may be logically inferred from them. For example, he postulates by induction that the main factor of victory is the possession of strength at the vital point. From this he deduces that as many troops as possible should be brought to the engagement at the decisive point. A further conclusion is that a belligerent should put the largest possible army into the field. Other parallel deductions are that all available forces must be used in a strategic sense simultaneously and that it is advisable to keep one's forces concentrated.

Like tactics, strategy can be subdivided into offensive and defensive forms. The offensive forms of strategy are those characterized by the gaining of space and a positive aim, while defensive forms are those characterized by the holding of space and a negative aim. The concept of holding space does not preclude the division of space into essential—that is space that must be held at all costs, and expendable—space which can be yielded under the exigencies of the campaign or the war.

A particular strategy aims to gain Victory by gaining the proximate cause of Victory. Hence, a particular strategy can fail either by not gaining the proximate cause or by gaining what is not the proximate cause.

Two examples can illustrate the difference: Napoleon's strategy in Russia was to compel the Czar to come to terms by the process of occupying the capital of Russia and defeating the Russian army along the way to it. Napoleon executed his strategy successfully, but that did not cause the Czar to come to terms because, withal, his reign was not threatened. Russia is a vast country and the French occupied only a small part of it. Russian communications were not seriously disrupted by the presence of the French, and the Russian people were roused to support the Czar. Hence, the struggle continued despite Napoleon having gained his strategic objective.

Grant's Overland Campaign followed a similar design. In 1864–1865, Lieutenant General U.S. Grant sought to occupy the capital of the Confederacy and defeat the Army of Northern Virginia commanded by Robert E. Lee along the way to it. Grant also succeeded in executing his strategy and, in this case, the Confederacy did collapse. The Confederacy was much smaller in extent than Russia, and Major General W.T. Sherman's campaign in 1864–1865 through Alabama, Georgia and the Carolinas seriously disrupted the communications and the economy of the South, which, coupled with the destruction of the army of CS General John B. Hood by Major General George Thomas before Nashville, sickened the people of the South of the war. With its government on the run and the space in which the Confederacy could continue to resist being seriously diminished, the will to continue the struggle collapsed. Thus a particular strategy aims at Victory by means of gaining what is believed to be the proximate cause of Victory. If what is thought to be the proximate cause turns out not to be it, then the strategy is said to fail even if it accomplishes all the intermediate ends as well as the final end.

The expression proximate cause of Victory is etiological, and is used here both as an element of scientific and of common sense knowledge when common sense knowledge is able to translate ends and means into cause and effect. The difference between cause-effect and ends and means lies in the difference between the universal and the particular. When a belligerent is utterly deprived of the means to continue the pursuit of his end—the avoidance of defeat—we say this condition is one of defeat, for lacking means defeat is unavoidable. Thus the utter deprivation of the means of resistance is the cause which produces the effect of defeat, the end sought by the strategy of the opposing belligerent. Since this conclusion is inferred by deduction from first principles, it is scientific in character. But common sense causes of defeat are possible also. Unlike the necessary and universal character of the scientific cause of defeat, a common sense cause of defeat is contingent and peculiar to the particular case. The centre of gravity of which Clausewitz wrote, the overthrow of which led to the overthrow of the enemy, is of this common sense character, since it is contingent, peculiar to the particular case, and is identified through deliberations rather than scientific analysis. Thus there are two proximate causes of defeat at which strategy can aim: the scientific one and a common sense one. The better strategy is that which aims at both simultaneously, as Grant's did and Napoleon's did not.

The tools at strategy's disposal, which are variables of strategic theory, include time, space, the forces under command and the form in which they are used. Strategy is concerned with the form of use of forces in the campaign. Specific forms of use include battles, manoeuvres, delaying actions and deployments. To understand how battle is a form, consider a vortex in a beaker of water created by a spin bar. The material cause of the vortex is the water because that is the matter in which the form, the vortex, exists. The efficient cause of the vortex is the spin bar. If the armies are the material cause and the commanders the efficient cause, then battle is a form that exists within the matter "armies" under the impetus of the commanders, both of whom are working towards the final cause of Victory. These forms evolve in time and space.

A manoeuvre is a form that exists within a single army that is aimed by the commander at the final cause, Victory. A deployment is a disposal of forces, a form that exists within a single army, prior to engagement that is aimed at an end intermediate to Victory. A delaying action is a form of use aimed at avoiding defeat rather than victory in the positive sense. Thus strategy is concerned with forms of use aimed at ends intermediate to final Victory; and a successful strategy is one that achieves that final end, Victory, by correctly perceiving the proximate cause of Victory and gaining it.

Each particular theory of tactics or strategy proposes an etiological relationship between its guidance or forecasts on the one hand and Victory on the other. The aim of any theory of fighting is to forecast the means of winning a particular combat. The aim of any theory of campaigning is to aid in the arranging of military operations to gain a particular campaign.

Military engineering, logistics, and administration are sciences of their own. Operations of these types contribute in their own sphere to tactical and strategic operations. They address empirical matters of their own realm relevant to particular problems of tactics and strategy. Napoleon's advance upon Russia may have begun as a brilliant strategic conception. Napoleon never lost a battle in Russia, but a failure of logistics falsified some assumptions of the strategy, and in consequence the campaign ended in a historic disaster for the French. After the immediate tactical success of the five division Overlord landings, the strategic success of Overlord turned upon which side could supply the beachhead areas faster, which in turn determined whether a breakout was possible or not. Thus the solution of a strategic problem turned upon the solution of a logistical one. The solution of a particular military problem is not always found in tactics and strategy, but tactics and strategy provide the intellectual framework within which the knowledge of other disciplines are employed and interpreted.

Particular strategies are sometimes named after the process they employ, or the originator. If a way of looking at the elements of strategic use of military forces is as activities, then a strategy is concerned with arranging the strategic activities into a process that ends with Victory. An attrition strategy aims at Victory by exhausting the material forces of the enemy through a process of frequent and savage offensive activities. A Fabian strategy aims at avoiding defeat by a process of refusing battle to the enemy, but at the same time keeping him in a state of tension in a place remote from his base. The rational development of a strategy requires knowledge of the probable effects of the strategic activities, and the creation of a winning strategy requires practical wisdom.

The postulates of theories of tactics and strategy are derived by a process of induction, and are a generalization of experience. Induction leads to the principles of a rational theory of fighting; and the inferential process guides from the theory or analysis to specific tactics and strategy.

MILITARY ART AND PRACTICAL WISDOM

Military theory may be said to exist explicitly on paper and implicitly in the mind of the commander. The application of that implicit military theory by the commander is a matter of art and practical wisdom. Art and practical wisdom differ from science in that science is concerned with the invariable, while art and practical wisdom are concerned with the contingent. Art is concerned with production, and practical wisdom is concerned with action. While there certainly is action in production, action in general is different from production.

Art is a productive state of mind under the guidance of true reason. The end of art is production, not action; and the end of the production is a work of art. Art has to do with the creation of something whose existence is contingent and whose original cause lies in the producer. Utilitarian arts such as the military arts are a kind of application of science, but we are more in doubt about art than about science.

The practical is the guide for using things produced by art. Hence, art is subordinate to the practical. The practical is not concerned with how things are made. Practical wisdom is a true rational and practical state of mind in the realm of affairs. The man of practical wisdom is one capable of deliberating well upon what is good or expedient for himself; and his calculations are successfully directed towards some good end that does not fall within the scope of art.

In the realm of military affairs, it is practical wisdom which determines where to place the machine guns so that their beaten zones cover the likely areas of approach to a particular position. The practical wisdom of the commander is not concerned with how machine guns are made, nor with the ballistics by which a machine gun produces a beaten zone. Practical wisdom decides whether or not to precede a particular attack with an artillery barrage, and where to place it; it is not concerned with how the

artillery commander produces his barrage. Practical wisdom decides whether a flanking attack should go in from the left or the right. Practical wisdom decides which ground is defensible and which is not. Practical wisdom decided that an invasion should be made in Normandy rather than the Pas de Calais, and at Inchon rather than Pusan.

Practical wisdom requires wise deliberation which leads to a choice among means of practical action. Wise deliberation requires not only knowledge of universals but of particular facts. Hence, it is possible for a person with experience to be more practical than someone in possession of universals alone, for experience is knowledge of particular cases. Wise deliberation in an absolute sense is such as leads correctly to the absolute end; while wise deliberation of a particular kind is such as leads correctly to a particular end. The practical wisdom of a commander is best in one who possesses both knowledge of the universals, that is to say the science, and knowledge of particular cases, that is experience.

Battles, campaigns and wars can viewed either as a sequence of actions or as a single production. The difference between the two is manner, for a production is able to possess a certain grace which a sequence does not. A piano concerto can be viewed either as a piece of music or as a sequence of notes; the first admits of grace in production, the latter does not. Art admits of excellence, while practical wisdom does not. In art, voluntary error is preferable to involuntary; whereas in practical wisdom involuntary error is preferable to voluntary. In military matters, error of practical wisdom is the selection of means that lead to defeat, and involuntary error is preferable to voluntary. Error in military art is a doing of the unexpected, and doing the unexpected voluntarily is better than involuntarily.

Architecture is an art concerned with excellence in building. The true reason of the architect is supplied by the science of architecture and experience in building. Medicine is an art, concerned with excellence in healing. The true reason of the doctor is supplied by the science of medicine and experience in healing. As Aristotle observed,

"It does not appear that the study of medical books makes people good doctors; though medical books affect not only to state methods of treatment but to state the way of curing people, and declare the proper method of treating particular cases by classifying the various states of health. But all this, although it seems useful to the experienced, is useless to those who are ignorant of medical science."[8]

By analogy, the *art* of tactics refers to a productive state of mind under the guidance of true reason within the domain of tactics, and is concerned with excellence in fighting. The true reason of the commander is supplied by the science of tactics and experience in fighting. Knowledge alone of the content of scientific works on the subject of tactics is inadequate for excellence in production.

The need for experience in art is found in what is meant by the "possession of scientific knowledge." A person knowledgeable of the science but who lacks experience in it possesses scientific knowledge accidentally for he is no more sure of his principles than of his conclusions. What he possesses is descriptive knowledge of scientific matters, and that descriptive knowledge is scientific accidentally. Experience confirms an understanding of science, rendering the knower sure of the principles. Hence, the arts are learned by doing them. By doing what we ought to do when we have learned the arts we learn the arts themselves. We become harpists by playing the harp; we become good harpists by playing well. So it is with the military arts.

Strategy views tactics as an art, for strategy is concerned with using the products of the art of tactics without being concerned with how they are produced. Hence a commander is concerned with ensuring the forces under his command are well practiced in their arts for he is concerned with using the products of their arts.

The *art* of strategy is a productive state of mind under the guidance of true reason within the domain of strategy and is concerned with excellence in campaigning. The true reason of the commander is supplied by the science of strategy and experience of campaigning. Politics views strategy as an art because politics is concerned with using the products of the art of strategy and not with how they are produced.

Only such persons as possess experience of particular arts can form a correct judgment of artistic works, and understand the means and manner of executing them, and the harmony of particular combinations. Thus the best judges of the conduct of war and campaigns are those who possess experience of it at the highest levels of command. The nature of opinion is to be true or false and the conclusions these individuals reach on the subject are expert opinions. The knowledge these individuals possess is not widely held enough to be classed as common sense knowledge, nor is it verifiable as scientific knowledge is.

There is presently a fashionable expression "operational art," or more properly the *art* of operations, which is neither properly tactics nor strategy. Thus defined, the art of operations finds its true reason supplied by the science of grand tactics and experience in grand tactics, grand tactics being neither tactics proper nor strategy in its true sense. The art of operations ought to be concerned with winning something, but since the winning of battles and the winning of campaigns are already spoken for it is not clear what it is that is left to be won by operations. This lack of an aim has already been remarked upon.[9] What is actually meant by operational art is an exceptionally fluid method, aided by mechanization, of campaigning with the largest tactical aggregations—divisions, corps, and armies—such that major battles do not occur in the campaign. The enemy is induced to capitulate through the fear of pain rather than its actual experience. The paradox of this method is that it is the actual experience of pain that renders the outcome of battles and wars decisive. Clausewitz deduced that it is through battle and the fear of battle that an army achieves its objectives; that is through the actuality and potentiality of suffering unendurable pain. A painless collapse of resistance may, after a period of psychological recovery, enable the enemy to resume quickly an attitude of resistance, perhaps with the means of resistance still in his possession.

MILITARY DECISIONS AND PRACTICAL WISDOM

If there were only one end and only one means to it, decision making would reduced to choosing whether to choose the means or not. However, the realm of affairs is rarely so simple. Even in the realm of military affairs, the final end is a duality: whether to aim for victory in the positive sense or to avoid defeat. Means themselves often lie on the pathways to different ends, and several ends can be simultaneously pursued by the selection of one means over another.

An example of the interplay between ends and means can be seen in the following example. Consider the problem of recidivism of terrorists. There is no question that the summary execution of all those accused of being a terrorist would be an efficient means of solving the problem of recidivism among terrorists. A less efficient means of solving the problem of recidivism would be to require that a person accused of being a terrorist be first convicted in a jury trial before execution, for some real terrorists might be found not guilty by the jury. However, because innocent people would be found not guilty, fewer injustices would be caused than under the summary method. An even less efficient means of dealing with the problem of recidivism would be incarceration after conviction instead of execution, for an incarcerated terrorist might escape or be released in the future and be able to commit an act of terrorism again. But incarceration may be considered more humane than execution; thus a less efficient means of handling a problem may be selected because more than one end is balanced and addressed by it. The decision as to which method to employ to solve a particular problem is not based upon knowledge, but is informed by knowledge of the probable effects of the means.

Military theory says that the final end of military operations ought to be Victory. But even if a commander chooses to aim for victory in a positive sense he may choose a means which serves other ends as well, such as personal fame and glory. He may choose a means in which his defeat is avoided should his attempt at positive victory fail. His decision making may be influenced by excessive fear of pain, such as the pain and ignominy of defeat as afflicted Marshal Leopold von Daun in respect of Frederick the Great in the Seven Years War; by fear of a collapse of will on the home front, as concerned Lt-Gen U.S. Grant and President Abraham Lincoln in 1864; or by any number of personal pleasures or pains, or emotional considerations which give rise to pleasure or pain. Military theory can say what ought to be done, but the practical wisdom of the commander decides what shall be done.

Military problems can be reduced to two types: practical and theoretical. A practical problem is a question with respect to alternative courses of action, and the answer to a practical question takes the form of a decision or judgment regarding the means by which some end is attained. The answer to a practical problem can be sound or unsound, wise or unwise, just or unjust, expedient or inexpedient, intelligent or unintelligent. It is never true or false or probable.

A theoretical problem is a question with respect to knowledge, and the answer to a theoretical question is a proposition that is either true or false or probable. When Clausewitz said that all the military theory in the world would not help a commander in battle, he was drawing a distinction between the theoretical and the practical kinds of questions. A commander in battle needs to solve practical problems; that is, he needs to decide what to do often while lacking important knowledge of the battle. Theory, which provides knowledge of the general case, may help him come up with possible courses of action, but then he must decide which course to follow in the specific case in which he is engaged. The function of the practical intellect is the apprehension of truth in conformity with right desire. In military operations, the right desire is Victory; and the practical intellect of the commander is engaged in apprehending truth in respect of the conditions of the battle, whether Victory in the positive or negative sense ought to be pursued, and of the means of gaining Victory.

The practical intellect and common sense guide the application of means to the solution of particular problems because particular problems present novelties and always exhibit some individuality in the case to which it belongs. Mere intellect, the mere possession of knowledge, has no motive power; only by being directed to a certain end, i.e. by being practical, by having a desire or moral purpose such as gaining Victory is action forthcoming, and *right action* is the aim of practical wisdom.

Practical wisdom is easily deflected from the course set by theory. In the first place, theory concerns the general case and practical wisdom deals with the particular case. A rational decision can thus be viewed as the inference of a syllogism in which theory provides the major premise and practical wisdom the minor premise. A rational decision can be in error through lack of experience, lack of scientific knowledge or incorrect reasoning. Hence, a rational decision can fail to be reached in the case in which practical wisdom incorrectly identifies what general case the particular case is an example of, which is a failure of experience. It can fail due to ignorance of the general case, which is deficiency of scientific knowledge. It can fail if, in the heat of the moment, it fails to recognize the elements of the general case in the particular case, which is a failure of reason.

Another failure of practical wisdom occurs in the case of conflicting universals, such as "strike when the enemy is weak" and "strike when concentrated." It is impossible to solve a difficulty except by discovering a truth. Practical problems are surrounded by theoretical ones. Although a rational solution of practical problems depends upon knowledge, knowledge cannot compel us to approach a practical problem rationally; knowledge of what should be done does not compel us to do it. What knowledge of means can answer are questions of:

- whether in fact any means has achieved a desired end;
- whether *this* is a means to the desired end;
- what is the character of the means;
- how well adapted a means is for achieving the desired end;
- among means which is the most efficient;
- to what extent we are in fact achieving our ends;
- whether our ends are of such a character that they can be observed and measured.

All these questions are answerable with knowledge, and being answerable with knowledge, they are theoretical questions. But no amount of theoretical knowledge about means can answer the question of what the means shall be. In the absence of knowledge, one is compelled to proceed on the basis of trial and error, which is guided by opinion, and the nature of opinion is that it can be true or false. The end of the theorist is a theoretical one: knowledge. The kind of knowledge one possesses determines the kind of question one can answer.

FROM THEORY TO SCIENCE

For purposes of illustration, the Maxims of Napoleon will be used in this section. A science begins with a theory or analysis of a subject matter. A science is a body of knowledge organized in a special way: as a component set of propositions. The terms of these propositions are the variables or the concepts of the science. A variable of a science is a term which does not refer to particular individual things or definite aggregates of individuals. Words which refer to classes and the names of universal characteristics are variable symbols. In military theory, the terms platoon, battalion, division, and commander are such variables.

There are three essential characteristics of a scientific proposition: (1) generality, it goes beyond the evidence; (2) determinant validity, it rests upon definite evidence; and (3) formal character of the proposition as a relation of variables. A fourth characteristic of a scientific proposition following the previous three is that it is a member of a set of component propositions. Expressed in these propositions and in the relational and conceptual structure of them is the theory or analysis.[10]

The Maxims of Napoleon are general propositions in the sense that each one goes beyond the evidence of a specific case, and most exhibit a formal character of a relation of variables, but in total they do not exhibit the trait of compendency because the variables of one maxim are not related to others in a functional way. They lack a determinant validity because they are the observations and opinions of one man. They lack a systematic order. Hence, the maxims of Napoleon do not form an analysis and, lacking compendency, they do not express the theory of a science. They are an aggregation of common sense generalizations.

A science can be classified into two types, the rational and the empirical. The difference between them is the difference between deduction and induction. A rational science is a certain kind of analytical exposition. A rational science is founded upon a rational base, which consists of definitions, axioms and postulates. A proposition of a rational science is proved deductively through syllogisms which begin with the general propositions of the science. A proved proposition of a rational science is true, not probable. A science is said to be rational when its propositions are not only compendent, but also systematically ordered. Examples of rational sciences include the various geometries, mathematical physics, theology, politics and ethics. The general theories of tactics and strategy were here presented as rational sciences.

Empirical science is a body of knowledge derived by inference from observation. Its propositions are not systematically ordered. A proposition of an empirical science is established as probable (not true) by the accumulation of empirical evidence relevant to the proposition of the science, as Ohm's law was. The analysis employed in empirical science never goes beyond the construction of a set of variables, and the empirical knowledge of causation is nothing more than knowledge of the relations which obtain in a given set of variables. Because the validity of a proposition of an empirical science rests upon the precision of its etiology, empirical science is either exact or it is not a science. A pure empirical science is a straightforward etiology. More than a scheme of classification, an empirical science is an organization of classes that are interdependent and related by cause and effect. Empirical science has to be exact for deviations from the empirical law of the science are due either to inaccurate measurementor to a failure of the law. If the measurement is accurate, the law does not hold.

Napoleon's maxims do not form the basis for an empirical science. Although they are derived by inference from his common sense observations, the precision of the etiology they express is indeterminate. Individual maxims can be used to explain retrospectively phenomena somewhat in the manner of a rational science, but they cannot forecast outcomes in a quantitative way. Through quantitative forecasts the significance of the maxim can be ascertained by comparison with actual results.

A particular science can exist in any degree of organization and exhibit the characteristics of both types, and it is possible for there to be both a rational and an empirical science of the same subject matter.

Physics and chemistry provide clear examples of what a science is. When Sir Isaac Newton sought to explain planetary motion, by an act of intuition he came up with the idea of gravity. He posited the existence of gravity as a first principle, laid down his three laws of motion as axioms, and from that basis, with the input of empirical data concerning the movement of the planets, derived his law of universal gravitation and then derived Kepler's laws of planetary motion. Newton's laws of motion apply to any body in motion, not simply a particular set of planets orbiting a particular star. The laws of motion can be confirmed empirically by observations, and in fact they provide more information than can ever be confirmed by experiment. Finally, Newton's laws of motion are expressible in the form of equations whose variables (force, mass, length, time) appear in more than one equation; that is, the laws are compendent. Of his method of exposition Newton said, "I lay down the law and derive the phenomenon from it." Newton's work is a classic example of the exegesis of a rational science which becomes empirical science when empirical data are applied to the variables of the equations.

Newton's empirical physics happens to be quantitative, that is the results are expressed as numbers. But science does not have to be quantitative. Qualitative chemistry is a purely non-quantitative branch of the empirical science of chemistry. Qualitative chemistry is concerned with the identification of the constituent elements, compounds and functional groups in an unknown sample, and the immediate results of a test in qualitative chemistry are yes or no; and ultimately this and not-this. The relationships between variables are step-functions rather than continuous functions.

The cooperation of theoretical analysis, observation and inference is the essential trait of empirical scientific method. The findings of scientific research are reported in terms of descriptive knowledge, e.g. a table of data correlating amperage and the length of wire. The conclusions of research, however, are never descriptive knowledge but rather are the products of inference, e.g. the formulation of Ohm's Law. Conclusions are general propositions established to a certain degree of probability.

The rational sciences of Ethics, Philosophical Theology, International Politics, and military science are non-quantitative. Hence, they do not appear to be as 'scientific' as Newtonian physics. They rely upon in the input of descriptive knowledge of affairs, which can be of unknown validity, for the inferences of the science. Nevertheless, the activities which are the subject matters of these sciences are interpreted and understood in terms of the concepts of their theories. To suggest that these disciplines are ideologies or are expressions of mere opinion is to misunderstand the nature of knowledge, inference, and the meaning of validity and significance.

An ideology is a theory believed in to an unwarranted degree. An ideology fails the test of: "…do the facts lend themselves to the interpretation of the theory put upon them, and do the inferences follow with logical necessity from its premises…is the theory consistent with facts and within itself?" To an ideologue, the idea is more important than facts. An ideology mimics the form of Newton's method of exposition, but fails to deliver the substance.

A statistical survey which purports to show correlation between two phenomena is an example of what science is not. These studies are the staple of news stories about the medical, environmental and psychological disciplines. What these kinds of alleged studies are is a degraded form of raw empiricism masquerading as the science of statistics and they appeal to a weakness of common sense: its tendency to infer a cause-effect relationship upon data inadequate for such an inference. This weakness comes into play when evaluating the efficiency of a means for attaining an end, such as the efficiency of a strategic bombing campaign to gain Victory.

The logical fallacy behind statistical surveys that seem to relate two phenomena is called *post hoc ergo propter hoc*. Correlation is not causation. Knowledge of the existence of characteristics of events and things does not constitute knowledge of their relationship; and to infer a cause-effect relationship on the basis of descriptive knowledge is a fallacy as surely as night follows day. A science begins with a theory and is developed by skilled observers who know what they are looking for. I say observers in the plural because a characteristic of scientific work is that it can be reproduced. A statistical survey which is

not formulated to confirm a particular theory of a cause-effect relationship between an event and a thing, and which is not taken by set of skilled observers who know precisely what they are looking for, and which produces results that are not exactly the same as similar work done by others, fails the basic tests of scientific validity and significance. Even if the data of the set collected is perfectly valid, without a theory the results are without significance. At best, a study of this kind may suggest a more specific and in-depth experiment which isolates the variables concerned simply in order to evaluate the significance of the results of the first study.

Common sense is not science. Common sense is easily fooled by an apparent correlation between events and things, especially when the correlation seems strong. Common sense answers questions regarding the adaptation of means to ends by interpreting what it observes in terms of its experience of the world. Common sense knowledge is often adequate for practical purposes, but common sense is all too ready to impute the success of an endeavour to the means employed, particularly when success is only partial. As practical problems become more complex, common sense finds it increasing difficult to answer questions concerning adaptation of means to ends.

The question of the efficiency of means was raised earlier. Efficiency, a question concerning the adaptation of means to ends, concerns the relation of one event to another, but knowledge of the existence and characteristics of events and things does not constitute knowledge of their relationships. If one were to ask how efficient means 'B' is in producing end 'A', it is not sufficient to reply wit a description of means 'B' and to state how often end 'A' occurred after means 'B' was applied; that descriptive knowledge is in itself insufficient to establish a causal relationship between B and A. To establish that, knowledge of a scientific character, etiological knowledge, is required.

Just as science is the source of scientific knowledge, common sense is the source of common sense knowledge. Common sense knowledge is not the common possession of all men, or that men who possess it possess it to the same degree. All men are not able to significantly interpret descriptive knowledge and the interpretations of all men are not of equal value. An expert in the field may not be one who possesses scientific knowledge for there may be no science of that field and therefore no such knowledge. However, the expert is one who possesses rather precise knowledge of his field gained by long study and observation, and he can interpret his knowledge wisely.[11] This opinion of such an expert may possess more significance than common sense knowledge.

Where scientific knowledge relates cause and effect, common sense knowledge relates ends and means. Means and ends are not synonymous with cause and effect. Common sense generalizations and opinions are never organized into compendent sets of propositions. They are members of indefinite aggregates of generalizations, or are isolated. The Maxims of Napoleon are an aggregation of his common sense generalizations.

Descriptive knowledge is knowledge of particular events and things, or their existence and characteristics; it is not of the relations of these things and events to one another as ends and means. Descriptive knowledge consists of narratives, descriptions or characterizations limited in reference to particular things or events or to definite aggregates of particular events or things. In contrast, a proposition of scientific knowledge never has restricted reference to particular events or things, or definite aggregates of particular things or events. A scientific proposition is always a general proposition.

An example will clarify: "The flash of a rocket launcher was seen" and "a tank is destroyed" are statements of descriptive knowledge. By themselves and together they have no etiological significance. "A rocket launcher of the type seen is capable of destroying a tank of the type destroyed" is a general etiological proposition which may render the descriptive propositions significant. But the inference that the rocket launcher destroyed the tank is invalid if the tank was destroyed before the flash was seen. Even if the flash was seen the instant before, the validity of the inference is indeterminate, for the tank could have been rolling over a mine at the time of the flash. An appropriate hole in the tank would render the inference probable, and the absence of mine damage would render it more probable. A second hole would render the inference indeterminate again.

Etiological knowledge may be either scientific or common sense knowledge. Generalizations from common experience are sometimes able to answer etiological questions if they are simple enough, for then the relation of means to ends is sometimes able to be translated into a causal relationship. Common sense knowledge is uncertain to the extent that it does not afford an analysis of the correlation of all relevant variables. It is insufficiently organized to correlate variables in complex matters.

Empirical knowledge can be gained through action. Practical programs of action often transcend existing knowledge and are experiments which can contribute to knowledge. Each war is such a new experience, a new program and, in a way, a new experiment.

MILITARY DOCTRINE

Military doctrine consists of propositions and exists in books. Propositions of military doctrine, unlike propositions of science, do not express knowledge; they express practical judgments and decisions. Military doctrine prescribes, it does not describe military operations as they occur in fact, except accidentally. The subjects of military doctrine include the organization and forms of use of military forces; and a particular doctrine may contain much descriptive knowledge. Military doctrine is not an end in itself, but is a means, one among many, to achieve the final end of military operations.

The difference between "right action" as the execution of doctrine and in respect of Victory is that in the former the practical wisdom of the commander is concerned in the first instance with doctrine and not Victory. This distinction becomes apparent when contingent circumstances falsify the basis of the doctrine.

Military doctrine stands in relation to military theory as engineering stands in relation to empirical physical sciences and mathematics. The question of the content of military doctrine is answerable in part by rational analysis, common sense knowledge, empirical investigation and an evaluation of the consequences of the prescriptions in relation to the final end.

The propositions of military doctrine are intended to be interpreted in the mood of command, but they can also be viewed as definitions and as descriptive propositions. When viewed as definitions, they take on the character of a scientific proposition because the terms of the definition are general and are related to each other in a functional way. When viewed as descriptive propositions they become true, false or probable. As empirical, descriptive propositions, they describe what has been done in certain cases; and if converted into generalizations they yield predictions of what will be done in future military operations. It is only in the mood of command that the propositions have the status of doctrine.

By comparison of different military doctrines, a rational science of military doctrines is possible. Such a science would answer the question of how should a military be organized and how should it operate. Against a background of comparisons, the peculiarity of any given doctrine is revealed. If all we know is the military doctrine of one or more political entities, then our knowledge consists of no more than information, the validity of which can be determined by cases in which the doctrine has or has not been applied; but if our knowledge consists of a systemization of the prescriptions of doctrine, established by the definition and ordering of the concepts of military doctrine, then the knowledge takes the form of a rational science.

Doctrine and the application of doctrine stand in the same relation as law and justice. Law is general, and justice is in relation to a particular case. As the good sense required to be just requires time and experience to develop, and likewise time and experience are required to judiciously apply means to ends, so time and experience are required to judiciously apply the prescriptions of doctrine and the application of military means to attain military ends. Doctrine is sometimes the generalization of the experience of the last war, while commanders apply doctrine to the present situation.

THE MORAL FACTOR, FOG AND FRICTION

Though not obvious, the theory does address what Clausewitz called the moral factor of war. It lies in the dichotomy of the army as a material cause and its individual members as efficient causes. The army in war is intended to be the material cause by which the commander as the efficient cause brings about the form of defeat of the enemy, which is the final cause of military operations. The defeat of the enemy is the means by which the victor enforces a change in the form of the relationship between the belligerent parties that existed before the war. An army is trained to be an instrument, a material cause, wielded by the commander, the efficient cause. But an army is composed of individuals, whose training and experience has melded them into an army, and each individual is his own efficient cause. Each efficient cause has his own practical wisdom and common sense that guide him, and his practical wisdom is as buffeted by emotion, lack of knowledge, by desire for pleasure and fear of pain, and lack of experience as the commander's is.

In the course of battle, individuals, units and whole armies have been known to break for the rear and dissolve into a rabble. These are examples of the loss of morale of which Clausewitz wrote. In terms of the theory, these are cases of the material cause becoming efficient causes and acting independently of the efficient cause of the battle, the commander. In practical terms, the changeover from material to efficient cause is seen as a loss of cohesion. There are other reasons for a military force to lose cohesion, but a loss of morale is one of them.

The army relies upon the practical wisdom of each soldier to carry out his duties in war. It is inescapable that each soldier must have an idea of where to stand, what to shoot, and so on, in the course of battle. This is the expression of the duality of the soldier acting as his own efficient cause in the service of the material cause of the unit of which he is a member. The effect of morale is to either strengthen or weaken the willingness of the efficient cause to act as a material cause.

The commander is a pure efficient cause. The effect of morale operates on his practical wisdom and common sense as it does any other individual, but the effect is seen not as a matter of cohesion. The friction and fog of war are not subjects of the theory, because fog and friction are not kinds of military operations. Yet it is not hard to fathom that friction is caused in part by the fear of pain, and fog is the manifestation of lack of valid descriptive knowledge of the true state of affairs of battle. The nature of these are as accidents to the conduct of affairs and therefore are not subject to systematic analysis.

CONCLUSION

A basis for a rational military science has been laid. A rational military science has been developed as a specific case of the rational science of ethics through minor premises of empirical knowledge of war. The political aspect of war is presented as a first principle through the definition of war. his development of military theory has been made more comprehensive by describing the relationship between military knowledge and the making of military decisions and by showing how the relationship between knowledge and decision making appears as military doctrine. The practices of the military arts are also rendered explicable in terms of the theory. An extended explanation of the nature of science supports the presentation of this analysis as a rational science, and shows what the requirements are for an empirical military science to emerge. An empirical military science, which was not developed here, would have to be quantitative in nature, and particular.

ABOUT THE AUTHOR…

Vincent J. Curtis, 56, holds a Master of Science degree in chemistry from the University of Waterloo and began his post-university working career as a Research Scientist for the Ontario Research Foundation. After leaving ORF, he started a scientific consulting business and later a manufacturing business, both of which he still runs. A free-lance writing career began in 1987, and Mr. Curtis has published articles on a wide variety of subjects in popular, technical and academic journals and newspapers. As a journalist-correspondent, Mr. Curtis has reported on the War on Terrorism from Iraq, Guantanamo Bay, Cuba and Afghanistan for newspapers in Canada and the United States. His scholarly military writings have appeared in the Canadian Army Journal, Sitrep, and the International Journal. He also contributes regularly to Esprit de Corps magazine. Mr. Curtis obtained an honours pass in the Officer Professional Development Program/CFMSP.

ENDNOTES

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SUSTAINMENT OF HASTY DEPLOYMENTS

Lessons Learned from Op HESTIA

Major D. Matsalla and Lieutenant-Colonel D. Rivière

INTRODUCTION

There is little doubt in the public eye about the success of the mission Op HESTIA, which involved the Canadian response to the 12 January 2010 earthquake in Haiti. Within days of the devastating event, hundreds of soldiers, aircrew and sailors, all under the lead of the Department of Foreign Affairs and International Trade (DFAIT), were deployed into the affected area conducting effective humanitarian operations to the great satisfaction of both the Haitian and Canadian publics. Compared to previous crisis missions (such as the response to the 2004 tsunami in Sumatra or the 1999 response to the earthquake in Turkey), the Canadian Forces (CF) response was quick and significantly larger than the usual 200-plus personnel Disaster Assistance Relief Team (DART). This clearly demonstrated the Government's will and capability to respond promptly to an international crisis and, consequently, the flexibility of the CF to respond in large numbers. As a result, it is likely that such missions will be repeated in the future.

However, behind the scenes the initial success was largely attributable to the early effective leadership put in place as well as to forces that are particularly configured for rapid deployments, specifically the DART as well as Air Component Command (ACC) and Maritime Component Command (MCC) forces. The DART was able to establish itself in two different camps in the Jacmel area 100 km south-west of Port-au-Prince (PAP) and begin delivering humanitarian aide within days of the event. The ACC was able to secure an airhead in the Port-au-Prince International Airport (PAPIA) with limited logistic support. Meanwhile, HMCS HALIFAX was sending landing parties of 50 personnel at a time to deliver medication and food to villages on the Léogâne coast some 40 km west of the Haitian capital, demonstrating the incredible agility of the Canadian Navy.

However, Land Component forces were experiencing serious sustainment challenges. For the first three weeks of inflow, troops and materiel arrived into PAPIA without the proper measures in place to off-load aircraft or to stage and account for materiel and personnel. Aircraft palettes were literally being piled on the tarmac without adequate security, using handling resources that could be borrowed from allies. In the meantime, units that managed to arrange for transport outside the airport lacked basic systems to support their operations, including communications, drinking water and fuel. All the while, the Joint Task Force Support Element (JTFSE)—the single ad hoc organization responsible for the support of all deployed elements, a concept that was still yet to be proven in an expeditionary context—was still in Canada, low in the deployment priority list and unable to provide the full range of needed support. It was not before early February 2010, some four weeks after the earthquake, that the JTFSE could begin providing joint task force Haiti (JTF(H)) troops with basic sustainment required to receipt materiel and personnel, move equipment forward and conduct support operations. Even then, support capacity remained unable to match the full JTF(H) requirements as the still thin elements of the JTFSE were pulled in different directions with conflicting priorities.

Although the operation was a success strategically, there remains much to be studied and learned about the sustainment challenges that occurred at operational and tactical levels. This article conducts a review of sustainment challenges associated with the rapidly mounted, short deployment of Army forces into Haiti with a view to target solutions for future deployments. It will also look at how the successes of high-readiness deployable units, such as the DART, could be applied to the Army in the hopes of sparking discussion for future short, or—to apply the tactical term—hasty deployments.

THE DEPLOYMENT TO HAITI

The 12 January 2010 earthquake in Haiti was a catastrophic event in a country that was already in a desperate economic situation. With an epicentre near the town of Léogâne, some 40 km west of the Haitian capital of Port-au-Prince, the initial reports estimated between 217,000 and 230,000 deaths, over 1,000,000 persons displaced and approximately 280,000 residences and commercial buildings destroyed.[1] The Canadian response was extremely quick, issuing a warning order within hours to deploy a task force (TF) consisting initially of the 300-personnel DART and an air component element.[2] It became clear in the first few days that a more robust force would be required to assist in the distribution of humanitarian aide, to produce and distribute potable water, to conduct mobility and security tasks, to provide search and rescue as well as medical support and, in particular, to extract Canadian evacuated personnel (CEP).

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The Destruction Caused by the 12 January 2010 Earthquake in Haiti

At the time of the Haitian earthquake, the CF was already heavily committed in three major operations (Op ATHENA Roto 8 in Afghanistan, EX MAPLE GUARDIAN in California for the mounting of the next rotation in Afghanistan and the support to the Olympics [Op PODIUM]) as well as other smaller international commitments and standing domestic tasks. Some 7000 troops were already either deployed or deploying in support of Canadian commitments, with very little to spare. Of all land force areas (LFA), the only one that was deemed to have any flexibility was Land Forces Quebec Area (SQFT), which was in reconstitution following the return of TF 1-09 from Afghanistan in November 2009. SQFT's contribution to Op PODIUM was comparatively less than other areas, and despite domestic requirements such as the strategic reserve task and the decontamination company, there was some time before the mounting of TF 3-10 would begin in April 2010. Combined with the fact that Haiti is a French-speaking nation, the Army sent the warning order to SQFT to generate a robust force in response to the earthquake.

At this time, the only reserve within SQFT was the battalion-sized force standing by for domestic operations (DOMOPS) based on 3rd Battalion, Royal 22e Régiment. A two-month window was identified during which SQFT could deploy the DOMOPS battalion—augmented with adequate command, control, communications and intelligence (C3I), engineer, medical, civil-military cooperation (CIMIC) and logistical forces—for the mission in Haiti. The government, therefore, decreed a mandate of 60 days for the operation, to begin on 16 January 2010, with a force that would eventually be capped at 2000 soldiers. In the end, a major part of the Land Component would consist of personnel and equipment that were thrown together from those recently returning from Afghanistan in Nov 2009 or those who were preparing to deploy in November 2010. Even the theatre joint headquarters (JHQ) would be drawn from a mishmash of headquarter (HQ) resources at area and formation levels.

Nonetheless, the Land Component was assembled with unprecedented speed, and by a week after the earthquake, the reconnaissance was developing a theatre concept of operations (CONOPS) for the rest of the contingent that would follow in the weeks to come. By this time, the DART, ACC and MCC were on the ground with a full complement of effects and support resources. Images flashed across Canadian television screens of the DART medical facility in Jacmel and of landing parties from HMCS ATHABASCAN on the beaches of Léogâne, reassuring the Canadian public of their

contribution. The impact of showing the flag early in the few days following the earthquake was arguably the most crucial, as it demonstrated the effectiveness of Canadian resolve. Remarkably, strategic success had already been attained.

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Maritime forces in Haiti

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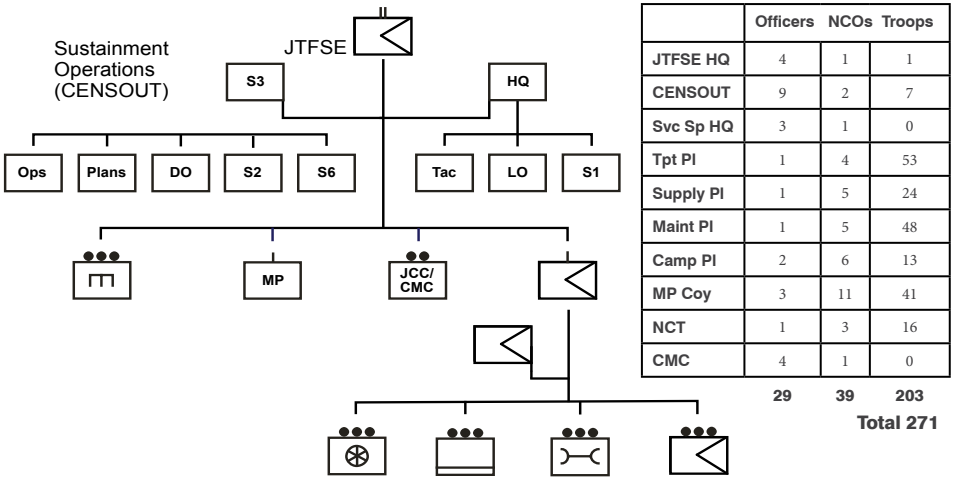
Maritime forces in Haiti

THE SUSTAINMENT ORGANIZATION

Though sustained effects most often require the full range of sustainment functions to remain effective, the JTFSE organization went through significant fluctuation in the first few days following the disaster. As the desperation of the situation in Haiti became apparent, the force required to support the operation grew in size, and the logistic component climbed within days from a 50-personnel forward logistic group (FLG) to a familiar 271-personnel national support element (NSE) that would provide close and limited general support to all Land Component Command (LCC) forces, as well as integral support to those units lacking. However, the poor state of the roads and the lack of air and sea ports of disembarkation (APOD/SPOD) with suitable throughput capabilities were placing an additional burden on the terrestrial components of the ACC and MCC, and so resources had to be managed between all three environments. Consequently, on 18 January 2010, the Commander Canadian Expeditionary Force Command (CEFCOM) approved the creation of the JTFSE, which was to combine all logistic, medical, security, communications and engineering resources for all services under a single command, a concept that could only be compared to the area support group (ASG) structure in Canada. This organization, which Canadian Operational Support Command (CANOSCOM) had proposed not only for Op HESTIA but also in a domestic capacity for Op PODIUM, aimed to provide flexibility to the commander to reconfigure forces quickly as the focus turned from one phase of the deployment to another. Though the theory was well supported, the medical, combat engineer and communications elements would eventually be deployed as distinct capabilities in light of their role as effects on the ground, rather than of intimate Canadian support. The resulting organization appears in Figure 1.



	Officers	NCOs	Troops
JTFSE HQ	4	1	1
CENSOUT	9	2	7
Svc Sp HQ	3	1	0
Tpt Pl	1	4	53
Supply Pl	1	5	24
Maint Pl	1	5	48
Camp Pl	2	6	13
MP Coy	3	11	41
NCT	1	3	16
CMC	4	1	0
	29	39	203

Total 271

Figure 1: The JTFSE Organization by 5 February 2010[3]

In the absence of any single stand-by sustainment organization, the JTFSE was formed from over 30 units across Canada, though generated primarily by 5 Canadian Service Battalion from CFB Valcartier. The battalion subunits would take on the role to generate the Transport, Supply, Maintenance and Camp Services platoons from within their own structure, to populate the table of organization & equipment (TO&E) and to coordinate the provision of equipment and vehicles. It was only in theatre that the Military Police Company, the Construction Engineering Troop and the Joint Contracting Cell (JCC) would come together with the logistics elements to form the 271-man unit in early February 2010.

In the first three weeks following the earthquake, the airflow around PAPIA was highly restricted by the airport authorities; they were not allowing any flights in and out other than those carrying humanitarian aid (HA) and those conducting evacuation operations. Only a limited amount of materiel could be sent by air other than DART, ACC and the medical equipment from 1st Canadian Field Hospital (the latter was cleverly achieved by incorporating Red Cross materiel from London, Ontario into military flights destined for PAPIA). However, the LCC's 200+ vehicles and twenty-foot equivalent units (TEUs) were far too large a cargo to consider any means other than sealift, which was understood to expand the aggressive inflow schedule. This option had its own challenges, as the seaport facilities in PAP had been damaged; the SPOD located in Barahona, Dominican Republic (DR) was, hence, selected even though it was linked by a single precarious 200-km road across a highly dynamic international border to the troops deployed in the PAP area. For 20 January 2010, the first of two CF full-time charter (FTC) vessels was reserved for loading in Quebec City, giving a few days for force generators (FG) to identify, prepare and pack vehicles and materiel for the 10-day voyage to Barahona. It was clear that the task of the reception, staging, onward movement and integration (RSOMI) of this materiel from the SPOD to the units in Haiti would be the first major task of the JTFSE, a task that would further shape the formation of the organization.

As mentioned, the deployment priorities for the first flights were focused mainly on effects, such as the DART, ACC and LCC advance guard, and spots for JTFSE reps were few and far between. In fact, in the first week, the only member of the JTFSE in theatre was the deputy commanding officer (DCO), whose task was to initiate the establishment of theatre sustainment infrastructure, including the reconnaissance of a location for the JTFSE. However, the DCO was overwhelmed with demands from the field force to coordinate real-life support, such as contracting toilets and bulk water, that he was unable to dedicate sufficient time to the sustainment CONOPS. With few resources to develop a plan and only sparse communications between theatre and Canada, the JTFSE logistic component assembled

its forces based on a number of assumptions: that the theatre camp would be centralized, that convoy and camp force protection would be provided and that significant lift and transport resources would be available for operations in theatre.

Unfortunately, these assumptions were soon proven invalid. By 23 January 2010, the manoeuvre elements had established themselves in seven different camps in Léogâne, Jacmel and PAPIA, none of which with the size to accommodate the 270-strong JTFSE. While manoeuvre elements were deploying to Haiti in the hundreds, the majority of the JTFSE were still awaiting flights from Canada. Those few who had deployed to theatre were so focused on integral and real-life support requirements that they were unable to develop fully their reconnaissance of a suitable site for the sustainment base. As a result, the JTFSE concept could not be confirmed before the mass of troops began deploying on 27 January 2010. By this time, the TO&E was fixed by CEFCOM, and it was too late to request additional positions.

IMPACT AND CHALLENGES

The late arrival of close and limited general logistic support into theatre created significant problems for the TF that would only compound over time. In the absence of sufficient central materiel traffic terminal (CMTT) technicians, material handling equipment (MHE) and connectivity to information systems before 25 January 2010, mobile air movements (MAMS) personnel would borrow US MHE to offload pallets and strew them onto the ramp unsecured. Without any reception and dispatch capability, materiel was not being counted or distributed properly; rather, manoeuvre units in the area would distribute materiel among themselves to meet their requirements. Vehicles would sit on the ramp for days after their arrival by CC130, whereas units required transport only a few kilometres away. In these first three weeks after the earthquake, some units were critically low on food, water and supplies, while pallets of rations and water piled up on the ramp with no supply technicians to take them on charge and no transport to deliver them.

In addition to the lack of logistics personnel, the lack of communications resources disallowed the JTF any visibility on materiel distribution and requirements in theatre. There was no dedicated administrative communications network beyond a few local cellular telephones, and units had little familiarity with HQ, supply staff and procedures to know where to place demands. Also, the lack of connectivity precluded visibility within the Canadian Forces Supply System (CFSS) on materiel being receipted into the theatre account and the National Movement Distribution System (NMDS) on materiel in transit. It was not until they deployed in sufficient numbers by 28 January 2010, that the JTFSE was able to gain any control over materiel reception and delivery throughout the operation zone.

In the absence of any support, the unit recourse was to procure capabilities locally in the very rudimentary Haitian local economy. However, despite numerous previous deployments in the country, the JTFSE could locate no list of reliable suppliers or contractors. Unit integral support had literally to canvass the population door-to-door to secure rental vehicles (often in pitiful state), fuel, general stores and life support services using US cash that they had brought with them into theatre. Many of these initial contracts were established in urgency, often beyond authorities for local procurement, so the JCC often had to back-track the contracting process in order to legitimize many of these early arrangements. In the absence of any banking system in Haiti, additional cash was fortunately available through the working cash fund (WCF) on HMCS HALIFAX just off the port of Jacmel. The theatre cashier was able to make trips to the vessel to withdraw cash and redistribute to units in the area.

By the time the JTFSE mass began arriving on 27 January 2010, manoeuvre units were set into their camps and were already delivering effects despite the lack of vehicles. The major sustainment challenge then became the JTFSE's own bedding down. By this time in the operation, most prime real estate had already been taken up by non-governmental organizations (NGOs) and allied forces in PAP and Léogâne. With no camp or staging area, JTFSE members squatted in the HQ's Camp Renaissance (CR) at PAPIA, with insufficient equipment or infrastructure to conduct adequate support. In only two days, the JTFSE had to secure a piece of ground to conduct the staging of all Land Component materiel that would be arriving by FTC in Barahona, DR. It was through the JTFSE CO's personal contact with the

US authority for PAPIA real estate that a small strip of bushed, uneven pasture was secured at the west end of the PAPIA airstrip. Despite very limited host nation support (HNS), the Camp Services Platoon established a contract to excavate and prepare the area to receive and process over 200 TEUs and vehicles. In celebration of the timing in which the camp came to be, it would be called "Camp Nouveau-Né" (CNN). Figure 2 shows the locations of CF units in Haiti on 28 January 2010.

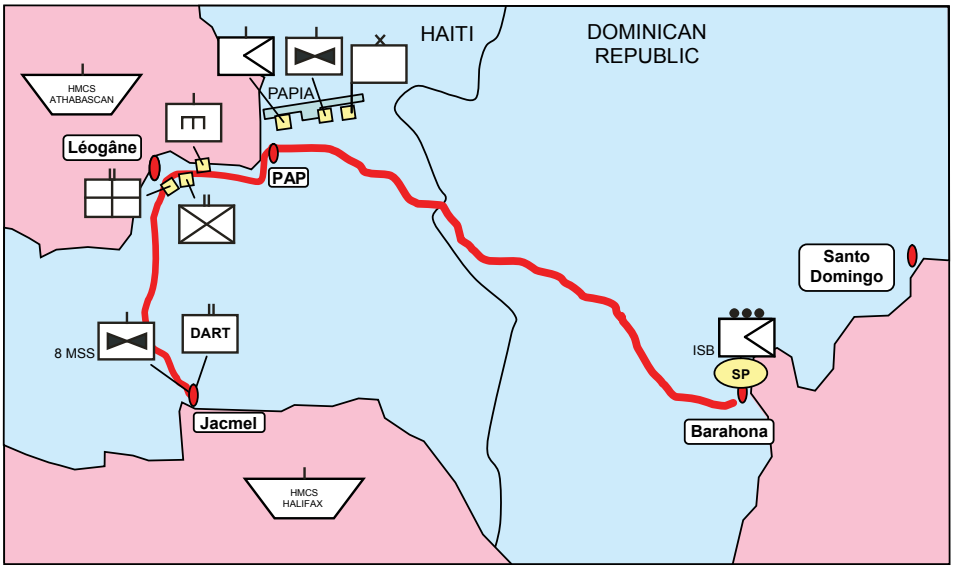


Figure 2: The Distribution of Forces Throughout the JOA on 28 January 2010

OP TAP TAP

Op TAP TAP[4] involved the reception of all equipment on board the FTC at the Barahona SPOD, its movement through the Haitian border to CNN and subsequent redistribution and onward movement to units in Haiti. The operation also combined the inflow of remaining transport and maintenance personnel that were flown directly to Barahona via Santo Domingo, DR. From 1–4 February 2010, four convoys were mounted of approximately 60 military vehicles (green fleet) each and contracted civilian vehicles (white fleet) carrying twenty-foot equivalent units (TEUs) through a highly dynamic border crossing and off to CNN where the vehicles and TEUs were offloaded and marshalled for subsequent movement to units. The operation permitted all JTF(H) units, including JTFSE, to receive their desperately required vehicles, materiel and commodities that had been so sparse to that point. It also breathed confidence back into the JTFSE whose reputation had been somewhat challenged by their lack of operational effectiveness to this point.

This first FTC brought a significant amount of vehicles and equipment into unit hands, but not all. This represented approximately two thirds of the equipment that units had considered necessary during their mounting, and a significant amount of important, but lower priority, equipment was still docked, waiting in the Quebec seaport. Also, Strategic Staff had ordered the preparation of additional classes of materiel required to sustain the mission, particularly if the mandate were to be extended (which was still a possibility well into February 2010). Consequently, a second FTC was loaded in Quebec City in mid-February 2010 and sent to the intermediate staging base (ISB) in Barahona for unloading. However, Op HESTIA had already achieved its recovery phase by that time, and planning was already beginning for the mission redeployment and closure. Troops were functioning for over a month in the absence of this equipment, and it was evaluated that they could continue to function adequately for the short time remaining. Op TAP TAP was therefore repeated from 20–24 February 2010, but to bring

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Op TAP TAP, which involved the RSOMI of all materiel arriving in Barahona

only a fraction of the materiel forward. Within only a few weeks of the arrival of FTC 2 to the joint operations area (JOA), the JTFSE would be conducting the return of all materiel and vehicles back to the port of Barahona (affectionately called "Op PAT PAT," being the inverse of "TAP TAP") for its preparation and return back to Canada.

JTFSE SUPPORT TO THE MISSION

RSOMI Tasks. The effort required for the JTFSE to plan and execute the RSOMI process, including Op TAP TAP I, Op TAP TAP II and eventually "Op PAT PAT," monopolized a significant portion of its resources. Virtually all transport and supply were committed to receiving, staging and transporting materiel between the SPOD and troops in forward bases in PAP, Léogâne and Jacmel. Each 50-vehicle convoy across this precarious 200-km main supply route (MSR) would average seven hours to complete, dominating crews for two days. These convoys were reinforced with military police escorts to counter the security threat as well as maintenance for recovery and the contracting cell for managing the significant contracted "white" fleet. Finally, the small JTFSE HQ was committed to the planning and execution of the RSOMI process, which was remarkably complex. The smooth passage of hundreds of vehicles and TEUs across the Dominican border was only accomplished through constant liaison with both Haitian and Dominican officials in both Creole and Spanish. Escort and security was coordinated among internal resources, resources provided by the battle group, the Haitian police as well as the Dominican Armed Forces. Coordination with the Barahona ISB was essential to ensure the production of load lists and customs documentation. Finally, the plan required significant contingency for MEDEVAC, recovery and traffic control operations as well as constant communications with all authorities involved. In addition to the movement of materiel in and out of Barahona, the JTFSE had to unload flights coming in and out of PAPIA, stage personnel

and equipment, take equipment on charge and move it forward to units. With all these tasks, the RSOMI process virtually dominated the focus of the JTFSE.

JTFSE Operational Tasks. Simultaneous to RSOMI, the JTFSE's attention was being solicited for several other operational-level tasks, including theatre activation, redeployment and mission closure. Contracting and engineering organizations were committed to the management of terrain and life support services including waste and commodities or the preparation of containers for transport. The task of conducting inventory of all theatre materiel, something that is conducted in Afghanistan by robust technical assistance visits (TAVs) flown in specifically for this purpose, had to be accomplished by the 26-strong supply platoon that was already committed to RSOMI. The liaison with the terrain authorities (be it with the PAPIA airport authorities for those units deployed in PAP or with the authorities of the municipalities of Léogâne and Jacmel) were tasks that fell on the same organization.

JTFSE Tactical Tasks. Finally, the JTFSE was also being solicited on a daily basis for close support to tactical operations. The TO&E that had originally been designed for a centralized camp was being stretched across seven separate camps (eight including CNN) in three geographic areas (PAP, Léogâne and Jacmel), each requiring a daily resupply of all forms of commodities, including not only combat supplies but also construction materials, major equipment and even fresh rations. Despite previous Canadian missions in Haiti, the Supply Platoon had to re-establish a network within the limited local economy in order to provide local procurement order (LPO) for the JTF. Maintenance and Transport Platoons were often solicited to provide integral support to those units without their own resources, delivering maintenance and transport to the soldiers on the front lines. To those units that had a limited integral support, JTFSE support was still solicited in the form of repair and recovery requests (RRR). The Camp Services Platoon provided integral administrative and life-support services to all units deployed in PAPIA on a daily basis, in addition to the aforementioned higher-level tasks. MPs were responding every day to traffic accidents on the precarious roads of the JOA as well as conducting dozens of investigations. The Naval Construction Troop (NCT) was providing not only camp maintenance, but also constructed loading ramps and shelters, prepared the Jacmel jetty and assisted in clearing ground lines of communication (GLOC). Finally, the JTFSE was committed in a humanitarian construction task at a large orphanage in PAP.

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JTFSE Maintenance personnel conducting close support tasks

Contracting. The original intent of the JCC was to ensure oversight of some overarching contracts (such as Blue Water Contracting) that would provide most of the personnel required for the establishment of daily support contracts. Consequently, the JCC team provided by CANOSCOM was small, initially with only three members, and lacked the background and linguistic capacity to deal with the complex Haitian economy despite their extensive experience in contracting. However, the Blue Water arrangement was not successful, and the JCC had to establish their own network of local providers in order to facilitate the provision of camp services, transport, equipment and materiel support to the JTF. Completely overwhelmed with work in the first few weeks, the JTFSE had to reinforce the JCC with its own supply and transport personnel in order to fill the unending demands of the JTF. Contracting in Haiti was a colossal task, but through the attribution of additional resources, became an effective enabler for the entire task force.

Liaison. In the very first days following the disaster, CANOSCOM very accurately identified the requirement for three liaison officers that were quickly deployed to the JOA. These officers managed to establish and maintain a continuous exchange with allies, with interagency "cluster" meetings and with border authorities that proved to be key elements during theatre activation, RSOMI and sustainment operations. The attribution of an additional liaison officer from 3R22R BG became essential to bridge the large distances and intermittent communications between combat troops in Léogâne and the JTFSE in PAP.

Security at CNN. The assumption used in the development of the JTFSE TO&E that integral security would be provided in situ was quickly proven invalid at CNN. The camp was fully exposed on three fronts to infiltration on an almost daily basis by local nationals, forcing the JTFSE to increase their camp defence with internal resources. This over-tasked organization now had to provide, in addition to all other tasks, 360-degree surveillance on a 24-hr basis, requiring no less than 12 technicians at a time on guard duty. Eventually, by early March 2010, following a series of important thefts, a defence and security (D&S) platoon was allocated to the JTFSE to compensate for the lack of dedicated security resources that would normally have been integral to the organization.

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Camp Nouveau–Né (CNN)

This constant competition between operational-level tasks, such as RSOMI and theatre activation, tactical-level support tasks and D&S tasks, compounded by the realization that the TO&E was built based on invalid assumptions, made the tempo extremely high for the JTFSE throughout the mission. Also, resources were being shared between each of these support levels, which affected continuity of support, making it prone to errors and omissions. Ideally, had there been adequate resources available in the early stages, the JTFSE could have organized itself to be able to dedicate resources to either operational or tactical level tasks. Nonetheless, there are potential improvements that one can propose for future short deployments.

CONSIDERATIONS FOR SHORT DEPLOYMENTS

If one takes a good look at Canadian joint deployment doctrine, the problems encountered during Op HESTIA are not at all surprising when considering the factors involved in this mission. For example, the tasks of theatre activation and mission closure are very well understood at the operational level following dozens of missions that the CF has mounted in the past years. However, CANOSCOM's theatre activation team (TAT) was unavailable as most of the required resources were already committed to Op PODIUM and elsewhere in the world. The mission closure team (MCT) that CANOSCOM would normally have deployed was committed to higher priorities, including a spare parts TAV in Afghanistan. The logistical requirements of the rapidly developing theatre were only truly understood once the cap had already been placed on the JTF and, hence, on the JTFSE, precluding the deployment of additional transport, supply and D&S resources as well as sufficient JCC personnel experienced in that specific function. Therefore, in order to prepare for the next mission, we need to define these requirements beforehand as well as contingency plans for when strategic and operational resources are not available.

For discussion, let us take a standard model for operational deployments. Though a number of models exist in the references, most of these are very similar, so we will use the one as outlined in the Op HESTIA operation order and shown in Figure 3 as a start state :

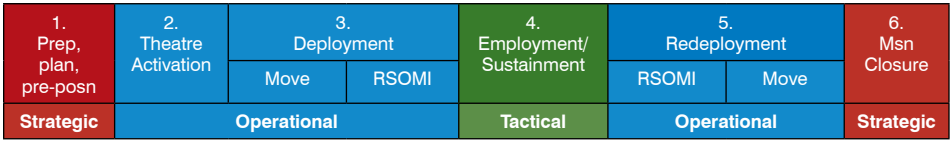

Figure 3: Phases of a Typical Deployment,[5] Along with their Associated Weight of Effort by Level (note: the colours depict the level of the activity)

When conducting a deliberate deployment, such as, say, Kabul in 2002, each phase is conducted independently by a dedicated organization, each with very specific skill sets. The operational-level task of theatre activation, for example, is generally conducted by organizations such as the joint support group (JSG), which deploys regularly and has expertise in contracting, materiel reception and engineering services. The JSG also maintains a deployable capability for materiel reception and accounting, with command posts (CP) designed to establish connectivity within minutes of arriving at a port of disembarkation (POD) and begin materiel transactions in the establishment of theatre bases. The support provided by these operational organizations allows FG to focus on the conduct of tactical operations. In joint doctrine, this team is often referred to as the advance logistic reconnaissance team (ALRT).[6]

Whereas Figure 3 best describes a deliberate deployment, the responsibilities between operational and tactical-level tasks in a short deployment often overlap. The requirement to deploy troops quickly means that some theatre activation tasks are conducted simultaneous to troop inflow. The need to bring effects quickly in a desperate situation requires that there be integral support resources on the ground during the early entry and eventually the RSOMI of the JTF main body. A model that could be used to better describe a short deployment is shown in Figure 4.

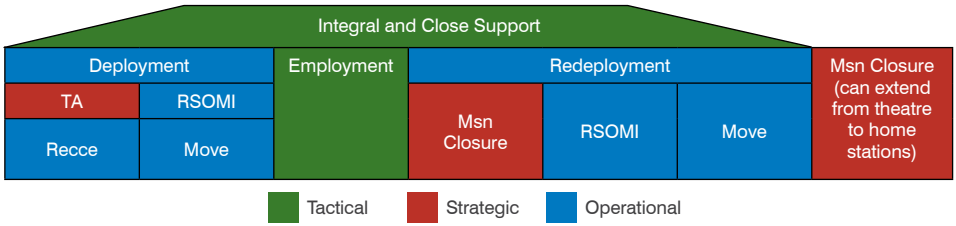

Figure 4: The Short Deployment in Practice

Note that the deployment involves the inflow of "slices" of organizations or "packages," with both operational and tactical objectives. Note also the comparatively short duration of the employment phase; the force spends most of its time conducting deployment and redeployment activities.

Certain organizations are particularly effective at conducting short deployments, as they have the capabilities required to conduct the full range of activities in all phases. The DART, the mobile support squadron (MSS) and Navy vessels all have a structure, resources and contingent plans to enter into a foreign POD, offload and receipt materiel and personnel, and stage the inflow of troops, all while providing adequate integral support. The establishment is well defined long before deployment with command and control networks well established, and personnel, materiel and financial structures prepared, rehearsed and on stand-by to support missions of a determined length. This is why the DART and the Navy had so much success in the early stages of Op HESTIA while the Land Component still lacked basic supplies.

While the Army is not necessarily able to adopt a structure similar to the DART or a naval ship, we are able to take lessons away from these organizations. The following sections look at considerations for the force structure as well as for the deployment, employment and redeployment phases.

FORCE STRUCTURE CONSIDERATIONS

Limit each sub-organization to either operational or tactical levels, not both. When a contracts officer, a maintenance team or an engineering specialist is committed to a given operational-level task, they need to stay committed throughout its duration in order to maintain focus/continuity and avoid errors. The impact of losing control over materiel, personnel, contracts or real estate in theatre have drastic repercussions on the conduct of operations and even on the Canadian public, through the media that is ever-present. The same is true if resources required for integral and close support are otherwise committed on some operational tasks. The requirement to maintain visibility on personnel and materiel, both in transit and in theatre, is extremely difficult if those resources are constantly engaged in conflicting tasks, losing continuity. Finally, there is also the potential for a conflict of interest with respect to materiel control if the same organization is both receiving materiel transiting into theatre and accounting for it locally.

With the sustainment focus on deployment and redeployment, the force structure size and scope change throughout the mission. A way to maintain flexibility is to unify sustainment elements under a single chain of command, and the JTFSE was created with this in mind. Conceptually, JTFSE becomes the "one-stop shopping" agency for all sustainment matters. As the deployment progresses, the configuration of the organization can adapt easily in response to requirements. It is also proposed that the organizational structure be configured not along occupational roles, but rather according to support functions in the given deployment phase, as described in Figure 5.

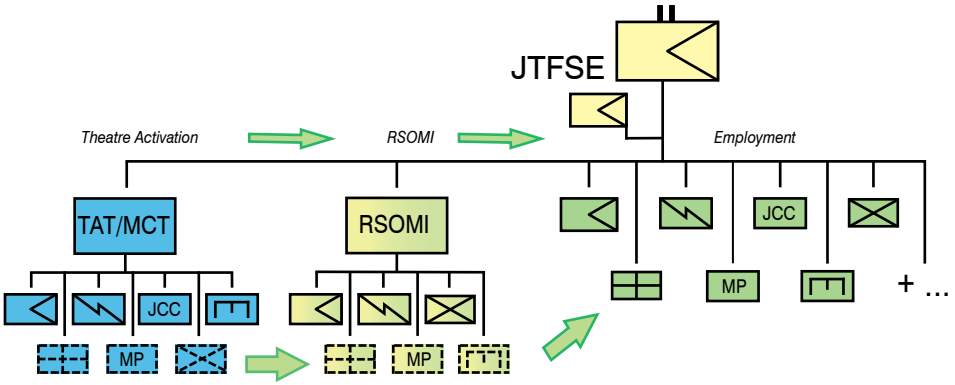

Figure 5: A Proposed JTFSE Force Structure

In the proposed organization, certain resources remain dedicated to the three main categories of task: theatre activation and mission closure (both activities being similar in their requirements), RSOMI and sustainment. Other resources, those indicated in dotted lines as examples, can be shared among the three levels of task in order to provide flexibility to the JTFSE commander. This configuration allows organizations to maintain continuity of the tasks by committing resources, while maintaining flexibility to be able to reallocate in accordance with the commander's priorities.

Create force structure building blocks during contingency planning. Another observation from Op HESTIA was the lack of organized personnel and materiel structures in ready-to-deploy configurations. Prior to employment in theatre, a vast portion of materiel and personnel had to be identified and exchanged between units, often using unofficial or paper transactions. It is proposed that deployed accounts similar to the DART or MSS be created with modular building blocks of personnel and materiel that are committed to sustainment tasks at both operational and tactical levels. Such building blocks could potentially include:

- The ALRT, embedded in the recce group, in order to shape the theatre. It should include liaison officers (LO) with interpreters as well as legal and diplomatic notes, as required. These build communications with supported military and interagency organizations as well as flanking support units. They also secure real estate and ensure access to critical theatre nodes. The ALRT also includes the movement control detachment (MCD) for materiel and personnel reception at PODs;
- Light signals detachment, to provide limited command, control, and both intra- and extra-theatre communications;
- JCC;
- A TAT and an MCT, be they generated from CANOSCOM or within an LFA;
- Health services support (HSS) Role 1, for integral support to deployed forces;
- A materiel reception team;
- A RSOMI organization;
- Force protection (for a given threat);
- A close support organization or FLG; and
- A forward logistics site (FLS) and MSS, potentially regrouped under the JTFSE when mission activation is completed.

During a hasty operation, these building blocks can be assembled in various sizes or configurations depending on the theatre requirement. Most importantly, these have the basic components of personnel, vehicles, equipment and command and control systems, which will provide at least a basis for operational planning and preparation. This will also ensure that critical functions such as theatre activation, movement control and materiel reception are not overlooked.

DEPLOYMENT CONSIDERATIONS

Identification of Key Links and Nodes. A theatre occupation is dependent on a clear understanding of the means through which troops and materiel will flow into and within this given theatre. The identification of static nodes (such as PODs) and links (or lines of communications [LOCs]) is a priority of an operational headquarters and will be done almost immediately. However, even in the beginning stages of an operation, as the PODs and LOCs are being investigated as to their potential, discussions can begin with the tactical sustainment organization (i.e., the JTFSE) about the assignment of responsibilities for each of these LOCs. In the case of Op HESTIA, Figure 6 was produced early on in planning as a basis for discussion between CANOSCOM and the JTFSE to define these responsibilities and was considered a highly effective planning tool.

The exercise also permitted the identification of alternative and innovative modes of operation. For example, the identification of the functional SPOD in Jacmel permitted the development of a redeployment plan for the DART involving a maritime barge. This permitted the exploitation of tactical maritime travel to move large quantities of materiel from Jacmel to Barahona with relative ease and at relatively low cost considering the bitter state of the GLOC. It is important to note that this was finally made possible through the initiative of the JTFSE Naval Construction Troop that laboured to prepare the jetty.

In short, proper logistics preparation of the battlespace must be conducted and monitored throughout, as part of the operational planning process .

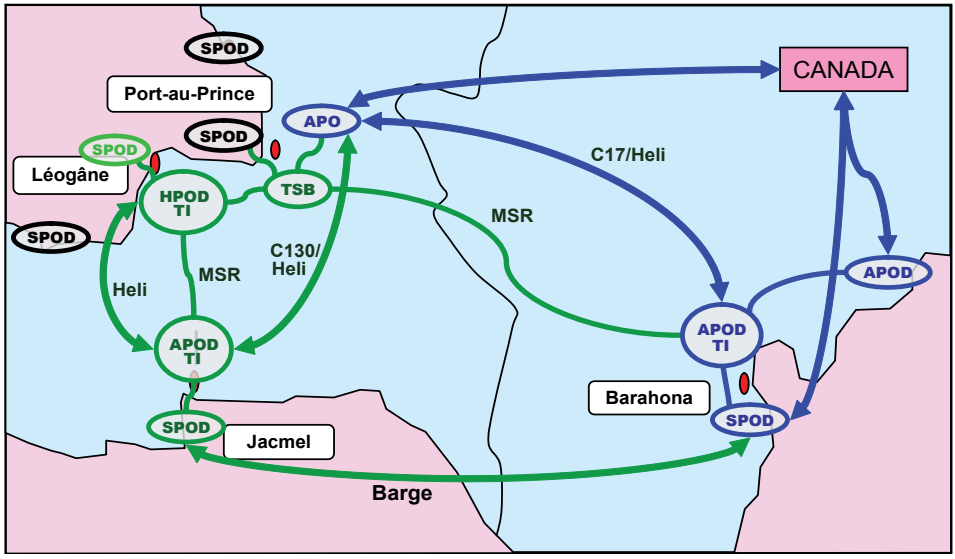

Figure 6: LOCs and PODs in Op HESTIA. Note: HPOD = helicopter point of disembarkation. TI = tactical infrastructure

Basing. Subsequent to the establishment of PODs and LOCs, a theatre-basing plan must be established.[7]

- **The Theatre Support Base (TSB)**. Where possible, the establishment of a TSB allows a principal hub through which operational forces can plan the inflow of materiel and personnel into theatre as well as a point from which tactical support can be projected forward. Again, the initial planning of Op HESTIA was conducted with the assumption that forces would be centralized at a TSB, similar to Kandahar Airfield (KAF) in Afghanistan.
- **The Intermediate Support Base (ISB)**. Where terrain or the tactical situation does not allow the establishment of a TSB, then an ISB allows for the offloading and initial staging of inflowing

materiel and personnel. Also under the JTFSE, the ISB permits handoff with the organization responsible for the RSOMI of personnel and materiel to forward units. The ISB in Op HESTIA was located at Barahona, DR.

- **The Forward Operating Base (FOB)**. These are bases in which forward units conduct and project operations. Eight FOBs (including CNN) were deployed in Op HESTIA from which units conducted operations, and the JTFSE was in a position to be able to reinforce or augment the support capabilities intrinsic to each location as required.

Before the inflow of troops and equipment can begin into theatre, at least a limited basing structure must be in place, with sufficient resources for limited basing functions including materiel handing, off-loading, life support, materiel and personnel reception capabilities and health hazard mitigation (such as the removal of black widow spider nests from CNN before occupation). These functions are provided by the TAT as early as possible in the deployment timeline.

Finally, one tends to think of basing as being land-centric. However, as demonstrated in Op HESTIA, there are functions that can be shared on maritime platforms as well. For example, the lack of an accredited banking system in Haiti required the deployment of a WCF account from which cash funds could be withdrawn for pay parades and contract payments. The proximity of HMCS ATHABASCAN permitted the force to take advantage of the facilities on the ship and move cash funds by helicopter to the operations area. Ships were also used to provide special commodities (such as fresh rations and aircraft fuel) as well as a communications rebroadcast station for combat net radio. We can also find inspiration in the US Marine Expeditionary Unit (MEU), whereby the self-sustained force package is largely maritime-based. The potential of a maritime basing capability must not be underestimated.

Sustainment Interrelationships. The reconnaissance and occupation of a JTF support unit location must take into consideration interdependencies between suborganizations. Where daily coordination is required in the context of their duties, these organizations should be placed close to one another in the camp. Also, those functions that are typically dynamic in nature, or those that involve the projection of support beyond camp walls, should be positioned to be able to ingress and egress easily. Figure 7 was created based on observations of the interdependencies between the various JTFSE suborganizations. This diagram could potentially be used by a unit recce team that is deploying with a future JTFSE.

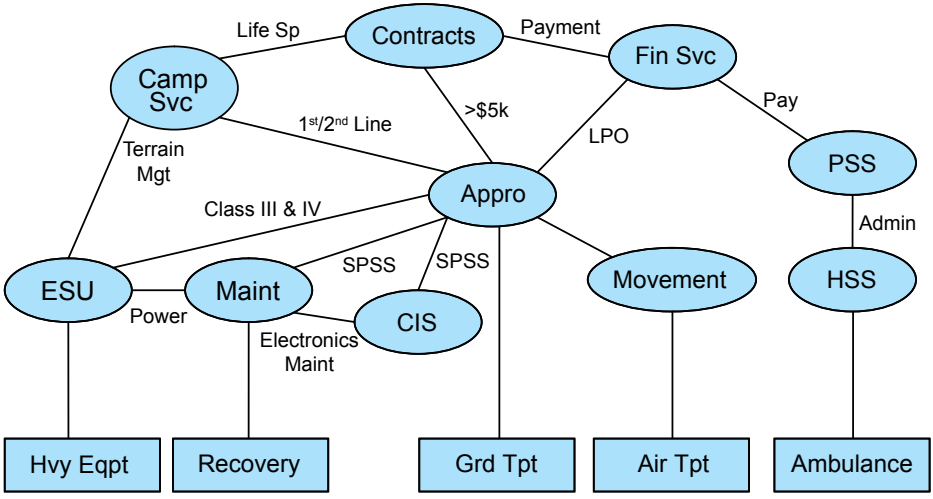

Figure 7: The Interrelationships Between Various Sustainment Functions

EMPLOYMENT CONSIDERATIONS

The key consideration for the employment phase in a short mission is its relative length compared to deployment and redeployment, as illustrated in Figure 4. During Op HESTIA, this consisted of the very brief period between the RSOMI of FTC 2 on 24 February 2010 and the redeployment that started on 8 March 2010, which coincided with the end of the very symbolic Governor General's visit. This period, in the absence of RSOMI tasks, represented the only relative calm for the JTFSE, during which it could be caught up on its own inventory, its security posture and on humanitarian tasks.

Overall, the JTFSE had to be configured as an organization focused on operational-level tasks. Tactical sustainment, while essential, was secondary in terms of the consumption of the JTFSE's time and resources. In the future, organizations mounting short deployments should keep this in mind.

REDEPLOYMENT CONSIDERATIONS

Material Accountability. The challenges of materiel control were all largely caused by the lack of reception and visibility during its projection from Canada, not necessarily by a lack of control of unit supply reps. From the onset of the operation, deploying units lacked direction on the management and accounting of deploying materiel, whether it would be transferred to a theatre account or maintained on the unit holdings. Direction that would normally have been contained in materiel and infrastructure distribution directives did not follow until several weeks into the operation, and as a result, there was no central visibility on materiel moving into theatre. Once all troops and equipment had been deployed, the regimental quartermasters (RQ) dutifully turned their attention to establishing their inventory and identifying deficiencies and surpluses that may have occurred during transit, with intent to reconcile these losses and temporary transfers. When questioned in theatre, RQs assured the chain of command that they had adequate visibility over the stock in their unit supply customer accounts (SCA).

It was only when we started to plan the mission closure that it was made clear that all materiel in theatre had to be transferred to a theatre-specific account (M905) before it could be packed for return to Canada. This is typical for deliberate operations, prior to deployment, when the CF needs visibility over all materiel in theatre as it passes from one rotation to another. However, in this process, materiel over which units had established control and visibility would be intertwined with materiel from all other unit and warehouse accounts based on lists that were produced prior to deployment. Discrepancies recorded on DND 638 temporary issue cards or through the consumption of consumables would eventually have to be reconciled against all materiel in theatre, and this only at the theatre closure stage, by a competent team dedicated specifically for this purpose.

This approach to supply management is useful in a prolonged mission when materiel has to become theatre holdings and thus transferred from one account holder to another, and write-offs must be performed at the end of each rotation; however, it could be argued that for a short duration mission, the creation of a theatre account only decreases materiel control at unit level unless sufficient time is allocated to do so prior to redeployment. Where a deployment is limited to a single rotation of account holders, such as with the DART or on a Navy ship, it is suggested that materiel be maintained on unit accounts for the duration of the operation. In any case, the directives governing materiel accounting must be published to all deploying units as soon as possible.

Mission Closure. When materiel must be transferred to a theatre-specific account, all of this materiel must normally be accounted for and reconciled by an independent MCT before it can be returned back to Canada. However, during Op HESTIA, resources that would normally have been tasked were otherwise committed in Op PODIUM and Op ATHENA, and only a small team of six individuals from CANOSCOM could be spared for the JTFSE to lead the material management aspects of the whole mission closure effort. There was much debate about whether these resources should be held centrally in PAP or whether they should be dispatched out to unit locations to conduct their work with the RQs in situ, in a more decentralized fashion.

For reasons of space in PAP and in an attempt to fast-track the process, it was eventually decided that materiel should be processed in the unit locations in Léogâne and Jacmel. However, the requirement for connectivity had been underestimated. Tools that the MCT control office typically uses to conduct account inventory and prepare shipping documentation, such as the batch upload system (BUS), require significant bandwidth to function properly, even more so than CFSS and NMDS. Without connectivity in the FOBs, materiel production teams had to transfer electronic lists back and forth by runner with the control office located in CNN, and this caused significant delays. It was only once the camps in Léogâne and Jacmel had been closed and rolled back to PAPIA that the teams were able to focus their efforts in a single location and maximize production.

Despite the efforts of the JTFSE, it was impossible to meet the deadlines for processing all materiel on the M905 account prior to redeployment. Increased infiltrations into the camps as well as the rapidly approaching rain season created pressures requiring that the Canadian contingent withdraw by 1 April 2010, approximately three weeks before the JTFSE had forecasted an acceptable level of reconciliation. This required that a mission closure element (MCE) be stood-up and employed in Montreal to finish the materiel reconciliation process for an additional two months: the time to receipt the materiel arriving by FTC to Canada, redo the inventory and reconcile surpluses and deficiencies. In the end, time invested in the reconciliation effort is inversely proportional to materiel losses. As illustrated in Figure 8, beyond a certain point of diminishing returns, the gain in materiel control is no longer worth the cost of maintaining the MCE.

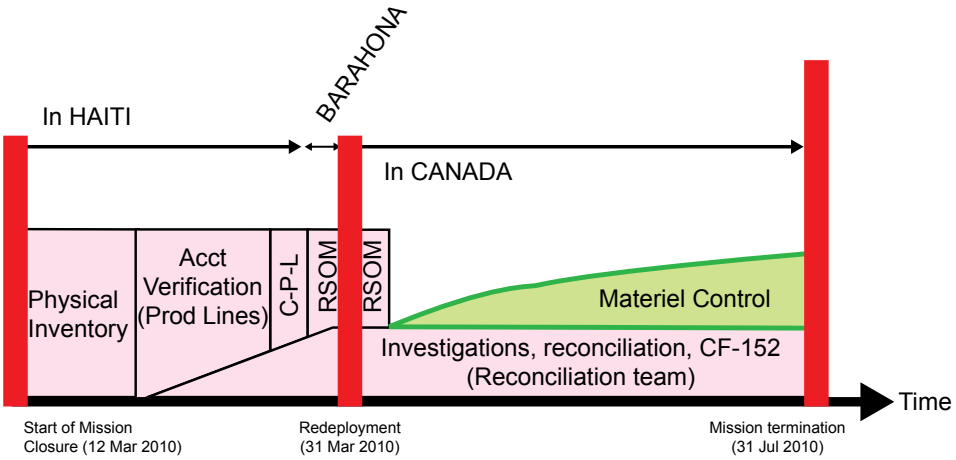

Figure 8: Process of Mission Closure, Illustrating that Savings in Materiel Losses Diminish with Time of Reconciliation

Connectivity has become a necessary evil in the mission closure process, with our reliance on the CFSS and NMDS for inventory management and shipment. Also, the control office must be collocated physically with the production teams in order to permit the proper identification, tagging, reconciliation and transfer of materiel in each theatre subaccount. Finally, though materiel control comes as a result of an investment in time, the return on the investment is eventually reduced by the cost of conducting materiel reconciliation. Op HESTIA showed these three principles to be key in ensuring a smooth transition out of theatre.

Op HESTIA has helped the Army identify a number of lessons that can be applied to future short missions for each of the major phases of an operation: planning, deployment, employment and redeployment as well as closure. The authors have extracted ideas based on the deployment of the DART and on Navy vessels, which are configured to be able to deploy rapidly, conduct operations with sufficient support and redeploy with maximum materiel control. There will always be factors that prevent the dedication of resources specifically designed for theatre activation, materiel reception and mission closure, but at least there are options that LFAs can consider to increase their control of resources.

CONCLUSION

Despite the support challenges that the Land Component experienced in the course of Op HESTIA, there is no denying the overall success of the operation. The JTFSE's stretched resources committed to RSOMI activities may have impacted on the level of close and integral support to JTF(H) units; however, the latter managed to find other means of support through local contracting, reallocation of resources, arrangements with allies and home organizations in Canada or simply by coping with austere living conditions. Through generalized ingenuity and flexibility, the JTF(H) managed to establish lasting relationships with international partners and provide an outstanding support to the local population, so much that the community leaders still speak longingly of Canadian support even months after our departure. The observations in this paper are meant to seek improvement in a system that has proven already to demonstrate outstanding success.

Nonetheless, it is the responsibility of the sustainment community to ensure the best support possible to deployed troops of all services and to maximize the application of lessons observed through the conduct of operations. The lack of a dedicated and trained theatre activation and materiel reception capability, in particular, set the stage for a lack of materiel control throughout the mission, which would endure until the end of mission closure activities that were extended back to Canada some two months after redeployment. The JTFSE's unending focus on RSOMI throughout the mission consumed resources that would otherwise have been used to improve the quality of close and integral support to JTF units, demonstrating the requirement to dedicate an organization to such operational-level tasks. The length of a **short** deployment, such as Op HESTIA, and the fact that troops are not being rotated out, allows us to consider adopting aspects of materiel, financial and personnel architecture that the DART and Navy vessels use so effectively during their deployments. By leaving materiel accountability and management in the hands of units, on unit accounts, we can save significant resources required for reconciling an entire theatre, all while maintaining positive control overall. Finally, we can learn from the successes in the exchange of information and resources between operational and tactical levels.

With the outstanding success of Op HESTIA, the Canadian government will certainly not hesitate to commit significant troops in a surge operation in response to an international crisis in the future. Until this happens, the Army should plan and prepare for it, exercise itself and develop contingency should a Land Force Area receive a mandate to mount such an operation, including modular force packages that can be easily assembled into a joint force according to the JTF commander's intent, priorities and desired effects. And when the operation occurs, the Army should identify the key operational-level resources required to activate the theatre and dedicate them to the task immediately. This way, it can continue to ensure strategic success all while improving the operational and tactical support to operations and linkages.

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ENDNOTES

1. 3350-165 (J5), Op HESTIA Termination Order, March 10.
2. Conversation with Army G4 Ops, 15 July 2010
3. Note that the JCC was often referred to as the contract management cell (CMC).
4. The term TAP TAP refers to the small colourfully painted busses that transport persons from place to place within the city of Port-au-Prince.
5. 3350-165/H16 (J5), Op HESTIA JTF(H) Operation Order, January 10.
6. Norman Wade, *The Sustainment & Multifunctional Logistician's SMARTBook, 2nd ed.*(location, The Lightning Press, 2009).
7. 3350-165/H16 (J5), Op HESTIA JTF(H) Operation Order, January 10.

Source: Canadian Forces Joint Imagery Centre (CFJIC)

A WATCHFUL EYE

Canada and Soviet Influence Activities in Cold War Africa 1960–1963

Dr. S.M. Maloney

> *Communism has the soul of Africa against it. The irrational, unpredictable, and religious African soul will resist the disintegrating power of Marxist-Leninist philosophy, even in cases where the African intellect has accepted it.*
>
> *—Walter Kolarz, "The Impact of Communism on West Africa" (1961)*

During the late 1950s and early 1960s Canada played a role in supporting Western, and particularly NATO, interests in Africa in the face of mass decolonization and expanded Soviet Bloc influence on that continent. As part of those efforts, Canadian national security entities assessed information collected from a wide variety of sources. That data provides us with insight into what the perception of the Cold War vis-à-vis Africa was from the Western standpoint, specifically, the nature of influence activities conducted by the Soviet Bloc during this critical time and the methods used to identify, observe and counter them. The possible implications of these influence operations are of import today. These methodologies and their potential effects tend to be overlooked by the existing scholarship. The view from a non-American ally is also likely to be overlooked by American-centric literature focused on foreign relations during the Cold War. Hence, there is a historical imperative to present another perspective, one that is not dominated by the primary protagonists in the ongoing debate over who is responsible for contemporary African problems.

Consequently, this article will provide insight into a number of questions. First, what exactly was the Soviet Bloc up to in Africa in the early 1960s and how was it perceived by Canada? Second, why was Canada, a country focused nearly exclusively on defence and trade between North America and Western Europe, keeping an eye on such activities? Finally, what larger picture of Cold War activity in Africa emerges from looking at Canada's collection and assessment efforts? The dramatic expansion of Soviet-bloc support to African countries, groups and leaders, which contributed the widespread violence of the 1970s, was built on a foundation established in the 1960s.[1] Understanding what that foundation consisted of and how it was poured remain important questions.

Canadian foreign policy in the early 1950s was dominated by two things: the establishment of the NATO deterrent system in Western Europe, and fighting a war against China and North Korea in Korea. Africa did not play a role at all in Canada's strategic outlook at that time. An analysis of Canadian and NATO strategy conducted in 1954–1955, however, concluded that the Soviet Union and NATO would establish a relatively stable deterrent system in Western Europe, but the competition between the Communist world and the West would spill over into newly-decolonizing regions:

> *The Communist threat and methods vary from area to area according to available resources and the weaknesses and contradictions which they can exploit; allied strategy must therefore combine political and economic rather than military measures to deter the indirect threats which may be posed by the Communists in an effort to outflank the nuclear deterrent.*[2]

Indeed, as early as 1950 Canada was already a champion of the Colombo Plan, which was essentially a Marshall Plan-like scheme for Asia, but had yet to focus any serious attention on Africa. That occurred after the John G. Diefenbaker government was elected in 1957. Diefenbaker, who retained a strong belief that the Commonwealth should be a significant force in world affairs and one that could be involved in blocking Communist influence while not being associated with the United States, determined that Canada would become more involved in Asia, Africa, and the Caribbean.[3] This assistance took many forms; including prototype economic aid programmes established through the External Aid Office[4] and helping newly-independent Commonwealth nations develop professional militaries. By the 1960s Canadian Army training teams were deployed to Ghana, Nigeria, Tanzania and Zambia with explicit training mandates but within the context of vague strategic objectives related to offsetting Chinese,

Soviet, or Soviet Bloc training missions.[5] Canada's trade with African states in the 1950s and 1960s was predominantly with Ghana, Nigeria, Rhodesia, South Africa, and Mozambique. South Africa was by far the largest trading partner, followed by Rhodesia and Ghana.[6]

Connected to this amorphous and fairly uncoordinated approach were two things. First, Diefenbaker was tremendously interested in the developing problem of South Africa, apartheid, and the Commonwealth and sought to play a role in mediating this conflict on the diplomatic front. He believed that this situation was being aggravated as part of Cold War influence games played by the Soviets and if it were not addressed the Commonwealth would be fatally undermined or turned into a mechanism to attack the West.

Second, and equally critical, was the Congo conflagration of 1960, which was interpreted by Canada as a Cold War conflict that could potentially escalate into superpower confrontation. Canada supported and contributed to the UN stabilization force sent in to the Congo but found that the UN contingent was targeted by Communist-inspired or backed elements using non-traditional methods. In one case, 13 Italian airmen were seized, killed, and cannibalized, while on eight occasions, Canadian signals personnel were held hostage and beaten in an attempt to convince Canada to quit the force.[7] Another issue was the Soviets' use of "commercial" jets to deploy "aid technicians" directly from Odessa in the Soviet Union to the Congo, non-stop with no notice. To the West, the message was that the Soviets could use aid activities as a precursor to some other form of intervention if they desired to.[8]

In practical terms, the External Aid Office, established by Canada in 1960 to handle foreign aid, saw its budget allocation for Africa increase during this time, while it was reduced in other geographical areas. A more specialized entity, the Special Commonwealth Africa Aid Programme (SCAAP), was also set up under the EAO; most of the monies that flowed through it were destined for Ghana and Nigeria. Canada's ambassador to France was also sent on a fact-finding mission in 1960 to decolonizing French West Africa to see where Canada might fit in, in terms of aid and assistance.[9]

As a result of this increased Canadian interest in Africa and its discontents, External Affairs had to expand to accommodate this non-traditional region of interest. With the primary focus of Canadian diplomatic efforts remaining the United States, Western Europe, and the Middle East in order of importance, Africa was essentially lumped in with the Middle East Division. "A & ME" had a lot of catching up to do. Canadian representatives were few and far between in Africa, as were information sources.[10]

The information-sharing relationships between the American-British-Canadian-Australian (ABCA) powers that went back to the Second World War played a role in bringing Canada up to speed with African developments. One of the first analyses sent to Canada for comment came from Australia in 1960. In it, Australia posited that the extension of a 400 million rouble credit to Ethiopia was the start of "the Soviet Bloc's economic aid offensive in Africa" as apparently there had been nothing of this magnitude seen previously. There had been economic trade agreements and other connections that started in 1954 in Asia and the Middle East, but the Australians concluded that this was "the first clear evidence that the Soviet Bloc was entering the economic aid field" in Africa. There was also an economic deal pending over Guinea that posed some concerns.

Australian analysis depicted Soviet Bloc activity in Africa as consisting of several overlapping elements: credit repayable in agricultural products or hard currency; reciprocal trade agreements to export Eastern European goods and agricultural equipment; technical aid where students received scholarships to Soviet Bloc schools and training facilities; and trade missions and diplomatic arrangements. Noticeably, the approaches were well-timed—when a given former colonial power left country X, the Soviet Bloc countries were ready and waiting with comprehensive aid packages.[11]

Indeed, the study noted that "in any one of these cases, opportunity is found to exchange 'ideas' between Bloc and African nationals," that is, indoctrinate or propagate the Soviet version of

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Communism. Additionally:

> *Increasing interest in Africa has been demonstrated by the sudden spate of Soviet literature on Africa, and the establishment of chairs of African studies in Bloc universities. Soviet support is given to Asian-African conferences, and to any manifestation of African nationalism. It is recognized that the communists are, as in Asia, following their well-known technique of trying to associate communism with nationalism.*[12]

The Australian study noted that Guinea, Ghana, Ethiopia, Libya, Moroccan, Nigeria, and the Sudan were

the focal points of the Soviet Bloc effort in Africa, but did not provide a detailed analysis as to why.

What was not understood at the time in Canada and the West was that the KGB was instructed in 1960 to establish a whole department to deal with covert and influence operations in sub-Saharan Africa after Nikita Khrushchev made moves to welcome sixteen newly-independent states into the United Nations that summer.[13] The competition for influence at the UN, that is, the Soviet pursuit for additional votes that could be used in the diplomatic war in New York against the West, was presumably one objective of the exercise and consistent with behaviour in other regions, particularly Asia.

Another was probably related to future basing for Soviet forces on the Atlantic coast of Africa. Indeed, France was concerned that Mali's independence would produce a situation where vital facilities in nearby Senegal might be threatened which in turn would interfere with NATO defence plans in the Atlantic in the event of war. There were similar concerns about Guinea.[14] As a parenthetical point, French uranium for her nuclear weapons programme came from Mauritania, which also might be put at risk if Mali shifted to the Soviet orbit.

From the documentation, it appears as though External Affairs' interest in Soviet Bloc African activities seriously increased in late 1960 and early 1961. This is probably attributable to the Congo situation; the belief that the Soviets had their hooks into Patrice Lumumba and had fostered his disruptive activities; and that the Congo could spin up into a Berlin-like confrontation between the superpowers.[15] Canadian diplomats were concerned about Lumumba's connections with Kwame Nkrumah, and Ghana's progressively closer ties to the Soviets. Canada had troops in Ghana conducting training with the Ghanaian Army, and Ghana had troops in the Congo serving alongside Canadian forces.

UN Secretary General Dag Hammarskjold's concerns also resonated in External Affairs. In a conversation with Canadian ambassador Charles Ritchie, Hammarskjold:

> *emphasized the very grave problems raised by Russian aid, actual and prospective, to African countries. He did not…believe that in the case of most African rulers acceptance of Soviet loans and Soviet aid meant any pro-Communist orientation. It was natural enough for underdeveloped countries to take what they could get on the best terms they could get ….The danger was that without desiring to become committed to Communist policies they would be insensibly drawn in this direction by increasing dependence on Soviet aid.*[16]

Given the apparent centrality of the United Nations in the Canadian approach to international problems of the day; it was logical that if the UN Secretary General was concerned, Canada should be concerned.

As part of its educational process, External Affairs received British Foreign Office analyses delivered by special courier from the British High Commission in Ottawa direct to External Affairs. Usually these studies were limited distribution within the Foreign Office and Whitehall. It is an indicator of the closeness of the Canada-UK relationship that this material was made available in such a fashion.

The British analysis agreed with the Australians and noted that 1960 was "Africa's Year" and brought with it "a considerable increase in efforts by Communist *bloc* states to penetrate and influence the continent." The Soviet Bloc states were in the forefront of the effort—the Czechs and East Germans who were the most "ideologically sound" were in the lead, followed by the Poles. Guinea was the "bridgehead" of the whole effort where they made "spectacular inroads." In addition to the usual trade and cultural connections, use was made of partnerships between East German organizations like the East German Communist Youth Movement and the educational system in Guinea, while the East German Red Cross partnered with the health care system.[17]

Though benign on the surface, the reality was that "Moral and material support is openly given to the Algerian nationalists. Notably through the East German Red Cross which has transferred 500,000 pounds to the Algerian Red Crescent. Similar support is offered, especially by the East Germans, Czechs, and Vietnamese to the Gizenga regime in Stanleyville." This last is important, as the UN-

supported Congolese government, with Canadian troops in support, was at war with the Gizengian (ex-Lumumbaist) separatists. Guinea was also suspected of providing "arms, equipment, supplies and training for the Algerian FLN forces" who were fighting Canada's NATO ally, France.[18]

The Soviet bloc propaganda front was of especial concern. The British analysis was that "the full force of Sino-Soviet propaganda has been brought to bear on the African scene, exploiting weakness in the West's relations with Africa, and pouring forth a stream of anti-Western abuse. This propaganda is specifically designed to exploit the ideas and emotions generated by such forces as nationalism, pan-Africanism, Afro-Asianism, anti-colonialism, neutralism, racialism, cultural chauvinism and the desire for economic independence." There was a veritable deluge of new periodicals and publications, while every bloc country had news agencies in Accra, Cairo, Conakry and Rabat. The most important development was radio. Pro-Soviet programming in French, English, Swahili, and Portuguese flooded the airwaves.[19]

This "Radio Barrage" as it was called, went from a weekly output of 3.5 hours in English and French in 1958 to 320 hours in ten languages by 1963. As one report noted, Moscow Radio's Swahili broadcasts went from 3.5 hours a week to 28 hours in late 1962. What was the nature of the content?

All Communist broadcasts are designed to discredit the Western world and to present the Communist countries in a favourable light. The acts and policies of Western governments are condemned and their good faith impugned; Communist policies are extolled and the myth of neo-colonialism spread; and Communist solidarity with African nationalism proclaimed.[20]

Latvian radios were distributed as aid, and large stocks of Japanese transistor radios were filling the gap until production in Eastern Europe could be spun up. UNESCO was supporting the distribution plan, with a plan to get five radios into the hands of every ten people. "African governments," one study noted, "encourage the rapid and general spread of radio sets, which have a high value in combating illiteracy and assist communications in remote settlements. The potential audience for Communist propaganda inevitably expands continually, especially as sets are often wired to loudspeakers in public places."[21] This was all supported with the construction of large transmitters in Somalia, Mali, and Guinea.

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The educational systems of the target countries also received their share of attention. A variety of books and accompanying symposia started to appear: the subjects included "African History, the Alleged Suppression of Africa's Cultural Heritage by Europe, and the Neglect of Health and Education during the Colonial Era." Along with the books and symposia came higher education provided by the People's Friendship University in Moscow. Nkrumah announced that he would send 3 000 students there "to counter-balance those being trained in the West." In terms of covert action, the Soviets also circulated bogus American and British "cabinet papers" which had "damaging effect." The target in one instance was the International Confederation of Free Trade Unions which was non-communist in orientation and viewed as an impediment and competitor.[22]

The broad-based Soviet bloc assault on Africa was not complete without the ideological underpinnings justifying the new adventurism. Dr. I.I. Potekhin, a Soviet ideologist, published *Africa Looks to the Future* in 1960.

Without going into extreme and painful dogmatic detail here, Potekhin asserted that Africa was ripe for socialism and then communism because there was no land-owning class (that was the colonialists—and they were almost gone); socialism was popular among the emergent African leaders, but had not yet "matured into political theory" and could therefore be manipulated from the outside; and, in general, land in most of the areas in Africa already belonged to 'the tribe' and was distributed by tribal leaders; therefore the roots of Socialism already existed and could be built upon by external forces 'assisting' them.[23]

The British were alarmed enough by the tract to instruct all of its High Commissioners throughout the Commonwealth to "expose this Soviet blueprint for Africa" by disseminating an alternative view. The most important and relevant counterpoints were these: "The assumption that the Soviet Union has the right to guide African countries towards a predetermined goal of Communism is unwarranted interference in internal African affairs" and that "given the level of development in Africa, mixed economies with governmental and private enterprise both playing a valuable role are likely to be the quickest way of securing economic progress."[24] All of this to say that Africa was now, in effect, a declared battleground between the free market democracies and the Soviet version of socialism.

Indeed, it took Golda Meir to punctuate the case to NATO officials, who passed the message on to Canada. Israel at the time was in the process of implementing its 'peripheral strategy' whereby she sought to develop agricultural, trade and military relations with nations adjacent to her primary Arab antagonists in order to offset their power and keep their attention diffused[25] (ironically this included Uganda—that is why Idi Amin wore Israeli paratrooper wings). Meir believed that "we were now entering upon a new phase of the Cold War" and "questioned whether the Western countries did enough to counteract communist activity in Africa." Guinea and Mali were, in her opinion, write-offs but Ghana could still be saved.[26]

As the Congo Crisis deepened in 1961 "A & ME" continued to keep up with UK Foreign Office analysis. By this time the FO was producing a regular report series entitled "Communist Bloc Interest in Africa," which was provided to Canada. Each update provided a description of policy trends, analysis of ideological writings, propaganda themes, and a detailed summary of major activities.
In fundamental terms, the FO analysts believed that, overall, "Africa continue[s] to play an important part in the Soviet Union's grandiose plan to harry the West, in the United Nations, and elsewhere, on the issues of disarmament, anti-colonialism, and the overhaul of UN machinery."[27]
Propaganda themes on the UN front tended to revolve around NATO support to Portugal and its colonies; the role of the Vatican as an "agent of colonialism" in the Congo; and dire warnings that Israel was acting "as a puppet of NATO" in Africa.[28]

The FO reports tried as best they could to keep up with the prodigious amount of Soviet bloc publications on Africa, most of which appeared to use the term 'neo-colonial' in the title or sub-title (one exception was the *Swahili-Russian Dictionary*).[29]

Finally in October 1961 Canada's national security apparatus started to provide its own analysis rather than rely strictly on allied impressions. "Soviet Non-Military Strategy in the Underdeveloped Area", a draft study, was fairly comprehensive and straightforward in its approach:

> *The Soviet Government is making strong efforts to extend its influence in the underdeveloped world through 'competitive co-existence.' In doing so, it employs a variety of instruments of which the most important are its diplomatic activities, economic aid, propaganda, direct political action, and guerilla warfare… it is not clear, however, to what extent the communist's appreciation of their situation has been translated into a definite strategy or how far specific tactics, methods, and techniques have been developed.*[30]

Unlike most allied analyses which emphasized the minutiae of communist ideology and verbiage, the Canadian analysis argued that "Great political power can be built on intellectual trash and we are less interested in the logic of the Soviet view of the underdeveloped countries than we are in its effectiveness as a determinant and instrument of Soviet planning." As a result, in general terms, the Soviets immediate task was "to change the [economic and social] structure of the underdeveloped countries in such a way that their ties with the West will be loosened as much as possible" so they would shift into the 'world socialist system' camp.[31]

What methods would probably be employed? "With the exception that nuclear war is to be avoided, no limits in principle have been placed upon the means which may be employed to accomplish this purpose." There were practical limits, however. The Canadian analysis argued that "direct political action is considered…to be inappropriate in most areas." There were also limits "to which guerilla warfare can be usefully employed." On the economic front, these efforts were limited "by the reluctance of some… countries to accept the presence of Soviet personnel…." The most important guiding issue was "to reconcile the need to avoid war with the objective of extending Soviet influence as rapidly as possible in the underdeveloped areas."[32]

The study argued that the Soviet approach would seek to accomplish the following:[33]

- The development of progammes that will divert an increasing proportion of the trade of the underdeveloped countries towards the Soviet bloc.
- The provision of capital assistance in forms which will encourage structural changes in these economies designed to reduce their dependence on the West.
- The encouragement of the development of the government sector of the underdeveloped economies.
- The demonstration by example of the advantages of membership in the world socialist system.

The problem for the analysts was this: was the Soviet approach systematic or opportunistic? Initially, the extension of Soviet aid to the newly-decolonized nations appeared to be completely opportunistic. But the study also detected an emergent pattern of Soviet bloc behaviour. In effect, the Soviets established a diplomatic mission, followed by "large-scale logistic support to any country engaged in political or military conflict with the West, followed by the extension of economic aid. This pattern was seen outside Africa first. Ultimately, the analysts concluded that the early efforts were ad hoc but now the "policy is probably planned with a good deal of precision."[34]

Pessimistically, the Canadian study concluded that:

> *The possibility of a major swing of the underdeveloped countries towards the Bloc remains a real possibility…the trend toward authoritarian, leftist government is strong, more countries are seeking close ties with the Soviet Union and disputes with the west continue. The [Soviets] are well-equipped to take advantage of these opportunities. The extent that it will be able to do will depend to some extent on the effectiveness of the alternatives offered by the West and on the willingness of western governments to enter into competition with the Soviet Union within the borders of individual countries. In the past there has been a tendency to vacate the field …. If such a tendency persists, the continued expansion of the world socialist system seems virtually inevitable.*[35]

In this Canadian view, then, the Cold War competition in Africa had a stronger economic basis than a military one because of the constraints imposed by the deterrent system (nuclear and conventional) that existed between the West and the Soviet bloc—a confirmation of the 1955 analysis. Indeed, the study implied that the provision of large amounts of Soviet military equipment to underdeveloped countries was conducted so that there were equipment sets in these regions for Soviet bloc forces in the event of a Third World War, not necessarily for use in regional conflicts by local principles.[36]

What the Canadian analysis avoided, unfortunately, was a discussion of how the educational and social 'fronts' fit into the competition. In the main they continued to rely on British analysis of these fields. The end-1961 "Communist Bloc Activity in Africa" explained that "literature on Africa has increased in quality and quantity." The focus of a lot of it was directed towards countering "neo-colonialism," which by definition in the Soviet literature, was "indirect control by political, military, economic, and ideological means" by the colonizers over their former colonies. The extensive propagation of "neo-colonialism" as a mobilizing idea appears to have been significant throughout the continent via these means. Analysts also picked up on "some interesting trends. The 'war of national liberation' in Angola was followed closely" and there were indications of future interest in conditions in Mozambique. Again, both countries would be targeted for substantial Soviet bloc aid in their wars in the late 1960s and 1970s.[37]

Interestingly, analysis of Soviet literature conducted by the UK Foreign Office and passed to External Affairs in early 1962 noted that the Soviets were getting impatient about the lack of progress by progressive African regimes. Too many of the new states were not joining the socialist camp and were labelled with the pejorative "neutralist", which in the theoreticians view, "actually aid[s] the colonialists." Clearly this was Moscow's version of "You're with us, or against us." Presaging what would happen in the 1970s, the analysis argued that these complaints "foreshadow a future, tougher policy to win friends and influence people in Africa, with more carefully directed and supervised economic aid… it also seems to imply a stepping up of subversive activities to see that the right men (communists) get the right kind of (influential) positions from which they can further communist aims."[38]

At some point in 1961, and it isn't clear exactly when, the NATO Committee on Africa came into being. Canada was a member but it isn't discernable from available records what exactly the Committee discussed or what its mandate was. It did, however, allow a forum to express Canadian views and policy which in turn was influenced by the analysis conducted by 'A & ME.' In effect, the bottom line was that "Canada views with grave concern this major campaign to bring these new countries within the communist orbit." Canadian policymakers believed that the best approach was "warm ties of friendship and sympathy which remain and can be consolidated through our assistance." Canada pledged to NATO that she would provide economic assistance aid, capital and technical assistance; [and] increased aid in all forms of education." Education was, in Canada's view, "the most important form of contribution." Aid should be funnelled through the UN specialized agencies, the Commonwealth, and intergovernmental financing organizations, presumably but left unstated in the policy, to make the aid 'deniable.' The policy statement took pains to emphasize that "It is essential that the new African states should not become a theatre of the cold war…. New approaches to the problem will have the greatest chances of success in the sense of protecting Africa from the communist menace—if they are based on a genuine partnership in which the African peoples are not only the object of development efforts but actively participate in them."[39]

Incidentally, the Canadian emphasis in NATO forums on education built on an existing policy foundation. Diefenbaker championed what eventually became the Commonwealth Fellowship and Scholarship Plan, established in 1960, which had a broader geographical mandate that just Africa, but became more important after 1960. One of the reasons for Canadian interest in education emerged from negative experiences in Asia with the Colombo Plan in the 1950s. According to one observer, "little purpose is served by giving capital projects before they have people who are competent to operate and maintain them." Subsequently, SCAAP tended to focus on education. By 1967, for example, there were 166 Canadian advisers and 339 teachers in African Commonwealth countries, and over 600 students from these countries attending university in Canada.[40]

Indeed, focus on the present situation didn't blind Western analysts of the African scene. Existing leaders were only stepping stones for Moscow. The next generation, being fostered in the educational systems, would have an even greater ideological tilt:

> *The possible successors to the present rulers have already appeared on the horizon, and it is to them that the communist countries devote their particular attention. These are the young Africans who are learning their Marxism either behind the Iron Curtain or in the West. On returning home these young people are given second or third-rate posts, from which they may one day be promoted to higher positions… they can be found in the youth organizations, in the student's movements, the trade unions, and the information services.*[41]

The infiltration of the media by Soviet bloc-trained students was of particular concern and worth quoting in detail:

> *The communist-directed International Organisation of Journalists which has its headquarters in Prague has shown itself on the African ideological battlefield even more efficient that any other much bigger international communist front organizations, such as the IUS, the WFDY or the WIDF.…*
> *The communist interest in the African press and the African radio is inspired by a very shrewd calculation. If the young African journalists can be won over and trained in a Marxist-Leninist sense, then it will be comparatively easy to manipulate African public opinion with the help of the few existing newspapers, news bulletins, and radio stations.*[42]

African Cold War educational issues that spilled over onto the Canadian diplomatic front included the plight of thirteen Ghanaian students who were sick of being indoctrinated at the Patrice Lumumba University in Moscow. One of them complained to a Canadian embassy stenographer on a commercial flight, which prompted discussions in External Affairs and the NATO Information Committee as to how the situation could be exploited. There apparently was at the time a substantial debate in NATO's propaganda organs over whether the Western powers should recognize degrees granted by the Soviet bloc to African students if they chose to pursue further education in the West. Was it useful to deny recognition or not?[43]

The Ghanaians provided Canada and NATO an inside view as to what happened to Africans who were sent to the Soviet Union for training and education:

> *[John Noi] Quist's story is full of the usual complaints of African and Asian students studying in the Soviet bloc: compulsory demonstrations, being spied upon, police surveillance, no real examinations…. He himself suspected that a girl who had been assigned to tutor him in Russian was in fact spying on him and he informed the authorities at Friendship University that he no longer required her services. She in turn went to the Ghana embassy and in tears professed her undying love for Quist, who, hard-hearted fellow that he is, would not have her back.*[44]

Like North American academia during the Deconstruction fad of the 1990s:

> *The students who participated willingly in the demonstrations and protest meetings, for which the speeches were prepared in advance by the Soviet authorities, had no difficulty passing the examinations.*

Unlike academia in the 1990s, and more like the American south in the 1950s:

> *Quist said that one of his Ghanaian friends had been nearly killed in a beating administered by some Russian students and militia men for having entered a restaurant which was out of bounds for coloured students….*

Quist explained that he and 12 other students wanted to take up scholarships elsewhere and get out of Moscow. Would Canada help? The External Affairs analysis of the situation provides us with some insight into how education was a Cold War tool at this time. Some wanted to exploit the situation by establishing a programme to "catch African students on the rebound, as it were" but another view was that "we have more to gain by bringing other students to the West direct from the under-developed country concerned." Jean Fournier, the Under-Secretary of State for External Affairs considered that:

> *It is possible to be too complacent in this matter. It is well-known that the Communists have had great success in proselytizing students from under-developed countries studying in the West. Far away fields always look greener. It might be a very salutatory influence on [these students] if students of their own nationality, disillusioned with Communism, were brought into their midst. Possibly one or two students from each geographical area being brought in to any given Western country would be most helpful in this regard.*[45]

The Soviets, meanwhile, consolidated their larger strategic approach to Africa around October 1961 while the Berlin Crisis was underway. They basked in the wake of a successful diplomatic offensive: attacking the West on the issue of "direct colonial rule" according to one analysis "was rewarded by the United Nations condemnation of apartheid in South Africa, Portugal's policy in her overseas territories, and France's Algerian policy" followed by a demand to investigate Rhodesia.[46] The cumulative effect of these efforts to secure "international" condemnation sowed the seeds of trouble for Angola and Mozambique which pressurized Portugal and would ultimately result in the 1974 Carnation revolution. France was already seriously damaged internally by the Algerian conflict and was even subjected to disobedience by its army and targeted by Algerian veterans-turned-terrorists-while still working through decolonization in French West Africa. The situation in South Africa made the Commonwealth look bad on all levels. How did this affect Canada? Two NATO allies were being discredited, while the credibility of the international organization the Prime Minister placed his faith in, the Commonwealth, was shaken to its core.

Canadian Forces Joint Imagery Centre (CFJIC) CFC-67-83

For the future, the Soviets determined that they would categorize African states in two ways: those under "direct rule" as colonies and those subjected to "indirect rule" by "neo-colonialism." None of the African states thus far were socialist as they "were still involved in the world capitalist economy." African states would not be categorized as ""Socialist" unless they "adopt[ed] a programme of Socialist construction not subject to Western influence." This new categorization would, hopefully, force new African states to choose between the two camps.[47]

The Soviets also recognized "Independent" states but decided that there were three types. The first two were the "national democracies" and those who proclaimed they were "Socialists of a National Type." The difference was the presence of a national front in the former but not in the latter. The latter "played down class struggle." Both could be worked on to shift them to Socialism by using various methods to throw off indirect rule. The third type was right out—these were "despotic regimes representing the interests of local reactionaries, generally in collusion with Western Powers."[48]

The preferred method in the future was to focus on "National Democracy" in the 'Independent' states[49] which is to say a fall-back on traditional 'National Front' methods. In this approach, anti-establishment elements, left, right and centre, are brought under one roof, the regime is toppled, and then the Communists purge their non-Communist compatriots and take over.

All of this, of course, was to be supported through bloc diplomatic missions, cultural links and economic aid. Propaganda efforts were to underpin everything. One particular propaganda theme that emerged to support the Soviet bloc effort was, after some analysis, "the Soviet view [that] Africa had a highly-developed culture until it was 'obliterated' by 'colonialism' and Africa's present national liberation struggle has its counterpart in a national renaissance. This accounts for the mounting interest of Soviet writers in Africa's ancient culture and contemporary literature and art."[50] Chillingly, a new and Orwellian emphasis was ordered within Moscow's academy to support this effort:

> *[The Communist Party of the Soviet Union] decided that the African Institute in Moscow should no longer concentrate on criticism of the colonial system, but should give priority to Africa's current economic and social problems and to studying Africa's past in conjunction with the Departments of Archaeology and History. This is clearly the first step towards the acquisition of material for re-writing Africa's history which [prominent Soviet academics] described as 'a political task, part of the struggle against the threat of neo-colonialism.'"*

By 1962, Canadian analysts were able to piece together what the Soviet bloc education and training centre system looked like. Patrice Lumumba University in Moscow was "reserved for students from Black Africa." They received scholarships from the Soviet government. The initial numbers were 70 in 1959 which ballooned to 500 in 1961. Hungary handled trade union training in Budapest. Its output was estimated to be 40–50 African students every four weeks. Czechoslovakia was the home of "a political training school for young Africans" and was concealed behind the International Union of Students front. Another facility, the Institute for Economic Studies, "trains young Africans for undercover activities both military and terrorist." East Germany, presumably using the Hitler Youth as a model, boasted a "High School for Africans" under the direction of the Labour Unions of East Germany, plus a school for "National Solidarity" which trained "political cadre[s] for young Africans and is under the control of the WFTU and the World Federation of Democratic Youth." Canada's High Commission in Accra did sterling work in this regard using its contacts.[51]

Another problem area that came to the attention of Canada's African analysts was in civil aviation. As we have seen, civil aviation had been used by the Soviets to 'signal' during the Congo crisis in 1960. By 1962, the Americans and the French were increasingly concerned about Soviet bloc air activity on the continent and solicited Canadian opinion on the matter. At this point, the Soviet Union had agreements with Guinea, Mali, Morocco, and Ghana but was pushing on Sudan, Somalia, Tanganyika, and Ethiopia. American ambassadors were instructed by the US State Department to convey the message that Soviet objectives were "increased prestige and political influence" with "commercial considerations being secondary." More importantly, this form of penetration would give the Soviets "a network of Soviet air services [that] would provide improved facilities for espionage and subversion." In addition, the Soviets

were not members of ICAO or IATA which meant that "agreements with her have to include safeguards against abuse and exploitation (e.g. as regards nationality of crews and remittability of funds)."[52]

The matter moved over to NATO. The French proposed that a concerted NATO approach to African countries should be made to limit Soviet commercial aviation expansion. A & ME analysts were sympathetic "over this form of penetration in Africa and we agree that African governments should be warned of the dangers and risks involved in granting air rights to Aeroflot."[53] They however cautioned that "a concerted NATO approach should be avoided lest it be interpreted as an attempt by the West to 'import the cold war' into Africa. "We feel that discrete representations by individual states are preferable." The British, it turned out, also agreed that there "were dangers inherent in a concerted NATO approach to African governments" on civil aviation. Canada was willing to provide intelligence on Soviet bloc civil aviation in Africa, however and keep an eye on things.[54]

A & ME analysis formed the basis of Canadian policy in NATO on this matter, and Canada's representatives in Paris used the arguments verbatim. Indeed, as a Canadian report noted, Ghana "regards its experience with Soviet aid in this field as very unsatisfactory; for example, most of the Il-18 aircraft provided to Ghana are grounded and may be returned to the USSR" and a Soviet request that only Ghanaian or Soviet crews be employed on Accra-Moscow service was refused." African nations, perhaps, didn't need goading from NATO to see what was going on.[55]

Further discussions between Canadian and American diplomatic analysts on the limitations on the Soviet approach started to emerge as early as 1962, when the initial shock had worn off and the Soviets were encountering problems in Mali as well as Ghana. There were two specific aspects of the Soviet's ideological approach, "the first was the confusion which conditions in Africa sow in Communist-trained minds; nothing on the continent fits into the pattern which they have been told is valid for all human development… the peculiarities of African conditions and developments do not trouble Westerners nearly as much, since they do not try to fit Africa into pre-conceived patterns." The second was "the absence of indigenous Communist Parties or the stuff from which such parties could be readily constructed." They were trying to establish it, but that would take some and be "a long and difficult process." In the end, as one commentator said, "the newly-independent African states will not automatically believe what Westerners tell them about Communism; they have to find out for themselves…. While Soviet activities in Africa will have to be watched carefully, such evidences as these should not in themselves be unduly disturbing."[56]

CONCLUSIONS

The Soviets and their allies would tire of Ghana, Mali, and the Congo and move on to greener fields in Angola, Mozambique, and Ethiopia by the end of the decade. The body count would precipitously rise with direct confrontation between surrogate forces and those of Portugal, Rhodesia, and South Africa in the 1970s. The long-term effects of Soviet bloc forays into education, technical training and the media in African states, however, have not really been examined. The tremendous efforts and resources applied by Moscow and its bloc servants were comprehensive and ideologically-based. It is illogical to suggest that no Africans who were subjected to this array of coordinated activity were influenced by it. Yet how do we measure those effects? What tools should we use? Do we in the academic community have the will for an objective assessment of these matters in relationship to the problems of Africa today? This article depicts what some Western countries thought was going on. We do have confirmatory information that emerged in the 1990s from Soviet sources. Again, these analyses do not and cannot examine effects. Have African economies been distorted by Soviet-era economic training provided to middle-management in the 1960s and 1970s? How about attitudes towards various Western powers: have they been unduly influenced by Soviet histories of Africa or curriculums approved by advisors from the day? Ultimately, we should ask: are all of Africa's ills purely the result of colonial or neo-colonial manipulation? Or did Soviet-era influences play a role? And what exactly were the local and national limitations that the Soviets encountered? It is high time that we attempted to answer these questions and, hopefully, the long-forgotten work of Canadian analysts of the African scene in the 1960s can launch us in this direction.

ENDNOTES

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16. NAC RG 25 vol 6991 file 5475-6-40 pt 5, (26 Feb 60) message PERMISNY to External Ottawa, "Africa."
17. NAC RG 25 vol 5560 file 12774-40 pt 2 (20 Feb 61) UK Foreign Office, "Communist Satellite Activities in Africa (Excluding Egypt, Sudan, and Libya)"
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TOWARD LAND OPERATIONS 2021

To mitigate the unpredictability of future conflict and prepare itself for the challenges it will face in the years ahead, the Army has recently published *Land Operations 2021: The Force Employment Concept for Canada's Army of Tomorrow,* to serve as a guide for land force development through the year 2021. *Toward Land Operations 2021* is the foundation document, developed from a series of operating, functional and enabling concepts that collectively describe an approach to future land operations characterized by the deliberate dispersion and aggregation of adaptive forces in order to create and sustain tactical advantage over adept, adaptive adversaries.

www.army.forces.gc.ca/DLCD-DCSFT/monograph_e.asp

Source: Combat Camera

H.J. Coghill, Sergeant-at-Arms of the House of Commons

Source: Library and Archives Canada

FROM THE PERTH REGIMENT TO PARLIAMENT HILL

Lieutenant-Colonel Harry J. Coghill: Soldier and Sergeant-at-Arms of the House of Commons

Mr. R. Vineberg

In early twentieth-century Canada, particularly in smaller communities, much of the social life revolved around the militia regiment. A mammoth program of building new armouries across the country also provided the draw of modern facilities for military drill and celebration. The 28th Perth Regiment in Stratford, Ontario was no exception. Its new armoury on Waterloo Street was built in 1905 and immediately became an important gathering place in Stratford. Young Harry Coghill, new to Stratford, naturally gravitated to the 28th, already a proud organization with a history dating back to 1856. He was interested in military service; he was a natural organizer; he was outgoing; and he wanted to build a social network in his new town. His work with his father and elder brother as a tailor could not provide Harry with the challenges he craved. So in 1906, he joined the militia.[1]

Harry Coghill was 18 when he joined the militia. He had been born on 17 April 1888 in Listowel, about 40 km north of Stratford. He was the second of seven children born to James Coghill and Caroline Phelps. Two of the children died young but Harry, his older brother Jay, his younger brother Frank and his sisters, Dorothy and Marjory, would thrive. Harry attended school in Listowel and later in St. Catharines. His maternal grandparents lived in Merritton, just south of St. Catharines. From an early age, he lived with his grandparents every summer and ended up completing high school there. Meanwhile, his family moved from Listowel to Stratford and his father established his tailoring business there. On graduation, Harry moved back to Stratford and immediately joined the Non-Permanent Active Militia.[2]

It was a short walk from his home at 102 Church Street to the armoury at the corner of Waterloo and Albert, and almost certainly, the militia became the centre of Harry's activities. He excelled at his training. In March 1909, he was appointed as a provisional lieutenant and was confirmed in the rank a couple of months later. Then on 1 March 1914, he was promoted to the rank of captain with the Perths.

Harry's father and mother both died not long after the family moved to Stratford. His elder brother, Jay, took over the business and made it clear that there was not enough room for the three boys to make their living from the tailoring shop. Frank moved back to St. Catharines and found work at a bank; while Harry stayed in Stratford but worked as a travelling salesman for Mickleborough and Muldrew, a company marketing English woollen goods.

It was not surprising, then, given Harry's successful militia career and his rather mundane business career that, when war broke out, he was among the first to sign up for active duty. He joined the 28th Overseas Detachment in Stratford on 6 August 1914 and was soon on his way to Valcartier. Being from south-western Ontario, he joined the 1st Battalion, was assigned to the Headquarters Company and, on 22 September, was appointed assistant adjutant of the 1st Battalion.[3] The battalion boarded the LAURENTIC at Québec three days later.[4] Like the some thirty other transports carrying the First Division, LAURENTIC waited off Gaspé until 3 October for the arrival of the four Royal Navy cruisers that would escort the convoy. The cruisers were augmented in mid-Atlantic by the battleships HMS GLORY and MAJESTIC and later by the battle cruiser, HMS PRINCESS ROYAL. The lead vessels of the convoy arrived in Plymouth on 14 October, having been diverted from Southampton, following reports of German U-boats in the channel.[5]

Harry, of course, knew that his younger brother, Frank, had added a year to his age and had enlisted with the 1st Battalion as well.[6] However, once Frank got to England, after having been promoted, first to sergeant and later to lieutenant, he was able to transfer to the Royal Flying Corps. Harry certainly did

not realize that his future wife was also in the convoy, aboard the FRANCONIA. Eva Hambley was just completing her nursing training at the Owen Sound General and Marine Hospital as the war broke out, and she enlisted as a nursing sister.[7]

On arrival in England, Harry, like so many other Canadians, went directly to Salisbury Plain. The 1st Battalion disembarked on 18 October and arrived by train in Amesbury on the following day. It was assigned to Bustard Camp.[8] Life on the Plain was drudgery marked by continuous training and almost continual rain. As adjutant, Harry surely was faced with problems enough but also had to take on the role of battalion paymaster following the arrest of the officer previously assigned that duty.

However, the occasional leave and the delights of London were some compensation. One of Harry's Stratford acquaintances was

Author's Collection

Miss Gertrude French, who was also a nursing sister with the Canadian Expeditionary Force (CEF). She had been sent to St. Thomas' Hospital in London. Registered nurses were given their own rooms, and the room next to Nursing Sister (NS) French was occupied by NS Hambley. Harry had arranged to come up to London with Captain Chesham, also of the 1st Battalion, to see a show, and he invited NS French to accompany him and asked her to find a companion for Captain Chesham. NS French went next door and asked NS Hambley. So it was, during her blind date with Captain Chesham, that Eva Hambley met Harry Coghill. The army inadvertently helped facilitate Harry's courtship of Eva by transferring her to Beaufort Manor on Salisbury Plain in late October 1914. She was assigned to the No. 2 General Hospital and later transferred to Netherhaven. It was while she was at Netherhaven that Harry proposed to her in early 1915. But marriage had to wait until both went to France.[9]

The Canadian First Division was heading into action. As, at that time, adjutants were not carried into the field with their units, Capt Coghill was appointed battalion quartermaster. The 1st Battalion decamped on 7 February and proceeded by train to Avonmouth where it boarded the transport ARCHITECT on 9 February and arrived at St. Nazaire late on 11 February. At St. Nazaire, Capt Coghill became one of the battalion's first casualties when his horse backed into a car and he was thrown, suffering a fractured rib. He did not realize, or did not care to admit, that his rib was broken and proceeded with his battalion to the front lines.[10] By 15 February, the battalion arrived at its billets in Merris, just north-west of Lille, but it was quickly ordered to Armentières the following day.[11]

By this time, Capt Coghill could no longer deny his injury, as he had also developed pleurisy. On 18 February, he was admitted to No. 2 Canadian Stationary Hospital in La Trouquet (on the English Channel, about 40 km south of Boulogne), was treated for his symptoms and was discharged from the hospital on 10 March, just in time for the 1st Battalion's first action. The battalion had occupied trenches at Fleurbaix on 1 March and immediately faced shelling and sniper fire as it took its turn in the lines. It was relieved by the 3rd Battalion on 5 March but, in turn, relieved the 3rd Battalion on 9 March. Its first major action was only hours away.

The Battle of Ypres opened, for the Canadians, at Neuve-Chapelle, from 10–12 March. Early on 10 March the battle commenced. The 1st Battalion, as part of the Canadian First Division, was now under direct British command and was positioned on the left flank of the British 4th Corps. The battalion War Diary records that it "received orders to hold the enemy to their ground while the 4th Division [sic] attacked Neuve-Chapelle on our right. Kept up a heavy fusillade, assisted by artillery, all day." The battalion lost three killed and five wounded. It was more of the same the following day, but the Germans brought additional heavy artillery to bear against the Canadians. Nevertheless, the battalion only suffered two wounded. 12 March saw a full-scale counter-attack by the Germans, mostly aimed at British positions. It was repelled with the Germans suffering heavy losses. The 1st Battalion was again shelled but with little effect, though one soldier was killed. On 13 March, the 3rd Battalion again relieved them and the 1st withdrew to billet, taking its place in the Divisional Reserve. Captain Coghill's first battle experience had been a success. Meanwhile, it was realized that units still required adjutants, and Capt Coghill acted at various times as battalion adjutant from 16 March to the end of May 1915.

On 17 March, the rotation continued with the 1st Battalion taking over the trenches from the 3rd and, though the rest of the stay in the Fleurbaix area was relatively quiet, the battalion still lost two killed, including a lieutenant, and three wounded. On 27 March, the Canadians were relieved by the British 8th Division and moved into reserve at Estaires, about 8 km behind the lines. Easter Sunday, 3 April was a break from routine with the battalion attending Divine Service rather than the usual behind the line tedium of route marches, running barbed wire or digging trenches. Shortly after, orders came for another move. The battalion cleaned its billets, packed and, on April 6th headed for Oudezeele, some 30 km north of Estaires.

While the Canadian First Division relieved the French 11th Division in the Ypres Salient between 14–17 April, the 1st Battalion remained behind the lines until 18 April, when it began to move into Belgium, first to Proven and then to Vlamertinghe, just 3 km west of Ypres. It remained there until 22 April, the day of the German's first use of chlorine gas. The gas attack, in the late afternoon, was aimed at French territorial troops holding the northern part of the salient, and their lines broke, allowing the Germans to advance south behind the green cloud of gas. This created a huge gap in the Allied lines, threatening the rear of the Canadian 1st Division and the two British divisions also in the salient. In fact, for 2.5 km, running east from the Yser Canal, the Germans faced only a solitary French machine-gun post. Fortunately, the Germans having reached their objective—a line running south of Pilckem—dug in. If they had advanced, they might have completely surrounded three Allied divisions. In order to create a new line, General Sir Horace Smith-Dorrien, General Officer Commanding (GOC) of the British Second Army released the Canadian 1st Infantry Brigade from reserve. At 0220 on 23 April, the 1st and 4th Battalions received orders to cross the Yser Canal via Brielen, just to the north of Ypres, and to attack the village of Pilckem. By 0900, they were in the field and by 1000 were entrenched in positions, in front of Pilckem only 300 m from the German front lines, that they held for the rest of the day. In the afternoon, a general counter-attack took place and the Canadians advanced to within 200 m of the enemy lines. That evening, at 2330, the Canadians were relieved and withdrew about ½ km south to reserve trenches that had been thrown up during the day. Holding these positions was crucial to preventing the German advance but came at a huge cost. Most of the 1st Battalion's casualties at Ypres would come this day. But even in the reserve trenches, they suffered a brutal bombardment throughout 24 April.

To the east, as the battle for the key town of St. Julien opened, the Germans unleashed their second gas attack. The Canadian 8th and 15th Battalions, still unprotected from the gas, bore the brunt of the attack, but the Allied line in general was badly outnumbered by the Germans and had to fall back with the result of the loss of St. Julien. In order to reinforce the line, at 1900 on 24 April, the 1st Battalion was ordered deeper into the Salient marching to Fortuin, just south of St. Julien. There, they dug in to support a counter-attack on St. Julien on 25 April. They remained there throughout the day; they were relieved at 2000 and ordered to withdraw to the west bank of the Yser Canal and to hold a position there. They remained in defensive positions there until the 28th when they were withdrawn to Vlamertinghe. The Commanding Officer of the 1st Battalion, Lt Col F. W. Hill closed the narrative in the War Diary noting that, "The casualties suffered during the period 23rd to 30th inst. were: Officers—killed 3, wounded 7: other ranks—killed 56, wounded 306, missing 34. Nearly all of these casualties occurred on the 23rd inst.[12] The conduct of all ranks was all that could possibly be desired and their devotion to duty and steadiness remarkable."

On 2–3 May, the battalion was moved to Bailleul, some 15 km south-west of Vlamertinghe for a well deserved rest. On 5 May, General Smith-Dorrien visited with the battalion's officers and personally thanked them for the work done on 23 April. He stated that "the situation was saved by the determined work of the Canadian Division." On Sunday, 9 May, the battalion held a memorial service for those who had fallen at Ypres. However, once more, Capt Coghill was suffering from his injury, and on 20 May, he was sent to No. 1 Stationary Hospital at Le Tréport, on the French coast, some 30 km north-east of Dieppe, thereby missing the Battle of Festubert.

On 14 May the battalion moved to Callone and on the 19th to Le Touret in preparation for the planned offensive in Artois, without Capt Coghill. The Battle of Festubert began on 15 May but the 1st Battalion only joined the line on 22 May, taking over part of the front held by the 8th Battalion. Much of the work was extending the trench system while under fire. They remained in the line until the British called off the inconclusive battle on 25 May. On 31 May, they were relieved by the 8th Battalion, Black Watch, and moved behind the lines to La Croix-de-Fer, where they remained until 10 June.

Meanwhile, at No. 1 Hospital, Capt Coghill was X-rayed, and it was found that there was a "mal union" of his fractured rib. Therefore, he was operated on for a rib resection and was convalescent for month, after which he was granted three weeks' leave. During this period, he was promoted to major.

On 10 June, the 1st Battalion was ordered to reserve positions near Givenchy-lez-la-Bassée. It was here, on 14 June, that the battalion exchanged its more accurate but temperamental Ross Rifle for the less accurate but far more reliable Lee-Enfield. The following day, the 15th, they would put the Lee-Enfields to work. They moved into the forward line where, at 1800, the 1st Battalion would launch the Canadian assault. This was the first major battle where the Canadians had had time for the careful preparation that became their hallmark, and it paid off in the initial stages of the battle. A two-day bombardment had preceded the advance, and the 1st Battalion was in the German forward trenches by 1810 and in the second line trenches shortly thereafter. Unfortunately, the advance was not going as well on its flanks and the battalion had to fall back, first to the forward German trenches and, by 2130, to the front line British trenches. In covering the retreat, the battalion's machine gun officer, Lt F.W. Campbell, along with the only other surviving member of his unit, Pte H. Vincent, took a gun forward of the German front line and kept firing until he was killed. Pte Vincent then continued firing until out of ammunition at which time he managed to crawl back to the Canadian line. Campbell was posthumously awarded the Victoria Cross (VC), and Vincent received the Distinguished Conduct Medal (DCM).

The battle took a huge toll on the 1st Battalion, and at 0100 on the 16th, it was allowed to withdraw from the line, carry out its wounded and bury its dead. The battalion had 378 casualties, including 20 officers, of whom 10 were killed, 8 wounded and 2 missing. Of other ranks, 58 were killed, 218 wounded and 82 missing. On the 17th, the battalion marched to the cemetery at Beuvry for the burial of six of its officers. After, the battalion moved to billets in Gonnehem where they stayed until June 25th. Then they moved to Ploegsteert, about 5 km north of Armentières, where they relieved the 8th Fusiliers on 27 June.

The routine of time in the line followed by rest time behind the lines continued. The battalion was only at about half strength, and it was a blessing that it was not in a major action at this time. On 6 August, the War Diary (Appendix B) reported only 14 officers and 408 other ranks on strength. It also reported that one officer had been "transferred to remount."[13] That officer was Major Coghill.

Meanwhile, Eva had also been assigned to France, and on 17 March, she went to the No. 2 Canadian General [field] Hospital, also at Le Tréport. While on leave, Major Coghill was able to visit Eva at Le Tréport until she returned to England in August. At that time, of course, she had to resign as a nursing sister in order to marry. At the end of his leave, Coghill was still not recovering well from his injuries and was no longer considered fit for combat. For that reason, he was transferred to the Canadian Remount Depot, as paymaster, in July 1915, but required further hospitalization in England, in August. Following his hospital stay, he was assigned as Camp Commandant and Quartermaster at the Canadian Military School at Shorncliffe, near Folkestone, on 18 September 1915.

With both Harry and Eva back in England, they could now marry, which they did at the Grace Hill Methodist Church in Folkestone on 17 September. In January 1916, Harry and Eva returned to Canada. Eva, as a demobilized veteran, was eligible for passage. They had booked on the Allan liner HESPERIAN for a passage at Christmas 1915, but it was torpedoed on September 4 and sunk under tow two days later, so it was necessary to arrange for a passage on the CPR liner METAGAMA, which arrived in Saint John on 30 January 1916.[14]

Back in Canada, in February 1916, Lt Colonel C.W. MacLean, asked Major Coghill to assist him in organizing the 207th Ottawa-Carleton Battalion. Col MacLean appointed Coghill as his adjutant on 1 March 1916. In the fall, he was promoted to second in command of the 207th with the brevet rank of Lt Colonel. The *Ottawa Journal* reported that:

> *The regiment was popularly known as "MacLean's Athletes" on account of the fact that quite a large number of local athletes joined it and went with it overseas. Colonel Coghill's abilities as an organizer were strikingly manifested in the mobilization of this battalion many members of which came to regard him as a personal friend. He was always ready to do everything in his power for the comfort and efficiency of the battalion as a whole, and for individual members of it so far as possible.*[15]

On 26 June 1916, the Coghills were blessed with the birth of their first child, Elizabeth (Betty). Nevertheless, when the new battalion was due to go overseas, Col Coghill went with it to its staging location at Amherst, Nova Scotia, in January 1917, fully intending to accompany it to the front. However, due to mass illnesses in the battalion, its departure was delayed until May. Meanwhile, in March, Col Coghill was recalled to Militia Headquarters in Ottawa. He reported on 7 March and on 16 April assumed responsibility as Deputy Assistant Adjutant General (in charge of Personnel Services, Other Ranks) and Deputy Adjutant General Organization. At the end of the war, he decided to remain in the Army. He was now responsible for two children, as his son, Donald, was born in 1918. It was a good decision. In 1919, he was promoted to substantive Lt Colonel and in February, 1920, he was appointed Assistant Director of Organization. In 1921, he was attached to the Princess Patricia's Canadian Light Infantry (PPCLI) as the Army continued its return to the traditional regimental nomenclature that had been abandoned early in the war by then Minister of the Militia, Sam Hughes. He and Eva purchased a spacious house at 188 Carling Ave (now Glebe Avenue) for their growing family and, later, a cottage in Norway Bay, some 70 km west of Ottawa on the Québec side of the Ottawa River.

Col Coghill truly became a citizen of his adopted city. He joined the Ottawa Rotary Club in 1922. He was an avid golfer, playing at the Rivermead Club and later becoming its President. He served for a number of years as a director of the Ottawa Winter Fair and was a member of the Central Canada Exhibition Association. He was later appointed to the Collegiate Institute Board. Though not an openly religious man, he supported his church. His wife recalled their minister saying to him, "Harry, you are a pillar of the church—an outside pillar but a pillar nonetheless!"[16]

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At this time, government protocol was largely delegated to the Army, and by the early twenties, Col Coghill's organizational skills were regularly called upon by the Prime Minister's office and by the Governor General. Following one ceremonial occasion, Viscount Willington personally penned a letter of thanks to Col Coghill, saying, "It was a triumph, & the whole ceremony went, as far as I could [sic] see, without a hitch & the result was largely due to your [sic] efforts. Let me add that it is good to feel one has such competent helpers to back me in undertaking one's duties."[17]

Col Coghill's skills came to the fore during the 1927 Diamond Jubilee of Confederation where he served as master of ceremonies for the celebrations in Ottawa. It that capacity, he is seen walking side by side with Prime Minister Mackenzie King on Parliament Hill in a 1 July 1927 photograph.[18] He was also largely responsible for organizing the 2 July visit to Ottawa of the United State's special goodwill ambassador for the Diamond Jubilee, Charles Lindbergh, and Coghill was the "go to person" for the Prime Minister as soon as he heard of the tragic crash at Uplands Airport of Lt Thaddaeus Johnson, one of the pilots accompanying Lindbergh.[19] The Prime Minister ordered a military funeral, and it fell to Col Coghill to organize it within twenty-four hours. The *New York Times* devoted a three column article to the events in Ottawa and noted that, "An outstanding war hero, Colonel Coghill, of the Princess Pats, commanded " the funeral cortege.[20] All this resulted in Col Coghill missing the birth of his third child, Caroline. Duty always came first.

Col Coghill was also the key organizer of that summer's three week long visit to Canada by the Prince of Wales, his brother Prince George and Stanley Baldwin, the British Prime Minister.[21] His duties included travelling with the Royal party and ensuring that all went smoothly, which it did. Similarly, he organized the 1928 tour of British Secretary of State for the Dominions, Mrs. Leo Amery was effusive in her thanks, writing at the end of the tour, to "say to you what an infinite pleasure (apart from the great benefit) it has been to have you with us on this splendid tour of the great Dominion. It has been a real happiness to us both to know you and to have you as a travelling companion… ." Before closing, she went on to praise his "sense of humour, your good nature and & splendid [good] sense."[22] For the 1929 tour of British Prime Minister, Ramsay MacDonald, Prime Minister King personally wrote his instructions to Col Coghill saying that, "I have told Mr. MacDonald that the government has asked you to lend good offices in any particulars in which may help to further the convenience and enjoyment of himself and his party."[23] Clearly, Col Coghill made good on these instructions. In his letter of thanks to Prime Minister

King, at the end of his visit to Canada, MacDonald wrote, "Your Colonel Coghill has been invaluable and has been a godsend to us on our journeying. He never spared himself and he left nothing undone that could have contributed to our comfort. We are most grateful to you for having sent him along."[24]

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Prime Minister King wished to reward Col Coghill for his dedicated service and in 1929 talked to him about two possibilities: appointment as Sergeant-at-Arms of the House of Commons or as Commandant of the Royal Military College (RMC). According to his wife, he would have preferred to be Commandant of RMC but, as he did not have a university degree, this appointment would have been unlikely. Nevertheless, political appointments took time and, in the meantime, Col Coghill was transferred to London, Ontario as Assistant Adjutant and Quartermaster-General of Military District No. 1, effective 1 October 1929. The family packed up and sold their Carling Avenue house and moved to London. However, it was to be a short stay. As one of his final acts, following his defeat in 1930 by R.B. Bennett's Conservatives, King pushed through an Order-in-Council appointing Col Coghill as sergeant-at-arms. King's diary, for 29 July 1930, records his conversation with Bennett, the day after the election. He advised him of two appointments that he had made and urged Bennett to support them, despite the fact that they both were Liberal appointees. One was the appointment of Vincent Massey, as Canadian High Commissioner to London, and the other was Coghill's. He told Bennett that "Coghill [was] a good man on ceremonials etc."[25]

Indeed, Col Coghill was a good man on ceremonials. In fact, he was Canada's man on ceremonials. On 31 July, the *Ottawa Journal* reported his appointment as sergeant-at-arms. It correctly deduced that:

> *Undoubtedly, the achievements which won Colonel Coghill his new Parliamentary appointment, had to do with organization on a national scale. When the Government desired to stage imposing ceremonials*

in the Capital or elsewhere, it was Colonel Coghill to whom the difficult task of organizing and directing the ceremonies was given. Military ceremonial for Openings of Parliament, State Drawing Rooms, Prorogation of Parliament, etc., were invariably under his able planning and personal direction, usually as Field-Officer in Brigade-Waiting.

The military part of the program of the celebration of the Diamond Jubilee of Confederation was directed by Colonel Coghill as Master of Ceremonies, cooperating with the National Committee.

When the Prince of Wales and Stanley Baldwin, then Prime Minister of Great Britain, visited Canada some years ago, Colonel Coghill planned their itinerary and accompanied these distinguished personages to ensure the smooth working of his plans. Also, when Colonel L.C.M.S. Amery, as Secretary of State for the Colonies, was in Canada, Colonel Coghill personally directed his tour.[26]

Col Coghill assumed his duties as Sergeant-at-Arms of the House of Commons on 26 July 1930. So, within a year of moving to London, the Coghill family was back in Ottawa. Unfortunately, the big house on Carling Avenue had to be replaced by a smaller but still commodious house, a block away, at 308 First Avenue. The family cottage, at Norway Bay, was his get-away, where ceremony and uniforms gave way to shirtsleeves and suspenders or a bathing suit. He loved the time spent at the cottage with his young family.

The position of sergeant-at-arms goes back centuries. Originally, a personal attendant of the king, the first sergeant-at-arms was assigned to the English House of Commons in the fifteenth century. The public role is very ceremonial such as the daily carrying of the mace into the House as a symbol of authority and order. Traditionally, the sergeant-at-arms is responsible for maintaining order in the House and in the galleries. However, the Canadian Sergeant-at-Arms was also the Controller of the Household of the House of Commons, responsible for the building services and security for the entire House of Commons side of Parliament—essentially equivalent to an Assistant Deputy Minister, Corporate. And in 1930, this was to be a daunting task.

As the depression worsened, the Bennett Government became increasingly unpopular and Parliament Hill became the scene of many large demonstrations. Together with his Senate counterpart, the Gentleman Usher of the Black Rod, Col Coghill worked tirelessly to maintain security on the Hill. The Speaker of the day noted that, "He was most diligent and efficient; [and] had a wide knowledge of people and affairs in Canada … . The position of sergeant-at-arms is one requiring the exercise of considerable tact, as well as administrative and business ability; the Colonel had all of these, a cheerful soul, unsparing of himself, an[d] adept at smoothing away difficulties and in keeping members and staff in good humour."[27] He would arrive at his office early every day and, due to evening sittings of the House, never returned home before eleven. He loved the work, but it was taking its toll.

Furthermore, when Prime Minister Bennett succeeded in bringing the 1932 Imperial Economic Conference to Ottawa he, of course, turned to Col Coghill to organize it. This was a mammoth undertaking, with delegations from every dominion and colony. As Administrative Secretary, he had to approve every detail of the conference. For months prior to the conference, he did double duty in the House and as conference organizer. The conference, itself, with large national delegations led by Prime Ministers, was a terrible exhausting grind for Col Coghill. The conference was a marathon, lasting a month, from 21 July to 20 August during a very hot and humid Ottawa summer. While the conference, itself, achieved little in the face of the worsening world depression, the organization of the conference was considered to be superb. Again, Col Coghill had done his duty but at a cost. His wife recalled many years later that he was "never really well after that."[28]

The year following the Imperial Economic Conference should have been a return to normality for Col Coghill, but instead, it was the beginning of the end. The long days on Parliament Hill continued to take their toll, and his health declined more and more. By the following summer, Coghill struggled to maintain a semblance of normality, but by September, he could no longer go to work. Yet, he still had work sent from the office. His doctors diagnosed "malignant hypertension" affecting his heart and lungs.

Dorland's Medical Dictionary defines malignant hypertension as "a type of severe hypertension having a poor prognosis, characterized by papilledema (edema and hyperemia of the optic disk, usually associated with increased intracranial pressure) of the ocular fundus, vascular hemorrhagic lesions, thickening of walls of small arteries and arterioles, and left ventricular hypertrophy."[29] The prognosis indeed was not good, and his doctors told him that work was out of the question, as it was his long hours and constant strain that brought on his condition.[30] On 2 October, he was granted a six-month leave of absence from his post.[31]

Then, in early October, an eye started haemorrhaging, causing him incredible pain. Col Coghill planned to go south to find warmth and a real rest. The older children, Betty and Donald, were sent to stay with relatives in Stratford and Wiarton, so they could continue to attend school while their parents were in Florida. The youngest, Caroline, stayed with friends in Ottawa but, as she was only six, she would have accompanied her parents. Unfortunately, Col Coghill was not well enough to make the trip.

On 30 November 1933, General Sir Arthur Currie, Commander of the Canadian Corps in the First World War, died in Montréal. His military state funeral took place in that city on Tuesday, 5 December. Col Coghill must have truly regretted not being able to organize the funeral, the first major state event in over a decade for which he had not been responsible. He could not have known that the next military state funeral in Canada would be his own.

Christmas, 1933, was a sad and worrisome time for the Coghill family and friends. Betty and Donald spent Christmas with their relatives but came home shortly after. Caroline came home for Christmas but there was no joy in climbing the stairs to her parents' bedroom to open presents in front of her grievously ill father. Visitors of all ranks of life called at the house, often just to keep his family company as, frequently, he was not well enough to receive visitors himself. Now Leader of the Opposition, Mackenzie King, always fond of "Cog," as he was known to his close associates, visited the Coghill's on New Year's Day. He noted, in his diary, that, "At 10 [pm] went to call on Mrs. Coghill, talked with the Colonel's sisters & son & daughter & Mrs. Coghill. The Colonel was unconscious upstairs may pass away any moment."[32]

Mackenzie King was correct. Lt Colonel Harry Judson Coghill died at about 0900 on Tuesday, 9 January 1934. He was only forty-five.

Later that same day, Mackenzie King took the time to compose a long, heartfelt note of condolence to Mrs. Coghill. He wrote:

> *… I feel very deeply for you, and for your son and daughters, and for the Colonel's sisters. You know that, I am sure.*
>
> *I can only hope that a Higher Power than our own may bring comfort to all your hearts at this time; and that to each and all there may come something of "The peace of God which passeth all understanding."*
>
> *I feel that I have lost a very true and devoted friend, and our Parliament and country one [of] its most efficient and faithful public servants. The Colonel was greatly respected, and I might say loved, by members of all political parties in the House of Commons. He held a high and honourable position there, and has left a name which will be honoured in its association with our Parliamentary institutions.*
>
> *I shall hope to see you and the children and the Colonel's sisters again very shortly. Meanwhile, please believe that you are all very much in my thoughts; and that words cannot express the sympathy I feel for you all in your great bereavement.*[33]

Mackenzie King was as good as his word. He attended the church part of the funeral on 11 January and noted, in his diary, that there was "A very large attendance in the church & along the route of the procession … ."[34] He later visited the grieving family at home, as did Prime Minister Bennett and the Governor General, the Earl of Bessborough, among many others.[35]

Col Coghill was accorded a full military state funeral. Those who organized it surely were hard pressed to meet the high standard, established by Coghill, for such a solemn occasion. But according to the extensive accounts in both the *Ottawa Journal* and the *Ottawa Citizen* they met the challenge.[36] As Mackenzie King noted, the numbers who turned out to pay their respects were huge. The *Citizen* estimated the number at nearly 1,800, for which Glebe United Church was entirely inadequate. Many mourners stood outside as the service took place.

The military funeral was preceded by a private service for close relatives that took place at 1100 at the house at 308 First Ave. Major Reverend Dr. T.J. Thompson, who had been the chaplain of the 207th Battalion, conducted the private service as well as the public service at Glebe United. Col Coghill's body, dressed in the uniform of a PPCLI colonel, was then taken to the church where it lay in state from 1130 until 1430. Once the casket was closed, it was draped with the Union Jack, and his white PPCLI helmet and his dress sword were placed upon it.

All but one of Harry Coghill's immediate family was present: his widow, Eva; his elder daughter, Betty, seventeen; and, his son Donald, fifteen. It was decided that Caroline, only six, should remain at home, though she wanted to go as well. All of his surviving brothers and sisters were there also: older brother Jay, now a clothing manufacturer in Stratford; younger brother Frank, now a Flight Lieutenant in the Royal Canadian Air Force (RCAF); and his sisters, Dorothy and Marjorie.

The full list of distinguished mourners can be found in the newspaper accounts. However, both the military and civilian representation at the ceremony attested to the esteem in which Col Coghill was held. The civilian mourners were led by the Rt. Hon. Sir George Perley, acting Prime Minister; two other Cabinet Ministers; the Leader of the Opposition, William Lyon Mackenzie King; the Speaker and the Clerk of the House, as well as half a dozen other Members of Parliament. The Mayor of Ottawa and almost all of City Council attended. The list goes on and on. The military representation was led by the Chief of the General Staff, Major General A.G.L. (Andy) McNaughton, as well as Brigadier A.C. Caldwell, Quartermaster General; Brigadier C.F. Constantine, Adjutant General; Lt Commander E.R. Mainguy, representing the Royal Canadian Navy; and Wing Commander G.O. Johnson, representing the RCAF. Dozens of retired generals and colonels were present, but also many other ranks whose lives had been touched by Col Coghill. The guard of honour was led by Lt Col MacLean, his old battalion commander, and was composed of over 150 veterans of the 207th Battalion.

The service, itself, lasted not much more than half an hour. Dr. Thompson's eulogy, though rather maudlin at times, did strike true when he said:

> *We shall remember him as one who was rather richly endowed with the capacity for friendship. He enjoyed during his busy lifetime many contacts and in all of them displayed that friendly tact and the spirit of helpfulness which endeared him to those who knew him best. His capacity for real service, his rare gifts of organization which made him so useful in seeing things through … made our friend a model that may well challenge all who have any share in the public service. His passing will leave many the poorer for the loss of his cheery smile, his friendly greeting, his marked readiness to go out of his way to do a good turn for another.*[37]

Following the service, in the finest military tradition, the casket was borne out of the church and placed upon a waiting Royal Canadian Mounted Police gun carriage, as a firing party from the Royal Canadian Corps of Signals presented arms. Then the long cortege began its slow journey, from the Glebe. The muffled drums of the band of the Governor General's Foot Guards maintained the stately pace. Following the gun carriage, came Col Coghill's mount, riderless, boots reversed in the stirrups. The cortege went along the Driveway, to the Cartier Square Drill Hall, where the casket was transferred to a motor hearse and then continued across the canal, through Sandy Hill and on to Beechwood Cemetery. At the graveside, the firing party fired three times, and the "Last Post" followed by "Reveille" were played by the bugler as the remains of Lieutenant Colonel Harry Judson Coghill were lowered to their final resting place. Though the family plot is in an older part of Beechwood, he would, surely, be pleased to know that Canada's National Military Cemetery lies just beyond his tombstone.

In the days and weeks that followed his death, tributes poured in to his widow, from across Canada and from around the world, such was the impression Col Coghill had made during his career, especially during the Imperial Economic Conference. One of these letters of condolences was from Stanley Baldwin, dated 18 February:

> *I only heard yesterday of the sorrow that has come to you, and I was truly grieved at the news.*
>
> *Nothing could have exceeded the kindness, the courtesy and the helpful consideration shown to all of us during the conference by your husband, and we all of us learned to hold him not only in esteem but in affection.*
>
> *I beg you to accept my most sincere and heartfelt sympathy and to believe that the friendship formed during those strenuous weeks will be an abiding memory to me and to my colleagues.*[38]

The eloquent obituary, in the *Ottawa Evening Journal* on the day of his death, included the following, which serves as a fitting epitaph for a loving husband and father and a devoted servant of his nation:

> *In the military appointments he had held, in Ottawa and elsewhere, and since taking over the important duties of his office in the Parliament of Canada, Col Coghill had made a reputation for executive ability which endeared him to the leaders of the nation. His death will be a severe loss to his native country, which he had served in war and in peace.*[39]

ABOUT THE AUTHOR

Mr. Robert Vineberg recently retired from over 35 years with the federal public service. Most recently, Mr. Vineberg served as Director General of Citizenship and Immigration Canada's Prairies and Northern Territories Region from 1996 until 2008. Mr. Vineberg has a BA in History from University of Toronto as well as an MA in Canadian History and a Graduate Diploma in Public Administration, both from Carleton University. He is currently a Senior Fellow at the Canada West Foundation.

ENDNOTES

Note regarding his name:
Though sometimes listed as "Henry" Judson Coghill, he was actually christened "Harry" Judson Coghill.

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11. For accounts of the 1st Battalion's role, see LAC, *War Diaries of the First World War*, 1st Battalion, February 1915, pp. 5–6; March 1915, pp. 5–9; April 1915, pp. 7–25; May 1915, pp. 5–10; June 1915, pp. 4–31; and Nicholson, pp. 49–115 *passim*. Nicholson included excellent maps of the battles as well.
12. "inst." Refers to "instant", which, in a common connotation of the last century, refers to the current month.
13. The Canadian Remount Depot was the CEF unit responsible for procuring and maintaining a reserve of horses to replace horses that had been injured, killed or just worn out.
14. Eva Coghill interviews.
15. *Ottawa Journal*, 9 January 1934, p. 19.
16. Eva Coghill interviews.
17. Willingdon letter to Coghill, 21 February 1927 in LAC, *Coghill Records*, MG30 E 514 1.
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PHOTO CREDITS:

1. Passport Photo of H. J. Coghill, 1914—collection of author.
2. H.J. Coghill with Prime Minister King, 1 July 1927—LAC, PA-027560.
3. H.J. Coghill in his office while Sergeant-at-Arms—LAC-e007913145.

Source: Combat Camera

Source: Canadian War Museum

MAJOR ARTHUR LOCKHART 'GAT' HOWARD, DSO

Sergeant K. Grant, CD

Upon hearing the words "Gatling Gun," the listener might be excused for conjuring up popular Hollywood images of Westerns, where besieged U.S. Cavalrymen are madly cranking on the rotating handle of an ancient machine gun while locked in battle with a band of Indians. Or perhaps for those not old enough to remember some of the classic western movies, images of the more recent Tom Cruise movie *The Last Samurai* come to mind, and the blue-uniformed Japanese soldiers cranking the rotating brass barrels while mowing down the horse-mounted, charging Samurai. These are powerful images and the sound of the rapidly repeating rounds might also summon the urge in the well-trained infanteer to find the nearest available cover. Today the machine gun's reputation and capabilities are well known around the world; but, for those involved in warfare in the latter half of the 19th century, where paper cartridges and muzzle loading rifles were still the hallmark of advanced weaponry, the machine gun was something unheard of and the stuff of science fiction.

Arguably the first machine gun capable of delivering high rates of fire was invented in 1861 and patented a year later in 1862 by Doctor Richard J. Gatling. Even though it wasn't a true automatic weapon—it still required someone to crank the handle to work the mechanism—when coupled with the newly invented brass cartridge, it represented a huge leap forward in weapons technology. Though the idea of a machine gun was not initially well received by tradition-bound army leaders; by the 1880s, other manufacturers like Maxim and Mitrailleuse had copied and advanced the design as the popularity of the machine gun concept began to spread around the world.

THE 1885 REBELLION

The 1880s was a turbulent time for Canada and it is here that we are first introduced to the subject of this biography, Arthur Lockhart Howard.

Born on 16 February 1846, he is said to have served in the United States Army in the west for five years, and there are also unconfirmed reports that he served during the U.S Civil War.[1] In the 1870s he settled in New Haven, Connecticut, the center of American ammunition manufacturing, where he established a small machine shop. By age 33 he had developed a reputation as a skilled machinist, supplying and inventing specialized machinery to the industry, and holding several patents.

In 1877 he closed his one-man operation and accepted a foreman position with the Winchester Repeating Arms Company while continuing to grow his reputation as one of the finest manufacturers of shot shells for breach-loading hunting weapons. In 1880, Howard and a partner formed a company and went into business producing shotgun shells. Nine months later, however, the facility was totally destroyed by fire and Howard was forced to find employment with the U.S. Cartridge Co. (which at the time had been one of his largest customers) in Lowell, Mass. There he set up a shot shell department for breech loading sporting rifles. Two years later, he struck out on his own again to manufacture paper shot shells and gun implements.

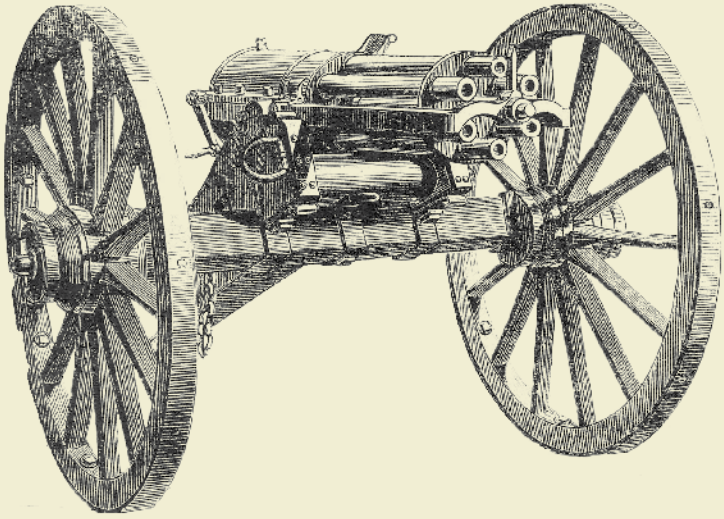
Throughout, Howard had not forgotten his military service. By 1885, he was an officer in the Connecticut National Guard, responsible for training troops in the use of the Gatling machine gun. As a Lieutenant, he was in command of the Second Regiment Machine Gun Platoon; it is here that Howard gained his detailed knowledge of the weapon.

In 1885, Louis Riel, at the request of the Métis, had returned to Canada to redress the Métis grievances against the Dominion Government. When it appeared likely that there would be an First Nations uprising in North-West Canada, the General Officer Commanding (GOC) the Canadian Militia, Major General Fredrick Middleton, advised that "it seems desirable to have two or three Gatling guns; I therefore recommend their purchase with the least possible delay."[2] After some hasty negotiations with the Colt representative in Canada, the Canadian Government ordered two Gatling guns, with

10,000 rounds of ammunition for each weapon. Since 1867 the Gatling gun had been manufactured under contract by the Colt Firearms Co. Due to the urgency of the situation, the company agreed to loan two guns to Canada while their weapons were being manufactured. They also offered to send Captain A.L. Howard.[3] Dr. R.J. Gatling, who had invented the first successful machine gun (see side bar), is alleged to have stated that Howard was not an employee of this firm. Nevertheless, Howard came to Canada with two Gatling guns as a salesman-demonstrator.

Howard went first to Ottawa with letters of introduction, then west[4] to Saskatchewan to demonstrate the gun at Swift Current, where on 12 April 1885 he set up the Gatling gun and fired at some ducks on a pond. Although none of the ducks were hit, the viewers were favourably impressed.[5]

THE GATLING GUN



The Gatling Battery Gun
Source: *The Illustrated London News* of 23 March 1867

In 1862, during the American Civil War, Doctor Richard Gatling patented the Gatling Gun. The gun was a hand-cranked, magazine-fed machine gun with six barrels revolving around a central axis, mounted on a two-wheeled carriage. The early version of the gun fired an unheard-of 200 rounds per minute, and Dr. Gatling sincerely believed that the gun would end war by making it unthinkable to use, fearing the carnage the weapon could create.

Early models used a steel cylinder charged with black powder and primed with a percussion cap. The shells were gravity-fed into the breech through a hoper or stick magazine on top of the gun, with each barrel having its own firing mechanism. Paper cartridges were replaced with the invention of brass cartridges, similar to their modern counterparts.

Turning the crank rotated the shaft. Cartridges, held in a hopper, dropped individually into the grooves of the carrier. Each barrel fires once per revolution at about the same position. After the cartridge was fired the continuing action of the cam drew back the lock bringing with it the spent cartridge which then dropped to the ground. The barrels, a carrier, and a lock cylinder were separate and all mounted on a solid plate revolving around a central shaft, mounted on an oblong fixed frame.

By 1893, the M1893 Gatling was adapted to take the new .30 Army smokeless cartridge. The new M1893 guns featured six barrels, and were capable of a maximum (initial) rate of fire of some 800–900 rounds per minute.

Three purchased by Canada were later mounted on ships after the Boer War.

Howard was then assigned to General Middleton as a Lieutenant. One of the two guns he brought with him was assigned to another unit, but Howard and the remaining gun wasted little time in playing decisive rolls in several engagements including Batoche. According to witnesses, during the four-day engagement at Batoche, Howard, time and again brought his machine gun to bear against the enemy, and in the process saved the Dominion troops from collapse. Though he played a critical role in the campaign, he did not receive any pay as a soldier.[6] Indeed, it is suspected that the rank of lieutenant was purely notional, granted only as a means of permitting an American civilian to participate in the operation, since he did not receive a land grant given to all other members of the expedition.

According to some, Batoche was the most important battle fought on the North American continent in which the Gatling gun proved to be the decisive weapon. Howard's unconventional character and exploits won him a wide reputation—and a promotion to Captain—along with a host of friends and admirers, including Rudyard Kipling who made Howard the model of one of his short stories. By the end of the campaign, Howard's reputation on the battlefield had grown to such an extent that he was given the handle 'Gat' (short for Gatling gun) Howard; this nick-name that would stay with him the rest of his life.

Determined to remain in Canada, or perhaps sensing a business opportunity, Howard became a British subject and lobbied the Dominion Government for a contract to manufacture ammunition, pointing out—rightly—that Canada was entirely dependent on British ammunition, which if cut off would make the new Dominion helpless. Subsequently, he was instrumental in the formation of the Dominion Cartridge Company at Brownsburg, Quebec. With his extensive background in munitions manufacturing, it fell to him to erect the plant and stay on as the plant manager for a six-year contract.[7] As a result, as a primary shareholder in the company involved in an emerging market, Howard became a wealthy man. When his contract ended in 1892, he went on to establish and operated a plant at Capelton, Quebec to produce Fulminate of Mercury, a primary explosive, used as a trigger for other explosives in percussion caps and blasting caps.

THE BOER WAR

By the time the Boer War started in 1899, Howard had spent nearly twenty years in Canada working to establish the munitions manufacturing industry. When Canada announced that it was to send a contingent to South Africa, Howard offered to provide a battery of four machine guns at his own expense for the campaign. His generous offer was turned down, but Howard was appointed a lieutenant in the Canadian army Reserve of Officers and a year later, in 1900, went to South Africa as a machine gun officer with the Second Canadian Contingent in command of General Lessard's machine gun section.

Once in action, Howard quickly re-established his reputation for being brave and fearless, albeit a little reckless. Edward Morrison, who served in South Africa as a lieutenant in the Royal Canadian Field Artillery, described Howard as "the bête noir" of commanding officers, "For they never know when he will get into a hot corner and involve a lot of troops to get him out." He said "for a man of his years and physique he is a marvel of energy and endurance, and everyone likes 'Gat.'" Howard lived up to his reputation, being frequently found far in advance of the main body in the field and reluctant to retire if there were Boers within range of his machine guns.[8]

In one engagement, three days after having driven the Boers out of Belfast,[9] a town located east of Pretoria, Lessard led an all-Canadian force consisting of sixty Dragoons, "Gat" Howard's Colt gun, and a half-section of Lt. Morrison's left section of D Battery and their Maxim gun, on a nine-mile foray northwest of Belfast. Only two hours out of camp, scouts came into contact with the Boers stationed at two or three points, seven miles north of Belfast. As soon as the troops began to draw fire, Morrison's artillery went into action and the Colt seemed never to cease firing. Since his men were having a relatively easy time of it, Lessard pushed from kopje (small hill) to kopje, much farther than he had intended to go, so that by 3 pm he realized he needed to call a halt. Much to his consternation, Lessard found that it was easier to give the order than to have it executed.

The trouble was Gat Howard, whose recklessness and resistance to restraint was again causing problems. Lessard had despatched Howard and his troop to a farm house in a valley to his left, but Howard, hearing firing to their right, had crossed the valley to join the fray. Unaware of Howard's movements, the men under contact with the Boers had already retired. Meanwhile, Howard had stumbled into a party of Boers and in the melee a private was severely wounded, five horses were killed and another three wounded. Howard and the rest of his men, however, found protection behind some rocks and brought their Colt into action against their assailants.

Lessard immediately ordered Howard to retire, and sent a party of Dragoons to assist him. Without Morrison's field guns, which Lessard had sent back to base unescorted, and which the Boers hated, the task was not easy. No longer inhibited by the artillery, "the Boers swarmed out of the rocks after 'Gat' Howard" and the rescue party. More than two hours were spent extricating Howard and his men, who despite their plight, were in no hurry to leave. Taking their time as they withdrew, Howard's men would occasionally stop to take a hand in the fight, much to Lessard's exasperation.

This refusal to quit the battlefield was typical of Howard's approach to war fighting. He took every opportunity to bring the guns to bear on the enemy, who, very much hated him for it. This approach however, garnered him praise and commendation for his actions. On 7 July 1900 for instance, Lt. Col Anderson reported "I would again bring this officer's name to notice as having done exceptionally good work with his Machine Gun. At Leewburg on 7th July, Lt. Howard took his gun up into the firing line … and very materially assisted in keeping the enemy back. When the line was outflanked and compelled to retire, Lt. Howard, having had his own horse, his Sergeant's horse and the gun horse hit, also the gun carriage hit twice, took the Gun off the carriage and walked away with it under his arm… Lt. Howard's coolness in action is remarkable and he and his gun are always to be relied upon…." [10]

This kind of bravado, however, occasionally brought him into conflict with authority and when General Lessard reprimanded him for disobeying orders and thereby endangering his life, Howard retorted that "he was quite prepared to give his life; that the war could not be won by remaining in camp; and that he did not believe in inaction."[11]

By late 1900, Howard was looking forward to returning to Canada with the Royal Canadian Dragoons, but wrote to his son that Lord Kitchener wished him to stay in South Africa for another six months, and he had made up his mind to do so. If there was fighting to be done, he wanted to be a part of it. Life in Montreal was just too boring compared to living "on the edge" in South Africa. Howard was then promoted to the acting rank of major with the task of raising a 125-man unit, principally from the ranks of the Canadian veterans, popularly known as Howard's Scouts or Howard's Scouts and Colt Battery, armed with six Colt guns.[12]

The timing couldn't have been better. During the war several hundred men left their Canadian units at the expiry of their one year service contract to seek other employment in South Africa. Many joined irregular forces such as Brabant's Horse, Kitchener's Scouts Roberts's Horse or Howards Canadian Scouts, which were small highly mobile, mounted units designed for scouting and special assignments.

Howard cut an impressive figure with his lean wiry frame and white moustache and goatee. Taking up quarters in Cape Town's Grand Hotel, he wasted little time in visiting the various Canadian units in an effort to select the best from a number of willing volunteers including Captain Charlie Ross, a former NWMP constable who had been with Howard at Batoche, whom he named as his second-in-command.

Recruiting was supported by the units as well. In the routine orders of one unit the following notice was placed soliciting recruits:

> *Lord Kitchener is anxious to form a small Corps of Canadian Scouts for a limited period in which he proposes to make all the men Corporals or Sergeants according to merit and paid at the Colonial rate of pay. Any men who would like to join the Corps or the Battery of Colt Guns being formed under Lieutenant Howard, RCD will hand their names in tomorrow morning.*[13]

As the notice points out, Canadian veterans were offered the rank of sergeant, along with seven shilling a day (two shillings above their normal rate), and lots of action, a particularly attractive prospect to men in some of the more sedentary artillery units. Each man [also] received three horses, one to ride and two to lead, as well as a generous clothing allowance, which they used to purchase "whip-chord riding breeches, tailored khaki tunics, high laced leather boots and silver spurs. Each man carried two heavy, long, Colt, single-action, .45 six-shooters and a carbine, presumably supplied through Howard's own contacts with the Colt firm.

By January 1901 Howard had enlisted eighty-eight Canadian veterans, among whom were some of the toughest, most seasoned and skilled veterans on offer. It is to be noted that the Canadian Scouts were a unique unit in that all members who were not officers were made NCOs. This, it has been argued, was due to the need to entice qualified individuals to sign on for an additional six months after their initial one-year contract ended.

As soon as Howard completed the enlistment of his corps, the men were sent north by rail to a comfortable training camp east of Pretoria, where they remained for less than a month. There, the artillerymen were assigned to a battery of Colt machine guns, and thoroughly drilled in the mechanics and workings of the guns, and the care of horses. Otherwise little attention was paid to the ordinary conventions of military life. Parades were few "other than stables and certainly no smartening up drill." Men addressed Gat by his nickname and prided themselves on "being an unruly, hard-drinking, gambling crowd, [who] refused to salute."

Placed under the command of General E.A.H. Alderson's Mounted Infantry, Howard's Canadian Scouts went into action in January 1901.

Howard continued to live up to his earlier reputation, by proving to be a colourful and capable leader. Under his command, the Canadian Scouts won acclaim among the British for their toughness and ruthless campaigning, in the process earning the enmity of the Boers.

For the next three months Alderson's column campaigned in the Eastern Transvaal, following General French all the way to the Swaziland border in a great sweeping movement; an action that captured practically all the enemy's artillery. It was during this period that Howard's scouts worked in small groups, or as a screen for the main force. Their actions lived up to their reputation as an aggressive, fearless, daring and foolhardy body of men, a reputation for which they paid a heavy price. Although the claim of one of the Canadian Scouts' sergeants, Jack Randall, that of the fifty-six Canadians who joined the Scouts in December, four months later only four were alive, is a gross exaggeration, casualties in this unit were inordinately high, and out of all proportion to the losses of the column, which were otherwise almost none.

Howard proved a fearless leader and capable field officer, a fact not lost on his superiors. On more than one occasion he was commended for his actions and those of the Canadian Scouts, as evidenced by the fact that he and the unit feature prominently in the memoirs and war diaries of those who came into contact with him. Perhaps the greatest complement, however, came on 27 September 1900, when A.L. Howard, Major Canadian Contingent, was created a Companion of the Distinguished Service Order (DSO), "in recognition of his services during the operations in South Africa[14]." Howard, however, would not live long enough to see the medal awarded.

The Distinguished Service Order medal for commendable wartime service

It is well recognized that the Canadian Scouts had undertaken extremely dangerous work, and had done it so thoroughly that their self-sacrifice saved all their comrades. But it also cost them their fifty-five-year-old commander. On the morning of 18 February, Howard and his orderly, Sergeant Richard J. Northway, a thirty-year-old, English-born prospector who had served in the Canadian Mounted Rifles, were soon dead. The circumstances of their deaths are a subject of some confusion. According to Lieutenant B. Moeller, on 17 February, Howard's men were scouting an "extraordinarily difficult hilly country with valleys and deep gorges," made more difficult by a persistent mist, when they encountered a party of Boer sharpshooters. The Scouts were scattered and some took up a position on "a rocky ridge immediately in front of a huge kopje, which was steep and covered with brush.[15]" Never content to wait and let things develop, the next morning, Howard, Northway, and their native scout went forward to investigate four Boer wagons in the valley below. The wagons were a decoy, and as soon as the men reached them the Boers opened fire. All three men were shot.

Moeller later claimed that Howard and Northway "were foully murdered after … laying down their arms.[16]" According to another, more extreme version of this story, Howard was not dead but badly wounded and lying on his face when the Boers found them. Convinced that Northway was dead the Boers left him where he fell. Howard, however, was turned over and when one of them recognized him they "stood over his body and pumped shot after shot into him like a bunch of savages. They were laughing as they watched him twitch when the bullets hit him. They held their guns so close the flashes burned his uniform[17]." This story seems to have been a gross distortion, if not an outright fabrication. Major A. Beattie, Alderson's aid-de-camp, who was the first to find Howard, reported that Howard was hit in only three places—the arm, jaw, and stomach.

With Beattie were the rest of Howard's Scouts, who were understandably upset by the death of their beloved commander. "There was not a dry eye in the bunch." Before the bodies were wrapped in sheets and returned by ambulance to the base camp,

Captain Charlie Ross, Howard's second-in-command, gathered his men around Gat's body, ordered them to raise their right hand and swear that they would "never take another Boer prisoner," an oath which Sergeant Randall later declared that they kept scrupulously. Sgt Wherry, however, put it this way, "this last bit of treachery on the part of the Boers only makes everyone of us swear the harder that we will accept no surrender on the part of the Boers. Like James Fitzjames, so say I: it nerves my heart, it steels my sword. I go forth each day with death in my eye, my hand, my heart, for every BoerI meet. [18] According to Randall, much given to exaggerated claims, "somewhere between three hundred and four hundred Boers died to pay for that gang who stood over Major Howard's body pumping lead into it." Exaggerated or not, Randall and Wherry's recollection of the events certainly captures the spirit of the unit.

That Howard and his unit had excited the imaginations of the Canadian public seems little in doubt. The *Treberne Times*, in Treherne Manitoba, noted that "the War Office despatch announcing the death of Major 'Gat' Howard, has possibly caused more wide-spread sorrow in Canada than any news from the front since the memorable cable to the Toronto *Globe* giving the terrible but glorious story of Paardeberg."[19]

Upon Howard's death, Ross assumed command of the Canadian Scouts, and led the group throughout the rest of the war. Under his leadership, the Canadian Scouts maintained their reputation as skilful, dependable scouts, and a reckless, hard-fighting unit. When the war ended at least four Canadian members of this small irregular force, including Ross himself, were awarded the Distinguished Service Order.

Though not technically part of the Canadian Contingent, the unit's name, leadership, reputation, and initial concentration of Canadians in its ranks, assured Howard's Canadian Scouts a large audience back in Canada. As such, historians have always considered Howard's Canadian Scouts a part of the Canadian contribution to the war.

Arthur Howard's grave is located in the cemetery at Rustfloats, nine miles northwest of Piet Retief, in the eastern Transvaal near Swaziland, and is marked "In memory of Major A.L. Howard, Killed in action, 17th February 1901.[20] From the North West Rebellion, to the Boer War, Arthur "Gat" Howard proved a capable, competent, and charismatic leader. Fearless in battle, gifted in business, he introduced the Canadian military to the virtues of the machine gun, helped start the Canadian munitions manufacturing industry, and along the way became a popular hero.

For further reading on Howard and the Canadian Scouts, Jim Wallis' book *Knowing No Fear: The Canadian Scouts in South Africa*, is highly recommended.

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9. The next sixteen paragraphs, unless otherwise noted, have been summarized from the book *Painting the Map Red: Canada and the South African War 1899–1902,* by Carman Miller, pp 260–261 & 446–449.
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18. Lethbridge News (Toronto, Ontario), May 2, 1901, p7 Col 1, "Captain Howard's Scouts," as quoted Wallis, Jim, *Knowing No Fear: The Canadian Scouts in South Africa 1900–1902*, London, Tafford publishing, p. 135.
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With his dogs attached to the trace, Ranger Gerald Asure's team is ready to run

Source: Corporal Bill Gomm

ARCTIC RESPONSE AND 38 CANADIAN BRIGADE GROUP

Colonel R. Poirier, Commander
38 Canadian Brigade Group

38 Canadian Brigade Group (38 CBG) first got word of the Arctic Response Company Group (ARCG) concept in December 2007 by email from Land Force Western Area (LFWA) Headquarters. We were asked if we were interested. We were, and we developed a fast joint submission with 17 Wing Winnipeg. The joint part was due to the enthusiasm of the 17 Wing Commander, Colonel Scott Howden, with the idea Winnipeg would become the airhead for such a concept. LFWA included virtually no detail in its offer, so we had to do an estimate.

THE ESTIMATE

Beyond some basic platoon and company battle task standards, there were no obvious specific tasks to be conducted over inhospitable terrain in a hostile climate. We assumed our objective was to recover lost arctic and winter skills and to conquer the North's distances and infrastructure paucity. We saw mobility as the vital ground. Because Winnipeg is a major Air Force wing, the home of a C-130 squadron, the support base for 95 per cent of 38 CBG and the parent formation of Yellowknife's 440 Squadron, it was the logical place to put the ARCG. Winnipeg International Airport is a hub that serves the three territories, particularly Nunavut. Four carriers with extensive charter capacity fly north.

We saw training as key terrain. 38 CBG was the logical choice because its winter climate is the coldest of all the CBGs. Once frozen, Lake Winnipeg can replicate many of the high Arctic's wind and ice conditions. Geopolitically, the Arctic emphasis will be around for a while, which clearly meant the ARCG task would come with resources: "stuff" and money. Also, the Army Reserve would have a real role to use as retention and recruiting tools.

IMPLEMENTATION

In early 2008, Commander LFWA approved our application. The Royal Winnipeg Rifles was appointed as the framework

unit. While a unit lead, the ARCG task had to be brigade driven—we would require at least 400 trained soldiers to generate a company group of more than 100, given any reasonable notice to move and readiness levels.

In the absence of training and other guidance, we conducted a mission analysis of this mythical ARCG. There was no obvious defence need; however, there was a political need and there could be security and safety needs. In recent years, our training has been focused on war fighting. We had lost valuable and basic winter warfare skill sets; although, I didn't initially realize how much.

The North has seasons like the rest of Canada. For two reasons, we decided early that we would confront the beast in its lair and tackle the North in winter. First, a summer option didn't exist; all available Reserve leadership is needed to staff individual training courses throughout the summer months. Second, a company that can operate at -50° Celsius can operate at 15°C; however, the opposite is not true. So, we decided to go ugly early, which led to our four-year campaign plan.

Corporal Bill Gomm LG2010-0133

Corporal Marc Lemire accelerates over an open stretch of ice trail

THE CAMPAIGN PLAN

We moved fast. We went north, in winter, in December 2008. Year one of the campaign plan was Exercise NORTHERN BISON (Ex NB) 2008. Our only limitation imposed by the former Commander LFWA, Brigadier-General Mark Skidmore, was to stay off of Joint Task Force North (JTFN) turf. Thus, Churchill, Manitoba was selected as the training venue. Churchill is about the 59th degree of latitude and is part of the cold zone along Hudson Bay's west coast extending through Nunavut's Kivalliq region. Churchill has a good airport and is serviced by train, thereby reducing transport costs.

I had four objectives. One: we had to get up there, which entailed all the logistic challenges, not least being equipment rental. Two: we had to do a "thing" up there. For the thing, the unit chose to conduct the second part of a basic winter warfare course with the addition of section and platoon winter warfare training. The thing meant integrating all the stakeholders—4 Canadian Ranger Patrol Group (4 CRPG), signallers, medical personnel, the tremendous Twin Otter crew from Yellowknife and the Town of Churchill. Three: we had to get back. And four: we had to write a detailed post exercise report.

I made three planning errors. First, I assumed too much winter operations background skill among the senior NCOs and officers. Second, I failed to see all the problems of trying to simultaneously run a course and a company on an exercise under adverse arctic conditions. Last, I allowed for too little troop preparatory time.

Corporal Bill Gomm LG2010-0063

Exercise NORTHERN BISON'S forward operating base

ITERATION I—EX NB 08

We arrived in Churchill, with drama. Some equipment was pre-deployed by train, but we trusted most of the move to a C17 Globemaster III that broke down on the tarmac in Winnipeg. The company was loaded and strapped in for four hours before the flight engineer evicted us. The backup plan was a regional charter aircraft. Within hours, Calm Air flew several chalks of soldiers and equipment to Churchill. The 24-hour transportation delay rushed the main body as it staged out of the local community centre.

Though the exercise ran from mid-December to just before Christmas, Churchill temperatures were below average that year: -45°C with strong coastal winds. The company deployed to a forward operating base (FOB) near Holcroft Lake located about 20 kilometres south-west of the town. An exercise control group based itself in Churchill.

As temperatures reached -57°C, the soldiers grew miserable. Faded winter skills let slip details like section-level drills and the finer points of equipment maintenance. We maximized boots on the ground and spread available leadership too thin. We had also invited our Army National Guard friends from Minnesota's 1st Brigade, 34th Infantry Division. They were great; however, the invitation added unnecessary planning complexity in the campaign plan's infancy. Finally, rushing soldiers from the airport to the field with minimal staging time created problems—the military faux pas: separating personnel from their kit. A lack of integral lift capability further added to the soldiers' misery, many of whom made the two-hour trip from Churchill to the FOB seated on toboggans.

Despite this drama, we accomplished the training, practised some patrolling and conducted an austere small arms range. Just before Christmas, a C17 with commercial augmentation redeployed the main body to Winnipeg. A rear party remained for two days to pack additional equipment for the train trip south.

The post exercise report was written with meticulous detail. We did not spend enough time preparing soldiers and their equipment. We did not ensure soldiers and their leaders prepared and packed their own equipment. We recognized efforts must be made beforehand to form the company, integrate the sections and platoons, and allow the company to regroup at a hardstand prior to heading out on the land. Exercise control was too big; it included support elements appropriately belonging with the company. We needed a more elaborate public affairs plan and failed to involve public affairs early. We needed better coordination with the medical branch among a myriad of other issues. 4 CRPG and 440 Squadron were both valuable and critical to the training and were a delight to work with. We recognized a tendency at the section level to emulate the Rangers. This was not surprising—the Rangers were comfortable and the troops were cold; however, Rangers are not Primary Reservists and vice versa. The Rangers were enablers, and we learned platoons had to be able to operate without them if necessary. We would have to ensure separation without affecting mutual respect and cooperation. Supply and transport were problems. Fuel was consumed at about 20 pounds (9 kilograms) per day per man. With the absolute maximum load on a komatik pulled by a large snowmobile being about 1,000 pounds (453 kilograms), fuel adds up. Water adds another 8 pounds (3.6 kilograms) per man per day (one gallon = 3.7 litres and is about 8 pounds). And, water must be "made" by freezing potable water into blocks. Food, parts and transiting personnel add to the problem. We needed BV-206s or an equivalent, not a land bridge of rented snow machines and frozen drivers pulling toboggans over harsh terrain. We needed leaders qualified on the Arctic Operations Advisor's Course.

This experience confirmed that mobility is the key to arctic operations. We did not have enough snow machines and were shuttling people on the toboggans and komatiks, which is hard on the drivers and brutal on the passengers.

A Reserve exercise of fixed time and duration cannot be moved to the right. The exercise came close to being compromised by the breakdown of the C17. With five days planned on the land, losing one day was a big deal. A day lost at the beginning is gone for good. Chartering aircraft was the saving grace, and we determined that option was the future solution as the required capacity exists. We needed more snow machines. We needed more toboggans and komatiks. We needed the Twin Otters' support, and we needed BV-206s or an equivalent.

Corporal Bill Gomm LG2010-0082

2 Platoon soldiers depart for their bivouac after learning how to skin and butcher a moose during Exercise NORTHERN BISON

The ARCG's mobility can be broken into four overlapping bands. First, strategic mobility gets soldiers and materiel from the south to the north. Second, operational mobility gets soldiers around the North; although, we did not use any operational mobility. Third, "big" tactical mobility gets tactical elements from the airport of disembarkation (APOD) to wherever it is they have to go, which can be far away. Big tactical mobility is also the basis of the main supply route. Last, "little" tactical mobility takes elements to do their tasks, either by foot or over snow. Based on the post exercise review, we finalized the four-year campaign plan.

YEARS TWO TO FOUR

Year two would be a full company in Churchill doing military tasks from a FOB. This would be the year to finish the company's "forming, storming and norming," and it would validate, in our minds, the establishment produced by Land staff.

Year three would be a company moving big tactically from Arviat, Nunavut to Churchill—about 300 kilometres (186 miles). This concept would be based on a formed company with quantities of experienced soldiers putting their experience to the test to accomplish a company-level task. Year three would also see the deployment of a skeleton battalion headquarters (provided by JTFN's land component command team) for the exercise.

The campaign plan's culmination in year four would see the company make its first foray into a high Arctic locale like Resolute Bay. JTFN would also select the location for 38 CBG to deploy some form of a land component command staff.

In 2009, 38 CBG received 25 Arctic Cats used by 4 CRPG during Exercise WESTERN SPIRIT. The machines were well maintained and were designed for towing, not for speed. These snow machines are the ideal machine for us. We received a quantity of large fibreglass "superboggans" and constructed two of our own komatiks. We successfully modified the Rangers' superboggans to improve our field requirements. And, we accumulated a quantity of miscellaneous equipment. We did not receive any BV-206s or equivalents.

Corporal Bill Gomm LG2010-0129

Snow machines used during Exercise NORTHERN BISON are parked along the Hudson Bay shoreline

ITERATION II—EX NB 09–10

Originally, Ex NB 09 had been slated for December 2009 but financial "reapportionment" created enough uncertainty that we moved the date to the new year and thus referred to the second iteration as Ex NB 09–10. In February 2010, we were again ready to tackle Churchill.

Ex NB 09–10 kicked off with two preparatory weekends integrating sections and exercising company leadership. The company conducted basic winter warfare, light over snow vehicle (LOSV) and BV-206 courses. 17 Wing loaned us its BV-206 fleet. Sections checked and packed their own equipment. Soldiers completed the personal weapons test for the Lee-Enfield .303 calibre rifle and the shotgun—the designated force protection weapons. And, reconnaissance was conducted.

During the week of 8 February, equipment was shipped by train to Churchill and the advance party deployed. The main body gathered in Winnipeg on Friday, 12 February. Charter aircraft flew the main body north on 13 February. The company immediately gathered at the town's community centre, where tactical elements loaded their kit into superboggans and checked their clothing before departing for the FOB. A 440 Squadron Twin Otter moved most of the passengers by air, sparing the repetitive use of 25 snow machines and drivers to make the four-hour round trip for each 25-passenger group. By Sunday morning, 14 February, the entire company was at the FOB, and the two platoons were ready to begin a round-robin training schedule. Each platoon practised mounted and dismounted patrolling, small arms firing and communications training. They patrolled and manoeuvred over sea ice and around hummocks—large ice mounds that form above normal ice levels. In addition, the Rangers led the survival training: each platoon harvested a moose and some ptarmigans. Rangers also taught the platoons how to fish with gill nets beneath the ice. The training plan was scalable so if problems arose or the weather became brutal, the pace could be reduced.

In addition to the normal military tourists, such as myself and the Deputy Commander LFWA, a staff major from the Directorate of Army Training and a contingent of relatively senior media from Winnipeg visited the exercise for two days. The journalists had free run of the troops and activities, and I, in turn, had unique access to the media. Although the media visit garnered accurate and contextual regional and national coverage during the 2010 Winter Olympics, we did not fully push for the necessary and appropriate resources required to conduct this visit. Although better than year one, we will get it right next year.

Corporal Bill Gomm LG2010-0120

Glenn Pismenny and Susan Tymofichuk prepare to shoot a "stand-up". Ms. Tymofichuk is a CTV Winnipeg reporter/anchor and Mr. Pismenny is a CTV photojournalist

Lacking enough snow machines and without Twin Otter support, exercise redeployment to Churchill, was phased. Once back in town, the company took the opportunity to deliver a presentation and show-and-tell to the gathered community.

Corporal Bill Gomm LG2010-0097

Sapper Shawn Black and Private Joel Gagne remove a fish caught in a gill net. Spr Black is an Engineer with The Fort Garry Horse and Pte Gagne is with The Queen's Own Cameron Highlanders of Canada

Ex NB 09–10 was a frank success. I am, however, unable to declare initial operating capability to the Commander LFWA as some late-breaking training and readiness requirements have not been met. That said, we do have a company able to operate with its own equipment, in the North, in winter. The lessons learned on Ex NB 09–10 were of a more refined nature. We took the time to prepare soldiers and equipment, and it paid off. This preparation included a full and deliberate regrouping at the APOD before deploying to the FOB. The contributing units who formed specific arctic sections (The Saskatchewan Dragoons) or a platoon (Winnipeg Infantry Tactical Group) came out ahead of the other units who loaded the Canadian Forces Taskings Plans and Operations Software CFTPO as required. The exercise dates must be fixed 12 months in advance—a point to keep front and centre in planning, regardless of funding issues. Scale the exercise to match ground truth. Be flexible. Be prepared to go hard or soft depending on weather, ground, experience and leadership. We need BV-206s or an equivalent. The 440 Squadron Twin Otter suffered a three-day mechanical breakdown and was then grounded for a day due to weather forcing a ground resupply option. If the weather had been colder, the strain on the logistics personnel would have been enormous and potentially dangerous given the four-hour round trip to the FOB. While we could have moved the FOB closer, we could have moved the FOB to Shilo too, to save money and effort. We needed the FOB where it was to accomplish the training objectives. Push public affairs hard. We have formed the ARCGs to satisfy geopolitical demands so we may as well advertise our successes. To do so professionally, dedicated resources and full chain of command support are critical. Radio communications need work. Communications depend on batteries; batteries drain rapidly in the cold. Global positioning systems depend on batteries and work slowly in the cold. The high frequency quick reaction terminal worked quite well from Winnipeg to Churchill to the company headquarters. Communications were rather sketchy after that, except for the excellent AN/PRC 138 HF radio sets. Satellite telephones provide a good backup. Medical integration into our

planning can still be better. In this case, the problems are those associated with dealing with another major command. As in Ex NB 08, what saved us was the quality of the deployed medical personnel. Since Churchill's medical infrastructure is limited, medical planning is critical. Medical evacuation is the key. For example, it is not ideal if a serious injury occurs and it takes hours to evacuate the victim on a toboggan pulled over tidal ice. Spare equipment and spare parts are a necessity and require absolute attention during the planning process. Embedding vehicle technicians with the company enabled a quick turnaround in the repair of minor breakdowns in the Arctic Cat fleet and allowed us to keep the vehicle off-road rate to 4 per cent (one of 25 snow machines).

Overall, we achieved success. We are 50 per cent equipped. We are confident but not cocky; trained but not expert. 38 CBG is reintroducing basic winter soldiering skills, and after two of four exercises into its campaign plan, it has a cadre of experienced leaders.

There are some key deductions that fall out of this exercise. Because of the increasing complexity of this directed arctic training, 1 Area Support Group and Canadian Operational Support Command (CANOSCOM) have to be involved in the planning. 38 CBG should be focused on the self-contained ARCG, not on the strategic move and resupply aspects likely required in the future. Our higher support formations are needed to help with planning the long-distance strategic move north and with pre-positioning equipment. We need to enter JTFN's area and work with the Yellowknife commander and staff.

LOOKING AHEAD

Post 2013, we may kick into summer mode. Summer mode will require different mobility options for river, lake and perhaps littoral training. The provision of boats was part of the discussion of the Army Reserve's roles, missions and tasks. It will take a few years to gain the additional basic and advanced boating skill sets for summer arctic operations; therefore, if we are directed into summer mode for 2014, the Army Reserve will require boats by 2010 to allow enough time for the requisite training. Related to this, we decided it is better to task another 38 CBG unit to provide a specified quantity of boat lift and reconnaissance capability instead of adding boats to the arctic framework unit's existing, extensive kit and equipment base.

Absent direction to the contrary, we intend to carry on with our campaign plan and conduct a long cross-country move, in 2011, in winter. If we can provide our soldiers with stories they will be recalling in twenty years and if we can provide our country with the ability to operate in the North in all seasons, then we will have indeed done well.

AUTHOR CREDITS...

The author wishes to credit the following people for their advice on this article with thanks:

LCol Mike Gagne, Chief of Staff; LCol Brett Takeuchi, Commanding Officer Winnipeg Infantry Tactical Group; Capt Amber Bineau, Brigade Public Affairs Officer; CWO Gord Crossley, friend and Brigade RSM.

Ranger Gerald Azure harnesses his dog team during Exercise NORTHERN BISON. Ranger Azure is with 4 Canadian Ranger Patrol Group

Source: Corporal Bill Gomm

The Wall

William MacDonnell
CWM 19970054-001
Beaverbrook Collection of War Art

THE YUGOSLAV EXPERIENCE

Under the leadership of Josip Broz Tito Yugoslavia, from the end of the Second World War, up to 1980, was considered a regional industrial power and economic success within the Soviet Bloc of countries. Annual gross domestic product (GNP) growth averaged 6.1 percent, medical care was free, literacy was 91 percent, and the average life expectancy was 72 years. In 1984 it hosted the Winter Olympics in Sarajevo and, by all measures, was considered a First World country.

Like Canada, the Yugoslavia Republic consisted of a number of provinces (formerly independent countries) brought together under one national umbrella parliament called the National Assembly. Throughout his tenure as its leader, Tito had discouraged ethnic and nationalist sentiments. But ten years after his death in 1980, Yugoslavia was plagued with foreign dept, inflation, unemployment and strong independent nationalist feelings.

In early 1990, Slovenia and Croatia held their first multi-party elections in almost 50 years. The Communist reformers lost to parties favouring national sovereignty within Yugoslavia. Subsequently, the break up of Yugoslavia began on 25 June 1991 when the representatives of the republics of Slovenia and Croatia declared independence in the Yugoslavian National Assembly. Two days later the Yugoslav People's Army (JNA) marched into Slovenia in an attempt to maintain control of Slovenian border stations. Fierce fighting ensued over the next two weeks by the end of which Slovenia's territorial militia had defeated the JNA.

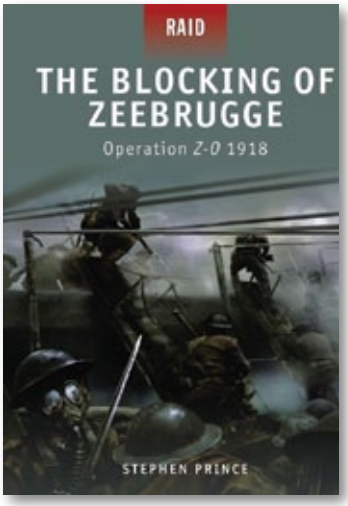
On 7 July 1991 during a third visit to Yugoslavia by European Community (EC) representatives; a ceasefire agreement was negotiated between Slovenia and the remaining Yugoslav Republic. The agreement, known as the Brioni Accord, called for observers to monitor the ceasefire agreement and the withdrawal of JNA forces from Slovenia. With this agreement, the European Community Monitoring Mission (ECMM) was established. Canada's participation in the ECMM was called Operation BOLSTER, and began on 09 Sept 1991 with the arrival of the first three of the contingent's officers, followed by the remainder of the team by the middle of November, bringing the initial deployed strength to eleven.

Shortly thereafter, in March of 1992, the United Nations launched the United Nations Protection Force (UNPROFOR). Over its three-year mandate, UNPROFOR was supported by a total of 29 separate United Nations Security Council Resolutions (UNSCRs), which expanded and strengthened the role of the UN in the Former Yugoslavia.

1995 marked several significant events for the UN in Yugoslavia. At the end of March, for instance, the UNPROFOR mandate came to an end and the mission was split into four separate missions United Nations Confidence Restoration Operation (UNCRO), United Nations Preventive Deployment Force (UNPREDEP), United Nations Protection Force—Bosnia-Herzegovina (UNPROFOR-BH), and United Nations Peacekeeping Force—Headquarters (UNPF-HQ). 1995 also saw the signing of the Dayton Peace Accord in December which launched IMPLEMENTATION FORCE (IFOR), and a year later STABLIZATION FORCE (SFOR).

Operation BOLSTER marked the beginning of Canada's ten year commitment to the conflict in the former Yugoslavia, during which Canada would launch more than 60 individual operations and deploy more than 48,000 troops.

This painting, entitled 'The Wall' by William MacDonnell, was painted in 1995 and depicts a Canadian M113 from the PPCLI on patrol outside a typical Croatian walled compound.



THE BLOCKING OF ZEEBRUGGE: OPERATION Z-O 1918

BIBLIOGRAPHICAL INFORMATION:

PRINCE, Stephen. Oxford: Osprey Publishing Inc., 2010, softcover, 64 pages,

ISBN: 978-1-84603-453-4

Reviewed by Major Andrew B. Godefroy, CD, PhD, pIsc

Military raiding in the First World War is often perceived by military students and historians to be a purely army-based activity. Despite such appearances, however, the period also witnessed the birth of modern amphibious raiding. Of these types of raids, perhaps none is more famous than Operation Z-O, the British Navy's daring attack on the German occupied Belgian ports of Zeebrugge and Ostend.

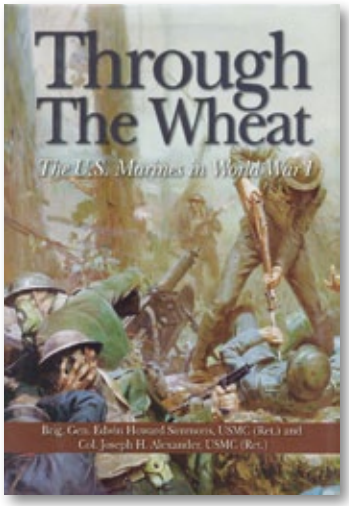
Stephen Prince, a historian with the Royal Navy's historical branch, has authored this latest publication to appear in Osprey's new series of books focusing on famous military raids. In typical Osprey style, the concise 64-page volume offers an introduction and background to the raid, the strategy that drove its creation as well as the detailed planning for its execution. A lively narrative of the raid, an analysis of its effectiveness as well as suggestions for further reading follow these sections.

The Zeebrugge and Ostend raids are considered one of the most significant events in both Royal Naval as well as more general British First World War history. The plan, known simply as Operation Z-O, emerged out of the Royal Navy's frustration at the German fleet's continued ability to wreck havoc in the English Channel as well as threaten commercial and neutral shipping farther out to sea. The German destroyers and U-boats routinely operated from its occupied Belgian ports, and the Royal Navy decided in early 1918 that for the purposes of strategy and morale, an attempt would be made to physically deny their continued use to the enemy.

The plan for the raid was straightforward. Using obsolete British warships as self-propelled blockades, Royal Navy sailors and Royal Marines would attempt to surprise the German defences at each port during the night, and before they could react, rush their blocking ships into the respective locks and channels and deliberately sink them. If successful, these channels would be closed for months and effectively deny the German navy further ability to openly threaten the English coast.

The author has done a good job of presenting a complex and trying raid with brevity, and Prince is to be commended for not losing the reader in the chaos that was the Zeebrugge raid. Unfortunately, the publisher seems to be more willing to cut corners of late, with the illustrative artwork of this and other recent volumes taking a downward turn in overall quality. As one who has owned and enjoyed Osprey books for nearly two decades, I have found the increasingly rushed-looking artwork a detriment; in the past, it was the one feature that often separated these books from their competitors.

Still, *The Blocking of Zeebrugge* should satisfy those who are regular collectors of these books, and the subject makes a good addition to this rapidly expanding series. It is recommended for those with an interest in the First World War and amphibious or naval actions.



THROUGH THE WHEAT: THE U.S. MARINES IN WORLD WAR I

BIBLIOGRAPHICAL INFORMATION:

SIMMONS, Brigadier General E.H. and ALEXANDER, Colonel J.H.
Annapolis: Naval Institute Press, 2008, hardcover, 296 pages
ISBN: 978-1-59114-791-6

Reviewed by Major Andrew B. Godefroy, CD, PhD, pIsc

For amphibious warriors normally scattered across the globe's specks of dirt protecting the outposts of the United States of America, the muddy green fields of France and Flanders seemed to be the most foreign of combat assignments. Yet, it was on the land-locked pastures of France that the United States Marine Corps (USMC) fought a terrible battle at a place called Bois de Belleau (Belleau Wood), a name that would live forever after in infamy in USMC legend and lore.

Through the Wheat: The U.S. Marines in World War I is a co-authored work, resulting unfortunately from the untimely passing away of Brigadier General Edwin Simmons, the late director emeritus of Marine Corps History, which required Colonel Joseph Alexander to assist in its completion and publication. Simmons, a decorated combat veteran of World War II, Korea and Vietnam and author of the recently published novel *Dog Company Six*, held a life-long fascination for the veterans of the Great War who had given him his own initial training in the corps. Seeking to provide a solid survey of the USMC during the Great War, his advanced age and failing health sadly denied his ability to finish the project. Fortunately with the assistance of Colonel Alexander, that project has finally come to fruition.

Arranged into 14 chapters, *Through the Wheat* effectively captures the diverse range of tasks and assignments the USMC undertook during the First World War, ranging from outpost duty in places like Haiti and the Dominican Republic to US Marine Corps aviation in France. At the centre of the text are, of course, solid narratives of the battles of Belleau Wood, Soissons, St. Mihiel, Mont Blanc and the Meuse-Argonne campaign. Though somewhat dry in their presentation, the book touches on all the salient points and ensures the inclusion of all the corps' many interesting figures and legends.

In and of itself, the book offers a sound basic survey of the subject, but *Through the Wheat* does have its share of weaknesses and failings. Editorially, material is often repeated, for example the reader is constantly reminded of when the USMC island training facility changed its name from Paris to Parris. It also tends to jump suddenly from one subject to the next within a chapter without any attempt at a smooth transition between topics, and at times, it seems corps history factoids are simply dropped into the text without any real thought for why the fact is being mentioned or why it is contextually relevant or important. Finally, the book suffers from considerable "strategic myopia" and furthers the American myth that the tide of the First World War was ultimately turned by the tactically local American engagements at Belleau Wood and Soissons. Apparently, the Imperial German Army had no intention of quitting the war prior to the outcome of these minor engagements, which saved Paris and created much more angst amongst the German high command to quit fighting than say, the Battle of Amiens.

If one can get past the strategic rhetoric, *Through the Wheat* offers readers an enjoyable survey of a legendary western military force's experiences on the Western Front. This book is recommended as an introduction to more serious study of the subject.

UNCLE CY'S WAR: THE FIRST WORLD WAR LETTERS OF MAJOR CYRUS F. INCHES

BIBLIOGRAPHICAL INFORMATION:

Edited by TEED, Valerie. Fredericton, NB: Goose Lane Editions and the New Brunswick Military Heritage Project, 2009, softcover, 300 pages, $19.95, ISBN: 978-0-86492-542-8

Reviewed by Colonel Peter J. Williams

As various units of the Canadian Forces (CF), and indeed the Canadian military community as a whole, begin to ponder how to preserve the legacy of their service in Afghanistan, it is perhaps useful to take a lesson from the past and to make use of a social media that was perhaps de rigueur in its day, but which today, in an era of electronic social networking is seen as highly anachronistic: the humble hand-written letter, sent by so-called "snail mail."

The New Brunswick Military Heritage Project is a non-profit organization devoted to increasing awareness of the province's military history. It is an initiative of the Brigadier Milton F. Gregg, VC, Centre for the Study of War and Society at the University of New Brunswick. The series already has an impressive 13 volumes to its credit, covering New Brunswick military history from the 17th century to the Second World War. *Uncle Cy's War* is Volume 14 in the series.

The "Uncle Cy" of the title was Major Cyrus F. Inches, BCL, LLB, DSO, MC and during the First World War, an officer in, and ultimately battery commander of the 1st Canadian Heavy Battery on the Western Front. He was also the great-uncle of the editor's husband. Cy was (fortunately for us) an inveterate writer, and the correspondence reproduced in the book represents only a portion of the letters he wrote to his family during the Great War. A lawyer by training (including studying at Harvard), he was also a serving officer in the 3rd New Brunswick Regiment of the Canadian Garrison Artillery at the War's outbreak in 1914. The collection of letters covers the period in Canada during the mobilization phase in the summer of 1914 until April 1919, which found Cyrus in the United Kingdom awaiting shipment back home.

The editor freely admits that she was confronted with an embarrassment of riches in terms of the quantity of the Inches letters and decided to choose those which would appeal to a broad audience, both military and lay person alike. Most of the letters were addressed to Cy's mother (referred to as "Ma," who would sadly die during the War). Acknowledging his mother's relative ignorance of things military, Cy provided footnotes to explain more technical issues.

The 1st Canadian Heavy Battery (supporting the 1st Canadian Division) to which Cyrus was posted was mobilized in Montreal as a four-gun battery, equipped with the 60-pounder howitzer, each weighing over 5 ½ tons and each requiring eight heavy draught horses. After initial training in Valcartier, the battery soon shipped out for the United Kingdom and further training on the Salisbury Plain. He describes the daily routine of rising at 6:00 a.m., followed by "stables" (like so much of the Army in those days, his battery had a large complement of horses), morning parades and manoeuvres. The working day ended at 5:00 p.m. with dinner for the men and the opportunity to visit colleagues in other camps. From time to time, Cyrus was also able to visit London to take in a theatre show. This seemingly idyllic existence was not to continue for long, and by early 1915, Cyrus reports to

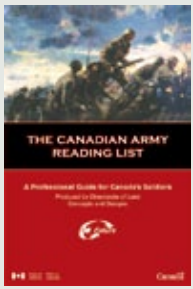
his family that "…the battery is now established in billets in France… ." Then, perhaps more so than now, where the ability to "censor" internet communications is perhaps an insurmountable challenge, operational security was of prime concern, and Cyrus admits that "correspondence regulations" permit him from going into too much detail.

This restriction notwithstanding, we are treated to an excellent portrait of the life of a relatively young officer (Cy was 31 at the war's outbreak), and his correspondence over the course of the war gives the reader a first-hand view of life in a gun battery at the front. Perhaps as a means of sparing his family from undue concern, the letters rarely describe the horrors of war, but instead speak of the local population, the changing seasons and local countryside as well as the many characters of Cy's beloved battery. Cy also had the opportunity to meet with personalities who would later rise to great fame, including Harry Crerar, later Commander of the 1st Canadian Army in World War II. Visits, whether in peacetime or on operations can often be somewhat onerous, and so many military readers will read with amusement of Cy's account of a visiting general who "…always asks the same stereotypes questions… ." As an officer, Cy was also expected to fight the "paper war," and so one of his letters refers to, "The mass of inquiries that have to be answered, intelligence summaries digested, and reports of all kinds sent in (that) seem to accumulate in intensity." Cy's battery participated in the successful attack on Vimy Ridge in April, 1917, but surprisingly, for what is recognized as a seminal event in our history today, the date did not appear to merit particular mention in Cy's correspondence, apart from receipt of some Easter care packages from home.

Cy's battery fires its last rounds on November 9, 1918, having suffered 14 fatalities during the war. As a memory to his comrades, Cyrus writes a short history of his battery, included in the book, noting that units of the Canadian Garrison Artillery did not get the same recognition as other units and were thus considered to be "nobody's children," despite the fact (according to Cyrus) that they participated in "more engagements than any other unit in the Canadian forces." For the record, Major Inches notes proudly that the battery's establishment consisted of "7 officers, a sergeant-major, quartermaster-sergeant, staff-sergeant fitter, 9 sergeants, 8 corporals, 10 bombardiers, 18 acting bombardiers, a Ferrier sergeant, corporal shoeing smith, 4 shoeing smiths, 2 wheelers, 3 saddlers, 2 fitter smiths, and 222 gunners and drivers, including 4 drivers from the A.S.C. (Army Service Corps)."

This book is meant not only for military audiences but also for the lay reader interested in researching their own family's military history and in delving more into a war, which despite having ended almost a century ago, continues to exert a great hold on the imagination of Canadians. Though additional maps may have assisted non-military readers, the contemporary photos, drawing, newspaper clipping and above all Cy's excellent prose, give this work an immediacy I found very engaging. Highly recommended.

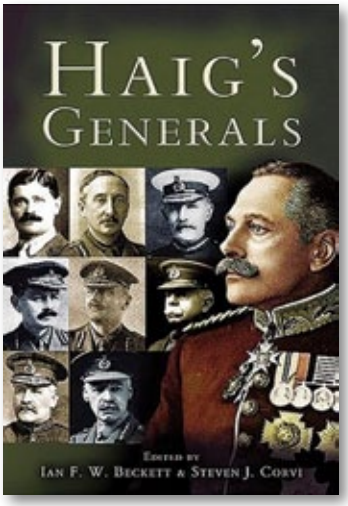
Colonel Williams, an artillery officer, is Director Plans Western Hemisphere on the Strategic Joint Staff.



THE CANADIAN ARMY READING LIST

In September 2001, the Canadian Army produced its first *Canadian Army Reading List*. In the time since its publication many new books and articles of interest to the Canadian Army have appeared, prompting the need to revisit the list, and review and expand it. This new and revised *Canadian Army Reading List* retains most of the original publication, while adding a considerable amount of new material for soldiers to consider. The aim of the *Canadian Army Reading List* is to provide an instructive guide to soldiers to explore suitable literature on a wide range of subjects.

www.army.forces.ca/DLCD-DCSFT/specialPubs_e.asp



HAIG'S GENERALS

BIBLIOGRAPHICAL INFORMATION:

Edited by BECKETT, Ian W. and CORVI, Steven J. Barnsley: Pen & Sword Publications, 2009, softcover, 217 pages, $25.95

ISBN 978-1844158928

Reviewed by Major Andrew B. Godefroy, CD, PhD, pIsc

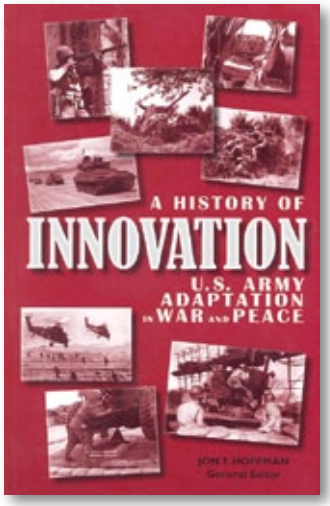
Perhaps no other group of senior officers in British military history has received greater scrutiny and criticism than the Army commanders of the British Expeditionary Force. Immortalized in popular collective memory as "donkeys" and ridiculed in popular culture series such as *Blackadder Goes Forth*, the wartime careers of these so-called "red-tabbed butchers" are the often the subject of examination by historians seeking to broaden our understanding of the great and terrible battles fought along the Western Front nearly a century ago.

In their recent publication, *Haig's Generals*, editors Ian Beckett and Steven Corvi have invited a number of leading First World War scholars to offer concise chapters examining the history as well as the historiography of the eleven men who rose to the command of a British Army on the Western Front. Two of the eleven—Sir Richard Cyril Burne Haking and Sir William Eliot Peyton—are, however, mentioned only briefly in the appendix, as their tenures in Army command were exceptional and temporary. For the remaining nine—Edmund Allenby, William Birdwood, Julian Byng, Hubert Gough, Henry Horne, Charles Munro, Herbert Plumer, Henry Rawlinson and Horace Smith-Dorrien—each one is treated in some detail in a separate chapter.

Overall, the book provides a great resource for those interested in the study of high command. All of the chapters go well beyond providing a simple biographic resume and delve into the deeper challenges both political and professional that each one faced during the war. While not avoiding criticism of their collective and individual performances, the book is refreshingly objective in the majority of its analysis and all the authors demonstrate some empathy towards their subjects. Such an approach seems fair: few if anyone today can truly appreciate the strain of commanding army-size formations against a peer adversary in a total war. It, therefore, is natural to show some leniency towards the tremendous burden of command each one of these men carried.

Among those examined, two will be of particular interest to Canadians—namely Julian Byng and Henry Horne—both of whom commanded or had command over the Canadian Corps at one time or another. The authors do these two subjects favourable justice in light of the fact that neither man allowed their personal papers to survive as a resource to future historians. The Byng chapter is especially welcome considering that there hasn't been any serious biographic examination of him for nearly two decades. Likewise, Horne was only very recently the subject of a popular biography, the first ever done on this officer.

Overall, the book is well written in a very readable style and well laid out throughout. The reviewer's only complaints are the maps, which are dated reproductions from other publications, and the photos, of which there are too few. For a book on people, one would expect to see at least one photo of each main person mentioned within. Likewise for the reader less familiar with the geography of the Western Front, situational maps would have proven useful. Beyond these publishing matters, however, the editors have overseen a valuable project welcome on the shelf of any student or scholar of the Great War.



A HISTORY OF INNOVATION: U.S. ARMY ADAPTATION IN WAR AND PEACE

BIBLIOGRAPHICAL INFORMATION:

HOFFMAN, Jon T. ed. Washington DC: Center of Military History, United States Army, 2010, hardcover, 171 pages, US$26.60
ISBN: 978-0-16-084187-3

Reviewed by Major Andrew B. Godefroy, CD, PhD, pIsc

The U.S. Army Center of Military History (CMH) enjoys an aggressively active program of research and analysis of contemporary land warfare studies problems, leading to the regular publication of monographs examining a wide variety of topics. The recently released *A History of Innovation: U.S. Army Adaptation in War and Peace* is a notable addition to the pantheon of studies coming out of the CMH and is one that will surely interest the readers of this journal.

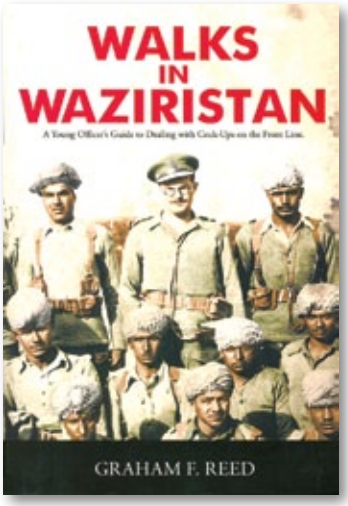
Under the general editorship of Jon T. Hoffman, Chief of the Contemporary Studies Branch, Histories Division at the CMH, 11 authors have contributed detailed analytical studies that seek to investigate "how army leaders approached these innovations [and] how they sought to manage change." Starting from the notion that "armies rely so much on past experiences to validate current practices that they are often regarded as inherently conservative organizations, resistant to meaningful change and innovation," Hoffman and his colleagues set out to challenge this myth by demonstrating rather successfully how these same apparently conservative organizations are also very often the instigators of real leading edge change in both technology and engineering.

In essence, the purpose of this collective study is to analyse how the U.S. Army approached the complexities of military problem solving, what taxonomies and methodologies they applied and whether or not those proposed solutions led to success or failure. In addition, the reader is introduced to the American combat development cycle through the eyes of several scholars and practitioners, thus receiving a broad interpretation of the process that makes for interesting and engaging reading.

A History of Innovation includes 14 separate case studies examining everything from the development of small arms, to radar, to armoured force organization, to air mobility, to special patrol groups, to national training maneuver centers. The sheer variety and scope of the case studies in fact lend real strength to the overall analysis and offer the reader tremendous insight into how the U.S. Army has succeeded—and at times failed—at military problem solving both in war and peace.

The analysis of conceptual and doctrinal design, systems engineering, and other capability development and procurement related topics are often overlooked in the larger codex of military history in favour of purely political or personal accounts. Such oversights are disconcerting, especially when they lead to analyses overly dependent on personalities or perceptions to explain processes. Hoffman and his peers have done due diligence to ensure that all influences in US land force development are considered, not just those facts that are convenient or easy to interpret and understand.

A relatively quick read at 171 pages, this book is recommended as an excellent reference for students and practitioners of army capability development, conceptual and doctrinal design, as well as those involved in the study of force requirements, force structures and procurement. This and many other related studies may be found online in pdf format at http://www.history.army.mil/.



WALKS IN WAZIRISTAN: A YOUNG OFFICER'S GUIDE TO DEALING WITH COCK-UPS ON THE FRONT LINE

BIBLIOGRAPHICAL INFORMATION:

REED, Graham F. Bloomington: AuthorHouse, 2010, softcover, 222 pages, $14.95 ISBN: 978-1-4520-2616-9

Reviewed by Sergeant Kurt Grant, CD

Long before 9/11 and the ensuing interest in any country whose name ended in "stan," the armies of various empires have continually been shipwrecked in this region. The Soviets, the British (on several occasions) and even the Greeks of antiquity under Alexander the Great, all failed to effectively rule those who lived in that mountainous and, arguably, wildest part of the world. In the heart of this inhospitable region lies Waziristan. Tucked neatly between Baluchistan, Afghanistan and Pakistan along the Doran line, it is a fiercely independent country that even today the Central Intelligence Agency considers "the most dangerous place on earth."

Against this backdrop, we meet Lieutenant Graham Reed, a young officer who enrolled in the British army in 1942 and at the end of the Second World War finds he is eligible for a Class B release. Class B, you may recall, was reserved for people whose education or training had been interrupted by military service. Reed, at the time of his enlistment, had just finished his second year at Cambridge and like others of this group, when the war ended considered themselves "no longer professional soldiers engaged in a temporary career, but civilians awaiting the day when they could get out of uniform."

But "demobbing" an army takes time and while he waited, his unit was posted to India. There, in the mad scramble to find suitable employment while they waited demobilization, he sought a billet that would allow him to put into play his three-point plan. Point one was to avoid any kind of danger, the war was over after all and there was no pointing getting killed now. Point two was to avoid any specialist knowledge or courses that would deem him "operationally necessary" and slow his demob process. His father had been deemed operationally necessary after the First World War and the subsequent delay in his release had severely curtailed his civilian career and Reed had no intention of repeating the experience. The third point was to gain any academic study that would enable him to find employment after his studies at Cambridge were completed. Clearly "the choice of an appropriate backwater would be crucial," where the "challenge would be to convince his superiors that I was lacking in the military virtues and therefore an individual whose early release would be in the Army's best interests."

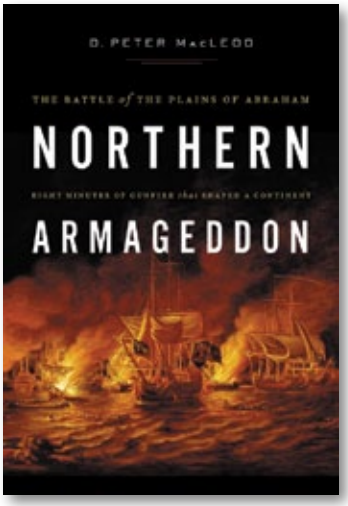
Standing in the way of this cunning plan was his Confidential Report; a personal file that accompanied each officer as they were posted from unit to unit. Despite "ample evidence to the contrary … the Army insisted upon interpreting my lily-livered avoidance of hazard as 'appropriate assessment of the situation'" and, we discover, it is largely on the strength of his Confidential Report that Reed suddenly finds himself posted to "the North-West Command [which] was the only active military area in India and points east at the time."

By his own admission, Reed "represented an example of Army paradox at its most refined," and what follows is an account of his highly unusual posting as a temporary British officer to the Mountain Gun Regiment, a regular Indian Army unit. In a series of hilarious encounters akin to *Faulty Towers* meets the British Army, our "resourceful young officer" leads us through the intricacies of army life in an Indian regiment where the only ones who spoke fluent English were the British officers assigned to lead them. From interesting and colourful uses for a pace stick, to half-blind inspecting generals, Reed's *Walks* is a collection of short stories about hilarious incidents he encountered over a one-year posting to the Indian frontier.

His lucid observations are combined with a self-effacing humour and sense of humanity that is sure to bring a smile (and at times outright laughter) to the reader. If *Walks* has a weakness, it is that it fails to put the experience in any form of geopolitical context. The time from 1945 to 1947, the period just prior to the partition of India, was one of great turmoil and tribal raiding in the region resulting in the British needing to mount frequent expeditions into the field. Unfortunately, this is only hinted at, as in the case of the regimental "thunder-box," when we discover the author in the midst of an operation with no mention as to why. This I felt was unfortunate since the author was uniquely positioned to offer insight into the bigger picture. For those not familiar with the region, the addition of maps would be seen as a benefit.

Walks in Waziristan is a book of many layers. On the surface it reads like an updated version of Harry Flashman and is pure entertainment from the first page to the last. But the entertainment value should not take away from the importance of the lessons imparted. Indeed, from his encounters with the local Pashtun warriors to the culturally confusing interactions with his Indian army counterparts, and his experiences with the intricacies of military bureaucracy, Reed's storytelling, while never dull, illuminates the social and cultural differences western armies encounter in this ancient region of the world.

As war diaries go, this is a good one and is recommended for any student of the region for the wealth of social information it contains. It is a welcome break from the far more serious works on the subject.



NORTHERN ARMAGEDDON: THE BATTLE OF THE PLAINS OF ABRAHAM, EIGHT MINUTES OF GUNFIRE THAT SHAPED A CONTINENT

BIBLIOGRAPHICAL INFORMATION:

MacLeod, D. Peter. Vancouver: Douglas & MacIntyre Ltd., 2008, hardcover, 379 pages, $34.95, ISBN: 9781553654124

Reviewed by Captain Thomas E. K. Fitzgerald

The repercussions of the Battle of the Plains of Abraham continue long after the roar of cannon and the rattle of musketry died away. Those eight minutes[1] on the battlefield saw not only the exchange of empires between the French and the English but, arguably, sowed the seeds for the rise of the American colonies and the resulting War of Independence, are the background for present Canadian-First Nations relations, provide the context for French-English relations and even has musical overtones (remember *The Maple Leaf Forever*) or so noted Canadian historian Dr. Peter MacLeod writes in his masterful *Northern Armageddon: The Battle of the Plains of Abraham, Eight Minutes of Gunfire that Shaped a Continent*. Drawing on original research and with a comprehensive command of the existing literature, MacLeod paints a vivid portrayal of a small battle in the first world war. The principal antagonists of the battle are well known to most Canadians—Louis Joseph de Montcalm and James Wolfe. The value of *Northern Armageddon*, however, lies first, in its portrayal of many lesser known participants (French civilians, English naval officers and First Nations' warriors) who contributed to the outcome of the battle as much as the generals and admirals and second, in its dispelling of many myths surrounding the battle.

By September 1759, the Seven Years War[2] had been waged in various parts of the world for over five years. What had started as a French attempt to restrict British expansion westward into the Ohio Valley developed into Britain, with the assistance of her native allies, seeking to oust France from its North American empire. Initially unsuccessful, by 1759, the British had imposed a naval blockade on New France. Victories at Louisburg, Fort Duquesne (now Pittsburgh), Fort Ticonderoga and Fort Frontenac finally led a joint force of British army and naval elements to the jewel of New France—Quebec City.

The battle, as MacLeod writes, almost did not occur. Winter was coming. The French had successfully resisted all previous attempts to take the city. The British were prepared to go into winter quarters. Surprisingly, Wolfe did not believe he could capture the city whereas Montcalm (his attention divided between the siege, his relationship with the French governor, Vandreuil, and his dalliances with a Quebecois lady) thought he could not prevent the capture of Quebec. The stealthy nocturnal attack at the Anse au Foulon was the last chance of a desperate army and its worried commander.

Northern Armageddon is about this all-important battle, but it is also the story of anonymous or little known figures. History, as MacLeod writes, is the story of both the great and the not so great. Those who find themselves, perhaps, unwittingly, in the middle of one of the great moments in world history;

the unknown clerk who railed against the ineptitude of the French leadership and bureaucracy while, at the same time, doing his best to ensure that French troops were properly supplied. William Hurley, an ambitious midshipman desiring to be commissioned lieutenant, whose journal provides detailed information about events prior to the final assault. It cannot be forgotten that both armies used First Nations warriors as combatants, and the perspectives of these native Canadians (seen, for example, through the eyes of a young Huron, Ouiharalshte) provide a fascinating insight into the native perspective of the battle.

MacLeod reminds us that war is always brutal whatever romantic notions may exist. The ruthless but effective Wolfe conducted a "scorched earth" policy in the region surrounding Quebec in an attempt to starve the French community. These actions are vividly described in the many diaries and letters used by the author. The city by the end of the siege was a *ville ravager* from continuous bombardment. The French with their First Nations allies committed equally questionable operations during this period. Distinction and proportionality as precepts of war were not always followed by either side.

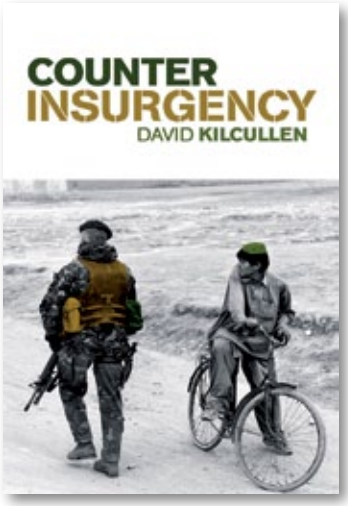
MacLeod's reliance on journals, letters, diaries and official records brings an element of stylistic disjointedness to his narrative. This is not surprising, as the author must move the reader quickly to coincident time in his take from a variety of directions. Chapters are divided into parts sometimes only sentences or short paragraphs in length. While this style heightens the ease of reading and lends itself to a notion of mounting excitement, it interferes with the smooth flow of the story and an understanding of its telling. This stylistic character is an attribute of most popular histories, as the historian must write about events from a number of perspectives.

The Battle of the Plains of Abraham is a story, like most battles, of "what ifs." What if the sentries atop the heights knew that a convoy of provisions planned to arrive that night was delayed. Would they have permitted the British to land unmolested thinking they were this convoy. What if the French army had not ventured outside the walls of Quebec and simply waited the British out? What if Montcalm had trusted his Aboriginal allies and *canadiens* sufficiently to permit them to harass the British on their flanks without launching his fateful, understrength and, ultimately, unsuccessful frontal assault? Would the battle have ended differently? Clearly, the French commander did not demonstrate his previous flair for war fighting.

Northern Armageddon comes at a fateful time in present Canadian history. The 250th anniversary of the battle has become a contest between separatists and federalists, with the former arguing that any re-enactment of the battle would "celebrate" the subjugation of French Canadians while the latter wishing to memorialize a historic event. Arguments over "war trophies" held in the Canadian War Museum from the battle will ensure that the repercussions of these eight minutes of Canadian history will be discussed and debated for many years to come.[3] *Northern Armageddon* will ensure that an objective, dispassionate consideration of that fateful morning will continue.

ENDNOTES

1. The author may have exercised some literary licence in indicating that the battle was a mere eight minutes. The siege preceding that actual battle was months in duration, and no firm estimate of time exists for the battle that continued on well into the evening.
2. The Seven Years' War (1754–1763) involved many of the European powers pitted against each other; Prussia, England and a coalition of German states warred against an alliance consisting of Russia, Austria, France, Sweden, Spain and Saxony. The battleground was not only continental America and Europe but included the Caribbean Islands, the Philippines, Cuba, parts of Africa and India. In the United States, the conflict is referred to as "The French and Indian War" while in Quebec the war is referred to as "La Guerre de la Conquête"—The War of Conquest.
3. The Battle of the Plains of Abraham for all its shortness has been extensively analysed. See Francis Parkman, *Montcalm and Wolfe* (Markham: Viking Canada, 1984); Robert Reilly, *The Rest to Fortune* (London: Cassell, 1960); Walter R. Borneman, *The French and Indian War* (New York: Harper Collins Punishers, 2006); Stephen Brumwell, *Paths of Glory: The Life and Death of General James Wolfe* (Kingston: McGill: Queen's University Press, 2006); and Fred Anderson, *Crucible of War: The Seven Year's War and the Fate of Empire in British North America, 1754–1766* (New York: Vintage, 2000).



COUNTERINSURGENCY

BIBLIOGRAPHICAL INFORMATION:
KILCULLEN, David. Melbourne: Scribe, 2010, paperback, 251 pages, $19.95 ISBN: 9781921640346

Reviewed by Lieutenant-Colonel Tod Strickland

> *"The idea that there is one single 'silver bullet' panacea for insurgency is … as unrealistic as the idea of a universal cure for cancer."*
>
> *—David Kilcullen, Counterinsurgency*

I expect it would be exceptionally difficult to find a military professional who had not, at the very least, heard of David Kilcullen. A familiar and prolific author whose work has been widely read, discussed and dissected, his personal story has become as well known as his academic works. An Australian Army officer, cross-trained as an anthropologist who ended up advising presidents and generals, some might liken him to a modern-day Fuller who, with a small group of like-minded colleagues, kick started intellectual efforts to study the complexities and nuances of fighting insurgencies. Indeed, it is not hyperbole to argue that his stock has gone "viral," as can readily be witnessed with a quick look at the digital *Small Wars Journal*, which he helped found.

His most recent work is *Counterinsurgency*. It is a fairly broad collection of work, both original and previously published pieces, all authored by Killcullen over the past 10 years. His intent with this book is to assist any practitioner or student of counter-insurgency (COIN) in understanding the "preferred method" of war of our adversaries, with the underlying hope seeming to be the fostering of debate and discussion on this extremely demanding field. This is, in itself, a laudible goal and is in fact one in which our military should be engaged, both as an active participant and as a surveyor of what is going on around us.

A relatively fast read, the book is broken into two parts and comprises a mere six chapters, which progress from relatively simple concepts to more complex concerns. Kilcullen starts with what is probably his most familiar work, the often-cited "28 Articles." This has become must-read material among junior officers the world over and will be familiar to almost all military practioners of COIN. From this start pointing, he moves into a study of performance measurement activities, following which he tackles "terrain" that may be a little less familiar, examining aspects of the Indonesian counter-insurgency efforts that took place in the latter half of the 20th century. The last chapter also forms the second part of the book and is a new piece concerning the complexities of countering a global insurgency.

This diverse subject matter, put together in one neat package, can reasonably be expected to give the book an equally broad potential readership. Simply put, there is something here for almost every practioner or student of COIN. Junior officers who on their first tour in a field unit will probably find the first section particularly useful, while more senior leaders (both internal and external to Department of National Defence) will gain a better understanding of the difficulties of countering this particular form of warfare by perusing the latter sections.

One of the hidden gems within *Counterinsurgency* is Kilcullen's combat monograph on his personal actions at the Motaain Bridge (Chapter 4). This chapter should be a "must read" for all combat arms officers, not because of the lessons that Kilcullen discerns, but because of the model that he offers for writing an account of a battlefield incident. We frequently have officers and non-commissioned officers (NCOs) in combat in the current operational context, but we are not doing a particularly good job of capturing the lessons that are ripe for the picking.

To be fair, we have improved greatly with a suite of technical Liaison Officers, lessons learned staff and the like collecting observations, writing reports and populating websites. What we do not have is a recent tradition of introspection and personal analysis of one's own actions after the event. This was not always the case. A review of this journal and its predecessors from the era of World War II and the Korean War shows that we did not always rely on sanitized reports written by staff officers, which are rarely introspective or truly insightful. Even if done only for personal reasons, officers and NCOs working in the battlespace need to capture their experiences. This chapter shows a way to do this.

A second strength of this book is the accessibility to the ideas that Kilcullen brings out. The book's flow lends itself to a reading over time, allowing each concept or idea to be pondered, questioned and assimilated. It is also written in simple, non-academic terms that won't require a dictionary as a companion piece. He takes difficult concepts and, through effective use of language, makes them easy to understand. However, one question that can and should be asked is whether or not Kilcullen is successful in his original aim of fostering debate?

While Kilcullen's arguments and ideas are sound, there is a paucity of voices; one can only wonder what a more comprehensive treatment of the subject would lead to. Specifically, I believe Kilcullen would have been more successful in his intent to generate discussion if he had invited other practitioners, particularly those with divergent views, to contribute chapters, which would have seen him acting as an editor rather than an author. There is also the danger that readers will treat a work like this as being far more comprehensive than it actually is and lose the lessons that other authors might have offered. Kilcullen himself points to dangers like this when we try to apply "a" model as "the" model, such as in the Indonesian experience. Keeping that in mind, potential readers will need to read this work critically and would be well advised to consult the numerous references that Kilcullen has used to help formulate his ideas. This may lead to the discussion and debate that he was trying to generate.

This is a book that is well worth owning if you want to gain an understanding of the most prevalent form of warfare to confront soldiers of the past century and likely of that to come. The fact that it contains a significant amount of previously published material does not detract from the book's appeal. If anything, its omnibus-like format, mixing old and new material, helps make the ideas flow better than they might have otherwise. Killcullen's ideas are shaping attitudes and beliefs among senior decision makers across the globe. This book allows us, as military professionals engaged in counter-insurgency activities, to gain insight into some of the key points that Kilcullen is trying to make.

LAND OPERATIONS 2021

As the 21st Century unfolds, Canada's Army must be ready to operate within an international security arena marked by uncertainty, volatility and risk in order to meet national security needs and expectations. This book outlines an employment concept that is ambitious and forward thinking, but at the same time well grounded in the lessons that we have captured from today's operations. In essence, it is a conceptual guide, from which force generation must evolve, acknowledging where we are, what we have achieved, and what we must do to ensure continued success in the future.

www.army.forces.ca/DLCD-DCSFT/specialPubs_e.asp

COMMENT SE PROTÉGER DE L'ESPIONNAGE ET DE LA MALVEILLANCE

[HOW TO PROTECT AGAINST ESPIONAGE AND MALICE]

BIBLIOGRAPHICAL INFORMATION:

Auer, François, Fontenay-aux-Roses: Recrut'Innov, 2009, 175 pages, €39 ISBN: 9782746605572

Reviewed by Mr. Nicholas Desurmont

Tackling the topic of espionage in the context of competition is certainly one of the things that makes François Auer's short book original. The author analyzes espionage, its methods, its development, and the sectors in which it is conducted. According to preface writer Pierre Lacoste, since the Echelon network scandal, we have forgotten about the multitude of private intelligence companies paid to provide their governments with confidential information. The book is divided into four chapters: global economic warfare and information, French companies and information, methods of espionage and malice, and methods of protection.

Auer starts with an essential point: "espionage and malice are fast-growing phenomena" [*Translation*] (p. 7). Inevitably, intelligence is one of the important components of global economic warfare. Intelligence is an aspect of the spirit of competition that allows competitors to work against each other. Auer defines espionage as the "act of spying on the actions/words of others for the purpose of reporting them"[1] [*Translation*] as efficiently and quickly as possible "without regard for the legitimacy and the legality of the methods used." It should be pointed out that, at the government level, this role is essentially the responsibility of the Ministry of Communications, the Ministry of the Interior and the Ministry of Defence rather than the Ministry of Justice, whose wiretapping activities account for a tiny proportion of acoustic intelligence activities. Police departments often tend to deny the existence of espionage when it targets an individual, at least according to the investigations we conducted in Belgium on the Local Police and the Office of the King's Prosecutor, Brussels. There is also a tendency to claim that the victim is in need of psychiatric help. Industrial espionage, on the other hand, is recognized. The author reports that a "study by the German counter-espionage service showed that 40% of German companies were victims of industrial espionage, entailing losses evaluated at €50 billion" [*Translation*]. This is a good book with an extensive bibliography, but it is unfortunate that the author does not include footnotes referencing these studies. Whereas espionage is the act of spying per se, *malice* is defined as "action with intent to harm" [*Translation*] (p. 12). Malice is used in economic warfare as it is in private life: as a weapon to cause damage and/or disrupt business operations (p. 12).

The author could have expanded the scope of his work by describing how government espionage is also used in private life, especially by the Judicial Police, which shadow people, but also by other security and surveillance bodies. Espionage is therefore part of the process of gathering intelligence in order to cause disruption for competitors so that they become complainants attempting to prove facts that have little added value for governments or businesses.

In the workplace, spying is sometimes carried out by a mole who is hired by a competitor and transmits as much confidential information as possible to his/her real employer during the period

of employment. The author points out that interns can sometimes be very effective spies. There was also a case in Louvain-la-Neuve where the source, who was spied on by residents of the city, had been considered persona non grata by the Federal Police when Pierre Patiny was managing the file (he received a promotion after failing to inform the authorities of facts that went against the priorities of the Judicial Police).

Despite the many cases of industrial espionage, managers are often very naïve in this regard, as the author reports. He states that 80% of company computer experts have never taken training on computer security (p. 29). On page 33, the author summarizes the consequences of malice and espionage. For managers and employees, those consequences include low morale, career and salary stagnation, economic layoff, fines or imprisonment. For the companies, they include loss of competitiveness, damage of corporate image, loss of important clients, loss of valuable contributors, and closing of the company (p. 33). Among the various methods of espionage practised, the author discusses interception (undoubtedly the most frequent method, based on our observations), theft (CDs, computers, etc.; see page 53 on this topic), intrusion, sabotage, manipulation and disinformation. Wiretapping is a type of interception and can be conducted in a legal framework (very rarely), in a security context (most frequently) or in an unauthorized manner. As always, there is a lack of parliamentary control with regard to security wiretaps, which are often used to supply the Judicial Police with information that helps them locate the victim and bring the Ministry of the Interior commercial gain. The police serve the Ministry of the Interior before any other corporate body or individual. Clearly, the primary objective of security wiretaps is not the satisfaction of the wiretapped party.

In our opinion, the main point of interest of this study is the detailed inventory of legislation relating to malice and espionage. This list is much more detailed than the one in Muriel Antéo's book on stalking, which we reported on a number of years ago. The Labour Code articles concerning professional secrecy are included. The offences listed with regard to espionage and malice are breach of trust; breach of public trust; invasion of privacy; breach of defence secrets and the security of armed forces; breach of the secrecy of correspondence; breach of professional secrecy; violation of personal rights; unauthorized access to automated data processing systems; fraudulent obtaining; extortion; intelligence with a foreign power; infringement; unfair competition (the legal antagonism that drives Judicial Police activities in manhunt situations); corruption; destruction, defacement and damage; supplying false information; supplying information to a foreign power; disclosure of trade secrets; blackmail; sabotage; and theft.

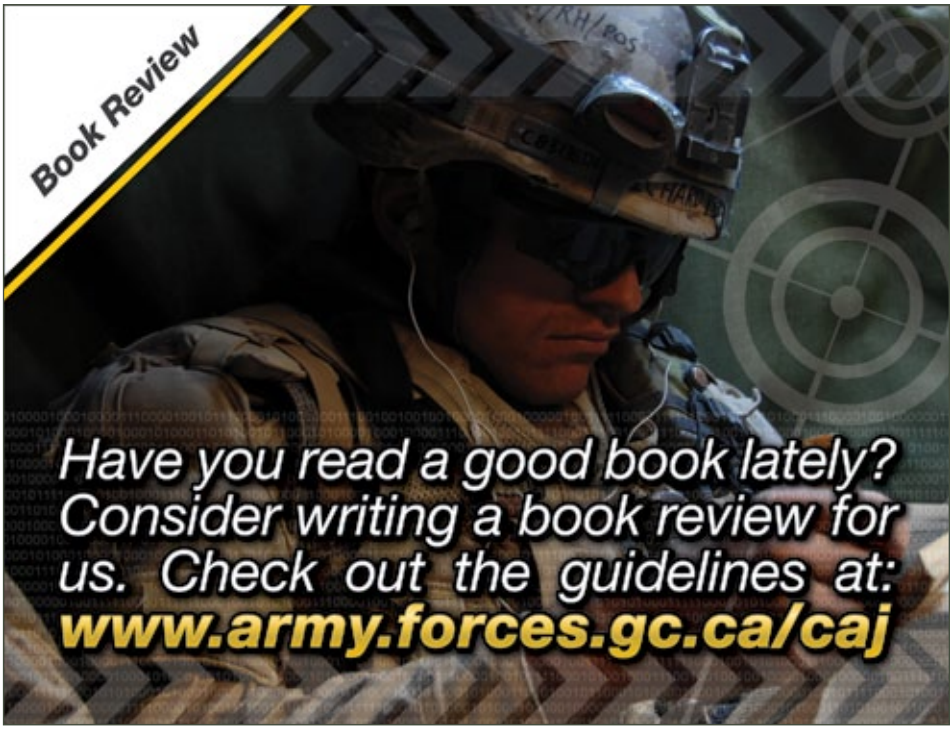
The author also reviews the methods of protection against those different types of interference, although the majority of the devices mentioned are costly and not necessarily available to the general public. In this sense, the intended audience of this book is primarily industrial espionage victims and businesses. For the most part, the examples pertain to the business environment. The computer software—encryption software, anti-virus software, anti-spyware, etc.—is accessible to all.

In conclusion, the author recommends ways for businesses to curb espionage and malice. But raising awareness, enlisting assistance from French security services and using the legislation is not enough, as we have seen in the investigations we have conducted on law enforcement in Belgium, Canada and France over an eight-year period. If the police do not acknowledge the events you have been a victim of, if that is work they are not motivated to do (investigating any type of interference requires finding ways to uncover it while it is going on, not necessarily conducting after-the-fact investigations to retrace what happened), if they give you advice that merely victimizes you even more (stop communicating via the Internet, using the phone, going out, etc.), or if they label your case as a psychiatric issue instead of proceeding with a criminal investigation, the author's tips are of little use. Once again, it is important to know exactly what methods the police use for each type of malice and espionage—keeping in mind, of course, that police activity is also subject to competition and that the police are first and foremost motivated by activities that benefit them (source: Brigitte Saint-Germain, RCMP liaison officer in Europe in 2006). In the annex, the author comments on the different articles of the law. Among these, unfair competition—entering into conflict with a complainant's interests—is an obvious example.

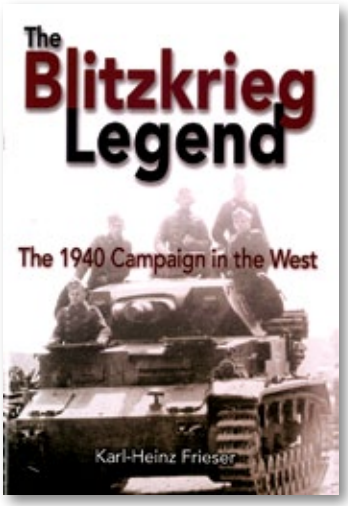
The book presents the reality of espionage, makes recommendations and gives simple and effective protection solutions. It is supplemented by a list of related legislation, a glossary, a mediagraphy and a bibliography, and a list of trade shows on espionage (Eurosatory should have been mentioned). It would have been helpful if the author had provided information on criminal procedure, particularly the admissibility of espionage evidence and the obligation of oversight bodies to look into elements of proof when individuals are targeted. In the absence of such work and such knowledge of the power issues involved in government espionage, police and government intelligence services will merely continue to pursue missions with their own economic interests in mind, to the detriment of the interests of the persons involved.

ENDNOTES

1. François Auer, 2010: p. 11.



Source: Combat Camera



THE BLITZKRIEG LEGEND: THE 1940 CAMPAIGN IN THE WEST

BIBLIOGRAPHICAL INFORMATION:

Frieser, Karl-Heinz with John T. Greenwood. Annapolis: Naval Institute Press, 2005, hardcover, 507 pages, $49.95, ISBN: 9781591142946

Reviewed by Colonel Peter J. Williams

Perhaps what sold me most on this book before I bought it was that it won France's 2004 Prix Edmond Freville prize, having been written by a German Army officer (and head of its Department of World Wars I and II of the Bundeswehr's Military Research Institute) on the subject of the fall of France in 1940. Colonel Frieser is the only foreign author to win this award from the *Institute de France*. Col Frieser was assisted in his work by John Greenwood, formerly of the U.S. Army Center of Military History. I knew from this and the extensive use of primary sources that I was in for an objective, yet scholarly account of a campaign long-held to be the epitome of blitzkrieg and manoeuvre warfare. I was not disappointed. At the same time, like all good history, I was highly impressed after reading this book at how many of my preconceptions of this campaign had been ill-informed.

While the fall of France came as a shock to the Western Allies, it could also be said, as the author claims, that it came somewhat as a surprise to the Germans as well, who did not expect so rapid a victory. Indeed, the authors claim that the concept of blitzkrieg really only entered German lexicon and military thought after the 1940 Campaign in the West.

The authors cover all the key aspects of the campaign, from the development of the actual attack plan, which underwent no less than five separate revisions before the final plan was adopted, to General Guderian's decision to cross the Meuse River, an operation touted by the authors as "… the initial independent operational employment of the Panzer force." The German advance through the so-called impassable Ardennes forest is described in some detail and indeed was a near catastrophe for the Germans, resulting in a major traffic jam as several armoured divisions competed for space on limited routes. The rationale behind the "Halt Order," given by Hitler amid ostensible fears that the Panzers were advancing too far too fast leaving their flanks vulnerable, is also covered in some detail, and the authors offer some eight possible theses behind why the order was given. In the end, Frieser and Greenwood claim that Hitler's real motive was to assert his authorities over his generals.

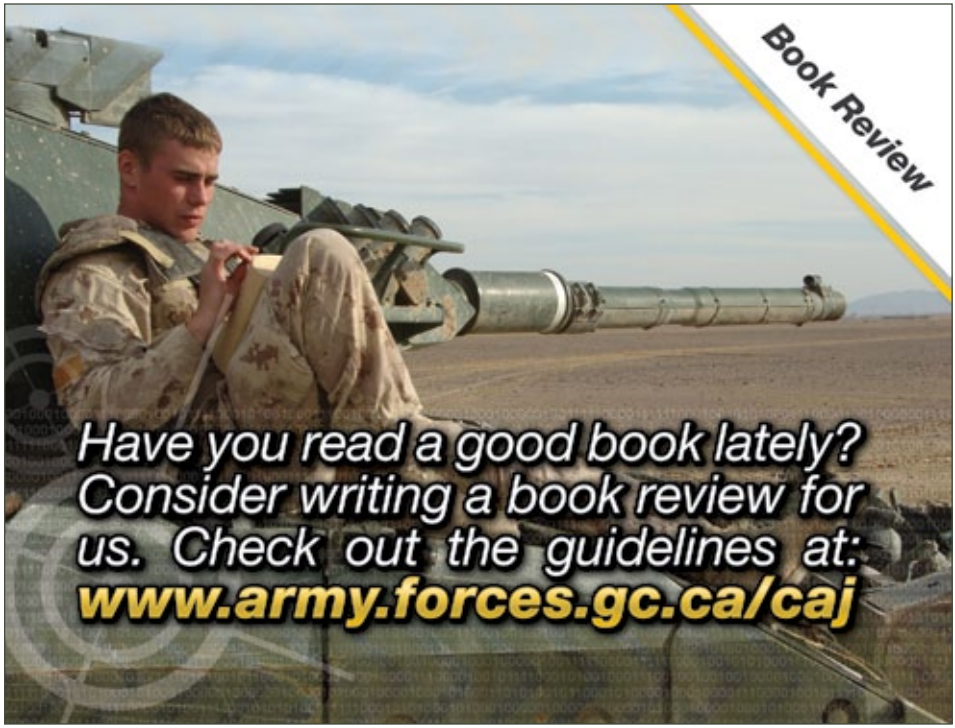
The book is well illustrated with maps and diagrams, many taken from German primary military sources. If I have one fault with this book, it is that such illustrations, while having English captions, are entirely in German, and I am sure I am not alone in stating that many readers would have preferred these to be translated. The Notes run to some 80 pages, and the Bibliography, strongly founded on primary sources and interviews with German participants, is some 44 pages in length.

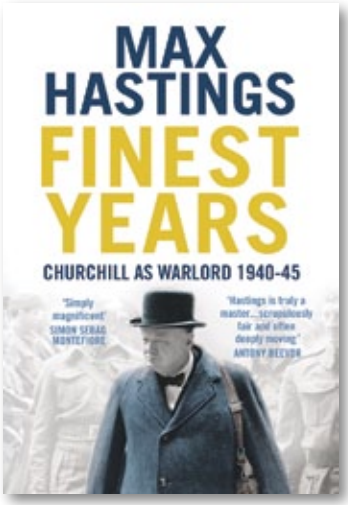
In an age where military operations are less defined by sweeping armoured thrusts across the map and by clashes of large mechanized formations, and more so by full-spectrum operations against an enemy who often wears no uniform and where progress is measured more so by the percentage of the population

who are "on side" than by kilometres gained, one may ask what lessons the study of such a campaign may have for the modern soldier?

Given that our doctrine still holds to the view that the importance of destroying the enemy's will to fight is key, then the ability of the Germans to bring about this very outcome in such a short period of time, against an opponent who was in many respects better equipped, is highly worthy of study. For the modern warrior, absent the environment of 1940, the difficult part remains in being able to set the conditions to achieve this, whether in the Horn of Panjwayi or off the Horn of Africa. In addition, the willingness of commanders to take risks, as the Germans did in 1940, is a timeless lesson that is often challenging to apply today in an age where militaries are often accused of being risk-averse. Strongly recommended.

Colonel Williams is Director Current Operations on the Strategic Joint Staff.





FINEST YEARS: CHURCHILL AS WAR LORD 1940–1945

BIBLIOGRAPHICAL INFORMATION:

HASTINGS, Max. London: Harper Press, 2009, hardcover, 664 pages, $44.95 ISBN: 978000726367

Reviewed by Captain Thomas E.K. Fitzgerald

In 2002, Sir Winston Spencer Churchill (1874–1965) was voted "the greatest Briton" by viewers of the BBC. There can be no doubt that Churchill deserved such an accolade notwithstanding the events which lead to this recognition occurred more than 60 years previously. As newspaper editor, author and self confessed Churchillophile, Max Hastings writes in *Finest Years: Churchill as War Lord 1940–1945*, Churchill was "one of the greatest human beings of the 20th century, indeed of all times" and one who "tower[ed] over the war, standing higher than any other human being at the head of the forces of light" whose words became "not mere assertions of facts or expressions of intent but acts of governance." It is with this thought in mind that Hastings turns his attention to writing about the defining years of this great man

It is difficult to write anything new about Churchill. Almost every year produces a small library about the man[1] but *Finest Years* succeeds phenomenally where others have missed the mark. The breadth of the author's knowledge of his subject is breathtaking. His grasp of the archival material is stunning. But what truly sets *Finest Hours* apart is that it is not simply a narrative of the dark years 1940–1942 when the freedom of the world hung in the balance. The true value of this work is that Hastings examines many of the decisions made by his subject and finds them, like the man himself, to be flawed and, in so doing, destroys many of the shibboleths of the war which have become entrenched in the various national psyches of the combatants.

First in Hastings sights is the myth that the British Army was, at the beginning of the war, a modern army generalled by capable officers. It was not. The British Expeditionary Force (BEF) was poorly trained and, he argues, poorly led. World War I had had a traumatic effect on British society and on the British officer corps specifically. Casualties were to be avoided at all costs, and battles were to be fought but only if necessary. Pre-war British military culture :

> militated against recruitment and promotion of clever, imaginative, ruthless commanders, capable of handling large forces—or even of ensuring that they were equipped with weapons to match the enemy. All too many senior officers were indeed men who had chosen military careers because they lacked sufficient talent and energy to succeed in civilian life.

General Sir Alan Brooke, a "limited human being," General Sir Harold Alexander, the "unworthy favourite," and Field Marshal Bernard Montgomery, one who "does not deserve to rank among his history's great captains but [was] a notable improvement upon the generals who led Britain's forces in the first half of the war," are but a few of his targets.

Hastings is also dismissive of Churchill's creation of the Special Operations Executive (SOE) whose mandate was to "set Europe ablaze" by conducting a series of commando raids on the continent and fomenting national resistance in the occupied countries. Except for Yugoslavia under Josip Broz (Tito), national resistance was a lukewarm effort realizing only some degree of support and success in occupied Europe in 1944 when the

Allies had the weapons necessary to support such movements and the ability to provide them. Moreover, once armed, the activities of these resistance groups were as brutal and ruthless to their own countrymen as were those of the occupier. Hastings observes that relations between Allied governments and formerly occupied countries depended, in large part, on the state of anti-German resistance. The more coordinated the national resistance movement, the less likely the country would cooperate with the advancing allies, witness General de Gaulle and the Free French resistance. "The impact of SOE's aid to Resistance movement," Hastings observes "was significantly greater upon post war societies than on military outcomes in the struggles against the Germans."

Hastings reserves, however, his most detailed analysis and trenchant comments for the argument that the western Allies won the war. Nazi Germany would not have been defeated but for the bloodbaths by the Red Army at Stalingrad, at Kursk and on the Oder River. As Hastings astutely asserts, "The Western Allies never became responsible for the defeat of Germany's main armies. They merely assisted the Russians to accomplish this." This sort of revisionist history might anger some ("never expressly articulated by Western leaders and is still seldom acknowledged by historians") but when one compares the orders of battle between the Western (including Italian) and the Eastern Fronts, one cannot deny the extraordinary efforts made by the Russians in terms of casualties suffered, casualties inflicted and territory regained. The Allies contented themselves until June 6, 1944 with peripheral attacks on "the soft underbelly of Europe." It was the belief held by many Britons and Americans that the British Army and Churchill were not doing enough and when done were done clumsily. The invasion of France was, as Hastings demonstrates, not only the culmination of incessant American pressure but a recognition by Churchill of domestic public opinion that the British Army had to "get into it."

It is against this background that Hastings places Churchill. To be sure, Churchill made mistakes, some spectacular as *Finest Years* demonstrates. His insistence on sending a second BEF to Cherbourg in June 1940 (with the 1st Canadian Division), his ill advised Dodecanese campaign to liberate the island of Rhodes and the eastern Mediterranean, his sending two capital ships into the Indian Ocean without air support resulting in their sinking by Japanese aircraft, the obliteration of so many German cities long after the strategic bombing operation had ceased to have any strategic value and Operation UNTHINKABLE the plan in May 1945 to arm German units and use them in an attack against Russian forces are but a few of many faux pas enumerated. Churchill was a leader beyond any seen up to then or even afterwards but he is not above justifiable criticism.

No book on Churchill would be complete without some reference to Churchill, the family man. Even as a parent and a husband Churchill had his shortcomings: "he was a domestic and parental failure, as most great men are. It would be disruptive to any family to accommodate a lion in the drawing room." But *Finest Years* is replete with many anecdotes and letters to and from his wife, Clementine, and daughter, Mary, that show a different, more textured side of this great man. It is perhaps telling of the man that when asked by Mary whether he would have wanted a medal for his service to Britain, he responded that he would have liked to have had his father, Randolph, an indifferent father himself, live long enough "to see that I made something of my life."

Finest Years is an important work. It is a book not only of what was but what is. It defines the central figure, the "last lion," of an age which will never be seen again but whose ripples in the currents and eddies of history are felt today. It is a book full of insight, carrying all the tragedy and triumph, uncertainty and drama of that age. It is the story of a leader, of leadership and of a man who—while infuriating and irascible—galvanized a country, a people and a world by the force of his vision, his unflagging optimism and personal strength of will to believe in themselves when they themselves did not. As Sir Edward Bridges, the Cabinet Secretary wrote, "Everything depended on him and him alone. Only he had the power to make the nation believe that it could win." We will never see his like again.

ENDNOTES

1. D'ESTE, Carlo , *War Lord: A Life of Winston Churchill At War 1874–1945* (New York: Harper Collins Publishers, 2008); Martin Gilbert, *Churchill and The Jews: A Life Long Friendship* (New York: Henry Holt and Company, 2007); and Longworth, Richard ed. *Churchill by Himself: The Definitive Collection of Quotations* (New York: Public Affairs, 2008).

CE QUE JE N'AI PAS DIT DANS MES CARNETS...

BIBLIOGRAPHICAL INFORMATION:

BERTRAND, Yves. Entretiens avec Frédéric Ploquin. Paris: Fayard, 2009, 406 pages, €19.90, ISBN: 9782213644288

Review by Mr. Nicolas Desurmont

Yves Bertrand is the former director of Renseignements généraux (RG) (now the Direction centrale du Renseignement intérieur (Central Directorate of General Intelligence), which has been under the leadership of Bernard Squarcini since 2008). In his book, Bertrand presents a series of conversations he had with Frédéric Ploquin, a terrorism specialist and investigative journalist at *Marianne* magazine who focuses on social issues.

The book is not a scholarly work or an introduction to the world of general intelligence; rather, it is a popular work in which theoretical concepts are presented in easily accessible language. The author, Yves Bertrand, had a career that lasted from 1970 to 2004, when Nicolas Sarkozy abruptly dismissed him from his duties as the director of RG. Bertrand had held the position since 1992, when he was appointed by Paul Quilès, and had thus served as director for many years, demonstrating an outstanding longevity in the role that he himself highlights. He received the news of his dismissal through Sarkozy's chief of staff, Christian Frémont. Bertrand therefore chose to write this book as a way of setting the record straight. Yves Bertrand served under and worked with Pierre Joxe, Jean-Pierre Chevènement and Dominique de Villepin, among others. At the time that Bertrand received his training, as Ploquin writes in the prologue, [*Translation*] "you needed to be well versed in politics." That goes hand in hand with practices in certain police forces where promotion is based on cases being managed in a way that is against the interests of the complainant. The author reveals the contents of his notebooks and, even more importantly, reveals what his notebooks do not say. That act of writing, which he reflects upon at the outset, saying [*Translation*] "in our field, we write," is typical of an intelligence mentality, which seems to contrast with the absence of writing that characterizes the activity of people who subscribe to a security mentality or who wait for evidence before starting to write. It is fascinating to read about just how much Yves Bertrand practised the act of information gathering during his mandate. He points out, however, that when the information was of an extremely sensitive nature, he sometimes conveyed it orally to the Minister of the Interior or even to the General Secretary of the Elysée. But the act of writing shows how greatly the work of someone in the RG differs from that of police officers, who are devoted to security and surveillance and who often write almost nothing down. In that respect, Bertrand points out that [*Translation*] "You can't be good, operationally speaking, if you do not write, as you run the risk of resembling a political police force" (p. 23). It should also be noted that Bertrand's notebooks were seized and placed under seal as part of the investigations into the Clearstream affair. Beginning on page 27, he recounts how two committing magistrates seized the notebooks.

Although Bertrand does not teach us anything very profound about geopolitics (like Constantin Melnik) or the history of intelligence and counter-intelligence methods (like Eric Denécé or Jacques Baud), he peppers his conversations with reflections on his work and, inevitably, on how to be a good intelligence agent. He notes, for example, that he recorded all of society's dysfunctions. He also details the restaurants that he used to frequent. The author writes about the nature of his relationship with former President Jacques Chirac, whom Bertrand seems to still hold in high regard. He also writes about numerous politicians, including Dominique de Villepin, Jean-Pierre Chevènement

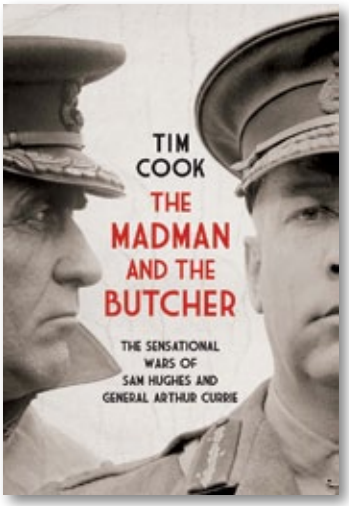
and Jean-Louis Debré. He details how Nicolas Sarkozy rose to power. He is not, however, explicit. About Sarkozy, he writes that [*Translation*] "when you're useful to him, he's your best friend, but there's a flip side to that which you must bear in mind: when you're no longer useful to him, he gets rid of you." He explains how Sarkozy devised his plan in Charles Pasqua's shadow. He discusses the destabilization operations that took place from 1993 to 1995 between Édouard Balladur's clan, Nicolas Sarkozy and Charles Pasqua on one side and Jacques Chirac and Dominique de Villepin on the other. The author fails to mention that Sarkozy came to power as Minister of Communications at a time when the French constitution had just been amended, making it possible to criminally prosecute ministers, and that Alain Carignan, the Minister of Communications before Sarkozy, was the first and, incidentally, has been the only, victim of that amendment since. It seems that Bertrand could have analyzed those facts and shown how the interplay of interests between the judicial branch, the communications world and the political world contributed to Nicolas Sarkozy's glory. However, 1994 was also the year that political-party monitoring ended at the request of the Minister of the Interior, Charles Pasqua. The author is not overtly trying to exact revenge on Sarkozy, but he nonetheless states that Sarkozy believed that he was plotting against him (see p. 62) and that Sarkozy even went so far as to order him to stop meeting with his predecessor, Philippe Massoni. That, in our view, should have gotten Bertrand's attention, as he should have been well aware that presidential secrets are passed from president to president and that, within that context, the future president might well fear that Bertrand had learned something about the strategies that had enabled him to rise to power. Bertrand could have been more perceptive in that sense, but as neither the judicial branch nor the people close to Sarkozy were able to find out the real story, we will not criticize him for not knowing it either. Sarkozy also chastised Bertrand for meeting with too many journalists (Sarkozy would go on to criticize Ségolène Royal for the same thing). Which brings to mind Gérard Pelletier, who, in *Le Temps des choix*, wrote [*Translation*] "I realized that I had been better informed about affairs of state when I was at la Presse [a Montreal newspaper]. For strategic reasons, our ministers are more likely to confide in correspondents of a big newspaper that in ordinary members of Parliament. The result is that the editor of a newspaper is inherently more influential that an MP, which is not saying much, as the latter's influence is practically non-existent.[1]" Bertrand eventually comes to the same conclusion about Sarkozy as he does about other people: [T*ranslation*] "one day, Sarkozy will end up shooting himself in the foot" (p. 72). He also states that honesty is not the number one attribute of a president of the Republic (p. 147). Bertrand's attitude contrasts, in many ways, with that of the judicial branch, as he gives credence, for example, to urban legends, gossip and rumours, saying [*Translation*] "Gossip can become a piece of information—a piece of intelligence, even—or remain gossip. Gossip is something that needs to be verified. When you hear the same bit of gossip in Lille, Paris and Marseille, then that is significant, and you need to examine it more closely" (p. 120). His daily work activities included tracking any disparaging campaigns aimed at various public figures. To verify the truth of gossip, Bertrand had eyes and ears all over the place (p. 151). Bear in mind that his department sorted through the garbage for years, always on the lookout for intelligence (in the case at hand, we are talking about the garbage of the Banque commerciale de l'Europe du Nord). The author also sought out information from journalists, with whom he developed a respectful relationship, that is, if he asked a journalist not to publish a piece of information, then that piece of information would not be published. That is partly because the RG is an administrative rather than a judicial police force. [*Translation*] "They work solely on behalf of the executive branch, while judges, for their part, are, in principle, supposed to serve the people under the court's jurisdiction," writes Bertrand (p. 206).[2]

Even though Bertand's career only began at the end of the 1960s, he discusses events from the time of the Algerian War to the time of his dismissal by Nicolas Sarkozy. He comments not only on politicians, but also on senior public servants, both from the Department of the Interior—including Claude Guéant, Pierre Bousquet de Florian (the former director of the Direction de la surveillance du territoire (Directorate of Territorial Surveillance)), Michel Gaudin, and Claude Cancès—and from the Department of Foreign Affairs—including Roland Dumas and Jean-Claude Marin, the prosecutor of the French Republic. The book finishes with an epilogue that expands upon the reflections made in the body of the text concerning rumours, politics, and the desires and realities of an RG civil servant. The book should appeal to members of the intelligence community, particularly those who are interested in the history of policing, politics and the inner workings of the Fifth Republic and the politicians who have shaped it.

ENDNOTES

1. Gérard Pelletier, *Le Temps des choix*, Montreal, Stanké, 1986, p. 293. Our personal meetings with Melchior Wathelet, who was then an MP, and Josy Dubié, who was then a senator, in Belgium in late 2005 and early 2006, at the time of the parliamentary debates surrounding the vote to amend the *Loi sur les méthodes particulières de recherche* (an act of January 6, 2003), revealed that they were not familiar with the espionage techniques that had been in use for several years by the Sûreté de l'État and the Police judiciaire (direct listening, cutting and pasting of portable-telephone address books, and triangulation). It was we who informed the Comité R of some of the techniques that it knew about in 2008.
2. The philosophy of priorities of the different prosecutors' offices will sometimes, in cases involving judicial antagonism, go against the interests of the complainant. That observation is based on the investigations we personally carried out in Belgium, France and Canada between 2002 and 2009 that involved hundreds of police officers and judges.

Source: Combat Camera



THE MADMAN AND THE BUTCHER: THE SENSATIONAL WARS OF SAM HUGHES AND GENERAL ARTHUR CURRIE

BIBLIOGRAPHICAL INFORMATION:

COOK, Tim. Toronto: Allen Lane, 2010, hardcover, 422 pages, $36.00 ISBN: 9780670064038

Reviewed by Captain Thomas E.K. Fitzgerald

Canadian military history is unjustly indicted as boring, a mindless recitation of facts and dates with no great personalities to transcend the centuries. Not so. With his provocative title, The Madman and the Butcher, historian, curator and award winning writer,[1] Tim Cook, has woven an engrossing and highly readable account of the titanic conflicts between Sir Sam Hughes, Minister of Militia and Defence and Sir Arthur Currie, General Officer Commanding Canadian Corps during the last half of the First World War and in the years afterwards.

Sir Sam Hughes, street brawler, newspaper publisher, small town politician and Conservative minister is the "madman" of the story. Described variously as a "lunatic" by then Governor General, the Duke of Connaught or by the Prime Minister of the day, Sir Robert Borden as "unbalanced" or by the author as possessing "unstable emotions," an "unhinged quality" or exhibiting "manic behaviour," there exists no doubt that Sir Sam was an arresting personality. Based on his experiences in the Boer War (1899–1902) as a supply and reconnaissance officer (where by his own admission he should have been awarded not one but two Victoria Crosses), Hughes became a fervent supporter of the militia and the sworn enemy of the professional soldier who he later described as "bar room loafers."

Appointed as Minister of Militia and Defence in October, 1911 (with some reluctance by the Prime Minister due to Hughes's previous and many anti-Catholic, anti-Quebec tirades), Hughes became a first-rate minister, criss-crossing the country in support of the militia, attending annual militia camps and securing increased budgets for the military in Parliament. When war came to Canada in August, 1914 (in a childish display of pique, Hughes ordered the British flag hauled down from in front of his ministry fearing that the British would "skunk it"), Hughes became a virtual whirling dervish of activity creating Valcartier, recruiting the men of the First Contingent and then promising recruits for as many as twenty Canadian divisions. Many of these decisions were taken without consulting either cabinet or the Prime Minister. To be sure, mistakes were made. The Ross Rifle, the MacAdam Shield Shovel and "sham shoes" (a play on words to describe the inadequate boots issued to Canadian soldiers) will forever be associated with Hughes. That all said, as Cook ably demonstrates, Hughes was the right man at the right time to recruit, equip, train and transport hundreds of thousands of men and women to fight the war in Europe.

Sir Arthur Currie (the family name was originally spelled "Curry"), one time teacher, citizen soldier, artillerist, liberal, failed businessman is the "butcher" of the story. Rising through the ranks of the pre-war militia to form and to command the 50th Regiment, Currie was given command of the 2nd Brigade, 1st Division when war was declared. His eventual appointment to brigadier was attributable as much to his military and training skills as it was to his friendship with Major Garnet Hughes, the son of the Minister. Cook describes Currie's swift movement through the senior ranks of the Canadian Expeditionary Force (CEF), brigadier (1915), major-general (1915), lieutenant-general

(1917) in an even-handed manner. Currie made mistakes as many great generals do, but Currie never repeated his mistakes. His departure from the front lines during the Second Battle of Ypres (April, 1915), for example, remains, to this day, not completely explained. Further, his inability to connect with the soldiers of his corps (a situation which the author opines is symptomatic of a condition we would describe today as post-traumatic stress disorder) probably denies him a place in the pantheon of truly great generals. But these and other failings pale when compared to the successes enjoyed by the Canadians under Currie's command. As Cook wrote in his earlier book, *Shock Troops*, by 1918 the Canadians were "punching far above their weight" on the Western Front. The Canadian Corps was the "go-to" formation when a dirty job was required, and both the British High Command and the enemy knew it.

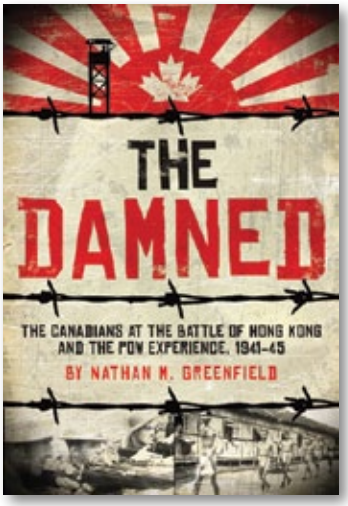
The conflict between Hughes and Currie, which ultimately resulted in a libel suit being litigated in the sleepy town of Cobourg in 1928[2] (Hughes had died in August, 1922), was not preordained. Hughes was initially impressed with Currie's skills as an artillery officer in Victoria (Hughes kept his eye on all senior militia officers), his training abilities at Valcartier and his fighting abilities at Second Ypres. The seeds for conflict were planted when Currie denied Garnet Hughes command of his own brigade. (Hughes later went on to command the Fifth Division, a training formation in England.) It festered when Currie was awarded corps command, a position that Hughes coveted. (He was offered a senior command by the Prime Minister conditional on his resigning from office. He declined.) The conflict exploded in March, 1919 (Hughes had resigned as Minister in October, 1916) when, in a speech to Parliament, he excoriated the Canadian military high command for causing the "needless slaughter" of Canadian soldiers (or "his boys" as he often described the soldiers of the CEF) in the war and, particularly, during the final pursuit to Mons, November 1918[3] and offered that those responsible should be "tried summarily by court martial and punished so far as the law would allow."

Cook has crafted *The Madman and the Butcher* as a double biography with alternating chapters for each of the protagonists. He has a masterful grasp of both archival and secondary sources. This history is invaluable not only for its account of its principals but as an engaging tale of early 20th century Canadian politics and society where scandal and patronage abounded. It is a book worthy of the bookshelf of both the military and the general historian.

Neither man wrote their memoirs. There exists scant information about either man prior to their being catapulted into fame or infamy. Sir Arthur has a number of military buildings named after him as befits the great general he was. A full size statue of him stands in the Valiant's memorial in Ottawa. No such memorial exists for Sir Sam. That is regrettable. Were it not for his industry during those desperate autumn days of 1914, the CEF might have been still born or later, broken up into penny packets by the British High Command desperate for reinforcements. Canada needed Sir Sam as much to win a war as to forge a nation. Perhaps *The Madman and the Butcher* is a first step toward redemption, his memorial.[4]

ENDNOTES

1. Cook's other titles include: *No Place to Run: The Canadian Corps and Gas Warfare in the First World War* (Vancouver: University of British Columbia Press, 1999); *Clio's Warriors: Canadian Historians and the Writing of the World War* (Vancouver: University of British Columbia Press, 1999); *At the Sharp End: Canadians Fighting the Great War, Volume 1: 1914–1916* (Toronto: Viking, 2007); and *Shock Troops: Canadians Fighting the Great War, Volume II: 1917–1918* (Toronto: Viking, 2008).
2. See (Mr Justice) Robert Sharpe's *The Last Day, The Last Hour: The Currie Libel Trial* (Toronto: Osgoode Society, 1988) for the best account of this "trial of the decade."
3. Mons had, at best, a symbolic value being the city where the remnants of the British Expeditionary Force, "the Old Contemptibles," in May 1914 stopped the German Imperial Army. By November, 1918, the CEF broke the German Arras-Cambrai line in its celebrated "100 Days" advanced on Mons. Under British orders to maintain pressure on the enemy despite the expected armistice, Currie ordered the Royal Regiment of Canada and the 42nd Battalion (Royal Highland Regiment) of the 2nd Division to advance. These units entered the city in the early hours of November 11.
4. A number of fine books have been written about Sir Sam and Sir Arthur and the emergence of a professional Canadian army including: Desmond Morton, *Ministers and Generals: Politics and the Canadian Militia, 1868–1914* (Toronto: University of Toronto Press, 1970); Stephen J. Harris, *Canadian Brass: The Making of A Professional Army* (Toronto: University of Toronto Press, 1988); Daniel Dancocks, *Sir Arthur Currie: A Biography* (Toronto: Methuen Press, 1985); and R. G. Haycock, *Sam Hughes: The Public Career of a Controversial Canadian, 1885–1916* (Ottawa: Canadian War Museum, 1986).



THE DAMNED: THE CANADIANS AT THE BATTLE OF HONG KONG AND THE POW EXPERIENCE, 1941–1945

BIBLIOGRAPHICAL INFORMATION:

GREENFIELD, Nathan M. Toronto: Harper Collins Publishers Limited, 2010, hardcover, 400 pages, $34.99, ISBN: 9781554682195

Reviewed by Captain Tyler D. Wentzell

Pre-eminent Canadian military historian Colonel C. P Stacey once described the Battle of Hong Kong as "the most difficult historical problem I ever encountered."[1] Proper war diaries, radio logs and other documents recording the conduct of the battle were either destroyed or captured. Historians are left with little more than makeshift war diaries, written from memory under the hardships of Japanese prisoner of war (POW) camps, or interviews conducted long after the battle. Nonetheless, the battle has produced a number of texts, including many "very sensational and bad books," as Brereton Greenhous put it in his *"C" Force to Hong Kong.* To the pantheon of good books on the subject, we can now add Nathan M. Greenfield's *The Damned: The Canadians at the Battle of Hong Kong and the POW Experience, 1941–1945*. Although it does not provide any particularly groundbreaking reinterpretations of the battle or the force's four years in POW camps, it does furnish an excellent level of detail that makes it a worthy addition to any library.

As the author points out, the veterans of Hong Kong faced three battles: the battle against the Japanese in the hills, the battle for survival in the POW camps and the battle for adequate recognition from the Canadian government. Greenfield tackles the first and second battles, allotting roughly half of the book to each, and provides the clearest description of the battle to date as well as a compellingly human description of the POW experience.

Greenfield's description of the Siege of Hong Kong is clear and easy to follow. While most authors have generally broken the battle into mainland and island phases, the latter being particularly murky, *The Damned* goes into much more detail. The normally confusing nature of the disorganized hill fighting is much clearer. The action in which Sergeant Major Osborne earned his Victoria Cross, for example, is extremely well contextualized. Greenfield makes skilful use of quotations from Canadian and British soldiers and, for the first time, calls upon Japanese testimony, as well.

The narrative of the Hong Kong battle is additionally aided by the inclusion of the most detailed map selection yet published. This map selection includes the friendly disposition on the island down to the company headquarters level and the forward line of Japanese troops, daily from 18–25 December. Although a topographical map of the island and the inclusion of the Sing Mun Redoubt and the Golden Hill Line on the mainland would have been useful, the modern reader can easily find this information with an Internet connection.

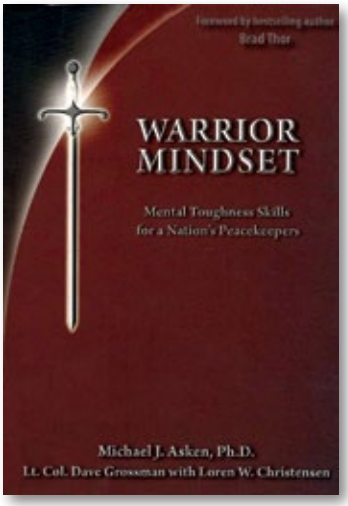
Greenfield also addresses the issue of Canadian performance during the battle. The Canadian contingent was accused of poor performance by both Major General Christopher Maltby, Fortress Commander, and Brigadier Cedric Wallace, Commander of the East Brigade that included the Royal Rifles of Canada. Greenfield specifically confronts Wallace's accusations and includes a sample of the brigadier's war diary as an annex. The author makes it clear that many of Wallace's accusations are ludicrous, providing plenty of evidence to the contrary throughout the text. However, in defending the courage of Canadian soldiers, he gives scant attention to the general lack of preparedness within the contingent. As such, the book arguably suffers from the same weakness of most "bottom up" histories; it's too rosy. For example, Greenfield unnecessarily challenges the belief that "C" Force was under-trained, claiming that they were adequately prepared at the section and platoon level and therefore ready for the decentralized nature of the hill fighting. This argument is less than compelling. Although too much has often been made of the contingent's lack of training in support weapons, the unit's shortfall in collective training was probably its greatest shortcoming. Addressing these deficiencies would have done no dishonour to the soldiers. On the contrary, it could have expanded on a critical lesson of the episode, surely one of the many purposes of studying history.

Greenfield devotes the second half of his book to the fate of the captured Canadians. The POW experience presented by Greenfield is rich with anecdotes, describing the squalid living conditions and the moral courage of the soldiers. Canadian soldiers and Japanese guards alike become compelling characters. At the same time, Greenfield keeps with his chronology. From the Canadians' initial capture to their liberation, the author clearly describes the movements of the prisoners around East Asia, their knowledge of outside events and the changes in their conditions over the duration of the war. The story does not become overburdened with the same anecdotes that make the story so real.

Greenfield's book makes an excellent contribution to the existing historiography regarding Canada's wartime foray into the Orient. Making effective use of interviews and journals, the author skilfully blends anecdotal evidence with what records do exist to produce a detailed description of the battle and the POW camps. The use of Japanese sources and the detailed narrative of the battle, in particular, make it a welcome addition to existing scholarship.

ENDNOTES

1. C. P. Stacey, *A Date with History, Memoirs of a Canadian Historian* (Ottawa: Deneau, 1983), p. 238



WARRIOR MINDSET: MENTAL TOUGHNESS SKILLS FOR A NATION'S PEACEKEEPERS

BIBLIOGRAPHICAL INFORMATION:

ASKEN, Michael J., GROSSMAN, Lt Col (Ret) Dave with Loren W. Christensen. Millstadt, IL: Warrior Science Group, 2010, paperback, 254 pages, US$22.95, ISBN: 9780964920552

Reviewed by Colonel Peter J. Williams

It was the name Dave Grossman on the cover that caught my eye and drew me to this book. Though he does not receive top billing among the three authors, having read his earlier works, *On Killing* (which was nominated for a Pulitzer Prize) and *On Combat*, and having listened to his highly engaging talks before deploying to Afghanistan, I felt that this was a must-read. What Mr Grossman and the other authors of this book have striven to do with this work is to bring together much of the current work on performance enhancement to aid military and police "… with a foundation in the psychological skills of mental toughness that promotes optimal response, and especially in high stress missions and operations." One could argue that given the light which has been shed upon conditions such as post-traumatic stress, as a result of our operations in Afghanistan in particular, this is a very timely work.

Certainly the authors know whereof they speak, representing a variety of germane fields of endeavour: Dr. Asken is a psychologist for the Pennsylvania State Police and has provided training for a number of organizations including the US Department of Defense. Loren Christensen is a Vietnam veteran with 29 years of police service to his credit. Lt Col (Ret) Grossman is a 23-year US Army veteran and one of the world's leading experts on human aggression and the roots of violence and violent crime.

The authors, as might be expected, are highly supportive of the benefits of the material and skills put forward in this book and strongly contend that pre-event counselling can and will make a difference in one's ability to achieve mission success.

To give readers an idea of where they stand in the mental toughness category (which range from "You're in Command" to "Basic Training Time"), the book offers a short test at the start. Throughout the remainder of the book, various aspects of developing mental toughness are described, including concentration skills, tactical arousal control and negative thought-stopping. As each method of skill enhancement is described, it is supported by various studies. The sensitive subject of fear is dealt with in some detail, including its links to fear of failure. In this regard, the authors propose two possible strategies: the motive to achieve success (MAS) and the motive to avoid failure (MAF).

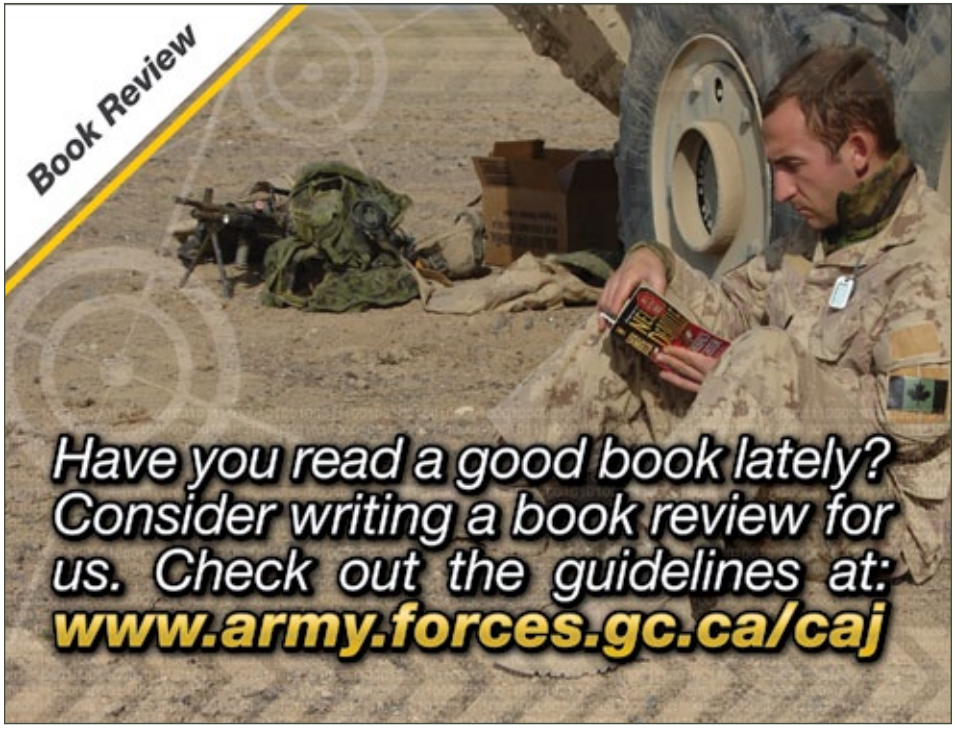
One study I found particularly interesting, and which was endorsed by a US Army medical officer (MO) who had served in Afghanistan, was one which proposed methods to survive injury, among them being the ability to relax, which was viewed as essential. The MO in question goes into some detail, from his own experience, how he observed that these techniques paid off.

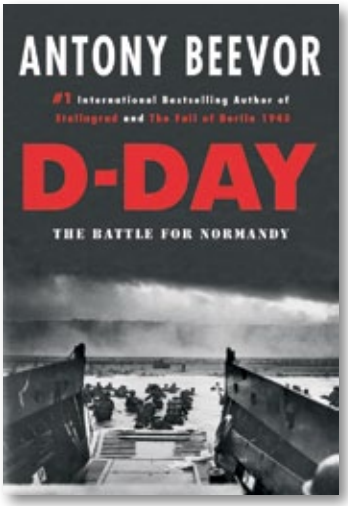
The book relies heavily on contemporary research, and I have to admit that I felt somewhat inadequate in being able to comment on the validity of the many sources quoted at the end of the book, a list which runs to an impressive 20 pages. The sources listed are almost without exception American, and there appeared to be no reference at all to works from this country, of which there are no doubt many.

While the book claims to be aimed at soldiers, policemen and their leaders, I did not find much of a focus on leaders and how one would train subordinates to master the skills described in the book. Instead, I found it to be of more use to individuals, as they conduct their own personal preparations before entering a situation perceived as stressful.

Recommended, particularly for those in the medical or psychological field whose views I would welcome as to the value of this book to supplement extant mental preparation for those about to deploy or undertake duties in which they will face highly stressful situations.

Colonel Williams is the Director Current Operations on the Strategic Joint Staff.





D-DAY: THE BATTLE FOR NORMANDY

BIBLIOGRAPHICAL INFORMATION:

BEEVOR, Antony. New York: Viking, 2009, hardcover, 592 pages, $41.00 ISBN: 9780670021192

Reviewed by Captain Thomas E.K. Fitzgerald

The story never grows old in its telling—desperate men parachuting into the night while others storm well-defended beaches against equally determined men. This was D-Day, June 6, 1944, the Allied assault on *Festung Europa*. The beginning of the end for the *Wehrmacht* in Western Europe is masterfully recounted by noted novelist, military historian and former British armour officer, Antony Beevor, in *D-Day: The Battle for Normandy*. After his tour de force, *Berlin*[1] and *Stalingrad*,[2] his great narratives of two epic battles, Beevor returns to the Western Front where he traces the Allied advance from the beaches into the bocage to the liberation of Paris on August 15, 1944. The Normandy campaign is not a new subject. A new book on the subject arrives every few years; thus every small library dedicated to the campaign itself or the individuals involved is already full. What places *D-Day* apart from the others is not only the comprehensive nature of the story dealing as it does with grand strategy, grandiose personalities and the personal anecdotes of the combatants at the "sharp end" but the deft hand of the author in weaving together these thematic threads into a cloth of bravery and honour, stupidity and betrayal.

By the spring of 1944, the war had turned in the Allies' favour. North Africa had been liberated, the Allied army was nearing Rome and, on the Eastern Front, the Battle of Kursk[3] had seen the strategic initiative lost to the *Wehrmacht* for the rest of the war. But it was Western Europe—the second front—that the world desired and for which it held its breath. D-Day was the culmination of American pressure on the British to implement a cross-channel assault on Western Europe (Operation ROUNDUP) rather than the "peripheral strategy" of the British, the latter strategy borne of equal parts to avoid the horrendous casualties of World War I and a desire to protect British imperial interests in the Mediterranean. There was also a desire of both American and British political leaders to be seen to be "doing something." Until D-Day, it was the Red Army that had shouldered the greatest burden of the war.

Shortly before midnight on June 5, 1944, the roar of thousands of aircraft engines filled the air while 7,000 boats escorting and carrying 130,000 American, British, Free French and Canadian troops moved across the English Channel in anticipation of a dawn assault. Not until DESERT STORM would this concentration of firepower and manpower be present again. It may have been a foregone conclusion that the Allies would have succeeded, but it could easily have turned into a catastrophe with troops misplaced on beach heads (Utah), paratroopers landing away from their drop zones, amphibious trucks carrying much needed mobile artillery sinking well away from the beach, the American Army Air Force (in fear of dropping its bombs "short" on the invasion fleet) dropping them "long" (inland where they caused no enemy casualties but severe civilian losses). This theme of civilian casualties is a recurrent one

in *D-Day* and one never before fully analysed. As Beevor notes, "it is a sobering thought that 70,000 French civilians were killed by Allied actions during the course of the war (15,000 in the preparatory bombing), a failure which exceeds the total number of British killed by German bombing."

The Battle for Normandy, as Beevor writes, was as brutal and as bloody as any battle that occurred on the Eastern Front. Barbarity abounded on both sides. Quarter was seldom asked for or given. Most Canadians are aware of the war crimes committed by the 12th Panzerdivision *SS HitlerJugend* Division at the Abbé d'Ardenne[4] but such savageries were reciprocated in kind across the battlefield by all armies, American, British, Canadian and German. Casualties mirrored those in the Red Army with divisions being attrited at a rate of 2,000 men a month[5] to say nothing of the cases of combat exhaustion, otherwise known as battle shock, which exceeded 10 per cent of all non fatal battle casualties.[6]

The great value of *D-Day: The Battle for Normandy* is not only its examination of the giant personalities of the day (Eisenhower, Montgomery, de Gaulle and Rommel—all of whom succeed or fail as commanders to varying degrees) but of the unknown or little known actors in this immense drama from Brigadier Theodore Roosevelt, who led the 4th US Division ashore during the first wave on Utah Beach (later earning the Medal of Honour) to the unnamed British officer telling his men on the eve of D-Day: "Don't worry if you do not survive the assault as we have plenty of troops to go in over you" and Captain Scott Bowden who swam ashore from a midget submarine to assay the beach armed only with a knife, a Colt .45 and an auger. It is these personal vignettes which Beevor so expertly weaves together with grand strategy to produce a rich literary tapestry of great texture, colour and substance. Beevor's other great talent is his vivid story telling narrative style, combined with appropriate quotations. Thus in great detail is told the preparation of the paratroops of the 101st Division:

> *Dog tags were taped together to prevent them making a noise. Cigarettes and lighters together with other essentials, such as a washing and shaving kit, water purifying tablets, 24 sheets of toilet paper and a French phrase book, went into the musette bag slung around the neck along with an escape kit of a map printed on silk, hacksaw blade, compass and money.*

When some of these same paratroopers died because they jumped so low that their parachutes did not open, their impacting bodies sounded like "watermelons falling off the back of a truck." Similarly, troops rushing off the landing crafts onto the beaches are anecdotally described as men "tumbling just like corn cobs off a conveyer belt."

Canadian readers will welcome this book for its characterization of the officers and men of the Canadian 3rd Division (later II Canadian Corps). Beevor is very laudatory of the leadership of the Canadians. He writes "the strength of the Canadians lay in the quality of their junior officers many of whom were borrowed eagerly by a British Army short of manpower." It is no wonder that (with this depth of training, leadership and thirst for revenge arising from the ill-fated Dieppe raid) the men of the North Shore (Nova Scotia) Regiment made the furthest advance inland of all Allied forces. A complete chapter is devoted to Operation TOTALIZE, the Canadian attempt to clear the area south-west of Caen and move on Falaise. This incomplete victory, according to Beevor, resulted from spotty intelligence (the so-called "crystal gazers"), difficult geography and a nascent ground-air coordination that lacked flexibility and timeliness. Even Lieutenant-General G. Simonds, Commander II Corps comes in for some criticism for his less than usual enthusiasm in following up the closing of the Falaise Gap. "Even the energetic Simonds spent the following morning 'tidying up official correspondence' instead of forcing forward his divisions."[7] The Canadian soldier is depicted as a brave, dogged and resourceful professional more so than his British counterpart who after five years of combat was extremely war weary and his American cousin who, while brave, often was undertrained with expected results.

Beevor is even handed in his treatment of both the high and low of both sides. He is unreservedly critical of Montgomery who is portrayed "as having breathtaking conceit which almost stemmed from some kind of inferiority complex"; both Rommel and Patton exhibit a fair measuring of "military prima donnaship" while, to Churchill, de Gaulle was a "traitor" and, to de Gaulle, Churchill a "gangster."

The intrigue and suspicion held among the Allied leaders led credence to Churchill's admonition: "There is only one thing worse than fighting with allies, and that is fighting without them."

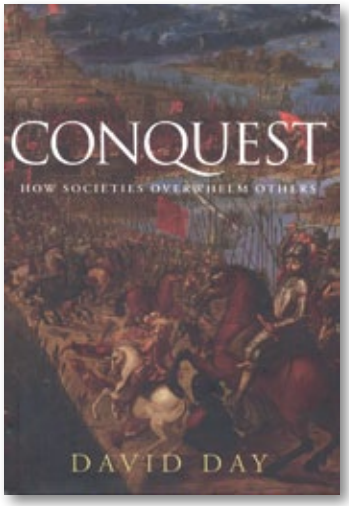
Beevor moves his reader briskly off the beaches and into the bocage, the thickly hedged part of Normandy where whole battalions were lost and unseen death awaited only meters away. It was here that the bloodiest fighting occurred, reminiscent of trench warfare in the previous war. Advances were measured in miles. It was here that the Allies started perfecting their close support tactics and where technical ingenuity, the Rhino tank for example, came to the fore. It was in the bocage that the Allied soldier met and defeated the best the German army could field.

The last chapters of *D-Day* deal with the aftermath of the closing of the Falaise Gap, the push to the Seine River and the capture of Paris. Given its logistical burden on the Allies and the absence of any strategic value associated with its capture, capturing Paris was never part of the campaign plan, but de Gaulle insisted.

D-Day is an excellent read, well worth its 568 pages of dense narrative. It astutely blends depiction and analysis. It properly shows that war, however just, is a horrendous, heart breaking and, yet, inspiring experience. *D-Day* was a turning point for the war, but it came at such a cost.

ENDNOTES

1. Antony Beevor, *Berlin: The Downfall 1945* (London: Penguin Press, 2002).
2. Antony Beevor, *Stalingrad* (London: Penguin Press, 1999).
3. The Battle of Kursk (July, 1943) was the largest tank battle of WWII, occurring near the city of Kursk in south-west Russia. The German strategy was to cut off two Soviet fronts (Army Groups) in the Kursk salient with a giant pincer movement. The 9th Army (Manstein), moving south, was to link up with the 4th Panzer Army (Hoth) driving north towards Kursk. The Soviet High Command (Stavka), aware of the proposed offensive, had prepared a defence in depth. Notwithstanding initial success, the German Army was delayed, halted and then rolled back with great loss of men (estimated at 53,000 casualties) and material. The Russian losses were estimated at 235,000. See Alan Clark, *Barbarossa: The Russian-German Conflict 1941–45* (New York: William Morrow Co., 1960); and Walter Dunn Jr., *Kursk: Hitler's Gamble* (Portland: Praeger Publishers, 1997).
4. Between June 1–17 1944, a total of 20 Canadians from the North Nova Scotia Highlander Regiment, the 27th Canadian Armoured Regiment (Sherbrooke Fusilliers) and the Stormont, Dundas and Glengarry Regiments were murdered by member of the 25th Panzersgrenedier Regiment of the 12th Panzergrenadiers *SS Hilterjugend* (Hitler Youth) Division under the command of Standardenfuhrer Kurt Meyer. Meyer was captured during the war and stood trial for these murders in December 1945, murders of which he asserted he had no knowledge. He was convicted and sentenced to death. The sentenced was commuted to life imprisonment, part of which he served in Dorchester Penitentiary in New Brunswick. He was released in 1954 and died in Germany in 1961: http://www.veterans.gc.ca/eng/sub.cfm?source=memorials/ww2mem/ardenne Also, see Harry Margolian, *Conduct Unbecoming: The Story of the Murder of Canadian Prisoners of War in Germany* (Toronto: University of Toronto Press, 2000); Patrick Brode, *Casual Slaughters and Accidental Judgements* (Toronto: University of Toronto Press, 1997); and Anthony Foster, *A Meeting of Generals* (Toronto: Methuen Press, 1986).
5. By June 20 the British 2nd Army had suffered 24,698 casualties since the invasion began while the Americans had lost 34,034 men. German losses for the same period were 80,783. By the end of the Normandy campaign, there were 83,045 British, Canadian and Polish casualties, 125,847 American casualties and approximately 290,000 German casualties. An additional 200,000 men were lost as prisoners of war.
6. For a comprehensive study of combat exhaustion in the Canadian Army during WWII and various methods to manage it, see the well-written Terry Copp and Bill McAndrews, *Battle Exhaustion: Soldiers and Psychiatrists in the Canadian Army 1939–1945* (Montreal: McGill-Queens University Press, 1990). Canadians were in the forefront of revolutionizing treatment options for this very real situation.
7. Operation TOTALIZE has been the subject of many books in recent years including: Brian A. Reed, *No Holding Back: Operation Totalize, Normany August 1944* (Toronto: Robin Brass Studio, 2004); John A. English, *The Canadian Army in the Normandy Campaign* (Mechanicsburg: Stackpole Press, 2009); Terry Copp, *Fields of Fire: The Canadians in Normandy* (Toronto: University of Toronto Press, 2003); and Carlo d'Este, *Decision in Normandy* (London: Pan Books, 1983).



CONQUEST: HOW SOCIETIES OVERWHELM OTHERS

BIBLIOGRAPHICAL INFORMATION:

DAY, David. Oxford: Oxford University Press, 2008, hardcover, 288 pages, $26.50 ISBN: 978-0-19-923934-4

Reviewed by Major Andrew B. Godefroy, CD, PhD, pIsc

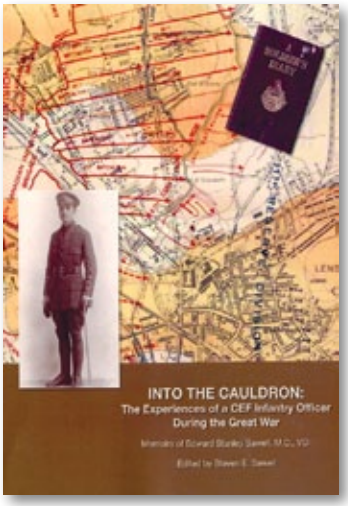
Since the advent of organized violence, the claiming of other people's lands and the supplanting of one people by another has shaped our world, its societies and history. This activity is in fact so entwined with the foundations of modern society and security, that it has justly deserved an analysis of its own for some time. In his latest work, *Conquest: How Societies Overwhelm Others*, noted Australian historian David Day examines in detail the subject of conquest through a number of themes ranging from the cultural to the legal. His ambitious work reveals the full complexity of this subject and offers much of interest to those in the strategic studies and defence analysis fields.

At nearly 300 pages, Day divides his investigation of the subject into 11 themed chapters beginning with a general framing of the problem and its analysis. From this he proceeds to explain the historical context of staking a legal claim—legal at least in the eyes of the conquerors—followed by the roles and power of cartography; the use of "discovery" and naming, occupation and annexation; the removing of local populations; the defence of new gains; and the ultimate assimilation of new spaces over time.

The topic offers considerable scope for investigation, yet despite the enormity of the subject, Day does an excellent job of navigating the most salient aspects of the subject. The author sees conquest not as a singular event but rather the first part of a somewhat natural and inevitable human process that constantly reshapes the human geography of our world. Not surprisingly, perhaps, he draws heavily from political and military history to provide both evidence and context for his many arguments, but this makes for very interesting and entertaining reading throughout.

Of the many topics examined in this tapestry, Day's analysis of how conquest eventually transitions into occupation and beyond serves as the connecting thread throughout the book, revealing to the reader a wealth of insight in how the actions of a conquering population will permanently affect the society of another. Yet, equally interesting is the issue of how a conquered society may, over time, assimilate its conquerors and return to some semblance of what that society was before. These are important subjects to consider in the modern day as well, as the Canadian Army continues to be involved in the ongoing North Atlantic Treaty Organization stability operation in Afghanistan.

Well supported with full endnotes, a selected bibliography and index, this book is a welcome addition to the libraries of conflict studies, defence analysis and military history. As one of the few books available devoted specifically to the subject, it also serves as a valuable up to date reference for those interested in subjects such as occupation, exit strategies, stability operations, long-term development and civil-military relations. Day is to be commended for tackling such a large subject with skill, delivering a book that is easy to recommend to others.



INTO THE CAULDRON: THE EXPERIENCES OF A CEF INFANTRY OFFICER DURING THE GREAT WAR—MEMOIRS OF EDWARD STANLEY SAWELL, M.C., V.D.

BIBLIOGRAPHICAL INFORMATION:

SAWELL, Steven E. Burlington, ON: S.E. Sawell (privately published), 2009, paperback, 179 pages, $20.00
ISBN: 9780981152202

Reviewed by Mr. C.L. Mantle, B.Sc., M.A.

As the 100th anniversary of the Great War approaches and the last remaining veterans from all combatant nations slip away, if they have not already "gone West," a sense of urgency has seemingly infused both professional and amateur historians alike to edit and publish the experiences of those men and women who directly participated in the war and witnessed its many horrors. Over the last decade or so, Canadian historiography has benefited from the appearance of a surprising number of such volumes, some superbly edited, others much less so. Regardless of the quality of the editorial work—it is certainly arguable that the original content contemporary to the First World War is what is most important—published memoirs, letters and diaries, in addition to other literary forms, all add further richness to both our individual and collective understanding of the Canadian experience of the 1914–1918 period.

Steven Sawell has added considerably to the growing literature of the era with the appearance of *Into the Cauldron: The Experiences of a CEF Infantry Officer During the Great War — Memoirs of Edward Stanley Sawell, M.C., V.D.* Edward Sawell, the editor's grandfather, began his military career as a private in the 77th Regiment, Canadian Militia and was soon promoted to sergeant. After completing a qualifying course for officers, he was duly commissioned as a lieutenant and soon found a place in the 129th (Wentworth) Battalion, Canadian Expeditionary Force. Proceeding overseas as supernumerary, he eventually served in France with the 21st Battalion and earned the Military Cross for his leadership at Vimy. Spending a considerable amount of time as the battalion's Lewis Gun officer, he also commanded both a platoon and a company, gaining gradual promotion to major. Although wounded and gassed, he survived the war. Sawell immediately returned to the militia after demobilization and eventually became the commanding officer of the Wentworth Regiment in 1926. Prior to his death in 1968, he was an active member of the 21st Battalion Association, a post-war veterans' organization, and served for a spell as its president.

With the appearance of more and more collections of First World War writings, attentive readers will be naturally inclined to ask: What is different about this book in comparison to others? What does this one offer that others do not? Is its publication at all justified? *Into the Cauldron*, thankfully, is not a generic tome. Because the book records Sawell's experiences primarily from 1915 to 1919, from enlistment to training to frontline service to demobilization, insightful comments are proffered on a diverse array of subjects. Given the scope of his many relationships, readers interested in officer-man relations, officer-officer relations and leadership in general (both "good" and "bad") will not in any way be disappointed.

Sawell also remarked upon the purpose of dark humour and concluded his account by offering an explanation for the riots at Kinmel Park. The reasons for fluctuating morale, the psychological importance of mail from home and the indispensable role played by "veterans" in teaching nascent officers all received treatment as well. Of note, he provided some intriguing evidence that the Canadians actively participated in a "live and let live" system, à la Tony Ashworth,[1] with their German counterparts while holding certain sectors of the front. All in all, Sawell's comments explain much about human behaviour and suggest a number of possible avenues for further investigation.

Into the Cauldron is somewhat unique in its presentation. Possessing access to his grandfather's wartime diary, post-war memoir and a handful of letters (a fortuitous circumstance indeed), the editor has woven all three types of documents into a single chronological narrative. Brief diary entries, for instance, are always followed by a more substantial memoir excerpt that expands upon the earlier, and oftentimes matter of fact, text. Although such an arrangement makes the narrative a bit choppy and slightly repetitious at points, the increase in understanding that results from structuring the book in such a fashion more than compensates for any inconvenience thus caused.

On the whole, *Into the Cauldron* is an exceptionally edited volume that proffers insight into a vast array of interesting subjects, a boon to the academic historian to be sure, but also to the general reader who desires a more nuanced and complete understanding of how Canadian soldiers experienced the war. The edited writings of First World War participants have appeared with some regularity of late, yet readers would do well to confidently place this collection at or near the top of their "to read" list for the genre.

ENDNOTES

1. Tony Ashworth, *Trench Warfare, 1914–1918: The Live and Let Live System* (London: Macmillan, 1980).

ALSO RECEIVED BY THE *CANADIAN ARMY JOURNAL*

PEGASUS BRIDGE: BENOUVILLE D-DAY 1944

FOWLER, Will. Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN: 978-1-84603-848-8

The night before D-Day, men of the Oxfordshire and Buckinghamshire Light Infantry, accompanied by a detachment of Royal Engineers, landed in gliders at Benouville in Normandy. Their mission was to capture and hold the bridges spanning the River Orne and the Caen Canal, securing the Allies' flank and disrupting the Germans' ability to send reinforcements to the landing beaches. Incorporating details of the training and preparations, as well as the operation itself, this detailed study brings to life one of the most daring and vital actions of D-Day.

US COMBAT ENGINEER 1941–45

ROTTMAN, Gordon L., Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN: 978-1-84603-579-1

The US Army in World War II could not have functioned without the services of its engineer units. Using a variety of specialized equipment and vehicles, these men bridged rivers, cleared minefields, blew up roadblocks and assaulted enemy strong points. They were vital to keeping the vast Allied war machine rolling. It was not uncommon for combat engineer battalions to be employed as ad hoc infantry during the later stages of World War II, and many found themselves holding the line against German offensives. This book covers the recruitment and training of a US combat engineer, the equipment he used, his life in the field and what he could expect to encounter in battle. Number 147 in Osprey's *Warrior* series.

ERWIN ROMMEL

BATTISTELLI, Pier Paolo. Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN: 978-1-84603-685-9

General Feld Marschall Erwin Rommel, the legendary "Desert Fox," ranks amongst the most famous generals of World War II. A daring infantry officer during World War I, in the early months of World War II (1939-1945) Rommel took over command of a Panzer division, which he led in one of the most crucial areas of the German offensive in the West. It was as commander of the *Afrikakops* from 1941 that he fought his most famous battles and came close to driving the British out of Egypt. Defeated by Montgomery at El Alamein, he was lionized by British historians of the post-war period as representing all that was good in the German military tradition. This title re-assesses his role as a battlefield commander, analysing his strengths and weaknesses.

WORLD WAR II SOVIET ARMED FORCES (1) 1939–41

THOMAS, Dr. Nigel. Oxford: Osprey Publishing Inc., 2010, 48 pages, $19.95
ISBN: 978-1-84908-400-0

This first of three books details the uniforms and organization of the forces that would make the greatest single contribution to Allied victory in Europe. By 1936, Marshal Tukhachevsky had built the world's most modern mechanized army, but by 1938 he was among the victims of Stalin's purges—which ensured that in 1941 the USSR would be wholly unfit to face the Wehrmacht. Illustrated with colour plates of Army, Air Force, Navy and NKVD (People's Commissariat for Internal Affairs) personnel, this book covers the Soviet forces from the Winter War to the first months of the "Great Patriotic War," when the Red Army finally fought the Germans to a halt at the gates of Moscow and Leningrad. Number 464 in Osprey's *Men-At-Arms* series.

BATTLE OF THE BULGE

ZALOGA, Steven J. Oxford: Osprey Publishing Inc., 2010, 286 pages, $30.00
ISBN: 978-1-84908-165-8

Despite the care and planning behind Operation WATCH on the Rhine, Germany's desperate bid to split and destroy the Allied armies in the autumn of 1944 instead turned into the epic Battle of the Bulge. Fought in the bitter cold of a wintry, snow-bound landscape, often with inadequate equipment and communications, both armies suffered huge casualties over two months of fighting. With detailed mapping and comprehensive photography, this book tells the full story of the campaign from the initial planning through to the retreat of the defeated German forces.

AFRIKAKORPS SOLDIER, 1941–43

BATTISTELLI, Pier Paolo. Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN: 978-1-84603-688-0

Though it went on to become the most famous German formation of World War II, the men of the early *Afrikakorps* had no experience of desert warfare. Yet, in a matter of months, they proved themselves more than capable of surviving in the harsh conditions of the North African desert and managed to force their British enemy as far back as Egypt. Led by the celebrated General Rommel, the soldiers of the Afrikakorps were proud of their unique status and a strong esprit de corps soon emerged that survives to this day. This book examines the living conditions, training, equipment and battle experiences of a typical *Afrikakorps* soldier. Number 149 in Osprey's *Warrior* series.

THE BRUNEVAL RAID: OPERATION BITING 1942

FORD, Ken. Oxford: Osprey Publishing Inc., 2010, 80 pages, $22.00
ISBN: 978-1-84603-849-5

In the darkest days of World War II, the British planned a daring airborne operation to capture the secret of the new German radar. Lead by Major John Frost, a company of paratroopers dropped into Bruneval on the French coast and quickly neutralized a small German garrison. Then began a desperate fight for time as the British tried to dismantle the German radar and evacuate back to England, as ever more German units converged on their position. Using artwork, photographs and detailed maps, this action-packed narrative puts the reader in the planning room and on the battlefield of one of the greatest raids of World War II. Part of the Osprey *Raid* series.

THEY FIGHT LIKE SOLDIERS, THEY DIE LIKE CHILDREN

DALLAIRE, Roméo. Mississauga: Random House Canada, 2010, 308 pages, $34.95
ISBN: 978-0-307-35577-5

The world-wide proliferation of light weapons and ammunition, combined with the limitless resource of children in developing countries in conflict has resulted in a readily available, cost-effective and renewable weapon system. Children are easy for militias to catch, especially in places where families are being destroyed by famine, epidemics, AIDS and warring factions. They require fewer resources to maintain than adult soldiers, have no real sense of fear, have not yet developed a sense of justice and have been taken away from their own communities to become part of a new, perverse family that is a renegade army. Through intimidation, violence and drugs, child soldiers are easily indoctrinated and manipulated by military forces. They are used as combatants and as cannon fodder to explode land mines so that adults can move through safely. In some cases they are also used as sexual slaves. In *They Fight Like Soldiers, They Die Like Children,* Roméo Dallaire examines the tragic recruitment of child soldiers, the eradication of which has become an important part of his life's work. With great conviction and insight, Dallaire looks at the plight of the child soldier, documenting the extreme violence and extraordinary carnage that they are forced to carry out.

WORLD WAR II ALLIED SABOTAGE DEVICES AND BOOBY TRAPS

ROTTMAN, Gordon, L. Oxford: Osprey Publishing Inc., 2010, 96 pages, $22.00
ISBN: 978-1-84908-175-7

As part of their support to resistance fighters and partisans in Axis-occupied countries, Allied secret agencies—the British Special Operations Executive and the UD Office of Strategic Services—provided an array of munitions and firing devices for sabotaging enemy communications and equipment. Some of these were designed specifically for use by resistance fighters, and others were adaptations of military-issue grenades and mines. While the Allies used battlefield booby traps less widely than the Axis forces, the typical traps set by British and US soldiers are also described. This text covers everything from homemade "Molotov cocktails" to the techniques employed for sabotaging railroad tracks, and from incendiaries improvised with cigarettes and matches to "sticky" grenades and explosive-filled rats. Number 184 in Osprey's *Elite* series.

MILITARY ORIENTALISM: EASTERN WAR THROUGH WESTERN EYES

PORTER, Patrick. London: Hurst & Company Publishing, 2010, 262 pages
ISBN: 978-1-85065-959-4

From the Ancient Greeks' obsession with the armies of the Persians, Westerners have been irresistibly drawn to the exotic nature of "Oriental" warfare. But how far does culture shape war? Do non-Westerners approach strategy, combat or death in ways intrinsically different from their Eastern neighbours? Porter's fascinating book explains why the "Oriental" warrior inspires fear, envy and wonder and how this has shaped the way Western armies fight.

MY LIFE WITH THE TALIBAN

ZAEEF, Abdul Salam. London: Hurst & Company Publishing, 2010, 331 pages
ISBN: 978-1-84904-026-6

This is the autobiography of Abdul Salam Zaeef, a senior, former member of the Taliban. His memoirs, translated from Pashto, are more than just the story of his extraordinary life: they offer a challenging counter-narrative to the standard accounts of Afghanistan since 1979. This book offers a personal and privileged insight into the rural Pashtu village communities that are the Taliban's bedrock and helps to explain what drives men like Zaeef to take up arms against the foreigners who are foolish enough to invade their homeland.

KOHIMA 1944: THE BATTLE THAT SAVED INDIA

LYMAN, Robert. Oxford: Osprey Publishing Inc., 2010, 96 pages, $22.95
ISBN: 978-1-84603-939-3

In March 1944, the Japanese Army launched Operation U-GO, an attack on Assam in India intended to inspire an uprising against British rule. The Japanese aimed to break through the British Lines, capturing supplies on the way, and pour down the Brahmaputra Valley into India. This plan faltered on the stubborn defence of Kohima, which came to be known as the "Stalingrad of the East." From 3 to 16 April the Japanese attempted to capture Kohima Ridge. As the small garrison held out against fierce and repeatedly desperate attempts by the Japanese 31st Division to destroy them, so the British 2nd Division fought to break through and relieve them. Then for over two months British and Indian troops counterattacked to drive the Japanese from the positions they had already captured. The battle ended on 22 June when British and Indian troops from Kohima and Imphal met at Milestone 109, thus ending the siege. Number 229 in Osprey's *Campaign* series.

PRISONERS OF AMERICA'S WARS: FROM THE EARLY REPUBLIC TO GUANTANAMO

CARVIN, Stephanie. London: Hurst & Company Publishing, 2010, 336 pages
ISBN: 978-1-84904-050-1

Prisoners of war have featured in virtually every conflict that the US has engaged in since the revolutionary beginnings. Today, visitors to Washington will frequently see a black POW flag flying high on government buildings or war memorials in silent memory. Yet, the story of prisoners in American wars reveals much about the nation itself. By taking an historical approach, this book demonstrates that the challenges America faces regarding international law and the war on terror are not entirely unique or unprecedented. Rather, to be properly understood, such dilemmas must be contextualized within the long history of those prisoners captured in American wars.

THUCYDIDES ON STRATEGY: GRAND STRATEGIES IN THE PELOPONNESIAN WAR AND THEIR RELAVENCE TODAY

PLATIAS, Athanassios, G. and KOLIOPOULOS, Constantinos. London: Hurst & Company Publishing, 2010, 197 pages, ISBN: 978-1-84904-011-2

This book details the specific strategic concepts at work within the history of the Peloponnesian War and demonstrates, through case studies of recent conflicts in Kosovo, Afghanistan and Iraq, the continuing relevance of Thucydidean thought to the analysis and planning of strategic operations. Written by two scholars with extensive experience in this and related fields, *Thucydides on Strategy* situates the classical historian solidly within the modern world of war.

BARBAROUS PHILOSOPHERS: REFLECTIONS ON THE NATURE OF WAR FROM HERACLITUS TO HEISENBERG

COKER, Christoper. London: Hurst & Company Publishing, 2010, 278 pages
ISBN: 978-1-84904-089-1

This book discusses the nature of war through the work of 16 philosophers from Heraclitus in the 6th century BC to the philosopher-physicist Werner Heisenberg writing in the 1950s. The contention of the volume is that war, as opposed to warfare, is largely an invention of philosophy—our reflection on organized collective violence that dates from the time we emerged from the hunter-gatherer stage of development and created the first civilizations centred around city life. Behind the flux of everyday life there is an "ordered" existence, which it is the task of philosophy to uncover if it can.

BERNARD MONTGOMERY

MOREMAN, Tim. Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN: 978-1-84908-143-6

Field Marshal Bernard Law Montgomery is the best-known and most controversial British general of World War II, who continues to provoke strong opinions today. Known for his demanding standards and prickly personality, he nevertheless possessed a gift for warfare, leading the Eighth Army to victory over Rommel in North Africa and masterminding Operation OVERLORD, the Allied invasion of Normandy. Montgomery's arrogance and lack of social grace, however, were his greatest weaknesses, and he would frequently test the patience of other senior Allied officers. This book examines the life and career of this brilliant but deeply flawed man, offering insights into the mind of one of World War II's most enigmatic and compelling personalities.

DEFENCE OF JAPAN 1945

ZALOGA, Steven J. Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN: 978-1-84603-687-3

In 1945, with her fleet destroyed and her armies beaten, the only things that stood between Japan and an Allied invasion were the numerous coastal-defence positions that surrounded the islands. This is the first book to take a detailed look at the Japanese Home Island fortifications theatre constructed during 1941–1945. Utilizing diagrams, specially commissioned artwork and sources previously unavailable in English, Steven J. Zaloga examines these defences in the context of a possible Allied invasion, shedding new light on one of the greatest "what if?" scenarios of World War II. Number 99 in Osprey's *Fortress* series.

THE FUHRER'S HEADQUARTERS: HITLER'S COMMAND BUNKERS 1939–45

SHORT, Niel. Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN978-1-84603-582-1

The 100th title in the Fortress series, this book describes and examines the *Fuhrerhauptquartiere*—the range of headquarters built for Hitler, including a specially armoured train. Revealing their locations and how they were to direct the Nazi war apparatus, this is a comprehensive guide to a variety of historical sites across Europe. With a map showing the locations of the various bunkers and fortifications and illustrated with photographs and specially commissioned artwork, this book offers a fascinating insight into the war from Hitler's perspective, from the initial heady successes to his final hours in the Fuhrerbunker in Berlin.

IN FINAL DEFENSE OF THE REICH: THE DESTRUCTION OF THE 6TH SS MOUNTAIN DIVISION "NORD"

RUSIECHI, Stephen M. Annapolis: Naval Institute Press, 2010, 439 pages
ISBN: 978-1-59114-744-2

In April 1945, the US 71st Infantry Division exacted the final vestiges of life from the Reich's 6th SS Mountain division in central Germany. On Easter weekend, the bypassed German division fought to the bitter end as it was first surrounded and then destroyed as a fighting force. Rusiecki argues that the battle demonstrates that the Wehrmacht's last gasp on the Western Front was anything but a whimper, as some historians charge. Instead, many of Germany's final combat formations fought to the last against a chaotic tableau of misery, destruction and suffering to inflict maximum pain upon their conquerors.

BLITZ SPIRIT

MITCHELL, Jaqueline. Oxford: Osprey Publishing Inc., 2010, 208 pages, $16.95
ISBN: 978-1-84908-437-6

As the bombs began to fall in September 1940, as homes were flattened and people emerged from cramped shelters and sleepless nights into barely recognisable streets, something unique happened—the Blitz Spirit was born. Witty and uplifting, the voices and images illustrate the bravery, patriotism and humour of the spirit that, with Churchill's inspiration, got Britain through its darkest hour.

COLDITZ: OFLAG IV-C

McNALLY, Michael. Oxford: Osprey Publishing Inc., 2010, 64 pages, $22.00
ISBN: 8978-1-84603-583-8

Immortalized in film and literature, the 15th-century castle of Colditz is remembered not for medieval battles but for its use as a prisoner-of-war camp officially know as Oflag IV-C. An imposing building and a natural choice for a prison, Colditz had gained a reputation for being impossible to escape. But this myth was dramatically shattered by the ingenuity of the prisoners interred there, who never ceased in their attempts to do their duty as officers and cause trouble for their captors. This book examines the history of Colditz, the methods used to keep prisoners inside her formidable walls and the ingenious techniques by which they attempted to escape. Number 97 in Osprey's *Fortress* series.