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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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Submission Guidelines

Unsolicited article manuscripts, research notes, book reviews, and points of interest are welcome. Articles should be 5000-7000 words exclusive of endnotes, research notes 1500-2500 words exclusive of endnotes, book review essays and reviews 1000-2500 words, and points of interest 1000 words or less. Articles may be submitted in either official language. Authors must include a brief biography. Authors must supply any supporting tables, charts, maps, and images, and these should not be embedded in the article text. Articles may be submitted via email or regular mail. All submissions are peer reviewed and the Managing Editor will notify contributors on the status of their submission. Further details regarding author submission guidelines are available at http://www.army.forces.gc.ca/caj/.

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On the cover: Private Chad Wiley, from the 3rd Battalion Princess Patricia's Canadian Light Infantry (3 PPCLI), patrols the streets of Kandahar, Afghanistan in support of Operation ARCHER (Combat Camera IS2005-1273).

Soldiers of 31 Canadian Brigade Group advance through an enemy trench system during Exercise Stalwart Guardian, August 2005 (Combat Camera LC2005-076-235).

FROM THE EDITOR IN CHIEF

Brigadier-General C.J.R. Davis, CD

One of the great pleasures and responsibilities associated with the post of Director General Land Capability Development is being Editor-in-Chief of the *Canadian Army Journal*. As I assume this post from my predecessor, Brigadier General Mike Ward, I want to take the opportunity to thank him for his tremendous dedication and support to the *Journal* over the past year. His guidance and ideas will be missed, and I look forward to ensuring the continued success of the *Canadian Army Journal* during my own tenure as its Editor-in-Chief.

We are without question living through interesting times. As the CF transforms so too does the Army, with new roles, missions and tasks, in addition to those with which we were already charged, now appearing regularly on the horizon. Each of these will impact the Army in some way, influence its evolution, and affect its future direction. As we look farther out towards the Army of Tomorrow, one cannot miss the fact that decisions the Army is making today will shape the Canadian Army of the future.

In reviewing a variety of military professional journals, the recent report of the ABCA Coalition Lessons Analysis Workshop, and the various reports from our army as well as from our allies operating in Afghanistan and Iraq, it is very clear that close combat remains the most difficult and essential task of Land Forces. Today's extremely complex conflict environment, composed of physical, human, and informational aspects, at times limits our ability to detect enemy forces from standoff ranges. Indeed, as discussed in the Australian Army's recently published Complex Warfighting, land forces, when conducting operations within the complex terrain battlespace, will be operating at times well below the "ISTAR threshold" as presently configured. Operating below this threshold, our forces will need the right combination of protection, mobility, situational awareness and lethality to respond to the fleeting but violent engagements brought on by our adversaries.

In my view, success will be realized through excellent situational awareness driven by extensive HUMINT gathering from front line soldiers to the HUMINT experts and by close reconnaissance assets schooled in the art of close target reconnaissance within an urban environment all supported by a network enabled force able to reach back to higher level assets when necessary. The combined arms team will remain the essential

close combat building block composed of mounted and dismounted forces using a variety of lethal and non-lethal means to achieve the desired effects necessary to influence the will of an opponent. Our forces will need to operate in small groups from section to company size embodying the special operations mindset of independent action with access to a variety of integral and external lethal and non-lethal fire assets. I could continue but that is not my intent.

The purpose of my comments above is to solicit debate on the future operational concepts for the Land Force. We will need to build upon the extant *Force Employment Concept* to produce a defining concept upon which to build a future force. The latter will be developed in concert with the overarching joint concepts to be developed in the near future by the soon to be established CF Chief Force Development team. I encourage all of you to engage in the debate on how to defeat the adversary whilst simultaneously conducting stability and humanitarian operations, which characterize modern conflict. We also need to examine operations in the littoral battlespace as we come to terms with the Land component role as part of the Standing Contingency Task Force operating from a sea base.

As a key asset of the capability development process, the *Canadian Army Journal* will continue to provide an open, relevant, and enlightened forum for the exchange and debate of issues that will influence CF and Army transformation. More importantly perhaps, it will continue to act as a critical tool to reflect the ideas and views of the Army profession and constituency to a wider audience both military and civilian, government and the public. However, none of this can truly happen without the direct support of all ranks and I call on commanders at all levels to continue encouraging their subordinates to contribute to these pages on a regular basis.

CALL FOR PAPERS

THE CANADIAN ARMY AND THE IMPLIMENTATION FORCE (IFOR) IN BOSNIA-HERZEGOVINA

Launched in December 1995 in the wake of the Dayton Peace Accord, the agreement ending the Bosnian War, the NATO Implementation Force (IFOR) had a one-year mandate to oversee the acceptance of the military aspects of the peace agreement. This included bringing about and maintaining an end to the hostilities, separating the armed forces of Bosnia's two newly created entities, transferring territory between the two entities according to the peace agreement, and moving the two parties' forces and heavy weapons into approved storage sites. As a primary actor in all efforts to enforce peace in the region since the beginning of the conflict, Canada's Army played an important role in achieving the objectives of this mission by mid-1996.

As the 10th anniversary of this mission nears, the Canadian Army Journal invites the submission of articles on the Canadian Army and IFOR for a special section to appear in Vol 9.2 (Summer 2006). Papers examining the mission from the Canadian perspective and with a particular emphasis on subjects such as mission command and control, operations, logistics and support, as well as overviews of the main Canadian units deployed to the mission are welcome.

The deadline for the submission of articles is 15 March 2006. Guidelines for submissions may be found at our website at www.army.forces.gc.ca/caj/. Articles and supporting materials may be electronically submitted directly to the managing editor at Godefroy.AB@forces.gc.ca.

THE CANADIAN ARMED FORCES ADVISORY TRAINING TEAM TANZANIA (1965-1970)

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

There is a long history of Canadian military assistance and intervention in Africa, but a handful of missions have overshadowed the Canadian Army's long association with this continent. Aside from major wars and numerous peacekeeping interventions in the Middle East, most people have some familiarity of Canada's mission to the Congo in the 1960s, its troubles in Somalia in the 1990s, and perhaps most recently its limited role in Eritrea and Ethiopia beginning in late 2000. Much less is said about the many other Canadian Army operations in Africa, despite the fact the some of these missions lasted well over half a decade.

Sgt Robert Smith explains the 12.7 mm HMG to Tanzanian soldiers

On 8 December 1964 Canada authorized the formation of the Canadian Armed Forces Advisory Training Team Tanzania (CAFATTT). Its mission was to reinforce other Canadian initiatives in the country designed at fostering a democratic and pro-western government by assisting in the establishment and training of a professional army and air force. Between 1965 and 1970, CAFATTT built the Tanzanian People's Defence Force (TPDF) from the ground up, creating everything from the country's National Defence Act to the instructional pamphlets used in teaching vehicle and weapons classes.

Members of the CAFATTT began arriving in Dar es Salaam, Tanzania, in January 1965. The first commander of the mission was Colonel H.E.C. Price, Canadian Guards, with Lieutenant Colonel J.C. Gardner of the Fort Garry Horse acting as his senior training advisor. In all, thirty army officers and other ranks would form the first advisory and training team.

A PPCLI Sgt teaches employment of the 75 mm recoiless rifle

Capt John Saunders of Queens Own Rifles of Canada ovserves 81 mm mortar practice

The small Canadian army contingent (later joined by a Canadian Air Force team) had a considerable task ahead of them. They had to rebuild the officer corps from scratch, ridding it of amateurishness and corruption. The two under—strength infantry battalions were scattered and disorganized with over half of its 2000 soldiers nothing more than raw recruits. There was no military legal or logistics system, and no administrative capability. Most soldiers had never been paid regularly.

From May to December 1965, the Canadians conducted twenty-one courses in five different fields and six trades, resulting in 232 quality graduates by the end of the first year. Soldiers were trained to do everything from shooting weapons to driving, while officers received additional training in tactics, command, staff duties, military law, and administration. Field exercises were also carried out for all ranks, though sometimes with a mixed degree of success.

Interestingly, the Canadian Army was not the only advisor to the TPDF. In 1966 Chinese advisors and equipment began arriving in Zanzibar and Dar es Salaam to compete directly with Canadian (read western) influence, and soon the mission itself became a mini Cold War. Though the Chinese provided much more equipment to the Tanzanians than the Canadians did, the quality of training that came with it was extremely poor. It was not uncommon for Canadian Army personnel to be seen retraining Tanzanian soldiers how to fire Chinese and Soviet weapons with skill.

Sgt John Rogers, RCEME, teaches how to use a generator tester

Despite the commendable efforts and professionalism of the Canadian Army in Tanzania, their mission was cut short in 1970 after the government in Dar es Salaam opted for further military assistance solely from China. Largely a victim of politics and the ongoing rivalries of the Cold War, CAFATTT was nevertheless a remarkable achievement for the Canadian Army in Africa, and only one of many similar missions in which it engaged during the 1960s.

EDITORIAL
CANADIAN EXPEDITIONARY FORCE REDUX

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

One of the enduring characteristics of Canada's Army is its expeditionary nature. It has been largely organized and equipped for overseas operations since Confederation, and has consistently defended Canada's interests at home through constant service abroad. Its expeditionary legacy is clearly evident in the list of battle honours and successful stability and peace support operations attached to the corps, branches, and regiments of the Army, and it is also evident, sadly, by the widely dispersed location of Canadian military graves across the globe.

The ability to engage in and sustain expeditionary operations has been a constant challenge for the Army, but one that throughout its history the Army has always accepted as part of its existence. If anything, given its own traditional constraints involved in deploying expeditionary operations, the Army can be proud of its many achievements in this area.

The CDS vision for the transformation of the Canadian Forces includes the eventual creation of Canadian Expeditionary Forces Command (CEFCOM) that will be responsible for the deployment of soldiers around the world. The main arm of CEFCOM will be a Standing Contingency Task Force (SCTF), an integrated expeditionary amphibious force capable of operations in the littoral. Though the organization and composition of this force are still in concept development, there seems little doubt that the Army will be more focused on operating from the sea in the near future. Given that amphibious operations have remained largely on the periphery of Canadian Army intellectual and doctrinal debate, this issue is dedicated to bringing these and other related issues to the foreground.

The first three articles in this issue are dedicated to a range of ideas on Canadian amphibious operations, including lessons from past experiences as well as considerations for future development. Another three articles examining air mobility issues in support of Army operations follow these. Combined, this issue provides considerable food for thought as the Army looks toward new missions and tasks in the coming years.

As well as the main articles, this issue looks at a number of other important subjects looming on the horizon for the Army. The Directorate of Army Training provides an update on new collective training plans, while the Directorate of Land Personnel Concepts and Policy introduces the Army Culture and Ethics Program. In addition, this issue's *Note to File* takes a look at the subject of military weblogs or 'milblogs' and the possible influence of this growing trend on today's Army. Next, Lieutenant Winegard takes a look back at coalition warfare in the Middle East towards the end of the First World War, highlighting yet another little known story in the history of the Canadian Army. Finally, a range of book reviews provides a diverse offering of recommendations for your ongoing professional reading, and the Stand Up Table provides more open debate on issues important to the Army today.

DIRECTORATE OF ARMY TRAINING UPDATE: THE TRANSFORMATION OF COLLECTIVE TRAINING IN THE LAND FORCE

Major Richard Martin

Many members of the Army are no doubt wondering how collective training will be conducted after the end of the Army regeneration period in February 2006. Specifically, they want to know how often they will train, where they will train, and what the Army is doing to prepare them for the complex contemporary operating environment. This article will answer these questions.

The Army is now restructuring and refocusing its operational capabilities on Full Spectrum Operations in failed and failing states. This differs considerably from the Cold War paradigm of high intensity combat against a highly mobile armoured force in a blitzkrieg attack. In Full Spectrum Operations (FSO), combat is but one of the means at the disposal of a force commander to carry out the mission and many different types of operation and tactics can be employed to reach the end state. Hence, the term "full spectrum" has been adopted.

The Army is now restructuring and refocusing its operational capabilities on Full Spectrum Operations in failed and failing states. This differs considerably from the Cold War paradigm of high intensity combat against a highly mobile armoured force in a blitzkrieg attack

When operating in failed and failing states, Canadian and allied land formations, are expected to essentially operate in support of legitimately constituted government forces and agencies. In this environment, enemy forces are often a secondary focus of effort for the military component of a joint multinational force because the main focus of effort is the people and government. In some cases, enemy forces are a merely a nuisance that must be dealt with directly or indirectly (i.e., in support of host-nation forces). In other cases, although the enemy may be more persistent and capable, the main tactics will probably consist of tactics of weakness, ie. asymmetric operations and guerilla warfare. Either way, combat cannot be equated with generalized warfighting. Instead, combat is conducted "in a box", and is limited in time, space and means.

As part of this mandate, Army task forces must be capable of simultaneously conducting combat, stability, peace support and humanitarian operations in all operating environments, including densely populated urban areas. Consequently, many elements of collective training that are currently viewed as theatre and mission specific will be incorporated directly into all training standards and scenarios, from top to bottom. The Directorate of Army Training has reviewed the collective training battle task standards and individual qualification standards to ensure that these requirements

are built into all aspects of training. The Commander of the Land Force Doctrine and Training System, in his role as Army Training Authority, has issued guidance on training for Full Spectrum Operations that incorporates the findings of this review.

The main driver of collective training in the future will be the Army's new Managed Readiness System (MRS). The MRS will provide structure and predictability for all activities within the Army, whether individual and collective training, personnel management, equipment management, operational tasks or support tasks. This will ensure that the Land Force always has a minimum of two combined arms task forces deployed or ready to deploy on operations anywhere in the world for six-month periods (for a total of four per year).[1] In addition, the Land Force must also have a deployable brigade headquarters and signal squadron, as well as a number of other smaller mission elements at various levels of readiness. These too will be incorporated into the Managed Readiness System.

Land Force units and sub-units will be assigned to task forces on a rotating three-year cycle. A task force's 36-month cycle will start after redeployment from an operational mission. During the first twelve months, task force elements will be given sufficient time to recover and regenerate their basic capabilities. A key objective during this period will be the requirement to conduct individual and low-level collective training to regenerate basic skills.

Once this reconstitution phase has ended, task force elements will conduct continuation training or be tasked in support of the training system. This latter requirement will take on increased importance as Canadian Forces expansion and transformation get into full swing next year. Some units may also have to provide elements at short notice for specific operational contingencies such as non-combatant evacuation operations. For those elements, training will be more demanding and may involve participation in national and international exercises. Overall, this tasking period will last between six and twelve months.

Subsequent to this reserve and support phase, a task force will form approximately twelve months before it is set to enter high readiness. This is when it will receive the latest equipment upgrades enabling soldiers and teams to train on the same equipment used on operations. This may involve some low-level retraining, and both time and resources will be earmarked for these activities. The task force will also be topped up in personnel, and turnover will be kept to a minimum until the end of its high readiness period or deployment. This is also the period when augmentation by Army Reserve personnel and organizations will begin.

Once personnel are familiar with their new kit and any other organizational or doctrinal changes, the task force's sub-units will focus exclusively on collective training. This could start as early nine or ten months before the unit is scheduled to be in high readiness. The key outcome during this time is that the task force must build cohesive combat-capable teams from section and crew level right up to sub-unit level.

This collective training will usually occur at or near home garrisons. As a consequence, the Army is currently investing heavily in training support capabilities in order to

facilitate and improve the quality of collective training across Canada. A key initiative concerns the purchase of weapons effects simulators (WES) for dismounted infantry-type training. Company-size WES suites will be distributed to all Land Force areas where they will be available for collective training of all units and task forces, including Army Reserve elements.

Major investment in urban operations training facilities is also going to occur on all bases so that soldiers can practice individual and section-level urban operations skills and tactics. There will be an urban assault course on each of the bases for dry training; a "shoot-house" for live-fire training in an urban context; and live-fire breach facilities, to practice mechanical, ballistic and explosive breaching of walls and buildings. In addition, the Directorate of Army Training (DAT) is investigating various options to develop individual and collective expertise in jungle, desert and mountain environments. This may include permanent arrangements for attending courses and conducting exercises in foreign venues.

Major investment in urban operations training facilities is also going to occur on all bases so that soldiers can practice individual and section-level urban operations skills and tactics

The overall Urban Operations Development Plan incorporates many other capabilities for training to fight in urban or built-up areas. Of particular note is that the Canadian Manoeuvre Training Centre (CMTC) will have a number of "villages" to allow realistic force-on-force and live-fire training. These villages and other facilities at CMTC will simulate the typical physical environment that prevails in the failed and failing states where Army task forces are expected to operate. Amongst other things, there are also plans to develop a terraced village, farm compounds, and a cave complex in Wainwright.

It is expected that the task force's sub-units will have completed their preliminary collective training approximately six months prior to high readiness or deployment. Towards the end of the preliminary training phase, a refresher of all-arms tactics and procedures will occur. This will help prepare the task force for training at CMTC. The task force will also conduct some form of combined arms dry training in its home garrison. Another important aspect of pre-CMTC training will be the Unit Preparatory Training Plan. This will involve a series of coordination meetings, a reconnaissance of CMTC, and at least two computer assisted exercises involving the tactical leadership of the task force. Once all of this is complete, the task force will "graduate" to CMTC for its final pre-deployment training.

Of particular note is that all individual and collective training will be conducted using standardized Army approved scenarios, so that units and formation staffs no longer have to invent these at each respective level. Soldiers, NCOs and officers will train to the same operational scenario throughout the entire training cycle across the whole Army. All training support organizations—such as Combat Training Centre (CTC), CMTC, area training centres, area simulation centres—will use these scenarios.

Amongst other things, this standardization will ensure that issues such as training rules of engagement and opposing forces will be realistic and, even more important, consistent across the force.

As information about actual theatres and missions becomes available prior to each deployment, training scenarios will be modified in accordance with precise operational requirements. In addition, specific training guidance will be issued when each task force enters its preliminary training phase to ensure proper readiness for operations. This guidance will also be reflective of FSO and will incorporate, to the extent possible, the tactical requirements of theatre and mission specific training.

Training at CMTC will be tactically challenging and physically demanding. Scenarios will be based on a realistic appraisal of the task force's most likely missions and tasks, but the focus will remain on combat operations in failed and failing states. As part of that focus, combined arms teams will be put through their paces in challenging live-fire training at the beginning of their rotation through CMTC.

Training at CMTC will be tactically challenging and physically demanding

Subsequent to this live-fire phase of the rotation, all tactical engagements will use high-performance WES suites for force-on-force training against a tough opposing force (OPFOR). The WES systems at CMTC are based on the latest generation laser engagement technology, similar to what has been used by the U.S. and British armies for a number of years. Each soldier and vehicle will also have a GPS receiver and be connected to a computerized network. Apart from providing high fidelity training, this will allow the conduct of detailed after-action reviews with computerized playback of engagements for maximum learning.

As mentioned above, the OPFOR at CMTC will be a very tough opponent. It will be based on a permanent cadre of officers, NCOs and soldiers who will know the equipment and facilities inside out. When suitably reinforced, the OPFOR will be capable of simulating all types of forces, belligerents, and bystanders that the Army expects to encounter on operations. Moreover, this will be a thinking enemy, ready to exploit weaknesses, and able to function in a number of different tactical scenarios.

A Brigade Training Event (BTE) will be conducted at CMTC on an annual basis using part of the state-of-the-art facilities offered there. The BTE may also incorporate one or more task forces, either as part of a CMTC serial, or with elements brought in from lower readiness units. This brigade-level training will be critical, as it will allow the confirmation of brigade HQs and signal squadrons that are themselves proceeding on operations or into high readiness. It will also provide one of the key means for developing and then maintaining the ability to lead multinational formations operating in the complex environments of failed and failing states, as stipulated by the new *Defence Policy Statement*.

In summary, collective training is evolving quickly to keep pace with the overall requirements of Army and Canadian Forces Transformation. The investment in

training and support facilities that are reflective of the environments in which we are meant to operate, in combination with advanced simulation technologies and synthetic environments, will provide an unprecedented opportunity to learn from training prior to doing the real job on the ground. When new planning and modern management methods attuned to the MRS are added to the equation, the potential for improvements to the way we conduct and resource training is significant. The creation of state-of-the-art facilities will provide our training with realism and challenge that have simply not been possible up to now.

Endnotes

1. With the release of the Defence Policy Statement (DPS), these two task forces will be the Land Force contribution to the CF's "mission-specific task forces". The DPS also creates a Standing Contingency Task Force that will include a land component that is still in definition. The means to generate and train this force are currently under development, with Army input.

LAND PERSONNEL CONCEPTS AND POLICY UPDATE: ARMY ETHICS PROGRAM

Major Rick Walker

The Army's new *Army Ethics Programme* (AEP), under LFCO 21-18, is on the horizon and the army ethics officer is building the archive of case studies that will underpin the new programme. More information on the AEP itself will be forthcoming, but for now it is imperative that all civilian and military members of the army team have a mechanism for their voice to be heard and a chance to tell their story.

The Directorate of Land Personnel Concepts and Policy (LPCP) is initiating a call for vignettes and war stories related to incidents of ethical challenges, conflicts, or dilemmas, which members have directly experienced or that are indirectly known to them through the experiences of others.

The aim is to learn from our own experiences in both a garrison and an operational environment. These vignettes will be converted into the case study samples that will aid the AEP in ensuring that the Canadian soldier has the inherent ability to "know what right looks like." A healthy ethical climate is fundamental to a soldier's ethos that finds full expression through the essential unity and ethical certainty of values, beliefs, expectations, and conduct. This is your chance to make a genuine contribution.

Yes, but is/was it ethical?

Here is how you can contribute:

> Vignette/case studies should not identify specific persons or units, but should be formatted with a general introduction, a statement of the ethical violation or concern, and an explanation of what eventually happened and why. Editorial comments from contributors are welcome. We believe that ethical challenges may be more common than is generally believed, and the best source to confirm this is the Canadian soldier.

Please forward all vignettes or questions to the Army ethics officer at:

Walker.RJ2@forces.gc.ca or call:

(613) 541-5010 extension 2467

JOINT AMPHIBIOUS CAPABILITIES—PAST LESSONS, FUTURE OPTIONS

E Battery, 2 RCHA, Exercise UNIFIED SPIRIT October 2000

Major Lee John Hammond, CD

In 2004 during a pre-election visit to Canadian Forces Base Gagetown, Prime Minister Paul Martin announced the Canadian Government's intention to replace existing 30-year-old replenishment ships with two new Joint Support Ships (JSS).[1] For the first time since the Second World War, these ships would facilitate a limited capability for Canada to deploy joint expeditionary forces by sea.[2] For the Canadian military, the JSS concept represents an important step towards the unknown and largely unfamiliar world of amphibious operations, at least to a small degree. For many servicemen and women across the Army, Navy and Air Force however, this transition is an uncomfortable new reality that bears little resemblance to recent Canadian military experience.

Following the election, the new minority Liberal Government was expected to quickly produce a revised Foreign and Defence Policy Statement. Capabilities provided by platforms such as the JSS would form the foundation of this new policy. However, the process soon ran into trouble. Purportedly, the draft document was considered hesitant and evolutionary, rather than heralding the radical changes envisioned by the political leadership. Fortunately, the appointment, in the middle of the debate, of General Rick Hillier as the new Chief of Defence Staff (CDS), gave the government the necessary military vision to put its own priorities into practice. The result was a radically reoriented defence policy entitled *A Role of Pride and Influence in The World*.[3]

Prior to the issuing of *A Role of Pride and Influence in The World*, it would have been no understatement to say that each service of the Canadian Military was content to focus on its own priorities while grudgingly providing support to sister services according to available resources—in other words, as little as possible. Thus, the Army conducted its peace support operations overseas, only rarely seeing Air Force or Navy personnel; the Navy dispatched independent frigates with American Carrier Battle Groups, and the Air Force focused on its first priority (especially after 9/11), air superiority in support of North American Aerospace Defence (NORAD) operations. By any

Hammond, Major Lee John, 'Joint Amphibious Capabilities—Past Lessons, Future Options' Canadian Army Journal Vol. 8.3 (Fall 2005), 14-35

measure, current Canadian service priorities and practices were a long way from joint ideals, and the collective capability of the Canadian Forces (CF) was less than the sum of its parts.

The new defence policy statement reflected not only the views of the freshly minted Hillier, but also the personal priorities of the new Defence Minister, Bill Graham, and the government at large. Such a level of agreement is somewhat unusual in Canadian defence policy. Indeed, press reports indicated that Hillier had only accepted the CDS position following a successful and mutually agreeable meeting with the Prime Minister in which Hillier had outlined bold ideas for the future of the Canadian military.[4]

The essence of General Hillier's ideas was that the Canadian military had to transform for the threats of today. He made the bold statement that the types of missions being conducted by the Army in Afghanistan, and previously in Bosnia, would be the missions of the foreseeable future.[5] Wars between state actors would be less likely, while insurgencies and non-state actors would be the primary threat.[6] To address these requirements, the military must become far more joint and key capabilities must be introduced quickly—most notably amphibious shipping and tactical medium lift helicopters.[7] Other key components of the defence policy statement were the creation of a Special Operations Group and a Standing Contingency Task Force (SCTF) consisting of Army, Navy and Air Force elements. This latter task was to be high readiness, and capable; using amphibious shipping to *pre-position* and support the conduct operations in the littoral. More conventionally, the Canadian military must be capable of moving and supporting two simultaneously deployed task forces of about 1000 personnel.[8] While Hillier's initial statements were short on detail (he mentioned needing perhaps only one very large amphibious ship, for example), he immediately formed CDS action teams at the national level to quickly move his ideas forward.[9]

Other key components of the defence policy statement were the creation of a Special Operations Group and a Standing Contingency Task Force (SCTF) consisting of Army, Navy and Air Force elements

From his initial concepts, it seems likely that General Hillier is advocating expeditionary amphibious capability beyond that implicit with the introduction of the JSS alone. This indeed is new ground for most Canadian military personnel, so naturally there is a degree of discomfort and possibly even scepticism towards movement in this direction. After all, deploying forces from the sea differs significantly from the experience of a generation of soldiers and officers who have deployed to operations by commercially rented transport or military Hercules aircraft, most often separately from heavy equipment. Moreover, amphibious operations are the province of specialized marine corps troops, are they not? The Canadian Army does not have the training or expertise for such specialized operations, and the current thinking often goes that assault landings use marines, not soldiers..

It is important that the thinking described above be dispelled immediately. Amphibious capabilities are not necessarily synonymous with so-called “storm landings” conducted at Saipan, Iwo Jima or Okinawa, for which even the modern United States military is ill

prepared.[10] Instead, amphibious capability merely implies the ability to deploy well-equipped military forces ashore without reliance on established ports, in the littoral environment, and support them once ashore. Given that a large number of the world's most important operational theatres are accessible from the sea, and given the fact that amphibious forces are able to land fully equipped troops ashore without the use of vulnerable ports, there would be a clear advantage in Canada possessing such a capability. After all, what government wants to suffer the embarrassment of once again having to send naval boarding parties to seize a commercial ship to get Army equipment back following an operational mission?[11]

The ideas put forward by General Hillier for the future of the Canadian military are not new, nor are they original, especially from a worldview. Major (now Lieutenant Colonel) Peter Williams advocated just such a capability in his article, *Which Way to The Beach? A Case of Amphibiosity*, published in the fall of 2000.[12] Allied militaries such as the British, Dutch, Spanish, Australian and French have also been improving their sea based expeditionary capabilities for some time.[13] Indeed, sea basing is a central strategy of the United States for the future.[14] As well, non-allied forces such as Singapore's have also taken significant steps toward this goal.[15] Thus, while General Hillier's leadership in defining this new direction for the Canadian military is a breath of fresh air, Canada is merely following an established and perhaps even obvious way forward to ensure its own military's relevance within the contemporary operating environment.

Fortunately for Canada, the Canadian military has in recent years exercised the very capabilities envisioned by General Hillier in conjunction with the United States Navy and Marine Corps. Therefore, now that Canada has initiated definite planning work aimed at establishing some kind of expeditionary sea based capability, it would seem useful to capture some of the important lessons and planning factors that should be considered in building this future force. Accordingly, the aim of this paper is to present key lessons learned regarding amphibious operations in order to inform Canadian military planning for the future.

In order to accomplish its goal, this article will rely heavily upon the lessons articulated in a service paper written by the leaders of E Battery, 2nd Regiment Royal Canadian Horse Artillery following an exercise in the fall of 2000.[16] Since this long and very thorough report is the work of five separate authors working together, this article is a summation and consolidation of that work, and appropriate citations will be used throughout to ensure that the right authors receive credit where due.

First, some background on E Battery's experience in conducting amphibious operations during Exercise UNIFIED SPIRIT in the fall of 2000 is given. Observations will then be offered on amphibious shipping, planning amphibious operations, command, control and communications, fire support and the practical problems and concerns related to army units operating from ships.

The Exercise

In October 2000, E Battery participated in Exercise UNIFIED SPIRIT at Camp Lejeune, North Carolina. In modern terms, Canada's participation in this exercise was huge,

including Air Force, Navy and Army resources, although in keeping with current practice, each service worked with its US counterpart rather than as a joint force. As an element of the 2nd Canadian Mechanized Brigade Group (CMBG), E Battery was deployed as a part of the 1st Battalion, Royal Canadian Regiment (1 RCR) Immediate Reaction Force Land (IRF [L]) Battalion Group. During the conduct of the exercise, the 1 RCR Battalion Group had the opportunity to conduct amphibious training in concert with the 22nd Marine Expeditionary Unit (22 MEU). The main aim of the exercise was for the Canadian battalion group to augment 22 MEU, which was deployed afloat on board an Amphibious Ready Group (ARG) consisting of three ships supported by destroyers, frigates and an aircraft carrier battle group.

As soon as E Battery learned it would be participating in the exercise, the major training goals were quickly established. First, and most important, was the task of getting all E Battery personnel on board the ship, since familiarizing the soldiers with ship-board operations is one of the most important aspects of any amphibious operation. A second goal was to get the 32 vehicles and guns on the ship. Ideally, all of the vehicles would be brought aboard to maximize the learning opportunities of all vehicle crews. As a minimum, E Battery wanted its Fighting Echelon (F Ech) on the ship. In the event, the latter goal was accomplished. The third goal was to plan, co-ordinate, and conduct Naval Surface Fire Support (NSFS). As a minimum, the battery wanted to meet this goal in a dry fire scenario, but ideally any live fire opportunities were also sought. In the end, the battery achieved a major success by securing a position for one of the Battery Observation Parties, led by Captain Bryan Bedard, to travel to Puerto Rico to conduct live NSFS.

Amphibious Shipping and Getting Ashore

In his initial statements to the press, General Hillier indicated a desire for an amphibious ship (or ships) to move Canadian task forces to their operational areas, which are inevitably across the world's largest oceans. The *Defence Policy Statement* reaffirmed this requirement. The CDS presented various options, including the possible purchase of *San Antonio* Class Landing Platform Dock (LPD) 17s.[17] It seems increasingly clear that General Hillier believes that the JSS concept alone, with limited troop transport capabilities, is inadequate to meet future requirements.[18] Moreover, the requirement for medium lift helicopters in theatre continues to be mentioned by the CDS as a necessity for the future. Thus, in determining what form Canada's future capabilities should take, it would seem useful to compare Canadian requirements to US Navy and Marine Corps organizations and capabilities.

The Canadian Army has stated that in order to maintain a sustainable tempo, future task forces would number approximately 1000 personnel in total.[19] Two of these would be deployed and sustained at any one time on a continuous basis.[20] Each task force would include about 750 combat arms personnel and 250 personnel in a National Command/Support Element. Of the combat arms, there would typically be three infantry companies (either light or wheeled mechanized), an artillery gun/mortar battery, surveillance and reconnaissance capability, a direct fire capability (gun and missiles), engineers, and other specialists such as snipers.[21] In the case of the SCTF, these assets would likely be required to deploy aboard amphibious shipping.

In comparison to Canadian plans, the Marine Expeditionary Unit (MEU) is not at all dissimilar in organization. The Ground Combat Element (GCE) of a MEU consists of a Marine infantry battalion, an M1A2 tank platoon and an artillery battery of 155 mm M198 howitzers. Most importantly, and in a key difference from current Canadian practices, the GCE is grouped with an Air Combat Element (ACE). The ACE currently consists of a conglomeration of attack helicopters, transport helicopters, and Harrier combat aircraft. The GCE and ACE together form a MEU, which is under the command of a full colonel, who in turn works with the Amphibious Ready Group (ARG) Commander.

In examining future Canadian requirements, the types of ships to be chosen will be key determinants of the type of capabilities Canadian expeditionary forces will possess

Under current organizational models and capabilities, the United States Marine Corps (USMC) GCE is split between three amphibious ships, with battalion headquarters, one infantry company, the tank platoon, the artillery battery and the ACE deployed aboard the Landing Helicopter Assault (LHA/D) ship with the remainder of the MEU assets spread evenly between Landing Platform Dock (LPD) or Landing Ship Docks (LSD) as applicable to the particular configuration of the ARG.[22]

In examining future Canadian requirements, the types of ships to be chosen will be key determinants of the type of capabilities Canadian expeditionary forces will possess. For example, would one very large ship suffice, or should a multi-ship option (up to three) be the model? Could or should the JSS form a component of this three ship model? Moreover, while all three ships employed in an ARG by the US Navy possess well decks, and can thus deploy a host of different landing craft, only the LHA/D possesses the deck and hangar space for an ACE. Therefore, some considerations regarding ship design, from an Army perspective, will be offered below.

♦ **Joint Support Ship**.[23] The JSS concept is a uniquely Canadian attempt to provide a ship that could fulfil the multiple functions of at-sea replenishment for the Navy, while also providing a limited ability to deploy a small number of troops and a Joint Force Headquarters. These ships could include a well deck, but current plans envision a more limited capability. As currently envisioned, the JSS cannot carry enough troops for a complete Canadian Army task force, although they can carry about 200 vehicles.[24] They are, however, envisioned as having permanently embarked helicopters. Like many compromises, these ships will likely not fully satisfy either the Navy or the Army. While he has not publicly stated his views on the JSS, General Hillier's statements about amphibious shipping seem to indicate that he is not satisfied with the capabilities offered by the JSS.

♦ **Landing Helicopter Assault/Dock Ship**.[25] The LHA/D is the centrepiece of a US Navy ARG. It possesses the unique ability to deploy forces ashore using either air based assets, such as helicopters, or by sea using a host of sea borne capabilities including Amphibious Assault Vehicles (AAVs), Landing Craft Air Cushion (LCAC), conventional landing craft, or small boats such as the Rigid Hull Inflatable Boat (RHIB).

Since either sea state or weather can often interfere with landing operations, the ability of the LHA/D to deliver troops using different options is an important and unique capability offered by this design. Moreover, since the LHA/D offers the combat power of Cobra attack helicopters and Harrier jets, American amphibious operations can be conducted in less permissive circumstances due to the protection these assets provide the vulnerable landing forces. The LHA/D has permanently embarked helicopters—an important difference over other amphibious ships.

♦ **Landing Platform/Ship Dock**.[26] The LPD/LSD option has been chosen by many countries, with the HNLMS *Rotterdam* of the Dutch Navy being a good example. While these types of ships vary in size greatly, only the very largest designs such as the brand-new American LPD 17 *San Antonio* class could possibly carry a complete Canadian task force. Even then, the necessary logistics would certainly exceed the carrying capacity of a single ship. More importantly, however, are the limitations of the LPD/LSD. While their carrying capacity and ability to operate sea based landing craft (of all types) over open beaches would be a significant increase in capability over the JSS, their inability to embark more than a few helicopters, and then usually only for a temporary time, is a significant limitation of most designs. Also, clearly there are risks in having a complete army task force deployed on a single ship.

♦ **Landing Helicopter Assault Ship**.[27] The LHA/D, such as Britain's HMS *Ocean*, would also be possibility for Canada. However, since this ship is limited to deploying forces primarily by helicopter (it does have four small Mk5 Landing Craft that are deployed from davits), heavier equipment that exceeds the capabilities of the embarked helicopters cannot be landed using such a design. This is an important limitation, since weather could shut off the supply chain to a force deployed ashore very quickly and easily, and helicopters simply cannot carry some equipment.

In terms of getting ashore, the USMC has several options that could be considered by Canada. Each option has advantages and disadvantages; no one solution will meet all requirements. Each is described as follows:

♦ **Helicopters**. Besides attack helicopters, the USMC employs heavy, medium and utility helicopters. The heavy lift CH-53 *Sea Stallion* helicopters are able to lift large numbers of marines and heavy equipment such as howitzers. *Sea Stallions* are used to move assets ashore to achieve objectives that are deep inland, or when the sea state precludes the use of sea based assets. The medium lift *Sea Knight* is the work-horse of the Marines, and is used for logistical and troop transport missions, while the modern *Huey* is used for command, liaison and light attack duties. Given the limited number of good landing beaches world-wide, and the prevalence of reefs at many beaches, the helicopter offers an important asset for getting troops ashore provided the enemy does not offer a significant air defence threat.

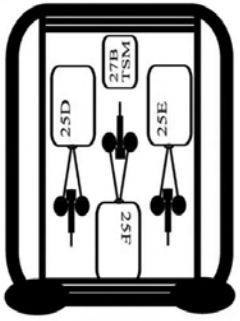
♦ **Amphibious Assault Vehicles**. AAVs allow troops to land in less permissive environments with a modicum of protection. History indicates that even light beach defences can cause horrendous casualties to amphibious forces. Thus, even without an Iwo Jima scenario, AAVs are a desirable capability. In an important distinction from conventional landing craft, AAVs can overcome reefs and sand bars that protect many of the world's beaches. Until recently, one significant limitation of the AAV has been

that it is slow, and its lack of speed has forced landing ships close into shore where they are vulnerable. This limitation will be overcome with the new generation of Advanced Amphibious Assault Vehicles (AAVAs), which are capable of speeds up to 30 knots.[28]

♦ **Landing Craft Air Cushion**. The LCAC is a marvel of modern technology. Capable of high speeds, and with a large carrying capacity, they are ideal for landing army equipment and troops ashore without their getting wet, other than from spray. They can traverse sandbars, reefs, some mines and man made obstacles, and inland water obstacles such as marshes. They are, however, expensive to operate and very vulnerable to enemy action. For this reason, they are often used as a logistical tool, rather than as an assault tool.

♦ **Landing Craft Utility/Medium**. Simple, cheap, and widely available, the Landing Craft Utility/Medium (LCU/M) represents the low technology option for getting troops and equipment ashore. These vehicles have a large carrying capacity, are slightly less vulnerable to enemy fire than the LCAC, and can operate in relatively heavy weather. However, they are generally slow and are very vulnerable to reefs and sandbars. For this reason, the first vehicle off an LCU in Marine Corps service is typically a bulldozer that can be used to push the LCU off sandbars!

During Exercise UNIFIED SPIRIT, E Battery had the opportunity to use most of the assets described above. The ability to land army forces ashore without the use of ports offers unrivalled flexibility, not to mention the protection that results from surprise and unpredictability. The helicopters available to the USMC give them tremendous flexibility, and an ability to reach deep inland from deployed ships. However, the helicopter capabilities of the USMC were solely dependent upon the operations of the USS *Nassau* (LHA/D). Since the Canadian battalion group was based on the USS *Gunston Hall* (LSD), which did not have a permanently embarked helicopter of any type, the ability of this class of ship to conduct any type of independent operation was very limited. Therefore, it is recommended that whatever class or type of ship the Canadian military selects, at the very least a utility class (preferably medium lift) helicopter(s) should be permanently embarked.



LCAC gun load pattern

In terms of sea based landing options, the LCAC was a particularly suitable tool for landing Army equipment that is not optimized for waterline operations. For example, USMC vehicles can wade through up to five feet of water, and are optimized for operating in deep sand.[29] Canadian conventional army vehicles were far less capable (the lltis jeep was particularly bad), and thus the LCAC was the preferred tool for moving vehicles and guns ashore. The cheapest option is the LCU, and indeed, this route has been favoured by many nations. The E Battery experience was that both LCACs and LCUs were vulnerable to sea state conditions, though LCACs never suffered the indignity of getting stuck on a sand bar for hours at a time.

E Battery also learned numerous practical lessons in conducting amphibious operations. The Gun Position Officer, Captain Erik Esselaar, collected the lessons learned of this nature. Captain Esselaar summarized these lessons in his own words[30]:

♦ The LSD can normally hold four or at most five LCACs on board, and they are loaded on a first on, last off order. LCACs are loaded with vehicles on a first on, first off basis. For this reason the loading of personnel and vehicles must be well thought-out and deliberate.

♦ An LCAC can be loaded with as many as seven Light Support Vehicle Wheeled (LSVWs), or three guns with gun-tractors and an LSVW. The U.S. Naval "Loadmaster" who controls the loading of the LCACs, loads the LCACs with balance, weight and size of the vehicles in mind. Exact weight and length of each vehicle matter greatly, including whether a vehicle has a trailer or not. Because of the limited passenger capacity of the vehicle LCACs, the driver and co-driver must load vehicles only, with remaining personnel transported in a separate passenger module LCAC. There is some minimal flexibility to allow a few key personnel to be transported in addition to the driver and co-driver.

♦ Because of the first on, last off rule, the last LCAC that is loaded on the LSD must have the key reconnaissance (recce) elements aboard.

♦ Because of the high winds created by the LCAC, any loose equipment has to be stowed. During the preparation stage, all artillery ammunition had to be distributed, and all final vehicle preparations for deployment on the beach had to be made. Due to the tight loading of the LCACs and the LSD, access to equipment was very difficult, so all preparations had to be made before loading.[31]

During the actual landing operations, Captain Esselaar recorded some further lessons learned from the exercise, which are offered in his own words[32] as follows:

♦ Once the orders to deploy ashore have come, and the chain of command has had sufficient time for battle procedure, the whole re-mounting of the LCACs can be accomplished in relatively little time. Before the personnel mount the LCACs, personal preparations such as camouflage, ammunition and rations distribution would be done as part of battle procedure.

♦ Ideally, all four LCACs should depart at the same time, and come ashore almost abreast of one another. Should there be some difficulty, the specific order of the LCACs would ensure that the most important elements arrived first, minimizing effects of any unforeseen problems.

♦ In most any combat scenario, the LCACs loaded with a gun battery should be landing on a secured beachhead. Therefore, the first LCAC to arrive with the Reconnaissance elements should simply do a quick clearance of the area and proceed on its route to the new area. The personnel who work in the recce party, the alternate Command Post (CP) and other vehicles on this first LCAC have to ride on the first LCAC as they cannot wait for the passenger module LCAC to arrive.

♦ Ensuring that the vehicles were ready also sped up the tie down process aboard the ship. The fuel tank could not be more than half full and obviously all the securing hooks had to be serviceable.[33]

Planning Amphibious Operations

The planning and orders process currently used by the Canadian Army is a direct descendent of that employed in World War II. While it is true that the process has evolved over the years, at its heart it is designed for single service operations. Depending upon the concept of operations envisioned for Canadian task forces afloat, it is quite possible that the CF will have to adopt new processes to support joint amphibious operations. This is especially true if the force is to be employed in a rapid reaction role akin to that of a Special Operations Capable (SOC) MEU. The MEU, together with its associated ARG, have adopted a very different process to that used by the Canadian Army. This allows the ARG/MEU to respond rapidly to a variety (roughly twelve) of pre-planned mission scenarios where heavy reliance upon Standard Operating Procedures (SOPs) allows the joint force to react within as little as six hours. Because this process may be relevant to future Canadian plans, it is described here.

Rapid Response Planning Process

During Exercise UNIFIED SPIRIT, a major challenge for 1 RCR Battalion HQ and E Battery attachments was to learn the Rapid Response Planning Process (R2P2) so that the Canadian Battalion Group could integrate into the 22 MEU planning. This process will now be described since it was a major focus of the command group activities both during the initial reconnaissance to the USS Nassau and during the brief portion of the final exercise.

The modern MEU is now described as being SOC. Thus, the MEU can be deployed ashore as a whole for war like situations, but more often, only parts of the MEU are deployed to conduct certain very specialized and well-rehearsed missions. Examples of such specialized missions includes the Tactical Recovery of Aircraft and Personnel (TRAP) raids and Non-combatant Evacuation Operations (NEO). As described earlier, the MEU has a large number of options for both the conduct of these missions and the means used for getting forces ashore. Most importantly, whether it is a platoon going ashore or the whole battalion, the activity is by nature a joint operation. Involved players include the ARG, aviation assets, the landing vehicles and fire support from ships, artillery, aviation and fast jets. The challenge is that all these missions have to be launched, or be ready to launch, within six hours of the receipt of the warning order.

As a beginning point, all amphibious operations using R2P2 are conducted in five phases. These phases are as follows: Ship to Shore, Landing Point to Objective, Actions on the Objective, Objective to Pick-up Point, and Pick-up Point to Ship. The R2P2 process starts with the assembly of the Crisis Action Team (CAT), which assembles on receipt of the warning order. The CAT consists of two equal components. The first is the naval component led by the Commodore of the ARG, and includes the N3 and other key naval personnel. The second component is led by the Commanding Officer (CO) of the MEU and includes the CO of the Battalion Landing Team (BLT), MEU Fire Support Officer and the Operations Officer (Ops O) of the BLT. The heart of the R2P2 is guided by a series of about 200 preformatted slides. In many cases the slides follow a check-box type format and include subjects such as the intelligence situation, mission analysis, the mission, forces available, weather, sea state, equipment status and a whole host of other information that is required to conduct the mission.

A key component of R2P2 is the time line. The initial CAT is only 30 minutes long and it results in planning guidance to the BLT for the development of Courses of Action (COAs). One hour and thirty minutes after the initial receipt of the warning order, the BLT is expected to brief three courses of action for the CAT. These three COAs usually consist of a water-borne insertion, an air insertion and a combination. Most interestingly, the actions on the objective are treated as a drill. Different COAs for the actions on the objective are not presented, but rather, are discussed by the BLT operations staff and mission commander throughout the process of COA development. They are later refined during the COA refinement process.

Following the COA brief, the MEU and ARG commanders select the COA that is to be developed further. The BLT and naval staff then further develop the plan. It is during the BLT planning sessions that the most interesting activities take place. The strength of the system is that all players are involved in the planning, which necessitates that all planners are on the same ship. The session is run by the Ops O of the battalion; however, in attendance are the air mission planners, who will actually support the mission, the commanders of the AAVs, LCACs, LCUs and the naval staff who can answer questions about the position of the ships, sea state and other naval concerns.

A key member of the planning staff is the Fire Support Co-ordinator (FSC), who is also the weapons company commander. This individual has the Fire Support Team Leader, Naval Gunfire Liaison and Air Liaison Officers working for him. Within the Canadian context, the Artillery Battery Commander (BC) fulfils this function. Although fire support co-ordination is well known and practised within the Canadian Army, the average BC at the task force level has a relatively straightforward job during conventional operations in a brigade and divisional context. However, the duties become considerably more complex within the context of a MEU during amphibious operations. This is because the battalion sized BLT almost always has NSFS, attack helicopters and fast air at its disposal. Moreover, because of the limitations of sea borne insertion (especially sea state), the method of entry is often by helicopter, which implies further detailed co-ordination requirements. Contrast this with a BC of a mechanized battle group who usually does not have NSFS, attack helicopters or airmobile forces to contend with. Thus, in any plan, fire support co-ordination was a very real issue for the safety of the troops involved and for the full synchronisation of all the firepower assets available to the MEU.

The final stage of the R2P2 process comes at the four-hour mark with the Confirmation Brief. This is the longest and most detailed brief and has a large number of participants. The whole plan is briefed and all aspects are covered, right down to contingency SOPs and medical evacuation plans. The complete plan is briefed using the slides, which become the operation order at the conclusion of the brief. No written orders are produced. The final two hours of the six-hour process are used for rehearsals, the positioning of aircraft on the flight deck and for the loading of LCUs, boats and AAVs.

In watching the implementation of the R2P2 process, the 1 RCR Battalion HQ observed methodologies well outside the Canadian comfort zone. Nevertheless, R2P2 was impressive to watch in many ways, since it was effective in co-ordinating the

complex interaction of a widely diverse military team all focused towards the successful conduct of a joint mission in very little time. However, the system only works because there are extensive SOPs used by all concerned. The chief weakness of the system (recognized by the Marines themselves) is that the individual Marine boards his helicopter with only the sketchiest idea of his mission. Moreover, due to the short timelines, reconnaissance forces are often inserted with very little notice, little preparation and with only the most limited intelligence. Thus, these forces often face significant hazards. Nevertheless, should future capabilities of the Canadian Forces come to resemble the missions conducted by a MEU (SOC), a process very similar to the R2P2 should be considered carefully in order to enhance the speed of Canadian battle procedure and to optimize Canadian processes for a joint context.

Command, Control, and Communications

The Command, Control, and Communications (C3) requirements related to amphibious operations are so complex that they form the Achilles heel of any operation. During Exercise UNIFIED SPIRIT, E Battery re-learned many of the historical lessons related to C3 that have been learned during both successful and unsuccessful amphibious operations throughout history.

As the reader may have surmised, the centre of ARG/MEU operations is the LHA/D. The LPD/LSDs are used only for transport purposes, and no planning or real co-ordination takes place aboard these ships, other than physically launching the forces. Because of this, those forces embarked on the LPD/LSDs are usually forced to cross-deck their commanders to the LHA/D for the planning cycle of any mission assigned. In the case of Exercise UNIFIED SPIRIT, the Canadian contingent was embarked upon the LSD USS *Gunston Hall*. Thus, the proper planning and co-ordination of amphibious operations was conducted in a somewhat isolated manner from the MEU. Although the unit CO and Ops O were cross decked to the Nassau, the Canadian mission that was successfully conducted in concert with the MEU was largely an independent mission using the resources of the battalion group and the *Gunston Hall* itself.

On board the *Gunston Hal*l, the Battalion HQ (including the Fire Support Co-ordination Centre [FSCC] and Engineer Support Co-ordination Centre [ESCC]) was provided with an operations room that included multiple channel communications capability for High Frequency (HF), Ultra High Frequency (UHF) and Very High Frequency (VHF) communications. This facility provided the Battalion with the capability to communicate ashore as well as with the ARG/MEU. Nevertheless, the Gunston Hall had significant limitations with its communications fit. The main shortcoming was the lack of a wide band wireless e-mail capability with the rest of the ARG/MEU. This shortcoming had serious implications in that the Battalion HQ could not receive digital photos and intelligence information, nor could it easily communicate with those possessing control over ARG/MEU assets such as attack helicopters. Thus, only two means of communicating with the ARG/MEU existed—by message and by VHF/HF voice communications. Both of these methods had serious shortcomings. In any operational scenario, message circuits are often severely overloaded with traffic; and because of this requests for attack helicopter support may not be received by the MEU in a timely manner. As well, translating information such as ingress and egress

routes to objective areas and battle positions using map co-ordinates is a highly time consuming process. Thus, during the short period of time that the Battalion Group was planning a mission during the final exercise, in no case were requests for resources ever addressed in the short time available.

An important component within the C3 architecture of the ARG/MEU is the Supported Arms Co ordination Centre (SACC). This is where the Weapons Company Commander (the BC in a Canadian context) will work during the initial stages of amphibious operations, until the FSCC has landed. During Exercise UNIFIED SPIRIT, the E Battery Forward Observation Officer (FOO) had the opportunity to observe this process closely. Thus, Captain Bedard, the FOO, observed that the two main missions of the SACC were:

- to keep the Commander Amphibious Task Force (CATF) and Commander Landing Force (CLF) advised of all supporting arms availability, capabilities and activities within the amphibious task force; and

- to plan, co-ordinate and execute the efficient use of all ATF supporting arms in support of the Landing Force (LF), until responsibilities for co-ordination and control of supporting arms ware passed to shore.[34]

According to Captain Bedard's observations[35], the SACC included the following specialists: Supporting Arms Co-ordinator (SAC), Naval Gunfire Control Officer (NGFCO), Air Support Co ordinator (ASC), Landing Force Air Officer, Amphibious Task Force Target Intelligence Officer, Air Intelligence Representative, Target Information Officer, Landing Force Fire Support Officer, Ground Combat Element (GCE) FSCC Liaison Officer (LNO), Low Altitude Air Defence (LLAD) Representative and any other assistants. All these individuals worked together closely to ensure that that the myriad fire support assets available to the MEU were co-ordinated and de-conflicted.

In designing a future capability, the CF must pay close attention to the C3 requirements of the future force

Therefore, in designing a future capability, the CF must pay close attention to the C3 requirements of the future force. It is critical that the right number and types of radio systems are available for Army planning staffs. Satellite communications and other long-range systems are needed to overcome the long distances that may separate troops from supporting ships. Communications to support specialist functions such as logistics, fire support, air support and engineers cannot be forgotten. New capabilities, such as blue force tracking and broadband wireless tactical Internet capabilities for staff co-ordination and intelligence are also essential. Finally, the grouping of key elements of an Army task force onto various ships must also be carefully considered in ship design. The strength of the MEU/ARG is that key planners and commanders are on the same ship, the LHA/D. This ship also has the ability, through embarked helicopters, to go and get key personnel from other ships when they are needed. Future Canadian capabilities should also accommodate this requirement.

Fire Support

Future Canadian operations could span the spectrum of conflict from war fighting to peace support to humanitarian operations. However, General Hillier envisions a future in which most operations will be conducted in a "three block war" context. In such a context, Canadian forces can expect to be conducting combat, peace support and humanitarian operations at the same time in a relatively small area.[36] Often, these operations will take place in urban terrain. Given these realities, it is prudent for the CF to deploy with fire support capabilities in order to ensure the security of Canadian troops. One great advantage of the MEU/ARG, and possibly future Canadian capabilities, is that assets such as fire support, logistics and C3 can remain largely afloat until needed. This organization has the advantage of reducing the footprint of the deployed force on the ground, which reduces both logistical requirements and vulnerability to insurgent attacks upon vulnerable bases.

In designing future Canadian capabilities, planning staffs may be tempted to take the simplest and lowest cost approach in order to "keep it simple". This is a dangerous approach

In designing future Canadian capabilities, planning staffs may be tempted to take the simplest and lowest cost approach in order to "keep it simple". This is a dangerous approach, since adequate fire support is an essential component of successful amphibious operations because the forces in such operations are vulnerable for many reasons. Even thirty years after the introduction of attack helicopters, the Canadian military is not even discussing such equipment, in spite of the fact that they are commonly deployed by a whole host of nations. Therefore, in order to inform the discussion on future Canadian capabilities, the fire support assets available to the MEU will be discussed.

Marine Indirect Fire

To begin, the Marine Artillery is equipped with only one weapon system, the M198 155 mm Howitzer (soon to be replaced and augmented by the M777 and HIMARS rocket system). The choice by the Marines to use a towed gun is important. Towed howitzers are simple and robust, and are thus less vulnerable to the effects of the salt-water environment. Moreover, by using towed guns, the Marines maintain the flexibility of deploying guns ashore using LCACs, LCUs or heavy lift helicopters. Thus, Marine artillery can support any deployment option selected by the manoeuvre force. The guns are grouped into batteries, battalions and regiments, though a MEU typically only has one battery embarked. Marine battery positions tend to be VERY close

New Marine M777 Howitzer

by Canadian standards, and the deployments are kept very simple. Guns receive their firing data digitally from the battery fire direction centre (FDC), which is in contact with the battalion FDC digitally and by voice.

Marines are also supported by integral mortar platoons. At the time of UNIFIED SPIRIT, these were 81 mm mortars, though the new Expeditionary Fire Support System (EFSS) is 120 mm.[37] Mortars represent an important capability, since they are often employed to support smaller operations such as raids. Like the towed guns, they can be deployed ashore using any deployment methods available to the MEU, including AAVs.

During the live fire artillery exercise, E Battery conducted missions with the 1 RCR Mortar Group and a group of 81 mm mortars from 3rd Battalion 2nd Marine Regiment. The FOOs from these organizations fired each other's guns and mortars with significant training benefits for all. Co ordinated illumination missions were fired using two or more fire units, and fire plans integrating all three fire units were conducted. Overall, there were absolutely no difficulties in the three fire units working together to provide co-ordinated indirect fire support.

Attack Helicopters

The AH is one of the most useful and flexible firepower assets available to the MEU. It is almost always available, has a long on-station time and has high firepower with excellent precision. Like the transport helicopter, the Cobra attack helicopter needs ingress and egress routes to and from the objective area, and thus careful co-ordination is required for its use. The on-station time of the Cobras is a major planning factor that the FSC must consider. This factor may lead to the deduction that a forward arming and refuelling point (FARP) is required. Such a requirement has related factors, such as a security force, that must be considered.

5 Inch 54 Calibre Naval Gun—Standard NSFS Wagon

Since the Cobra AH is such an essential capability to the MEU, Canadian staffs should consider carefully whether Canada requires this capability in the future. Although it is an important asset in supporting forces ashore, the AH also plays a critical role in protecting forces in the littoral and while they are landing. The balance between future fighter, Unmanned Aerial Vehicles (UAVs) and AH requirements is an issue worth considering. Many nations, including those with fewer resources than Canada, have decided that the AH is an indispensable capability requirement.

Harriers

The USMC is unique in the world with possession of its own mini Air Force. A central component of this capability is the Harrier jet, which will eventually be replaced by the

Joint Strike Fighter. The E Battery experience with the ARG/MUE showed that planning for the use of the Harriers is almost identical to how the CF plan fast air missions. Initial Points (IPs) need to be selected, and the USMC standard nine-line brief is used. The ingress and egress routes are planned just like other air assets. The chief limitation of the Harrier is its on-station time and its limited load of ordnance. Limited on-station time may lead to the deduction that a tanker aircraft is required to support the mission. A possible collision between aviation assets and the Harriers is a very real possibility; thus, the Harriers and helicopters need to be de-conflicted by time, altitude or lateral separation. Carrier wing aircraft may also support Marine missions, and if they do, their co-ordination is the same as with the Harriers. However, the one major difference is that the carrier wing pilots actually flying the missions will not have talked face to face to the mission commanders like the Harrier pilots have.

When Canada replaces its CF-18A force in the future, the Joint Strike Fighter may be an option. After all, Canada is participating in the development of this aircraft right now.[38] One advantage of selecting this option is that Canada could field a Harrier-like capability in the future to support its deployed task forces. Though not simple and very much dependent upon ship design and resources, the prospect of Canadian jets being available to support Canadian task forces would seem to be in line with the overall objectives of General Hillier's vision for a more joint force.

Naval Surface Fire Support

E Battery was extremely fortunate to get a FOO party deployed with 22 MEU to Puerto Rico from 10 to 24 October 2000. This was the first time in many years that an American MEU from the East Coast was allowed to conduct a Supported Arms Co-ordination Exercise (SACEX). Captain Bedard and his party brought back many lessons, but in essence they confirmed the ability of Canadian observers to conduct NSFS missions. They also confirmed the utility and effectiveness of NSFS within a modern context. In designing the future force, the Canadian military must consider the potential of NSFS in providing a component of the fire support available to Canadian task forces. Future mid-life upgrades of the Canadian Patrol Frigates may offer a window in this regard. Ships can embark weapon systems that may be politically unacceptable ashore. Nevertheless, these systems can be ready to support task forces ashore, unseen by potential belligerents.

The lessons learned by E Battery on the subject of NSFS were extensive. These lessons began with the challenges of co-ordination. For the FSC, the fundamental questions that need to be answered are as follows: first, where are the ships? They will usually be allocated a fire support area (FSA) within 12 km of the target area using current gun systems. The next question is what is the zone of fire of the ship, and can it cover the target area? Naval guns are flat trajectory; thus, even though they can fire reduced charges, whether the ship can actually hit the target is a question that must be answered. Other questions that must be answered are the ammunition load of the ship (usually about 600 rounds per gun),[39] and the time the ship will be available to provide NSFS. This latter factor may be limited due to the shore-based threats to the ship, such as the threats faced by British ships during the Falklands War in 1982.[40]

Finally, the principal information that the FSC must determine is the gun-target line of the ship to the target. This information is critical in the planning of the route to and from the target area for all air assets.

During any amphibious operation, there is a period of time where the landing force is extremely vulnerable. This period lasts until such time that integral fire support assets have been landed. During this gap in time, NSFS plays an important role in protecting the force. Historically, this support has often been pivotal in guaranteeing that forces deployed ashore are capable of staying ashore, with the landing at Tarawa during World War II being a good example.[41] Nevertheless, despite the utility of NSFS, heavy weather such as a hurricane (as happened during UNIFIED SPIRIT or enemy action (Guadalcanal is the most famous example) can force ships away from shore and thus imperil their ability to support the troops. Therefore, shore based fire support assets must always form a component of deployed task forces when the threat warrants disembarkation from the ships.

Even though the art of NSFS is still practised by the US Navy and USMC, by their own admission this aspect of their operations is by no means healthy, mostly due to a lack of consistent practice and the more limited gun options available. According to Captain Bedard, "the principal difficulties remain communications, and the co-ordination and allocation of ships to fire support tasks and their integration with the many air assets available to the USMC."[42] Finally, the majority of the American ships are equipped with only a single five-inch gun. While a single ship may be able to deliver comparable firepower to an artillery regiment (battalion size) for a limited time, single gun ships are vulnerable to mechanical breakdowns, limited range inland and other snags.[43]

From a co-ordination viewpoint, there are some areas of direct concern in using NSFS. First, the allocation of ships to fire support tasks is co-ordinated by the SACC aboard the LHA/D. Only certain ships are capable of fulfilling the NSFS role, since the principal weapon used is the 5-inch 54 calibre naval rapid fire gun, which is only deployed aboard certain types of warship. It is also considered limited in capabilities in comparison to older 8-inch and 16-inch naval guns.[44] Thus, naval commanders often face a fundamental challenge in that ships capable of the NSFS role are also usually required for other tasks such as anti-shipping or anti-air missions. Therefore, NSFS is not something that is always available, and its availability is the result of a very deliberate decision by the naval commander.

E Battery Guns Load on an LCAC

According to Captain Bedard, "to use NSFS, the Battalion NGLO requests NGF assets during the planning phase for an upcoming operation. A tentative list of NGF ship assets is then provided to the LF, and detailed planning by the Ops O and the NGLO commences. The key information provided to the LF is the name of the ship that will support them, from which it can be determined if there are one or two main gun

mounts. There are two types of NGF missions, Direct Support (DS) and General Support (GS). Whenever possible, ships capable of performing simultaneous missions will be assigned DS missions for manoeuvre battalions to allow for maximum NSFS to LF units."[45]

The Battery learned many lessons about NSFS, the most impressive of which was how quickly the naval guns responded to initial requests for fire and subsequent corrections during missions. The current standard is rounds in the air within one minute of the completion of the call for fire. According to Captain Bedard, "it was literally seconds between corrections and the ship reporting ready".[46]

Practical Problems and Concerns

The experience of E Battery and 1 RCR during Exercise UNIFIED SPIRIT was that any well-trained Canadian Army unit can successfully conduct amphibious operations. However, this is not to say that these operations are simple or that careful preparations are not required. Therefore, within this section of the paper, some of the practical challenges of Army units operating from sea-based platforms will be addressed. These issues include equipment concerns, personnel issues and the challenges of leadership.

Equipment

Army equipment and salt water do not mix. This was a lesson learned by the soldiers of E Battery in particular, since none of the Canadian equipment was designed for amphibious operations. The Battery Captain, Captain Leach, collected the lessons on this issue.[47] He described the issues as follows:

- The most important logistical concern was making the vehicles and howitzers suitable to embark on a ship. First and foremost, the tarps on back of the Medium Logistics Vehicles Wheeled (MLVWs) had to be securely fastened down. This meant that every tie-down hasp had to be in excellent condition with no rips and tears. The suction caused by the large fans at the back of the LCAC is strong enough to pull the tarp cleanly of the MLVW if it is not fastened down properly.

- Second, all vehicle jerry cans must be full, including water cans and those carrying petrol, oil and lubricant (POL) products; they must be secured inside the back of the MLVW inside the cargo box. Again the suction is great enough to suck them out of the back of the truck and into the fans creating a safety hazard.

- Third, there can be no loose kit lying in the back of the truck. All kit must be tied down and properly secured.

- Fourth, the drivers of the vehicle were not allowed to remain in the cab of their vehicle while the LCAC was moving from ship to shore. Again this restriction is required because of the fans.

- The fifth, and most important logistical point about amphibious operations is that the LCAC must be loaded in the right vehicle order, so that once in the well deck of the ship it can be properly off loaded. The rule is "first on, last off".

- The gun tractors and ancillary vehicles had to have their radiators protected against salt water in case the vehicles had to ford water when loading on the LCACs[48]

or coming ashore from them. This was accomplished by taping plastic on the inside of the grills and on any other possible inlets for salt water. The C3 105 mm towed howitzers and all of the vehicles required that their bare metal parts be well lubricated. This was done with regular lubricating grease. Additionally, the howitzers' breaches, muzzles and trunions had to be well lubricated and sealed.[49]

Captain Esselaar (who worked for Captain Leach) went on to describe that "once off the ship and back on shore, one must be concerned with the guns quickly developing rust because of salt spray. This is significant and the detachments must quickly wash the howitzer down with fresh water. Dumping jerry cans of water on the guns and then wiping them clean can accomplish this. Another method is to use a portable pressure washer connected to the battery water buffalo".[50]

Another lesson learned was that allies may not always provide the support expected. For example, a Canadian force aboard ships concludes from its mission analysis that it needs attack helicopter escort for a small boat insertion of reconnaissance forces. This request is transmitted to the ARG/MEU the night prior to the mission. The mission is not approved. The reason—the timelines for the Canadian mission do not conform to the planned flying operations of the MEU, which is, of course, running its own missions. The important point to note is that launching Cobras or any other air support from an LHA/D is not a simple process. The ship has to be properly situated for the launch (i.e. relatively close to shore and not out to sea, as they are want to do at night). The flight deck crew has to have the helicopters on the right spots on the flight deck. The fire fighters have to be in position, and the armament personnel have to have loaded and prepared the correct helicopters with the right ammunition for the mission. Finally, the ship has to be at flight quarters. Once all this commences, the flying day has started, and as for the Canadian Air Force, there is a limit to the length of the flying day. It was exactly this situation, combined with communications difficulties that prevented attack helicopters from supporting the insertion of engineer diver recce by small boat during UNIFIED SPIRIT.

Another lesson learned was that allies may not always provide the support expected

Personnel Issues

Personnel require a degree of preparation for amphibious operations. During the After Action Review process following UNIFIED SPIRIT, these lessons were collated by the Battery Sergeant-Major (BSM), Master Warrant Officer (MWO), Nelson Lizotte. He described them as follows:

♦ Firstly, in order to be able to function adequately and comfortably on board the USS *Gunston Hall* and its host of LCACs, all E Battery personnel underwent extensive lectures and training seminars from Canadian Naval personnel as well as U.S. Navy personnel. The requisite training included sea survival training (both theory and practical), swim testing, briefs on naval terminology, naval standard operating procedures, and equipment familiarization. No Canadian personnel were permitted on board the USS *Gunston Hall* without passing the Canadian Forces Swim Test and the Sea Survival Training.

♦ A thorough introduction and orientation to the ship was necessary so that everyone had the opportunity to adjust and acclimatize to the surroundings. Life on the ship was very constricted, and with a large sized organization, hastily called orders groups and passage of information was difficult. Berthing (quarters) should be organized by troop, keeping functional groups together in close proximity, regardless of rank. This would greatly facilitate locating personnel on short notice and also passage of information. Activities should be scheduled as much as possible in advance, at troop (rather than battery) level. Because of the complex layout of the ship, gathering large groups of personnel on short notice could be chaotic. Centralized posting of orders, i.e. by eating messes would also aid this. Feeding should be staggered by groups, due to congestion created by line-ups in the mess hall. Reveille and shower timings should be staggered as well with consideration for use of minimal bathing facilities.

♦ A regular routine on ship should include zeroing of personal weapons, periodic vehicle/gun maintenance against salt-water damage, and a physical training (PT) program as a minimum. Time must be given to the troops themselves, and due to the confined area, welfare items such as gym equipment, gaming machines and the like can be crucial for maintaining good morale during long periods at sea.

Leadership and Amphibious Operations

The Battery leadership following UNIFIED SPIRIT also captured leadership issues. Once again, these points were collated by the BSM Lizotte, and are described as follows[51] in his own words:

♦ Reconnaissance parties of units planning to go aboard ship should include a non-commissioned officer (NCO) to ensure troop concerns are addressed. Unfortunately, during UNIFIED SPIRIT, the recce party that had a chance to experience life at sea a few weeks earlier did not include a senior NCO from the battery. This was due to the space restrictions on the flight.

♦ Communicating a simple change in plan was very hard since the normal means of communication are not available (the Captain will not allow you to use the ship's announcement system every time a soldier cannot be located) and moving around the ship is often restricted by the operations of the ship itself, or other embarked assets such as aircraft. When leaders do want to move around, there is no guarantee that the soldiers will be in their living spaces.

♦ Simple techniques, such as bringing limited baggage to living quarters and leaving non-essential items with vehicles proved to be a very wise way to move around the tight confines of a warship.

♦ Like generations of soldiers and sailors before them, Canadian forces will face the challenges of seasickness that will always accompany operations at sea. Seasickness cannot be controlled regardless of how calm the sea is or how tough the soldiers are. Everyone reacts differently and leaders must respect that soldiers will need time to adjust to their new environment.

♦ In conformance with well-known and long practised amphibious techniques, realistic rehearsals down to the lowest levels should always be conducted in preparation for any amphibious operation.

Conclusions

From the above lessons learned, the reader has hopefully gained an insight into the issues involved in the conduct of amphibious operations and the lessons that can be applied to future Canadian military planning. E Battery was indeed extremely fortunate to have had the opportunity to conduct these types of operations. Although there are some specific specialist areas where unique training is required, the most notable lesson learned by E Battery was that the average Canadian sub-unit could easily deploy to a theatre using amphibious techniques and equipment. The specialist missions for which the Marines train are beyond the immediate short-term capabilities of Canadian units, there is absolutely no difficulty in Canadian forces deploying ashore to conduct their normal missions over beaches that are not heavily defended. Indeed, if one looks at the history of amphibious operations in the Western Theatre during World War II, all amphibious operations of any scale were carried out by conventional army divisions, and not by specialized marines. The specialization comes with the unique Special Operations Capability of the MEUs and with the naval forces that support amphibious operations (for example LCAC crews). E Battery, along with the other 2 CMBG units, demonstrated conclusively that Canadian units can deploy and operate effectively from naval shipping, and that this capability should be borne in mind when commanders consider future deployment options.

Canadian units can deploy and operate effectively from naval shipping, and that this capability should be borne in mind when commanders consider future deployment options

Therefore, General Hillier's view of a joint force capable of exploiting amphibious capabilities is not an unobtainable goal. Indeed, the capabilities of the MEU/ARG closely match the requirements of Canadian task forces operating in theatres around the world today. However, the key difference between current Canadian capabilities and the ARG/MEU is that the latter arrives in theatre as a comprehensive and self-contained force capable of defending itself from the time it arrives. Moving Canadian capabilities towards something similar to the ARG/MEU makes sense in the expeditionary environment of the contemporary operating environment. Moreover, the ARG/MEU represents an opportunity for the CF to become joint in reality, rather than just in name, in order to ensure that individual service capabilities in total exceed the sum of their individual parts. This approach offers more capability at comparable cost for Canada.

About the Author…

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AVOIDING A FUTURE DIEPPE: IMPROVING CANADIAN ARMY AMPHIBIOUS OPERATIONS PLANNING

Major Les R. Mader

The government of Canada has shaken up traditional Canadian Force's (CF) thinking by emphasizing the requirement for a Canadian amphibious operations capability.[1] Even before the government stated this need, various individuals had identified and discussed such a requirement, both in CF publications[2] and in the mainstream media.[3] Developing such an amphibious capability will be a significant undertaking, both in terms of effort and investment.[4]

The CF have had little interest in amphibious operations since World War II, although the 1994 Defence White Paper contained the requirement to be able to conduct non-combatant evacuation operations (NEO).[5] This NEO requirement led to the CF creating a doctrine manual specifically for such missions.[6] In order to be able to accomplish this task, the navy has been moving towards the provision of a very modest amphibious lift capability with the planned purchase of the joint support ships (JSS) to be delivered around 2012.[7]

Some readers might feel that a militarily robust NEO is not relevant in the modern world or that we could let someone else do the evacuations for us. Such doubts reflect a very sheltered view of the world and a limited understanding of our own history. The events of the past 14 years in Haiti, Côte d'Ivoire and other troubled states make it clear that foreigners—including Canadians—can be caught in countries in crisis and require evacuation. In many cases, the crisis can be resolved without recourse to landings by troops carrying out an NEO. However, responsible governments and their officials cannot plan on things being settled by luck as "(t)he Government of Canada bears a fundamental responsibility for the safety and well being of all Canadians."[8]

Any doubt that the CF could be called upon to carry out or, at least, plan NEOs is put to rest by the moral imperative of the role of modern Western governments and information found in the Navy's *Leadmark* way-ahead document[9] and an article by Sean Maloney.[10] A synthesis of these two documents shows that on at least 14 occasions since 1949 Canada has planned evacuation operations that involved the use of military forces. Troops (from 3e R22eR and 1er Commando) were alerted to deploy with ships on two occasions.

There will, of course, be those who argue that such deployments are a thing of the past and that nothing untoward will occur in the future. In answer to such sceptics, we have but to remember Operation Toucan in 1999—2001 that brought together:

- A crisis in an unexpected and distant part of the world.
- The surprise deployment of Canadian Naval and Army assets to respond to that crisis.

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♦ The landing of Canadian soldiers from amphibious ships onto a distant shore.

This operation was the international mission in East Timor. The Canadian land contribution was built around a light infantry company group from 3e R22eR. During this operation the company was landed from an Australian amphibious ship onto a Timorese beach. In this case, the company was attached to a New Zealand infantry battalion that had the necessary experience and was able to carry out the unit-level amphibious planning.[11]

Figure 1: Doing It For Real—Soldiers from 3e R22eR Land in East Timor[12]

Recent history and government policy thus make it likely that the Navy and Army will be called upon to conduct NEOs that may contain an amphibious element. While the Navy has some experience planning for such operations, the Army is not well placed to support amphibious planning initiatives. The prime reasons for this lack would seem to be that Canada's military focus for the first 40 of the last 52 years was on the defence of Western Europe and that meeting an unending call for peace support units has driven the Army's efforts over the past 12 years.

Through its lack of amphibious experience the Army could be setting the CF on the road towards a future failure if corrective action is not taken. Addressing such weaknesses is even more critical now that the government of Canada has called for a robust amphibious capability. This article highlights some of the problems facing the Army in providing an amphibious capability and makes suggestions on how to address those problems. The discussion is divided into four areas that help provide a common understanding leading to the identification of the Army's current capability and suggestions for its improvement.

Amphibious Operations

The words "amphibious operations" likely evoke various images. For some, these may be the 1982 liberation of the Falkland Islands. For others, the massive efforts of the United States Navy (USN) and United States Marine Corps (USMC) in the Pacific theatre of World War II will come to mind. It is likely that Canadians will think of our efforts during the Dieppe raid and the Normandy landing. Despite their differences, all of these operations were amphibious. For the purposes of this article, I would define amphibious operations as "operations launched from ships at sea, using some combination of landing craft and/or aircraft, to place a tactically ready force ashore to carry out a mission that involves (at least potential) danger."[13] A NEO launched from a JSS into an uncertain crisis situation is as much an amphibious operation as the landing at Normandy. The difference between them is simply in the degree of effort required.

Figure 2: A Representative LCVP—Here a British LCVP 5[15]

As alluded to earlier, the JSS project will provide the navy with a limited amphibious capability even when the specialized landing ship required by the recently announced government policy is not available. Each JSS will have the ability to support a company-sized amphibious NEO in a low naval threat environment. Specifically, all of these ships will each be able to carry a very strong company group of 210 members and land up to 138 of its soldiers ashore in one lift using only the landing craft (landing craft vehicle and personnel [LCVP]) and the four helicopters carried on board.[14] The variation in the number of personnel landed at once is a function of how many helicopters of which type are available—our newly contracted Cyclones, the S-92 cargo helicopter on which the Cyclone is based, or similar allied medium transport helicopters.[16] In a coalition operation with the United States of America (USA), USMC CH-53 Sea Stallions could each deliver 38—55 soldiers picked up off a JSS' flight deck.[17] This provides the possibility of landing the entire company group in a single lift with only four helicopters.

Complexities

Winston Churchill has been reported as saying "Amphibious operations are a very specialised form of warfare. They have to fit together like a jewelled bracelet …".[19]

Such a comment and the lessons of history make it clear that any amphibious operation is not something that can be undertaken on a whim. Although improvised landings have succeeded in a few cases in the past (for example, the Irish Civil War in 1922),[20] the horrendous cost of Dieppe and Gallipoli and the chaos of Norway 1940 should give even the most sanguine of individuals pause.[21]

In order to learn from the mistakes and losses of the past and to increase the likelihood of success, professional navies and amphibious forces have developed detailed landing procedures. These support the five broad phases through which amphibious operations pass: planning, embarkation, rehearsals, movement to the objective area and the assault/operation.[22]

Additionally, navies that are good at amphibious operations have gone a long way to address the command and control confusion that so hampered Gallipoli in 1915and Norway in 1940. Normally, the naval commander of the amphibious task force has overall command while the landing force commander "… is a vital partner in the planning process, and is usually of equal rank."[23]

A sense for the approach used by the USN and the USMC, the foremost modern practitioners of amphibious operations, provides a good overview of the requirements for their successful conduct. The USMC has identified some 37 operations that its units may have to carry out, of which at least seven can be thought of as being amphibious.[24] Each amphibious operation can be quite complex in and of itself—the

USMC manual on raids is 168 pages long.[25] In order to carry out proper planning for these missions, each USN amphibious squadron has a core planning staff of some 11 officers and 16 enlisted personnel.[26] This staff can be augmented to about 75 all ranks for a specific mission.[27]

For all their experience with, and investment in, amphibious operations, our US and British allies' experience shows that even successful operations can hover on the edge of disaster. The USMC battalion involved in the 1983 invasion of Grenada was scattered over the north and west of the island by the joint force commander without the knowledge of the battalion commander.[28] Luckily for the Americans, the defending Grenadian forces suffered from so many problems that they were unable to threaten the Marines effectively.[29] This lack of real resistance was particularly fortunate as one of the assaulting companies had the disagreeable experience of finding out at the last moment that an intended "racecourse" helicopter landing zone "… had palm trees and tall bushes growing all over it."[30]

The rise in unbridled ethnic tensions in various parts of the world and the loss of the Cold War discipline that many countries knew, increases the probability that NEO crisis situations will arise

The British liberation of the Falkland Islands was a near-run thing. It suffered from numerous problems beyond approaching winter weather and great distances from friendly bases. These included planning confusion and shortcuts before the landings, thrown-together staffs and major logistics difficulties, due in part to the hurried nature of the British task force's departure.[31]

Non-Combatant Evacuation Operations

It is clear that Canada does not presently need to conduct a national joint operation as demanding as the British freeing of the Falklands. This does not mean, though, that the missions our government has espoused are easy.

By their nature, NEOs appear more or less unpredictably as a crisis. However, the growth in the number of failed/failing states, the rise in unbridled ethnic tensions in various parts of the world and the loss of the Cold War discipline that many countries knew, increases the probability that NEO crisis situations will arise. Canada's role as a world-wide trading partner, our willingness to provide election monitors, our desire to help the world's disadvantaged inhabitants with aid workers and peacekeepers, and the

Figure 3: The S-92 Cargo Version of the Cyclone Maritime Helicopter[18]

number of us who travel as tourists mean that Canadians will often be caught up in these crises. Thus, the Canadian government and CF will probably be called upon often to plan NEOs. Routinely requesting that our friends evacuate our nationals while making no contribution to the ensuing operation will reinforce any perception that might exist that we are freeloaders who shirk our responsibilities. The diplomatic consequences of such a reputation are significant, if unquantifiable.

NEOs can be conducted in permissive, uncertain or hostile threat environments.[32] The level of threat that actually exists may not even be fully known. Thus, any NEO the CF are called upon to carry out will likely be at limited notice, far from home and potentially involve unstable armed elements whose motivations may not be completely clear. Such operations call for relatively small, highly trained forces moving quickly in confused situations, in the worst case driven by the need to take chances to get to the at-risk civilians before they can be hurt or taken hostage.[33] Making matters more complicated is the fact that the Department of National Defence is not the lead Canadian agency for NEOs. This responsibility rests with the Department of Foreign Affairs.[34] Further complication could arise from the need to co-operate with the host nation and to respect its sovereignty.[35]

While some might argue that all future evacuations could be done by aircraft, the CF doctrine for NEOs clearly lays out the benefits of having "multi-purpose, combat capable, globally deployable ships" that can be sent or redirected to a littoral crisis area.[36] These ships can act as a forward mounting base, a forward operating base and as a safe haven during all types of NEOs.[37]

This then leads us to the question of how well can the Army participate in the planning and conduct of an amphibious NEO operation. The short answer seems to be that we have no existing amphibious planning capability. Any such planning, and the resultant operation will have to be improvised. Our principal shortcomings are:

- We have almost no amphibiously trained Army staff officers.[38] Those that we do have tend to be the few individuals who have acted as a liaison officer with the USMC or who have attended a USMC course.[39]

- The Army has no exchange positions with the USMC, the Royal Marines or any other marine force. The one CF position is for a CF-18 pilot with the USMC.[40]

- We have no doctrine manuals for amphibious operations.[41] Thus, we can only adopt allied or NATO manuals with no experience to help us discriminate knowledgeably among their contents.

- We have only two amphibious operations staff positions for Army officers.[42]

- No units have a formal tasking to train for amphibious operations. Such amphibious training as is carried out tends to be in support of the Navy—for example J Company 2 RCR in MARCOT 96 and C Company 3e R22eR during MARCOT/UNIFIED SPIRIT 98.[43]

These shortcomings will likely set us up for future failure during an improvised amphibious NEO. Such a failure may only be avoided by our being graced with the most benign of circumstances, our allies carrying us during more difficult operations, or

the Canadian government or NEO task force commander refusing to take the risk of an amphibious option. In the latter two cases, it is clear that the Army will have failed to provide the forces needed—an institutional failure even if no mission failure occurs.

What Could be Done

General. Thus, we face the question of what can be done to correct the shortcomings described. The suggestions below address four areas: training, staffs, doctrine and planning.

Training—General. The Army's amphibious expertise is so lacking that I believe we need to turn to other countries to learn. I suggest that this training can be gained in two ways:

- An exchange of officers with appropriate allied nations.

- By placing officers on these countries' courses and/or by having the necessary courses conducted by them in Canada.

Exchange Positions. Given our history, and their collective experience, I would suggest that we seek exchange relationships with the USMC and the Royal Marines. Placing two officers with a USMC battalion landing team, brigade or division headquarters (HQ), one more with the Royal Marines, and one with the Royal Marines' supporting Royal Artillery regiment would give training and valuable experience to four officers at a time. The exposure of young, experienced captains to the requirements of such positions would provide the Army with a growing nucleus of officers who had seen the mechanics of amphibious operations up close and who would have full careers left before them.

Introductory Canadian Training. The second training suggestion is the placement of at least one officer from each infantry battalion on a suitable Canadian amphibious operations course—a basic amphibious operations course for lack of another name. The USMC, the Royal Marines and the Australians all conduct courses that cover most of the information needed. Expert advice has suggested that a 12-day special course, built from two short USMC courses with a two-day practical amphibious problem at the end, should meet our current needs.[44] Such a course could be conducted with the assistance of a USMC Mobile Training Team until the CF had the necessary training expertise. Once trained, the graduate officers would become unit subject matter experts on amphibious operations, somewhat the equivalent of the unit emplaning officer for airlifts. The chosen individuals should be experienced captains who could work in the battalion operations cell permanently or be attached from elsewhere in the unit for ship-borne operations. This training should also be offered to officers and selected senior non-commissioned officers (NCOs) from units that might have to contribute to NEO company groups—notably service battalions, medical and military police units, engineer regiments and artillery regiments. Training at least ten students per year on the proposed course should be sufficient to meet current unit needs and build up a body of expertise.

Advanced Training. The third training suggestion is that of sending several majors each year on the USMC staff college course. Such training would be a natural progression from the basic amphibious operations course. It would provide field-grade

officers able to conduct amphibious operations planning. As the Army gained experience, advanced amphibious operations staff and command training could be added to the courses conducted at the Land Force staff college in Kingston and the CF College in Toronto.

Distance Learning. This formal training can be supplemented by making use of the various distance learning opportunities available. The USMC offers numerous courses by distance learning for approved individuals.[45]

Training Summary. The experience and knowledge gained by the above training suggestions would not immediately give the Army a dedicated amphibious capability. It should, however, be sufficient to allow us to train and prepare the company-sized elements likely required for most NEOs, and that the JSS will be able to transport. The growing level of Canadian experience provided by these qualified officers and NCOs would also help the Army identify if other training was required. This increasing knowledge base would provide a solid foundation for the robust amphibious capability required by the government of Canada.

Staffs. The US and British officers posted to Canada in exchange for the four Canadians captains mentioned above would provide an underpinning for small amphibious planning staffs. When combined with a number of specially trained Canadians and posted-back liaison officers/exchange officers it would be possible to have eight staff officers involved with amphibious matters—two USMC exchange officers, two Royal Marine/Royal Artillery officers and four Canadians. This would permit the establishment of two Army positions with each of: Maritime Forces Atlantic HQ, Maritime Forces Pacific HQ, the CF Joint Operations Group HQ, and National Defence Headquarters (NDHQ). The specific positions to be filled are beyond the scope of this article. Suffice it to say that placing this many officers in these headquarters to work with an enhanced naval staff (perhaps one or two additional naval officers per HQ) would significantly address the Army's current amphibious operations planning weaknesses.

Doctrine. The first way that they would do this would be by developing Canadian amphibious doctrine to build on the existing NATO publications. This work would be done in conjunction with the Directorate of Army Doctrine and the Navy. It would have a specific initial focus of building on the current Canadian joint NEO doctrine; such development would be a significant improvement over the existing situation. Once ready, these manuals would be available for use and to support amphibious training at the Kingston and Toronto staff colleges and on the Basic Amphibious Operations Course.

Planning. The existence of trained amphibious staff officers in various HQs and units permits the development of contingency plans to provide an amphibious NEO contingent based on each infantry battalion. Once developed and refined, these plans could be practised during joint exercises such as the previously mentioned MARCOT series.

Access to Allied Support. Some sceptics might question why the USA and the United Kingdom would agree to exchange and training arrangements that favoured Canada. Leaving aside any monetary inducements, it is obviously in the interest of both

countries to have capable Canadian contributions to NEO missions. Neither country is so powerful that they will never need any assistance. Further, they would realize that such support would help us to develop the robust capability called for by the government of Canada. An effective Canadian amphibious force would be of great benefit to both the US and Great Britain in those world situations where our national interests matched their own.

Summary

Canada's 40-year Cold War NATO commitment to the defence of Germany and continuous peace support missions since 1992 have given the Army a very continental view of its history and mission. We seem to have forgotten that the Canadian Army has participated in some of the greatest amphibious landings in history.

This limitation has arisen despite the fact that, during the past fifty-five years, the CF has been called upon to plan joint evacuation operations on average once every four years. In each of these situations, the requirement to plan, and at times make preliminary naval moves, has arisen in a crisis setting, often with short timelines and possibly fatal consequences for error. The major impetus for such operations has been the government's desire to be able to protect and evacuate Canadians caught in collapsing/troubled states. While the government will use whatever combination of evacuation resources is necessary and appropriate, the availability of suitable forces afloat off a troubled coastal nation provides operational and diplomatic advantages. The NEO task is not the only reason to use amphibious ships—the government of Canada has identified a more robust employment concept. It will, however, realistically always exist in a modern, socially conscious, democratic state like Canada. With this in mind, the Canadian Navy is already purchasing support ships that are able to make a significant contribution to a small amphibious NEO operation.

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The complexity of amphibious operations is such that improvised, inadequate planning and execution are usually punished severely. NEO/evacuation operations have the same requirement for superior planning and execution. The Army needs to develop an amphibious NEO planning capability commensurate with the expected performance of the Navy's new ships—as a minimum the JSS. Without this effort, the Army risks finding itself in the situation of not being able to do its part in an operation that is fundamental to the role of modern governments (protecting their citizens) and which the Navy will be able to support more than adequately.

A failure during such a mission would be traumatic for the Army and the CF, even if no lives are lost. As a minimum, the CF and Army would have to explain why they could not answer the call when the need arose. A small increase in incremental costs for staff officers, exchange positions and individual and collective training would provide the Army with a relatively significant enhancement in its amphibious performance. Such an improvement would provide the initial basis on which to build the mandated robust

amphibious capability. It would also permit Army contingents to fit more easily into allied-led operations.

In order to provide itself with a basic amphibious planning capability, it is recommended that the Army:

- implement an exchange officer programme with the USMC and Royal Marines;
- support the establishment of amphibious planning staffs within the two fleet HQs, the Joint Operations Group and NDHQ;
- carry out the various training initiatives discussed in this paper; and
- contribute to the development of refined Canadian joint doctrine and plans for amphibious and NEO operations.

It is often said that the world is a more dangerous and unstable place since the end of the Cold War. Our wish to participate in a world context means that Canadians are going to get caught up often in the instability of various foreign countries. By providing an amphibious NEO planning capability as recommended by this article, the Army and the CF will be able to play an enhanced role when the government is called upon to protect our fellow citizens.

About the Author …

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Endnotes

1. See *Canada's International Policy Statement—A Role of Pride and Influence in the World—Defence*, (Ottawa: Department of National Defence (DND), 2005), as found on the Defence Intranet (DIN) on 20 Apr 05, p. 14, as amplified by the comments of the Minister of National Defence and the Chief of the Defence Staff in their press conference of 19 Apr 04. These comments are found in the DND ADM(PA) *Transcript of the Media Availability: Bill Graham and General Rick Hillier (19 12h45 April 05)*, as found on the DIN, 20 Apr 05, pp. 4, 6, 8, 9, 14 and 15.
2. See for example Major Peter J. Williams, *Which Way to the Beach? The Case for "Amphibiosity"*, in *Army Doctrine and Training Bulletin (ADTB)* Vol. 3, No. 3, (Kingston: DND, 2000), pp. 48–52 and Major Robert Bradford, *Reconsidering Amphibiosity—A Canadian Construct* (hereafter Reconsidering Amphibiosity), in ADTB Vol. 2, No. 1, (Kingston: DND, 1999), pp. 40–44.
3. A group of former CF officers has proposed the "Sea Horse" plan. This would involve the purchase of several amphibious ships like the US Navy's *San Antonio*-class Landing Platform Dock. See Chris Wattie's newspaper article, *By Land, By Sea*, in the 09 Oct 04 edition of the Ottawa Citizen, pp. B-1 and B-2.
4. See the comment in *By Land, By Sea* that "(t)he bill for a *San Antonio* class warship is about $800 million U.S. …", p. B-1.
5. Canadian *Defence White Paper* (Ottawa: DND, 1994), p. 38.
6. B-GJ-005-307/FP-050 Joint Doctrine Manual *Non-Combatant Evacuation Operations*, (Ottawa: DND, 2003).
7. See the DND public affairs "backgrounder" *The Joint Support Ship Project*, dated 16 Apr 04 as found on the DIN, p. 4.
8. *Non-Combatant Evacuation Operations*, p. i.
9. *Leadmark: The Navy's Strategy for 2020*, (Ottawa: DND, 2001), *Annex C Canadian Maritime Operations, 1945–2000*, as found on the DND Internet website.
10 Sean Maloney, *Never Say Never: Non-Alliance Operations in the Canadian Context*, in *ADTB* Vol. 2, No. 2, (Kingston:

DND, 1999), pp. 29–34. Further amplification is provided by Lt.-Col. D.J. Goodspeed, *The Armed Forces of Canada 1867–1967—A Century of Achievement*, (Ottawa: DND, 1967), p. 231 and J.D.F. Kealy and E.C. Russell, *A History of Canadian Naval Aviation 1918–1962*, (Ottawa: DND, 1965), p. 83.
11. Information on 3e R22eR's participation in this operation was provided by Lieutenant Colonel A. Gauthier, the company commander during the mission.
12. Photograph provided by Major D. MacIsaac of the Land Staff. It was previously used on the cover of a Land Staff document.
13. This description is based on the ideas in various references including—Colonel M.H.H. Evans, RM, OBE, *AMPHIBIOUS OPERATIONS The Projection of Sea Power Ashore* (hereafter *AMPHIBIOUS OPERATIONS*), (London: Brassey's (UK) Ltd, 1990); *Reconsidering Amphibiosity*, p. 40 and Major Robert Bradford, *Sea-Based Expeditionary Joint Operations Study Main Report*, (Halifax: CF Maritime Joint Warfare Centre, 2004), p. 6.
14. These capabilities are derived from the *JSS Statement of Operational Requirement*, as found on the DIN, pp. 15–19. Advice on LCVP performance was provided by Lieutenant Commander Cooper of the JSS project office in early Dec 04.
15. Extracted from *Jane's Fighting Ships Yearbook* (hereafter Fighting Ships), as found on the DIN. A protective tarpaulin has been placed over the cargo deck to shelter the passengers.
16. Annex B to the *Statement of Operational Requirement–Maritime Helicopter Project*, as found on the DIN (Ottawa: DND, 1999), p. B-6/9 states that the Cyclone helicopter must be able to carry a minimum of six passengers. The military version of the S-92 can carry some 22 combat-ready soldiers—information from the *Jane's All the World's Aircraft Yearbook* (hereafter *All the World's Aircraft*), as found on the DIN.
17. Depending on whether the CH-53D or the CH-53E is used. Information on the CH-53 is from *Fighting Ships*, as found on the DIN.
18. Extracted from *All the World's Aircraft*, as found on the DIN.
19. *AMPHIBIOUS OPERATIONS*, p. 91.
20. See the description of the Provisional Irish Government forces' use of landings during the Irish Civil War of 1922-23 in Aidan McIvor, *A History of the Irish Naval Service*, (Dublin: Irish Academic Press, 1994), pp. 42–49.
21. *AMPHIBIOUS OPERATIONS*, pp. 16, 17, 96 and 205.
22. Ibid, p. 104.
23. Ibid, p. 94.
24. Information based on an email from Major Sean Wyatt, the CF Liaison Officer (CFLO) with the USMC.
25. See MCWP 3-43.1 *Raid Operations*, (Quantico, Virginia: Marine Corps Combat Development Command, 1993).
26. Information averaged from data in an email from Major Sean Wyatt, CFLO USMC.
27. Ibid.
28. Major Mark Adkin, *Urgent Fury—The Battle for Grenada*, (Lexington Massachusetts: Lexington Books, 1989), pp. 246 and 247.
29. Ibid, pp. 157, 246 and 257.
30. Ibid, p. 238.
31. Comments based on various references including Duncan Anderson, *Essential Histories—The Falklands War 1982*, (Oxford: Osprey Publishing, 2002), pp. 45–50 and 58; *AMPHIBIOUS OPERATIONS*, pp. 104 and 141; Max Hastings and Simon Jenkins, *The Battle for the Falklands*, (London: Pan Books, 1983), pp. 144–147 and Michael Clapp and Ewen Southby-Tailyour, *Amphibious Assault Falklands—The Battle of San Carlos Water*, (Annapolis, Maryland: Naval Institute Press, 1996), pp. 30–35.
32. *Non-Combatant Evacuation Operations*, p. 1-1.
33. Ibid, p. 4-2 emphasizes the benefits of keeping forces as small as possible, the need for flexibility and the likelihood of constant pressure to conduct the NEO more quickly.
34. Ibid, p. 4-1.
35. Ibid, pp. 4-1 and 4-2.
36 Ibid, p. 3-2.
37. Ibid, pp. 1-3 and 1-4.
38. Based on information provided by Major Robert Bradford.
39. Based on information provided by Major Sean Wyatt, CFLO USMC.
40. Ibid and an email from Lieutenant Colonel Moffat of the Canadian Defence Liaison Staff in the United Kingdom.
41. This observation is based on a perusal of the Army Electronic Library in late 2004 and was confirmed by staff in the Directorate of Army Doctrine.
42. Information provided by Major Robert Bradford.
43. *Reconsidering Amphibiosity*, pp. 42 and 43 and Endnote 3.
44. The author is greatly indebted to Major Robert Bradford for his information on the specific courses available and his suggestion of the 12 day course.
45. Information provided by Major Robert Bradford.

THE ARMY LANDING FORCE AND STANDING CONTINGENCY TASK FORCE DESIGN

Major Robert D. Bradford

This article discusses certain matters relevant to the size and nature of the army-generated Landing Force (LF) intended for the Standing Contingency Task Force (SCTF) in the Littoral Mode. In particular, it encourages an early, basic appreciation of the LF as a necessary start to the more formal, involved analyses that will follow in due course. The article consists of four parts: background, statement of the key issue with which this paper is concerned, two approaches to initial appreciation of LF size and nature, and, finally, an illustrative demonstration of an appreciation.

Background

The Chief of the Defence Staff's (CDS) vision for the SCTF, as pronounced in early 2005, calls for a fully joint, highly-mobile combatant formation maintained on high readiness for use in preventive and/or responsive missions in failed or failing states, primarily in a short-duration interim capacity pending arrival of

follow-up forces. The SCTF is to consist of joint command and sustainment elements, a naval task group (comprised of warships, a joint support ship, and an amphibious ship), a land element, an aviation element, and a SOF element. This formation is to be fused together to form a "micro-joint" task force at the tactical level, deriving its operational, and strategic, level significance from their fighting quality, range, mobility, and careful application to critical points in a crisis. Task tailoring is to be done "by negation", with the start point being the sea-land-air version of the task force. Thus, the "littoral mode" is the default setting for the SCTF, although in theory continental or maritime modes are admissible. The littoral mode envisages operations in areas of the sea-land interface, with the SCTF exploiting the sea for manoeuvre and as a secure base for projecting forces ashore and thereafter supporting them both operationally (e.g., afloat C2, fire support) and administratively (e.g., sea-based combat service support [CSS]).[1]

As a Joint Task Force (JTF) attuned to the littoral environment and seeking to induce effects ashore, the main focus of the SCTF concept is the "ultimate land operation ashore"—i.e., those operations, tasks, and activities that accomplish the mission—conducted primarily by a land force and SOF.[2] The CDS's idea envisages the SCTF as primarily a seaborne force, with Sea-Based Projection of Forces Ashore (SBPFA) being its normal approach to achieving the desired effects ashore. This clearly demands an amphibious capability that can be usefully exercised in a multi-national force setting or independently, and in the form of amphibious operations (as doctrinally defined), littoral mobility (a fluid form of operational or administrative movement at the tactical and operational levels), and sea-based C2, offensive and defensive support, and CSS.

Amphibious Implications

"Amphibiosity," a slang term denoting the broadest and most inclusive sense of amphibious warfare activities and techniques, confers special status on two elements.

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The first is the land force that, usually in the form of a landing force (LF), is projected ashore to conduct the ultimate land operation ashore that leads to mission success for the overall amphibious task force (in our case, the SCTF). The other is the naval force (NF) of the amphibious task force, and primarily its maritime expeditionary delivery system (MEDS, i.e., the amphibious ship, embarked C2 for the landing operation, the surface and aviation ship-to-shore movement systems, afloat CSS facilities, etc.). It is the NF that embarks, accommodates and moves the LF and other embarked elements; shapes the battlespace prior to the arrival of the main body; projects the LF ashore; supports it directly with naval surface fire support (NSFS) and other means; facilitates the entire operation through the use of embarked C2 elements (including airspace management) and provides the administrative sea-base, pumping supplies ashore and receiving in turn casualties for treatment, material items for maintenance and repair, etc. Additionally, the NF conducts maritime tactical operations to secure the water-space, and keep it secure, so that all the foregoing activities may proceed. Given the littoral-urban focus of the CDS's vision, this is a very challenging job. The Second World War's battleship and fighter-bomber are now represented by "Third World" diesel submarines, the mobile surface-to-surface missile, and, in asymmetrical fashion, small craft of all sorts on both the water and in the air. In carrying out all of its assigned tasks, the Navy incurs by far the greatest bill for dedicated forces and specialised personnel and materiel. For all these reasons—the maritime basis of the operation; the seaborne nature of the force; the critical role of naval tactical operations; and the degree of dedication and specialisation demanded of the maritime forces—the NF is considered to have primacy, which it shares with only one other element in the amphibious task force, the LF.

This distinction of primacy (or "co-primacy") is reserved for the NF and the LF, but the latter merits this status for different reasons. A LF, even in purpose-built amphibious forces, is far more a conventional land force adapted for joint littoral manoeuvre (JLM) than it is a dedicated, specialised force (although there is a degree of such attributes). In conducting that "ultimate land operation ashore", it, like the NF, is responsible for the primary operations that achieve the mission. This confers co-primacy on the LF. However, it is the ultimate land operation ashore—and, therefore, the LF—that clinches success. For this reason, the LF is not only primary in importance, but it is crucial in character. As the ultimate land operation ashore forms the crux of the overall operation, so does the LF form the crux of the amphibious task force/joint task force. In this sense, it is unique.

The SCTF Land Component

While the littoral, seaborne, and JLM aspect of the SCTF are generally clear, there remain fuzzy areas. The army is tasked with providing the land component of the SCTF, from which the LF will be drawn when the SCTF operates in the littoral mode. However, it should be stressed at this time that the bigger picture of the land component, its structure, and the concept of its employment, are vague and require definition and clarification.

The CDS's initial direction provided a general description of the land component for discussion purposes. It is to consist of up to 800 all ranks, based on a light-force core and capable of conducting light operations. It includes integral fire support, combat engineer, and CSS elements. Other details have been offered from its initial developers: "Landing Team of approximately 800 persons based on a light infantry

battalion, plus: SOF Covert Surveillance team; Towed artillery battery with precision fire capability; Combat Engineer Squadron; Air mobile / sea-deployable…"[3] However, it is reasonable to assume that the foregoing is suggestive and indicative rather than prescriptive of any firm concept. This is confirmed by the subsequent discussions of the National SCTF Working Group and the Army SCTF Working Group. Nonetheless, these early suggestions provide a starting point for the consideration of the land component.

The Issue

The issue at hand is the size and nature of the LF for the SCTF in the littoral mode. The concept of operations and employment of the SCTF pivot on this matter. Furthermore, like the proverbial ripples in the pool, this issue moves outwards to affect the rest of the SCTF, e.g., the structure and concept of employment of the land component as a whole; the capability and capacity of the MEDS. This paper will take an admittedly simplistic approach to this matter., But while precision is not achievable, a rough envelope or boundary can be established when it comes to LF size and nature.

Approaches

In attempting a basic initial appreciation of the SCTF LF, two approaches commend themselves. The first is somewhat deliberate in nature, the "effects-centred approach", while the other is more expedient, the "multi-perspectives approach". At first glance, the two appear to be quite different, but as methods intended for the short term, their respective processes inevitably converge.

The Effects-Centred Approach

The effects-centred approach makes its starting point the desired effect ashore that can be induced by the LF. This array of effects is then matched with a suitable LF model, which itself is reconciled with a descending hierarchy of other considerations that reduce or modify the effects array and/or the desired LF model. Ultimately, the final version of the LF that emerges from this process, and the effects it is deemed capable of inducing, are assessed with a view to answering the question, "Do they adequately satisfy the intended role and the anticipated missions of the SCTF?" Thus, what starts as an ideal is reduced to the practical, and that practical output is judged. Figure 1 attempts to illustrate this process, the downward straight arrows originating in the ideal array of effects while the upward curved arrows indicate reconciliation with other necessary elements, resulting in reduction and definition of both the effects array and the LF.

In considering the effects-centred approach, caution is necessary in two respects. First, the effects-centred approach is indeed effects-centred, but it is not purely effects-driven. As it is shown in Figure 1, the approach could be construed as a process in which effects shape all other elements, the idea being that the lower levels will be perfectly derived from the highest (shown in the block entitled "Desired Effects Ashore"). In this purely derivative sense, one would work downwards from "Desired Effects Ashore" to a unique operational construct (represented by the "Ultimate Land Operation Ashore" box), for which a "Suitable LF" (the next box) would be developed in the form of a new specific-purpose land force element, with the MEDS and other joint seaborne task group (JSTG) capabilities being developed in turn to suit the new army unit for the LF. This is not intended, nor should it be in a CF based on the

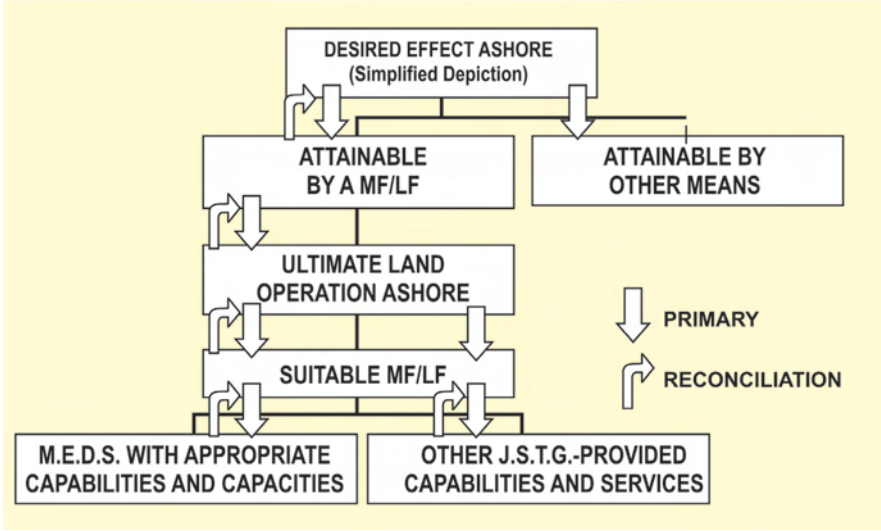


Figure 1: The Effects-centred Approach*

principle of general-purpose/combat-capable forces and capabilities. In fact, the effects-centred approach starts with effects, seeking to express these in the form of an operational construct ("Ultimate Land Operation Ashore"), and then considering options based in great part on already extant forces and capabilities (e.g., a light forces battle group or a mixed-weight battle group constructed with standard army "building blocks") or new capabilities shaped primarily by non-effects factors (e.g., the maximum size of ship's company the Navy can provide for the amphibious ship, which will determine the size of the ship itself and, therefore, its capabilities). The approach then returns to effects by reconciling the lower boxes with the higher to determine the efficacy of the operational concept and the LF. Therefore, the effects-centred approach is not all-effects in nature, but in practice comes to resemble the multi-perspectives approach to be discussed below.

The second area of caution with the effects-centred approach is its reliance on the idea of "effects." The main concern is not what are the effects, but rather what is meant by the very term "effects?" Box 1 discusses this briefly. The question of effects can easily become an example of conceptual flypaper that traps the unwary student seeking logical purity in his analysis. To maintain perspective, it is helpful to remember the real-world limitations of effects as an ideal approach. Box 2 recalls the re-learning of this lesson in Exercise BLUE MARINER.

The Multi-perspectives Approach

THE CHALLENGE OF "EFFECTS" IN THE EFFECTS-CENTRED APPROACH

The effects-centred approach recognises the primacy of effects, the process working downward to define enablers while forcing reconciliation. This is the

* This diagram is extracted from the Joint Littoral Manoeuvre concept briefing and includes terms not explained herein. "MF/LF" refers to "Mission Force/Landing Force", a Mission Force being an element delivered ashore to operate on land, but not necessarily in the conventional, combatant sense of formal amphibious doctrine. As Colonel Simms (Director Land Strategic Concepts) notes, the starting point in this diagram, the box "Desired Effect Ashore" is governed by a higher box, "Desired Effects in the Littoral Battlespace."

purpose of the arrows in Figure 1, the upward curved arrows ("reconciliation") indicating that accommodation and reconciliation of the various elements ensue at each level. The effects-centred approach is very helpful. Its primary value is that it highlights the key elements in the process of calculation and the need for accommodation/reconciliation at each level. The difficulty with it lies in the use of effects as the initiator for the entire process, even though this is entirely logical. The main problem is defining, selecting, and assessing effects. What are they? How are they defined and classified? What taxonomy is used (if any are available) to explain and inter-relate them? Would we be dealing with a catalogue listing thousands of effects, classified and organised into a system whose description would rival the most intricate wiring diagram ever conceived? If such a thing existed, then presumably one could simply select effects and proceed to the lower levels. However, this theoretical catalogue is just the beginning. How would the boundaries be determined for effects selection? How many would be selected? Where would one stop? Of course, this is not is not an insoluble problem. For example, one could begin with the standard CF Force Planning Scenarios and develop some sort of construct of effects. Another might wish to begin with the CF Joint Task List, converting each task to some form of effect. The point here is that, to be effective, the effects stage has to be thoroughly worked out, which is why it is described herein as a "deliberate" approach and therefore less than timely. It is therefore apparent that a great deal of careful work is required to "prime" the effects-centred approach.

Box 1

UNDERSTANDING THE CHALLENGE

Although only one of the two approaches features the word "effects" in its name, the idea of effects holds great sway today and must be put into proper context. The notion of effects being the wellspring of the LF analysis process is scientific and logical. Assuming effects can be reliably enumerated and assessed, what later ensues in the process should be quite reasonable. However, the effects-centred approach, which relies on such prior assessment, is problematic given the SCTF's role. Furthermore, the multi-perspectives approach does not rely primarily on the effects approach. Therefore, before examining the two approaches to LF assessment, it is helpful to consider the actual relationship of effects to LF assessment. This can be done by recalling the experience of Exercise BLUE MARINER in the late 1990's. Exercise BLUE MARINER was a Maritime Forces Atlantic command post exercise conducted at the Pearson Peacekeeping Centre. In the scenario, a Canadian surface task group in the Caribbean was diverted to assist a notional island extremely hard hit by a hurricane that ravaged infrastructure and left the population in dire straits. At first, there was a tendency to equate the problem with the Navy's experience in Hurricane Andrew in the early 1990's, when HMCS PRESERVER (Area Of Responsibility 510) with embarked vertical engineers was despatched to Florida to assist in stabilisation and reconstruction. That operation had been a great success, but the situation in BLUE MARINER was very different. In Florida, HMCS PRESERVER joined an operation for which someone else had overall responsibility, and the Canadian task force was given a "slice" of the problem

commensurate with its capabilities. Of course PRESERVER succeeded, and she should have considering this match-up of slice and capability. In BLUE MARINER, there was no overall force which the Canadian task group was joining, but just the Canadian task group itself and the remnants of the island's civil authority. Thus, there was no symmetrical match-up of problem and capability as in Hurricane Andrew because the problem (let us call it 1) was inescapably larger than the Canadian force's ability to resolve it (let us call that <1). As a result, the Canadian task group commander had to be very acute in appreciating his own capabilities and extremely careful in choosing where they would be applied. As the first on the scene, the task group was clearly a short-term fix, and this shaped the selection of critical tasks and priorities. The situation was not unlike a huge urban conflagration that requires ten fire stations to contain and douse, but for which only one fire station is available in the short term. That crew cannot put out the fire, but it can prevent the fire from getting bigger and perhaps do some other good within the conflagration. Like BLUE MARINER, the fire is 1 while the fire station is <1. It success lies in making the most of what it has on hand at the critical moment. It is certain that the SCTF (with its global scope of operations) will occasionally face BLUE MARINER type crises and emergencies. In a global security environment that is neither enemy-specific nor theatre-specific, with an extremely broad spectrum of variegated threats, it cannot be otherwise. It is therefore sure to be the case that the SCTF will either join a host multi-national force, in which case it will receive a "commensurate slice" of the operation, or it will be confronted by a situation in which it is clearly <1 and can only artfully apply what limited capabilities and resources it has on hand until the cavalry arrives. Thus, the primacy of effects is more apparent than real, more theoretical than practical. Keeping this in mind, we can now consider further the two approaches.

Box 2

This approach is less linear and more free-hand in style, taking things that are known (either certainly or probably) and stating assumptions (which are, admittedly, subject to confirmation) in order to situate key elements in relation to each other and derive broad conclusions. These conclusions may be suggestive and indicative rather than precise, but within broad limits, they are likely to be reliable. (See Figure 2.)

The three elements in this approach are as follows:

♦ the operating environment, focussed on the natural environment, man-made infrastructure, politics-society-and-culture, and the threat;

♦ available land force modules, i.e., the standard operating units maintained by the army in accordance with the general-purpose/combat-capable principle expressed in the 1994 White Paper on Defence and retained in spirit in recent statements; and

♦ the MEDS that must provide the basis for JLM. The MEDS, based on one or more ships, includes adequate accommodation for the assault echelon of the LF, an afloat C2 capability suited to the landing operation, aviation and surface ship-to-shore movement systems, and an adequate afloat support to forces ashore (ASFA) capability.

These three elements can be inter-related from the beginning of the thought process, or each element can be considered separately and the outputs from all three related

at the end. Consideration of the three elements may benefit from reference to certain basic templates (see Box 3) that establish rough but reasonable contextual envelopes that suggest certain boundaries. For example, the helicopter mobility template uses a medium transport helicopter (MTH) radius of operation to indicate the spatial envelope for ground forces. Of course, in no way does it imply what those forces are doing, how they are organised, or their distribution within the envelope, but it does suggest a general area in which a ground force may be expected to operate.

Like the effects-centred approach, the multi-perspectives approach requires a cautionary note. The term "operating environment" consists of only two words, but, like "effects," it can become conceptual flypaper for the analytical purist. The requirement for an operating environment analysis was stressed by Lieutenant-Colonel Hunt (of the Directorate of Army Doctrine) at the SCTF Working Group's second session in June, 2005. Such an analysis is vital to inform not only LF analysis, but the entire concept of operations and employment of the SCTF. Of course, it is potentially

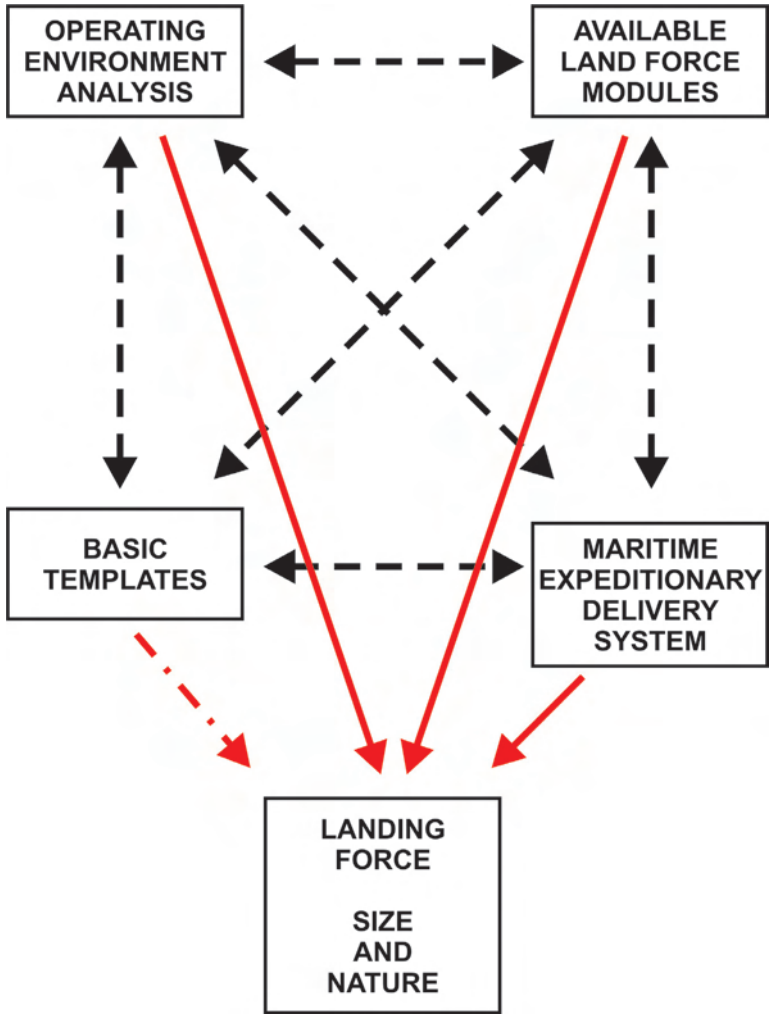


Figure 2: The Multi-Perspectives Approach

as great a challenge as the effects construct in the effects-centred approach. Some studies on the characteristics of failed and failing states have reportedly already been done, and much information is available on recent operations conducted in such states by Canadian and Allied forces. It is probable that certain generalisations can be made after sufficient study, although some will be pretty "coarse grain" characterisations. However, there is a limit to how precise and concise such generalisations can be. The pool of potential crisis spots is a large one and its constituents, located worldwide, are as variegated as they are numerous. Therefore, a limit must be set to the analysis of the operating environment to suit the short-term purpose of the multi-perspectives appreciation. This is recommended, of course, without prejudice to the more detailed analysis that should undoubtedly be prosecuted in order to inform the formal operational research (OR) processes and experimentation that will follow in due course.

BASIC TEMPLATES

Littoral Reach

Helicopter Mobility

Fire Support (Actual and Potential)

Riverine-Estuarine Reach

Ground Mobility

Box 3

A Simple Demonstration

The efficacy of these approaches in providing a general centre of arc and rough arc markers for initial consideration of the LF issue can be demonstrated using general information easily available to all. The multi-perspectives approach will be used here, showing that one can reasonably and readily surmise a great deal about the character of the army element that will provide the LF.

Operating Environment

The most difficult part of the multi-perspectives approach is the operating environment analysis, and let there be no doubt about the need for a thorough, detailed and comprehensive analysis conducted by specialists. The challenge is immense, for failed and failing states, being a world-wide problem, represent a wide variety of political-social-cultural-economic problems, belligerents and adversaries, and physical and man-made environments. It is not the unique and specific aspects that matter most. It is only in enemy-specific, theatre-specific scenarios that such aspects assume primary importance. Given the vast scope of the failed and failing states problem, it is the generalised aspects that count most in capability and force development. The value of the general-purpose/combat-capable principle becomes apparent in this situation, although the greater the number of generalised aspects that can be established, the more informed the various mechanisms of flexibility and adaptability can be for each specific case.

A number of reasonable generalisations may be made about the operating environment represented by the term "failed and failing states": To make the point, let us consider two aspects:

♦ **Complex Terrain**. Regardless of the theatre of operation envisaged, the Canadian army seeks to optimise its forces for complex terrain. There are a number of definitions for this term, but essentially it refers to natural and/or man-made environments that obscure vision, restrict manoeuvre and movement, and place enemy and friendly forces in close proximity. Complex terrain could be formed by terrain (e.g., hills and mountains), coverage (e.g., jungle), or urban areas. The emphasis on complex terrain reverses the old archetypal view of open country manoeuvre by mobile forces against a "peer enemy" of similar capability. In complex terrain, the asymmetric enemy benefits while many advantages of first class western armies are nullified (e.g., reconnaissance and surveillance; stand-off fire support to manoeuvre elements). The asymmetric enemy can be effective regardless of stripe: be it banditry, insurgents, guerrillas, etc. The idea of complex terrain is more than physical features. In remaining in urban areas, for example, the enemy "hugs" the civilian populace, using them explicitly or implicitly as shields, complicating rules of engagement for friendly forces, increasing the political effect of collateral damage, and victimising civilian non-combatants through loss of life and property. Fighting through this screen is difficult enough, but it also necessitates a civil assistance effort concurrently with ongoing operations. The result is the proverbial "Three-Block War". Complex terrain suggests other requirements. For example, non-urban complex terrain places a premium on portability, particularly by air and aviation means. Non-urban complex terrain implies a preference for light forces capable of rapid manoeuvre and quick displacement, while urban complex terrain rewards protected mobility and close-in fire support;

Regardless of the theatre of operation envisaged, the Canadian army seeks to optimise its forces for complex terrain

♦ **Belligerents and Adversaries**. Predictably, staggering variety characterises belligerents and adversaries. The examples cover a wide spectrum beginning with loosely organised gangs and continuing along a continuum that includes terrorists, insurgents (as in the new Iraq), guerrillas (as in the old Vietnam), large but very crude "armies" (as in the Congo of the past and today), or relatively small conventional forces with limited capabilities and resources but effective (as in the Sudan today). This does not include a range of non-combatant "confrontationists" who may be expected even in peace support operations: uneasy crowds, mobs, rioters. However different these all are from each other, they share the experience of being "low-band" opponents. All are out-classed in the peer sense, although this certainly does not mean they are necessarily out-classed in terms of political, strategic and tactical acumen (as the Vietnam war demonstrated). In other words, there is no major peer threat at hand for the next few years, and assuming the "slice" of an operation given to the SCTF is appropriate given the size of its LF, the Canadians should prove effective.

Conclusion. It would be interesting to know more. Are there generalisations about force-to-space ratios, force-to-force ratios in most clashes, belligerent and adversary mobility and speed, tactics, etc.? This is a world of instant communication and easy data transfer, so it is not unreasonable to expect similarities to develop amongst even

the most diverse groups in very different environments. However, given the variety of locales and local forces, one should not expect too much. Perhaps one particular generalisation is valid. The empirical record since 2001 suggests a recent speaker was correct when he said, "During the Cold War, the crucial weapon was the nuclear warhead. Today, the crucial weapon is infantry."[4]

In rapid-response expeditionary operations such as Sierra Leone and Liberia, the utility of balanced, relatively light, combined arms/infantry dominant, and helicopter-capable units has been demonstrated. There is little evidence that disgraces heavier units, as heavy mechanised infantry and armour units in Iraq have earned their keep in the urban warfare of that insurgency. This is not to suggest heavy mechanised forces for the SCTF, but merely to define the spectrum of useful forces. Infantry-centred, light-weight, medium-weight, or mixed light/medium-weight forces are clearly the most usable and useful across the entire spectrum of failed and failing states environments and belligerents/adversaries. It is easy to suggest another type of unit for a specific case—such as the Disaster Assistance Response Team (DART) for a humanitarian assistance/disaster response (HA/DR) operation—where a combined arms/infantry-centred manoeuvre unit would be merely helpful. However, a well-disciplined, professional combat unit is useful in varying degrees in almost any situation, and it is the only unit that can handle core warfighting and PSO tasks.

Available Modules

There is little need to dwell on this factor. The Canadian army produces general-purpose/combat-capable combined arms/infantry-dominant manoeuvre battle groups and reinforced combat teams as its primary contribution to international operations, be these warfighting or stabilisation in nature. The new modular approach, which, to the old boy, conjures up some unusual combinations, does not contradict this fact.

Conclusion. The available module for the SCTF land component is a combined arms/infantry-dominant or infantry manoeuvre battle group or a reinforced combat team, all or a portion of which will provide the LF as required.

Maritime Expeditionary Delivery System (MEDS)

As mentioned earlier, the MEDS is the overall system that delivers or projects a force ashore from the sea over an intervening water gap. It consists of the amphibious platform itself, the afloat C2 system for the landing operation, accommodation and facilities for the LF, aviation and surface ship-to-shore movement systems, and a sea-based support capability. Ideally, the MEDS is developed on the basis of the LF's size and nature (which, in turn, are based on the desired effects ashore). Obviously, other factors intervene to determine the character and capacity of the MEDS even before the LF is designed; indeed, the MEDS becomes a factor in the design of the LF. The MEDS is a primary shaper of the LF. What follows is intended only to illustrate the decisive nature of the MEDS in deliberations over the LF and SCTF concepts of operation and employment. There is a myriad number and variety of critical concerns related to the MEDS, including sea state capability, landing spots and flying cycles, landing craft, utility (LCU) versus landing craft, mechanized (LCM), ship's manning figures, etc., which are not considered here but which have been examined in great detail by the Joint Support Ship (JSS) project staff.

The CDS's explicit vision for the SCTF calls for an amphibious ship capable of three things: accommodating a LF; accommodating and acting as a base for a MTH-calibre tactical aviation unit; and well-deck operations and support for surface landing craft. These specified features are joined by many implied features to clearly demand a ship in what is called the general-purpose amphibious assault category, also known as an LHD.[5] LHD's come in two sizes: big (as in the U.S. Navy's LHA and LHD) and medium (as in the French MISTRAL).[6]

Let us begin the task of scope reduction by considering one of the key considerations in ship selection—the size of the ship's company. The large LHD's—the American LHD's and LHA's—have crews in excess of 1,000 all ranks. This is only the crew, not the embarked ground, aviation and CSS elements. This manpower bill is clearly more than the Canadian Navy can afford, and the large LHD can be safely eliminated even before considering the financial costs associated with maintaining and fuelling them. Therefore, it is prudent to consider the medium LHD's and similar vessels that are available. See Table 1.

The CDS's explicit vision for the SCTF calls for an amphibious ship capable of three things: accommodating a LF; accommodating and acting as a base for a MTH-calibre tactical aviation unit; and well-deck operations and support for surface landing craft

The Canadian LHD must balance three key requirements. First, it must have a suitable land tactical-aviation element suited to land manoeuvre operations as well as CSS missions, for both conventional ground forces and SOF elements. Additionally, the aviation element must be "littoral-capable." Given the small size of the ground combat element and the unpredictability of future crises, this aviation element is vital to flexibility and precise, timely application of combat power. Using the CH-47 Chinhook as our notional MTH, we can say that a company-group lift—headquarters and three rifle platoons—is a minimum of three helicopters, each carrying about 44 troops each. A fourth helicopter is required for supporting detachments or for other missions (e.g., advanced force insertion of SOF or reconnaissance/initial terminal guidance detachments). With 75% serviceability after the first lift, a company group-lift capability is sustained. Therefore, at least four and preferably six MTH's are required. In the future, these may have to compete with the armed reconnaissance helicopter (ARH) for space, but this can be ignored for now. The size of the embarked tactical aviation detachment has been estimated at variously 150 to 200 all ranks.

The argument for a well deck and landing craft will not be detailed here. Suffice to say that both are necessary to ensure timely and reliable operations in anticipated meteorological and oceanographic conditions. The tactical value of surface assault craft is matched or exceeded by their logistics value. For our purpose, what we must note is the requirement for a naval support element (NSE), which is the landing craft detachment. In British amphibious ships, the assault squadron, Royal Marines, is organic to the ship and its members are included in the ship's company figures. In the U.S. Navy, assault craft are attached to the NF from separate assault craft units, so the officers and other ranks are additional to the ship's company. It is never clear in

popular sources where the aviation and NSE numbers are included, or if they are included at all. Therefore, one must be wary of the embarked force figures in many sources and not assume they represent only the LF ground combat element and its immediate support.

We have considered only a very few, coarse-grain factors but some conclusions can already be reached. First, consider the CDS's specifications for the MEDS. These allow for both light and medium-weight forces. The MTH will have significant lift capability in both operational and logistics roles. Meanwhile the well deck permits the employment of LCU's, which, depending on the model, can transport most CF fighting and support vehicles, containers, etc. Thus, the arc markers for the nature of the LF can already be vaguely discerned.

SERIAL	(a) SHIP	(b) EMBARKED FORCE	(c) ORGANIC HELICOPTERS	(d) ORGANIC ASSAULT CRAFT	(e) REMARKS
1.	(USA.)LPD-17 SAN ANTONIO	700	2 x CH-46 or 1 x CH-53	2 x LCAC or 1 x LCU	Is the aviation element included in the Embarked Force figure?Is the Naval Support Element shown in ship's company or Embarked Force figure?
2.	(NL)LPD HNLMSROTTERDAM	613	4 x EH-101 or 6 x NH-90	4 x LCU	
3.	(SP)LHD GALICIA,CASTILLA	611	4 x EH-101 or 6 x NH-90	4 x LCU	
4.	(FR)LHD MISTRAL	450	10 + NH-90	4 X LCM or 1 x LCAC	

Table 1: Representative Amphibious Ships

If we look at the examples in Table 1, the challenge to LF design and the SCTF land component start to become apparent. In terms of the embarked force capability, the LPD-17 looks very encouraging at 700 all ranks. This would easily absorb the 800 all ranks suggested in the early SCTF briefings, especially since the unit would probably lose 100 personnel to courses, rear parties, compassionate leave, routine leave, etc. However, in the American case we can confidently say the aviation element is included in the embarked force; therefore, the figure for the actual ground element is lower, perhaps by 100. This still leaves most of the land component, 600 of the suggested 800. However, the helicopter capability is clearly inadequate, even if we assume the space for "2 x CH-46" can be "2 x MTH." The opposite pole seems to be represented by Serial 4 in Table 1, the French MISTRAL. Its organic aviation capability, although based on smaller helicopters than the MTH, may well be capacious enough for a six-helicopter MTH detachment. However, its troop lift is rated at approximately 450 all ranks, from which the aviation and NSE people may have to be deducted. The latter may not be too numerous, as the Mistral, perhaps reflecting the Mediterranean-Africa-Pacific Ocean focus of French amphibiosity, employs smaller LCM rather than full-sized

LCU. This is itself a drawback, since it reduces the robustness of the surface ship-to-shore movement capability, although all LF items may still be portable. In any case, whether 450 or 350-375, Mistral carries only half of the specified 800 all ranks land component. Comfortably in the middle of Table 1are the Dutch and Spanish examples. They do not carry the full MTH "six-pack", but as far as we can tell right now, they have capacity for the four we deemed minimal. The well deck and LCU's are safely within limits. So let us turn to LF capacity, which is about 600, that is our main concern at the moment.

It is prudent to assume until proven otherwise that the embarked force figure includes the aviation and NSE personnel. Since the organic helicopter capacity is smaller than six MTHs, let us use 100 aviation and 25 NSE as convenient if simplified numbers. This leaves about 500 in the ground force category, i.e., the ground combat element and its immediate integral support. That is still the better part of a battalion. But wait! The bunkspaces are still hotly contested. There is that SOF element, which the CDS Action Team folks suggested was pretty small, though perhaps a platoon of 35 to 50 all ranks which will presumably need its own private spaces for accommodation, stowage, operations office work, SCIF space, etc. Then there is the sustainment element—"beyond first line"—for the aviation detachment, the ground combat element, and probably for the JTF headquarters and other small non-naval units. Some of it may reside in the JSS, but it is a bad practice to assume that everything that does not fit into the "Gator" will go into the JSS. JTF command-&-staff and command support personnel alone will eat up most of the JSS's available bunks. Is it ridiculous to think that, due to space restrictions, the ground combat element—the heart of the LF—might be confined to 400 to 450 all ranks, or approximately half of the battalion suggested in the early SCTF briefings? No.

Conclusion. The numbers used here are ballpark figures. But they are sufficiently accurate to support the conclusion that, assuming there is only one amphibious ship and given the ship types that adequately balance the sea-land-air specifications (i.e., the well deck/landing craft, the ground combat element and its integral support, and the aviation detachment), the LF will be about half the size of the touted land component of 800 all ranks. Space is always at a premium, and optimistic estimates of embarked force numbers are always doomed. Table 2 is not a suggested LF model, but merely an exercise in numbers. The LF is based on a LF command element and a ground combat element comprised of a "super-company group", a reinforced light infantry rifle company configured for independent operations. Note the assigned strengths. Play with the numbers and it will be seen that an embarked force capacity of 600 is eaten up very quickly. Beyond this, the nature of the MEDS permits light-weight, medium-weight or mixed-weight force options.

Implications

In the foregoing exercise, we have used the multi-perspectives approach for an initial appreciation in an effort to establish general parameters for the SCTF LF. Consideration of the operating environment, available land force modules, and the MEDS, concluded that the LF ground combat element should be a combined arms/infantry-dominant or infantry unit, that it could be light- or medium-weight or a combination of both, that it should be supported by four to six MTH, and that, given

SERIAL	(a) ELEMENT	(b) "PLATOON" EQUIVALENT (35 All Ranks)	(c) TOTAL	(d) REMARKS
1.	LF Command Element	1	35	Certainly low.
2.	LF Ground Combat Element("Super-Company Group")			
a.	GCE/Company HQ	1	70	?
b.	Rifle Platoon @ 35 all ranks x 4	4	210	With Serials 2.c. and 4, this is probably the only accurate estimate.
c.	Weapons Platoon	1	245	With Serials 2.b. and 4, this is probably the only accurate estimate.
d.	Reconnaissance Platoon	1	280	?
e.	Mortar Group	1	315	Certainly low. 50+ is more realistic.
f.	Organic CSS Echelon	1	350	?
3.	Combat Engineer Troop	1	385	Probably low.
4.	LF Aviation Combat Element			
a.	MTH Demi-Squadron or Flight	150 All Ranks	535	1. Expert-provided estimate. Another estimate is 200. 2. Aviation may be a separate command.
5.	LF Combat Service Support Element	1	570	Certainly low. No precedents exist for guidance.
4.	SOF Covert Surveillance Platoon	1	605	Probably low. No precedents exist for guidance.

NOTES

1. Additional non-LF elements to be accommodated in the amphibious ship include the CATF and Staff, and the Naval Support Element.
2. It is assumed the JTF Command Element and joint sustainment element are accommodated in other vessels (primarily the JSS).

Table 2
The Numbers Game: A LF Based on a Ground Combat Element of Super-Company Group Size, Showing the Challenge of Personnel Numbers versus a Ceiling of 600 All Ranks

This table is intended to make a point about limits, in this case how an amphibious transport—even a medium-sized LHD—is a small sponge that reaches its saturation point very quickly. The roster of elements in Column (a) is a reasonable option for LF composition and structure, and at least captures most of the various elements that must be accounted for in any version. As for strength figures, they can be argued ad infinitum if actual numbers are sought. For the purpose of this exercise, Table 2 simply asks: "For each serial, is the specified element smaller, bigger, or the same size as a standard platoon?" The table assumes each is at least the size of a platoon (Serial 4 excepted). Obviously, this is an underestimate, yet the nominal capacity of the ship (600) is quickly reached nonetheless. Some reduction can be argued—for example, eliminate one rifle platoon, reduce the size of the MTH detachment—yet the savings are quickly absorbed by unspecified elements (e.g., Naval Support Element) and, of course, the actual needs of the LF serials. Note the consequences, i.e., the necessarily small size of the LF's main manoeuvre element (a large company group or two demi-companies), and the need to make a choice between three options. These are: (1) a single, purpose-built amphibious ship—general-purpose amphibious assault category—medium-sized LHD in nature, with an articulated two-echelon Land Component; (2) two ships which together provide a general-purpose amphibious assault capability, and permit a unitary, single-echelon embarked Land Component/LF. These could be two purpose-built amphibious ships (e.g., LPH and LPD, two medium-sized LHD's), or one purpose-built amphibious ship and one other suitable type (e.g., a passenger liner), with the former acting as the enabler; or (3) one amphibious transport (a conversion based on non-amphibious shipping) with U.S. LHA/LHD capacity (allowing a unitary, single-echelon embarked Land Component/LF), but made affordable through some compromise of the general-purpose amphibious assault capability in favour of increased capacity. (The lattermost is under study in CMS/DMARSTRAT.)

the likely capacity of the amphibious ship, the LF ground combat element's size (including integral support) will be around 400 to 500 all ranks.

The question that must be asked is whether or not this element can induce the desired effects ashore, and do so in a manner that yields the maximum strategic, and operational, level benefit from all tactical-level operations and activities? Since our exercise did not use the effects-centred approach, there is no effects array to facilitate a discussion of the matter. However, noting that super-company group-sized task forces have been successful in the past, notably in East Timor in 1999 and Haiti in 2004, let us assume for the moment that our rough model would be effective in a variety of situations and environments.

Given this assumption, one of the key concerns of SCTF planners will be the distinction between the SCTF land component and the routinely embarked LF. The key question here concerns the originators' assumptions about both. In other words, do the originators view the land component and the LF as synonymous, or is the LF provided by a larger land component? This is a critical question that must be answered prior to initial work on the SCTF concept of operations and employment. Figure 3 illustrates one concept of the SCTF in the littoral mode, and the view that the land component is not intended to be only the embarked LF. It envisages two echelons, the first being forward deployed and afloat, and the second remaining in Canada, ready to be called forward to a forward staging base or forward operating base in or near the theatre of operations. This first echelon would likely be adequate for "low threshold" challenges, such as HA/DR operations, naval diplomacy and presence activities, initial peace

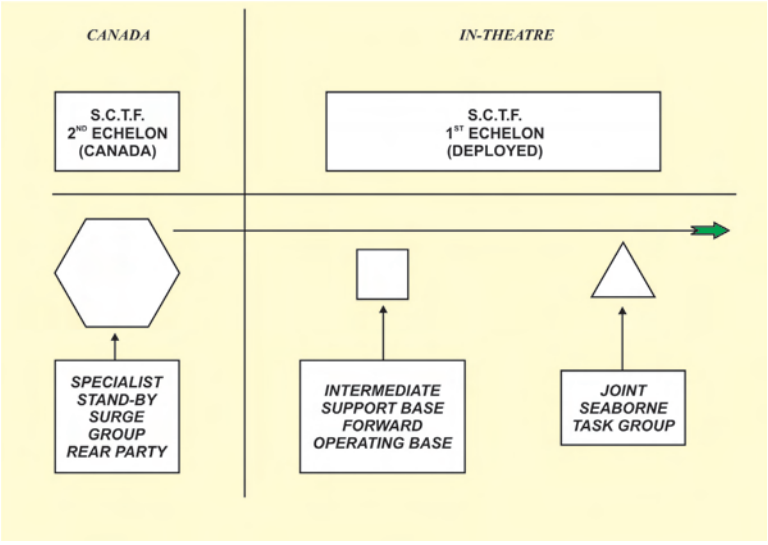


Figure 3: The SCTF in the Littoral Mode

support operations, and limited warfighting ("low-intensity"). The army's concept of "stabilisation operations" describes many low-threshold activities. In "high threshold" challenges, the forward-deployed, afloat first echelon would be launched ashore with a view to shaping conditions for the entry of and succession by follow-up forces in the meantime, to the best of its ability, the first echelon would contain and stabilise the situation. The second echelon could be the immediate follow-up force (in which case

the two echelons would combine as a single force) or part of a multi-national follow-up force. Depending on the situation, it could be injected into the operation in several ways: first, by air from Canada directly into the area of operation ashore, using an air terminal secured by the first echelon; or, second, by air from Canada to an intermediate base near or in the theatre, whence it would deploy forward directly into the area of operation ashore, using an entry point previously secured and prepared by the first echelon; or, third, into the JSTG afloat (using either the surge capacity of all ships for a very short period of time prior to movement ashore, or using a hired commercial passenger liner as an expedient troop transport, with the amphibious ship as the landing enabler).

This issue of one versus two echelons in the land component is extremely important, and merits the fullest consideration

This issue of one versus two echelons in the land component is extremely important, and merits the fullest consideration. The two-echelon system promises to increase the flexibility of the SCTF and its combat power. In its early stages at least, when sea-based support in fires, surveillance and reconnaissance, and administrative support will be very modest, the SCTF will rely all the more on its LF to achieve its mission. Ideally, the entire land component should be afloat and undivided, but if that is not possible, an articulated two-echelon system is the second best option. Without it, high threshold challenges will be much more difficult to manage effectively. The small LF by itself may be adequate for low threshold challenges, but a lack of depth even in these cases may prove very problematic. For example, when he was Chief of Land Staff, then-Lieutenant-General Hillier emphasised the requirement for "boots on the ground"—in depth—to handle peace support operations like those in Afghanistan. Therefore, the situation could easily arise where a low threshold challenge (such as an initial peace support operation) would require the first echelon to make an initial entry, with the second echelon deploying in train to reinforce and extend the initial effort.

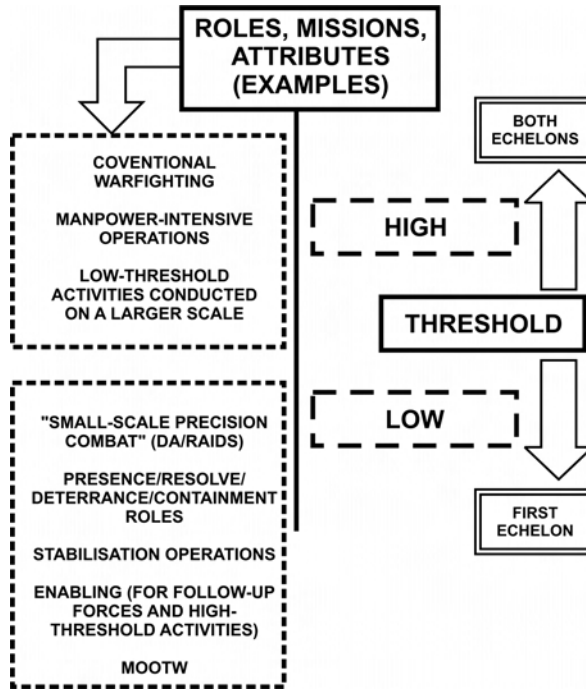
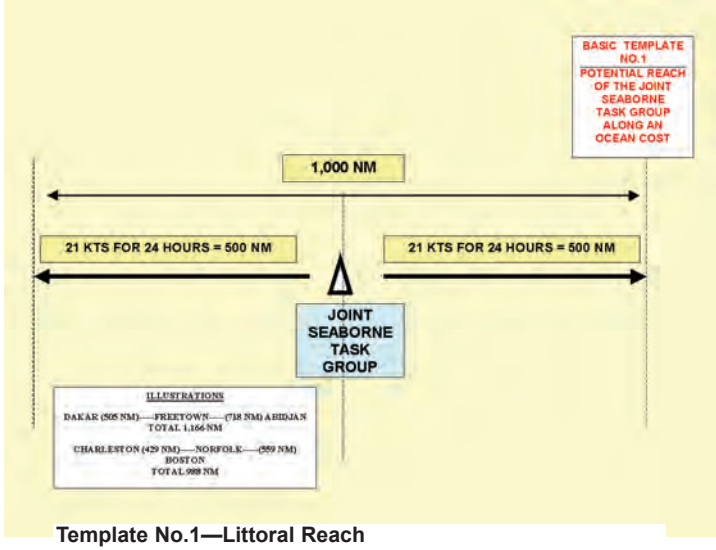


Figure 4: A Threshold Approach to Echelonment

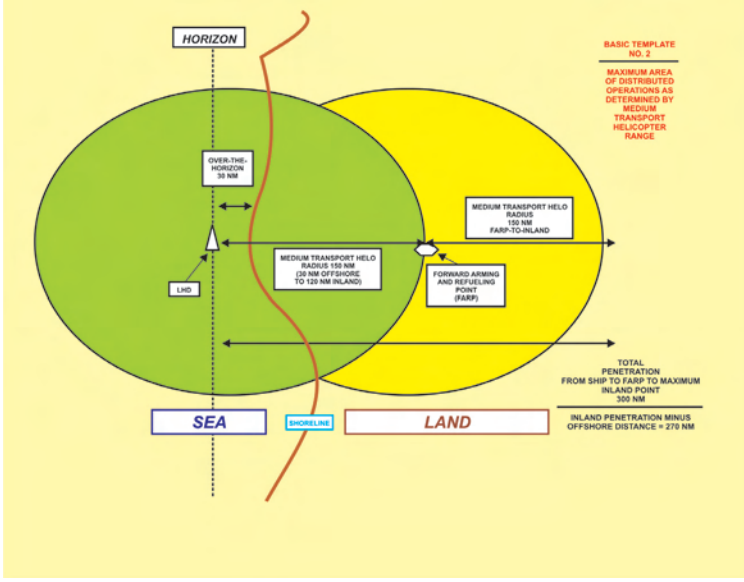
Conclusion

This article has covered a lot of ground in its attempt to prompt and facilitate the initial appreciation and discussion of the size and nature of the LF, and to argue

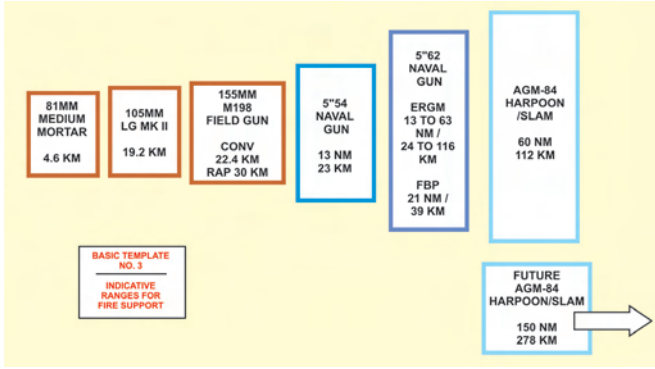
that such action is a necessary preliminary to more formal, complicated research and experimentation efforts conducted by specialists. A thoughtful appreciation informed by professional knowledge and experience, then shaped by constructive dialogue amongst the key communities of interest, can provide the vital orientation ("centre of arc") and rough, if tentative, limits ("arc markers") needed for early work and, indeed, to provide the necessary input to the formal processes when they get underway.



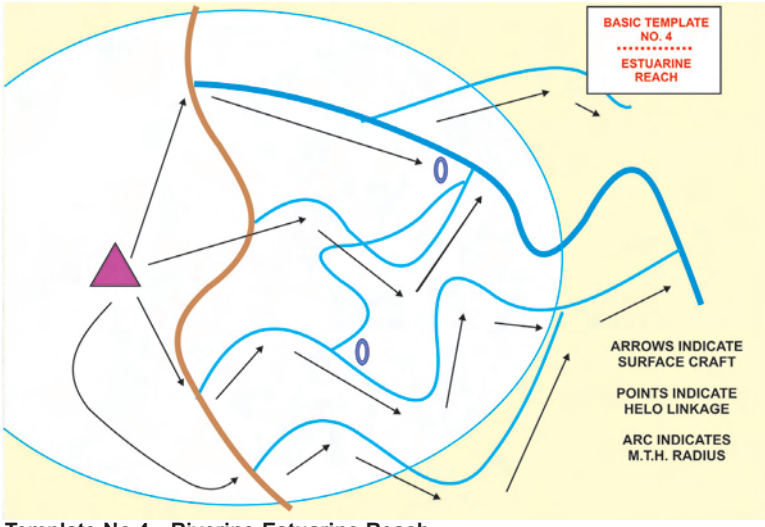
Template No.1—Littoral Reach



Template No.2—Helicopter Mobility
(Based on notional CH-47)



Template No.3—Fire Support (Actual and Potential)



Template No.4—Riverine-Estuarine Reach

About the Author…

Major Robert D. Bradford is an infantry officer with extensive inter-Service experience and is presently the Senior Staff Officer, Expeditionary & Amphibious Warfare in Maritime Command. Major Bradford completed his Combat Team Commander Course with the 3rd Battalion, The Royal Canadian Regiment, in Germany; graduated from the Canadian Land Force Command and Staff College; and earned a Master of Arts in War Studies at the Royal Military College of Canada. In 1994, he was attached to Maritime Command and Maritime Forces Atlantic as the 1st Canadian Division Headquarters joint operations liaison officer, and subsequently was appointed the navy staff officer for land and amphibious matters. In these capacities, he was the principal land and amphibious planner for Exercise MARCOT 96 and 98. Maj Bradford has undergone extensive training with allied amphibious forces.

Endnotes

1. This idea of littoral operations is captured in the Joint Littoral Manoeuvre (JLM) concept, which has three distinct elements: amphibious operations, littoral mobility, and sea-based support of forces ashore, all tailored to Canadian requirements.
2. This is exclusively the case in the short term. However, in the future the SCTF will have the ability to induce effects ashore primarily from the sea by naval and even maritime air elements. Precision fires, perhaps facilitated by SOF spotting teams, and electronic warfare activities come to mind. Stand-off land attack harpoon missiles, launched from ship or maritime patrol aircraft, illustrate this capability.
3. PowerPoint Presentation, "Standing Contingency Task Force Concepts, Composition, Capabilities", Chief of the Defence Staff Action Team 2, 10 May 2005.
4. I regret that I cannot recall with absolute certainty at which meeting I heard this or in which journal I read it, although I believe it was an American officer. However, I believe it was a U.S. Marine Corps colonel who briefed the Canadian Forces Doctrine Board in Spring, 2005, regarding effects-based operations.
5. In the U.S. Navy, the amphibious "big deck" is the LHA (Amphibious Assault Ship, General-Purpose), LHD (Amphibious Assault Ship, Multi-Purpose), and LHA(R) (General Purpose Amphibious Assault Ship). In fact, these are all the same type of ship, i.e., an amphibious transport, helicopter carrier, and dock ship. The different abbreviations and name variations merely denote different classes within the U.S. programme. The emerging practice outside of the U.S. is to call this general category "LHD", and, although a nominal convention has not yet emerged, the term "General Purpose Amphibious Assault Ship" is most appropriate.
6. The LHD typifies the ship that can carry an embarked force, operate and house helicopters, and operate and house surface assault craft. There are a few ships that can do all these in varying degrees, but are not called LHD's. The Dutch ROTTERDAM and the American SAN ANTONIO are LPD's, but the first in this class to meet all three criteria.

06 May, 2004
Kabul, Afghanistan

Afghan boys watch Canadian soldiers from the 3rd Battalion, Royal 22nd Regiment Battalion Group (3 R22ndR Bn Gp), conduct a patrol in LAV III infantry fighting vehicles in the mountains near Kabul, Afghanistan.

1 WING OR FIRST AVIATION REGIMENT?

Major John W. King

Perhaps one of the largest fallouts of unification was the demise of the three independent services. After unification, some references still existed in common military writing as the Canadian Forces (CF) were described as a 'tri-service' force, and elements of the CF were described as air, land, or sea elements. The Air Force was the service that experienced the largest break up of its forces. The core capabilities of the Army, or land forces, still existed within one unified command known as Force Mobile Command (FMC). The Navy, likewise, still really existed under the title of Maritime Command. The Navy and some Army regiments went so far as to continue to use old rank titles attached to the new CF rank structure. However, the Air Force was basically broken up into several large groups or commands. Commands included Air Defence Command and Transport Command, while smaller organizations formed groups such as Maritime Air Group (MAG) and 10 Tactical Air Group (created in 1973).

The two aforementioned groups were based on specific roles and absorbed the other service's resources. The senior military leaders in National Defence Headquarters (NDHQ) soon realized that having their air power broken up in such a manner caused problems with the span of command and control, training and flying standards, and other air specific related issues. It was also important that aerospace power, i.e. an air force, had an equal footing as a command when addressing issues of the employment of air power. In response to this dilemma, the organization was again revised and organized under a new Air Command in April 1975. Under the new restructuring, Air Command acquired the command and control of all helicopter and fixed wing assets that originated from the Army and Navy. In the defence world, and certainly in NATO, this made the CF a rarity in that all aerospace capabilities regardless of role or function came under one air force command.

This article examines and challenges the current status quo in aviation organization and command. It suggests that a re-alignment of 1 Wing within the CF command structure could make land aviation forces under full command of the Commander Land Forces Command feasible within the current construct of the CF, and that such a re-alignment would better meet the operational needs of the CF as a whole.

Factors and Assumptions

There are several factors that are relevant to the re-alignment of the existing force structure. First unity of command must be considered. This is an important principle when grouping military forces as well as when employing them effectively. Second, strategic objectives and priorities must be considered. An example of this is determining the desired end state of the forces in question as they are trained and employed as well as equipped. With this goes the requirement to prioritize spending to align the budget with the desired end state. Next, there is professional and military training. This is looked at from several perspectives. There are the pure technical

military skills to be acquired as well as professional training. The requirements for combined arms and joint training should be examined. Cultural affiliation is also a factor. This is comparable to *Esprit de Corps*, as it does not come with a tangible value. More so this factor aids in the comradeship that in turn improves the performance of the individuals as well as the units and is a combat force multiplier. When aviation units are from the service they support and do the majority of their training with that service, a professional comradeship develops that enhances combat effectiveness. Finally there is cost. The dollar can never be ignored even in periods of increased military spending. Initiatives that cost more than the current status quo can force commanders to direct funds away from operations and maintenance budgets towards a new project. This would have a negative impact on already strained training budgets.

In addition to those factors mentioned, several assumptions must be made to facilitate discussion on the subject. The first assumption is that regardless of any major shift in the Government of Canada's defence priorities, military alliances such as NATO and NORAD will continue to influence Canadian defence priorities. NORAD is particularly important as it affects the Air Force more so than the other services and by de facto sets some of the Air Force priorities. Regardless of any changes, the main role of 1 Wing will still be to support Land Force operations. Second, increases in defence spending by the Government of Canada beyond those currently planned and projected will be moderate in nature. Third, there would be neither a requirement nor the desire to create separate flight training schools for land aviation aircrew and support personnel. This also assumes that core-flying support programmes such as flight safety would not be duplicated. These organizations would become joint service vice single service. Finally, as dictated by the Canadian Aviation Regulations and Aeronautics Act,[1] the Minister of National Defence and the internal delegated authorities such as the Chief of the Defence Staff (CDS) and Chief of the Air Staff (CAS) would not change. This would be important to ensure a single airworthiness standard[2] in the CF as well as a single authority to deal with issues between Transport Canada and DND.

Discussion

Any topic suggesting such a transfer of resources will undoubtedly cause a lot of emotional reaction by many personnel in the Air Force and the Army. Status quo is often the preferred course of action when a person either is less than intimate with the subject or has emotional attachments to an organization. One must remember that it was only 37 years ago when many Royal Canadian Navy (RCN) and Canadian Army pilots lost their respective service and then were snatched up in Air Command only seven years later. An anti-thesis to this was when the Australian Defence Forces (ADF), in 1986, went through a shift where the whole land aviation community in the Royal Australian Air Force (RAAF) was transferred to the Australian Army Aviation Corps.[3] There, the ADF made a conscious decision to do this in an effort to better align their forces to meet their defence needs. The purposes of this paper is to try and look beyond personal emotions and demonstrate the best way to align our land aviation forces in the best interest of the CF and Canada. Personal concerns are important in maintaining effective morale and some individual concerns will be addressed as they relate to such a critical principle of war.

There are also paradigms that exist today that are purely out of tradition or caused by unification. This is amplified when discussing both flying training and costs. By

considering all the factors it will become apparent that putting 1 Wing under full command of the Commander Land Force Command (LFC) not only places these forces in the best position to execute their function, it will also permit it to fulfill its role in a more efficient and operationally focused manner. Note that throughout this article the terms 1 Wing, tactical aviation and land aviation are synonymous. This is due to the fact that 1 Wing does not posses any fixed wing tactical aviation assets that could be otherwise classified differently.

In accordance with the B-GL-300-003-FP-000, *Out of the Sun*, the organizing fundamental of unity of command asks that a commander should be accountable to one superior.[4] "This is to ensure clarity and unity of effort, promotes timely and effective decision-making, and avoids conflict in orders and instructions. Unity of command is effected (sic) through a clear chain of command, whereby command at each level is focused on one commander." This is clearly not the case with 1 Wing today. While 1 Wing is under Air Force command when viewed from the organization chart, it is highly responsive to the Army. The Commander 1 Wing is by design double-hatted; he is one of the commanders of 1 Canadian Air Division formation as well as the Aviation Arms Advisor, or Chief of Staff (COS) Aviation, to the Chief of the Land Staff (CLS). As COC Aviation (Avn) he also provides advice to the CLS on tactical aviation force employment, generation, and development. This is accomplished by his position on the Army's Combat Development and Doctrine boards as well as through having 1 Wing staff positions and liaisons with the Department of Army Doctrine and the Department of Army Training. In this capacity he is also the 'go between' from the Army to the Air Force. Despite all of these activities, the CLS cannot affect any changes to 1 Wing directly.

This arrangement does not allow the CLS to effectively organize or command the aviation forces designed to support him. To obtain aviation resources to support land operations the Army must request support from the Air Force and subsequently 1 Canadian Air Division (1 Cdn Air Div) will issue orders to 1 Wing to support the requesting army formations. This violates the fundamental of unity of command in that

there can be a conflict in orders from the Air Force orders and the aviation orders provided by the Army. Also, this does not promote timely decision-making as yet another layer of command is inserted into the decision making process. There are some efforts made to mitigate the delays with aviation liaison staff at various Land Force Headquarters, and with 1 Wing having standing authority to directly task 1 Wing units to support the Army without separate 1 Cdn Air Div orders. However, this is a patchwork arrangement to alleviate problems that arise when not following the organization fundamental of unity of command.

Paragraph 847.1 of *Out of the Sun*,[5] states, "tactical aviation forces are considered to form part of the land force combined arms team, and must be fully integrated into ground force operations to achieve their full combat potential." Further in this article it will be demonstrated that currently 1 Wing is not fully integrated into ground force operations nor can it be with the current organizational structure. *Out of the Sun* contradicts this statement later on in paragraph 851.3 whereby "the assignment of tactical aviation resources to a land commander gives him operational control (OPCON) of tactical aviation resources." In the command relationship of OPCON, the Army commander's authority is limited by function, time, or location. This restricts the CLS from directing other aspects of 1 Wing on training, training objectives and all other aspects of mission preparation save those specifically designated for that mission. In other words, the global readiness of 1 Wing cannot be directly affected by decisions made by the CLS. While this can be over come by cooperation from the Air Force it does follow the fundamental of unity of command and thus conflicts will arise.

1 Wing is tasked to support the Army in various roles through assigned tasks. To do this it must be responsive to the objectives of the Army

Strategic objectives and priorities relate directly to unity of command, as it is the chain of command that sets the objectives and priorities for its forces. 1 Wing is tasked to support the Army in various roles through assigned tasks. To do this it must be responsive to the objectives of the Army. These objectives in turn will set out the priorities for training, equipping, funding, and ultimately employing its forces. The Force Employment Concept for the Army,[6] issued by the CLS in 2004, considers it essential that tactical aviation develop the reconnaissance and surveillance capabilities in conjunction with the overall CF sensor development initiatives. This concept also states that aviation must strengthen its links to the Army in terms of training and readiness. These are excellent aims and 1 Wing continues to strive to meet these aims.

However, neither 1 Wing nor the CLS can establish the strategic objectives for the employment of tactical aviation. This is the purview of the CAS and his operational level HQ, 1 Cdn Air Div HQ. Through cooperation many of the objectives are agreed upon by the Air Force. However if there is a significant shift in the Army's objectives it takes the agreement of a separate chain of command to re-align 1 Wing's objectives. This is inefficient considering tactical aviation is supposed to be fully integrated into Army operations. Also, at times the Air Force is not able or willing to support Army initiatives that require changes to the tactical aviation community. Without the Air Force's support, the CLS has no choice but to continue the development of the Army

without the changes desired in the tactical aviation community. This will mean that eventually 1 Wing will become increasingly irrelevant to the Army. The irrelevance of 1 Wing will have a negative impact on the CF as a whole and hinder the Army in meeting its commitments to national defence and security.

From the Air Force perspective, many of its priorities are set by forces outside that directly impact Air Force priorities at the operational level. The defence White Paper and NORAD agreement are two prominent forces. While the White Paper covers the whole of the CF, NORAD directly impacts the Air Force more so that any other agreement. This international agreement means that the CAS and the Commander 1 Cdn Air Div/CANR must place the early warning and control systems and fighter force as one of their higher priorities. This directly affects priorities on capital expenditures, funding, and mission priorities.

The direct correlation from international agreements, to capability requirements, on down to specific equipment is more prominent in the Air Force than the Army. Thus, regardless of the priorities for aviation that the CLS would like to see, there are certain aspects of Air Force priorities that are beyond the control of even the CAS. 1 Wing does not directly provide any capability to NORAD and Canadian sovereignty. 1 Wing supports the Army that in turn provides certain capabilities for Canadian sovereignty. Therefore the Air Force does not need 1 Wing in order to accomplish its priority missions. Also, the Army is not constrained in the same manner as the Air Force. Its priorities are broader in perspective and relate more so to force capabilities rather that specific equipment. Land aviation placed under full command of the CLS would no longer be subjected to the secondary effects of NORAD. This would allow the CLS to establish the priorities of the aviation forces that directly support his mission. He would have the authority to prioritize his capital purchase budget to equip the tactical aviation forces in a manner that meets his strategic objectives and priorities. This also relates back to unity of command in that unity of effort between 1 Wing and the Army is achieved without influences from a separate chain of command.

Professional and military skills (mil skills) training are two aspects that lend themselves both to the expertise to operate in a specific environment, and a mutual respect of those who train together throughout a career. Professional training is considered to be the skills of leadership, mission planning, management skills, and professional education. These are taught at various schools such as Canadian Land Force Command and Staff College (CLFCSC) and Canadian Forces School of Aerospace Studies (CFSAS), as well as at various other schools and units. Mil skills are the soldiering skills, such as field craft, weapons, nuclear biological and chemical defence (NBCD), and technical skills, such as technician, pilot, engineer, etc. In 1 Wing there are a significant number of personnel that come from the Army. They are prevalent in the various support flights such as the Electrical and Mechanical Engineer (EME) mechanics and drivers.

Signals operators, also ever in short supply, are from the Army side of the Signal Corps. However, large portions of personnel in the squadrons are Air Force. The vast majority of the pilots, aircraft technicians, and flight engineers will not have done any Army orientated training less their respective basic training courses. Yet when deploying to the field they work side by side with the Army. This can lead to questions of professional competency both in the realm of professional and mil skills training.

This is especially prevalent on the leadership side when planning missions. For the Army, most Army officers will not work with aviation resources until they arrive at a field unit. Since they will not have conducted any of the professional or mil skills training with any aviators there is often reservations about using aviation. They are unsure of what 1 Wing's capabilities are and more so there is not the mutual trust and respect of those who have gone through various phases of training together. This reservation also exists in the tactical aviation community, as the new junior officers are not confident in their Army brethren's capabilities in aviation planning, as they have not seen them conducting their training. 1 Wing tries to compensate for this through sending some officers to CLFCSC vice CFSAS. However, this is late in both an Army officer's and a tactical helicopter pilot's career to start joint professional development. Also, there are only so many slots afforded to the Air Force for this course. The situation is even worse for the non-commissioned members (NCMs) in that most will not do any professional training with the Army. Any familiarization training such as Land Officers Familiarization Training (LOFT) is only a patchwork solution to address a weakness in the training structure.

Given the current situation, the Air Force is tasked to provide the Army with an aviation capability and there is an expectation that this capability arrives fully trained and ready to support

Given the size of the CF it would not be able to establish separate Army schools for the technical skills such as aircraft technician training, pilot, and flight engineer training. In looking back prior to unification, some of the pilot training was already done at tri-service training centres such as Portage la Prairie. Thus, while training with those you will fight with throughout your entire career is desirable; there are some aspects where economics overrule when there are satisfactory alternatives. This is not a significant issue for professional and mil skills training as the technical skills taught at flight schools and technician schools are only focussed on the technical aspects, i.e. flying an airplane and fixing it. They do not deal with employing the aircraft or living and working with the Army on operations. It is the other areas where it is critical to do the training mutually with those who you will support and who will support you.

Given the current situation, the Air Force is tasked to provide the Army with an aviation capability and there is an expectation that this capability arrives fully trained and ready to support. What this lends itself to be is a situation where only a small amount of the yearly flying rate (YFR) actually is expended on direct support to the Army. The rest is dedicated to the aircrew to maintain their currencies and other tasking. For a brief period there was a fundamental shift in this thought process by the commanding officers of 408 Tactical Helicopter Squadron (THS) and the 3rd Battalion Princess Patricia's Canadian Light Infantry (3 PPCLI). The commanding officer (CO) of 408 THS was not happy with the fact that less than 15% of the YFR allocated to the squadron was actually used in direct support to the Army. (Note: Of the total hours or YFR allocated to 1 Wing during fiscal years 01 through 03 the support to Capability Component 2 (CC2), the Army, has averaged 12.9%. This is the direct support hours. Collateral training does increase this number but specific hours tracking for true collateral training was not initiated until recently and thus there is not a reportable trend.) While there are many factors that come into play where a certain percentage

of the YFR will be flown without troops, the one area that the CO of 408 THS felt could be utilized more in joint training were the training hours that where being used to prep crews in tactical flying.

The problem that existed in the Army and Air Force culture was the aforementioned expectation that when 1 Wing supported a land forces (LF) unit that it was providing aviation support exclusive to any its own unit or crew training. This meant training was done prior and 1 Wing units provided a capability. The CO 408 THS and the CO of the 3 PPCLI entered into discussions that ended up in an ambitious training concept. Being that the 3rd Battalion was the light battalion and would use tactical aviation more so than the mechanized battalions it would make sense that the two units should work closer. In addition, if the CO of 3 PPCLI would be willing to conduct mutual training at all appropriate levels he would be able to get more opportunities to train with helicopters. The caveat would be that when attempting to increase the size and scope of the air mobility missions supporting the battalion, the helicopters crews and support personnel would be doing work up training on these missions with the soldiers of 3 PPCLI. This meant that the leadership on the Army side would have to accept that sometimes the planning cycles would be slowed as the aircrew had to re-look at there mission planning, standard operating procedure (SOPs), and review the tactics, techniques and procedures (TTPs). Also, the first attempts at a large 16 or 18 ship airmobile might look less than ideal and have to be redone due possibly due to errors made by the helicopter crews and for their training benefit. The benefits were that the soldiers and officers of the 3rd Battalion would be exposed to and plan heli-borne operations more often and there would be opportunities to improve mutual SOPs as well as experiment with novel concepts on air-mobility operations. With the decision made, 408 THS and 3 PPCLI embarked on several large-scale and small-scale exercises.

The success was phenomenal. One senior captain made an observation that by the spring of 1999 he was not sure who was training who or who worked for whom. He felt that the mutual respect between the two units was at an all time high and that in the light infantry and aviation world, the 408 THS 3 PPCLI team were the most combat capable units in the Army framework. Unfortunately it is the individuals serving in the units that build these relationships and it is not necessarily an inherent relationship between the Army and 1 Wing. Today still only a small percentage of the YFR goes to supporting the Army and the general attitude is that 1 Wing comes to the field prepared to support vice train with the Army. If the NCMs and officers of 1 Wing and the Army were to spend their careers together there would be a higher degree of mutual respect and understanding that would support the type of relationship that 408 THS had with 3 PPCLI throughout the LF and its tactical aviation community. Members who train together throughout their careers, during the Junior Leadership Course (JLC), phase training, Army Tactical Operations Course (ATOC) , CLFCSC, and all other applicable Army courses, will be more effective in unit level and collective training, and most importantly—more effective in operations.

Cultural Affiliation

Currently, if new NCMs and officers in the tactical aviation community were polled as to who is the most important person in the military, the answers would vary from the CDS, their CO, their career manager, or other persons that directly effect their career.

New members to 1 Wing seem to have to be told that the most important person in the military is the rifleman. Everything else supports him or her in their role to close with and destroy the enemy. When one has to educate people after they arrive at their unit to what their role is, something has been missed. This answer regarding the rifleman, or something similar, should be the first answer out any person's mouth that provides direct support to the LF. There is no real ingrained cultural affiliation with those that the men and women of 1 Wing will go to war with. 1 Wing personnel tend to talk about Air Force traditions and Air Force culture yet they live, work, and potentially die with the Army. There is a human tendency to work harder and longer for those that are from within their own organization. This is not to say that the men and women of 1 Wing do not work hard as it is, but they do so despite the fact that they are culturally apart from the army. The pride and camaraderie that comes from being within a team as opposed to supporting another team has a positive psychological affect on individuals to be intrinsically motivated vice extrinsically.

The almighty dollar always has extensive voting power when faced with options. In today's fiscal climate, and for the foreseeable future, anything that is going to cost more will not be a popular concept. There are several factors that do not need to be discussed as it comes to cost. These are costs that will remain the same regardless of who commands tactical aviation. These are the cost such as cost per hour to run a helicopter, parts costs, oils and lubricant cost, support vehicle costs, wages for a given rank, trade and seniority, etc. It also must be noted that funds at the national level are assigned against stated and validated capabilities. Thus, the Air Force would not see funds cut from the capabilities they are tasked to provide. The difference would be that the Army would be tasked to generate and employ its own tactical aviation to which it would receive the appropriate funding. In the areas of joint training, the primary service should receive all the funds to train all the necessary candidates less the individual costs such as temporary duty (TD) allowance. If 1 Wing were to be transferred to the CLS status quo, there would be some increased costs initially to outfit those willing to stay in the Army with new uniforms, and some other administrative costs. Otherwise there would be no real cost saving. However some interesting aspects of transferring 1 Wing to the CLS arise that do directly relate to costs. This paper will not look at specific dollar figures as that is beyond the scope of the paper. But, there are certain areas of training and pay that have cost factors that can be discussed.

Step back for a moment and look at the costs to train a pilot and an officer. Due to the fact that a pilot's wings are currently CF and by de facto Air Force wings there is a certain parallel of standards that must exist. Thus all pilots will go through Primary Flying School (PFS), Basic Flying School, and after being selected for either jet, multi-engine, or helicopter, they will go onto advanced flying training at the appropriate flying training school (FTS). Each pilot achieves some comparable level of training that makes him or her, arguably, a multi-purpose Air Force pilot. A future Army pilot who is recruited to be only that will not have to accomplish all the same training levels as he or she is not required to be a multi-purpose Air Force pilot. The example that already exists is the Jamaican Defence Force (JDF) pilot program. Since all JDF pilots coming to Canada for training will be helicopter pilots they do not do the Basic Flying Course on the more expensive Harvard II. Instead, after PFS they continue training on the less

expensive (one of the least expensive aircraft to operate used by the CF) Slingsby airframe to learn some of the more advanced skills such as instrument flying and cross-country navigation. From there they go to the Basic Helicopter School (BHS) and complete their wings training on the inexpensive Jet Ranger helicopter. "Army pilots" for the context of this discussion, could go through a similar and less expensive training programme for their wings, as they too would only be expected to fly helicopters throughout their career. This focussed training can translate to the other classifications in 1 Wing. Flight engineers and aircraft technicians would only need to take the portions of training necessary to maintain and support helicopter operations.

The other aspect of Air Force pilots in particular, is that a decision stemming back to the Second World War demands that all Air Force pilots be officers. This is not as common in the various Army aviation organizations in other armed forces. There is no doubt that there has to be officers, who are pilots, to lead the land aviation community. Yet it does not require that all the pilots are officers. Many other successful armies in and out of NATO have NCOs and or warrant officer cadres that provide the bulk of their respective aircrew positions. This is a potential costs saving in the pan defence budget as wages for a sergeant, even one given a higher specialist pay and aircrew allowance, is less expensive than even a junior captain pilot. This scenario is plausible within the current construct of the CF as there is nothing apparent in the National Defence Act (NDA) or the Queen's Regulations and Orders (QR and O's) that indicates that a pilot must be an officer. It is solely based upon the fact that the current and only pilot member occupational code (MOC) in the CF is restricted to officers in accordance with previous Air Force (RCAF) decisions.

None of these options would require new infrastructure in the CF. As discussed earlier in the training issues, flying training, technician and other trade and classification schools would only need to become joint. Indeed a common trade found in the average tactical helicopter squadron already comes from joint training environment. The signal operations (Sig Ops) are an Army MOC yet the CF School of Communication and Electronics is a joint Air Force/Army training institution. Intelligence operations (Int Ops) also come from a joint school. Funds saved in the production of tactical aviation personnel can be used for many purposes in improving the current helicopter and adding further capabilities to the aviation community.

Summary

As seen in reviewing theses factors, the best method of commanding and employing tactical aviation in Canada would be to have the all land aviation resources under full command of the CLS. Indeed, as mentioned in the introductory paragraph to the discussion section, the ADF did just that and in 1986 the Australian Army Aviation Corp found themselves in possession of the Air Force Chinooks and Blackhawks. The ADF commanders felt that the better method to command, control, train, and manage all land aviation resources was to place them all in the Army. How could this be done in Canada? Nowhere, obviously, in the NDA does it state that all things that fly must be under full command of the CAS. In fact if there were something hidden in the fine print the Army would not have been allowed to purchase, man, and operate the Sperwer tactical unmanned aerial vehicle (TUAV). Yes, the Army did need some Air Force help as they have been out of the aviation business for over 35 years. This does not overshadow the fact that the TUAV is an Army asset.

To help envision the probability of this happening, a simple walk-through of one option can help illustrate. This paper looks at pilot production as it is one of the more complex MOCs to train but direct corollaries can be made to the technician and support classification training. The Army would recruit commissioned officer pilots directly while non-commissioned officer (NCO) pilots would be recruited from the various Army regiments. The reason for the NCOs to be recruited from within would be to allow the NCO to gain both technical expertise and experience in the combat arms as well as some seniority. Officers could be recruited from the various regiments as well, but the future leaders of any branch need to be recruited young and employed early as junior officers to build the expertise that will make them the future senior leaders in that element. To ensure a comparable pay grade to the civilian industry, to aide in retention, an NCO pilot would have to be promoted to at least the rank of sergeant upon attaining wings. This will also give the NCO pilot a rank grade more appropriate to the level of responsibility they will very quickly receive as a tactical helicopter pilot.

Aircrew selection and primary flying training are completed in conjunction with the Air Force. Somewhere in the early stages of training the officers would also complete phase 2 training with one of the courses in Gagetown. The infantry or armoured courses would be the most likely choices. This would instil the Army culture as well as provide the professional development to be leaders in the land aviation community. Upon completion of primary flying training, the Army pilots would stay on the Slingsby for a similar course to which the JDF pilots receive. After the additional training they would then go to BHS. After receiving their wings all the pilots would head to Gagetown to the Operational Training Unit (OTU), now an Army aviation unit, and complete the conversion onto the tactical aviation aircraft as well as the tactical flying training. The different phases of the tactical training can be done in conjunction with the Combat Training Centre (CTC). Focus on the tactical portion would vary between the NCO pilot and the officer, as the officers would be expected to work more in depth on the aspects of mission planning and leading. NCO pilots would get this training later in their careers, as they would first concentrate on perfecting individual and crew skills in a view to becoming the technical specialists. None of this is really that far fetched. Other forces do similar joint training and still have separate Army aviation capabilities.

There would be some difficulties for the leadership in the Army during a transition such as this. Suddenly a whole new set of classifications would appear in the Army. This means a new cadre of officers and NCO's who would want a full career with all the opportunities of any other Army member. For the officers, this would mean all of them would attend the Army Operation Course (AOC), and need to fill positions at brigade and area HQs other than just the G3 aviation slots. This would have some impact on the careers of other officer MOCs in the Army. Over time, things would settle out and the aviators would eventually be seen as Army officers and it would not be that big of a heart ache to see the G3 of a brigade possibly being an aviator. That would be a ways down the road but those types of realties would have to be addressed in discussions about army careers.

There would be a period of transition for the people in 1 Wing as well. Obviously not all of the personnel in 1 Wing would want to make the Army their career. Just as

happened in the unification process, vested rights should be considered. A pilot or technician not wishing to have an Army career would still be required to stay in the tactical aviation community until such time as a suitable replacement is available and then they can be posted back to the Air Force. Those wishing to stay on in the Army would also need some protection, as they may not have the equivalent courses for their rank level. It may not be in the best interest of all concerned for a technician to go to a battle school or an Army leadership school when they are already a MWO or WO. At this time in their career they should continue on in the Army structure and receive training applicable to the warrant officers. This would also be applicable to a major or lieutenant colonel. At this stage in their careers it would not be advantageous to send them to the Army Operations Course if they did the Air Force equivalents instead. Again these issues, and those of all the other ranks, would need to be addressed in discussions about Army careers.

A common fear in the 1 Wing community and the Air Force at large is that the Army would take the moneys that would come with having the tactical aviation community under full command and buy traditional army equipment or more bullets and neglect their aviation resources. Those who have been in the community for a while cite the example where in the late seventies and early eighties Mobile Command held a portion of the land aviation budget and took some of it to add to the Leopard main battle tank (MBT) project. Interestingly, the Air Force did the exact same thing when they took money from the Griffon, CH-146, project office to support the F-18 and Aurora modernization projects. The point of this counter argument is not to point any fingers. Commanders at the senior level have to make decisions as to how they manage their resources and spend their money. At times a community or regiment may not enjoy a favourable outcome to the decisions made. In today's Army there is a very strong desire for aviation and improving the aviation capabilities in the CF. Currently they have no influence over what resources are put into a community that is supposed to be "fully integrated into ground force operations" other than stating their desires to the Air Force. However, the Air Force has to set a lot of its priorities based on outside influences such as NORAD and sovereignty/presence patrols demanded by the government. If the Army were to take away funds from land aviation they would only be cutting into their own capabilities and not providing their soldiers with a significant force multiplier. Aviation worldwide is becoming recognized as a critical arm in the land forces and the leadership in today's Canadian Army knows this as well and want further capability enhancements provided to the land aviation community.

Finally, it is the Army, under the various Land Force Area (LFA) HQ's, that command most of the domestic operations where tactical helicopters are used. The Army commanders are also the requesting commanders for the majority of the 1 Wing resources used in domestic operations. Canada and the CF would not see the tactical aviation resources sidelined in domestic operations if they were under full command of the Army. In fact it can be argued that by not having to go to the Air Force to request 1 Wing resources the tactical aviation resources would be utilized more often in these operations.

In Canada, the alignment of everything that flies under the Air Force was solely due to the process of unification. Most of the thought process applied at that time with respect to tactical aviation no longer applies today and the alignment of 1 Wing under

the Air Force does not follow the fundamentals of unity of command. The Army and its commanders are the force employers of tactical aviation and should be commanding these assets. 1 Wing, or maybe one dares to say First Aviation Regiment, should be fully integrated into the Army such that the officers and NCMs would truly become a part of the Army team. As well as being a part of the team they would be trained in conjunction with the rest of their Army brethren and the *esprit de corps* that follows is that intangible force enhancer that causes units and individuals to be greater than the sum of its parts. This transition would come at little or no cost, and more likely a cost saving, to the status quo for a greatly improved force multiplier. The CF is responsible to produce for Canada the best combat forces they can within the guidelines set by the Government of Canada and this is something that is not being done with the tactical aviation forces given the current construct. The CF, the Air Force and the Army should review the current command structure as it pertains to 1 Wing and look at the realignment of 1 Wing under full command of the CLS.

In Canada, the alignment of everything that flies under the Air Force was solely due to the process of unification

About the Author…

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Endnotes

1. This act designates the Minister of National Defence (MND) as the minister responsible for all flying activities of the CF. This includes airworthiness requirements. Canada. Government of Canada, Ministry of Transport, Aeronautics Act. R.S. 1985 c-82. http://www.tc.gc.ca/acts-regulations/GENERAL/A/aa/act/menu.html
2. These regulations set out the appropriate qualifications and requirements to act as an airworthiness authority. Thus, The MND and CDS will usually delegate the CAS as the Airworthiness Authority for the CF. Canada. Transport Canada, Canadian Aviation Regulations, Amendment 2004-2. http://www.tc.gc.ca/civilaviation/RegServ/Affairs/cars/menu.htm
3. The ADF made the decision to put all land aviation support helicopters into the Australian Army Aviation Corps with the intent to have all these resources under one formation commander. The ADF pilot recruiting and training is joint. Australian Army. Digger History, Army Aviation, the History of Australian Army Aviation Army. http://www.diggerhistory.info/pages-army-today/rar-sasr/army-aviation.htm
4. Canada. Department of National Defence, B-GL-300-003-FP-000, *Command, AEL*. http://lfdts.army.mil.ca/ael/pubs/300-003/B-GL-300-003/FP-000/B-GL-300-003-FP-000.pdf
5. This has been the doctrine for the Air Force over the past decade. The intent, under the guidelines of Strategic Vectors 2020, will be to replace Out of the Sun in the near future. Canada. Department of National Defence, B-GA-400-000/AF-000, Out of the Sun, 09/18/2001, Chap 8, Section 4B, Paras 846—851.3.
6. This is the document "provides a conceptual foundation for the Interim Army." Canada. Department of National Defence, Purpose Defined: the Force Employment Concept for the Army, 31 Mar 04.

POST HELICOPTER AVIATION: NEW OPPORTUNITIES FOR THE 21ST CENTURY ARMY

Sergeant Arthur Majoor

Helicopters have been the staple of modern armies since the introduction of compact and reliable gas turbine helicopter engines in the early 1960's. The usefulness and versatility of helicopters in support of Army operations is reflected in the numbers and types of helicopters used by armed forces throughout the world. Helicopters are used as scouts and gun ships, light, medium and heavy transports, liaison craft, and search and rescue platforms, just to name a few roles. The ability to take off and land almost anywhere, change speed and direction of flight (including stopping and hovering) mated to adaptable airframes and compact engines, gives helicopters abilities that no other aircraft can duplicate.

Helicopters have many limitations as well. Helicopter flight involves power and flight control going through the lifting surfaces (the rotors), requiring a complex mechanical system to provide the required control and reliability. The requirement to send thrust through the rotor generates a torque or twisting force in the airframe, which is counteracted by a tail rotor, of a second rotor of similar size, such as on the Chinook helicopter. Maintenance loads on helicopters are quite high because of the mechanical complexity and forces flowing through a very small area, with the most infamous example being Canadian Sea Kings, which need thirty hours of maintenance for every hour of flight time. Maximum speed and manoeuvrability are limited in helicopters by the nature of the flight system; airflow over the rotor is unbalanced by the fact that the blade advancing in the direction of flight generates more lift, while the blade moving in the opposite direction generates less lift.[1]

Barring unforeseen breakthroughs, helicopter design is now at a developmental plateau, and further improvements in helicopter performance are likely to be incremental and achieved at a very high cost. The United States recently cancelled the RAH-66 Comanche helicopter program, despite spending several decades and billions of dollars in various development programs, since "the helicopter will not meet the requirements of changing operational environments."[2] Even the mighty Apache attack helicopter has demonstrated vulnerability to small arms fire, when on 24 March 2003 Apache helicopters met heavy anti-aircraft fire at Karbala, approximately 60 miles south of Baghdad. Two pilots were taken prisoner when their Apache was shot down.[3]

Helicopters are so versatile that armies cannot eliminate or abandon them, but helicopter design has reached a plateau that is not able to meet future requirements. Although we might think of helicopters as Air Force assets, developing Army manoeuvre doctrine requires specific types of tactical and strategic aerial support, and so the Army should specify the broad requirements of helicopters or post helicopter aircraft to meet our specific needs. How can the Canadian Army operate in the expanded security environment and still have the versatility that helicopters afford?

Autogyros and Compound Aircraft

Autogyros are the ancestors of helicopters, invented by Juan de la Cierva in the 1920s. Autogyros generate lift with an un-powered rotor that spins freely in forward flight, while a conventional engine generates forward thrust. By separating the lift and thrust functions, the autogyro's rotor assembly is much simpler than a helicopter's. Autogyros are much safer than helicopters or fixed wing aircraft since they cannot stall in flight[4] and in the event of an engine failure, the freely spinning rotor continues to provide lift while the aircraft glides to earth. Autogyro rotors can be briefly powered to enable vertical take off, or even spun by small jets at the tips. These techniques do not generate torque, eliminating the need for a tail rotor. Autogyro development reached a peak in the early 1930s, but the onset of the great depression eliminated most demand for new or unusual aircraft. Traditional autogyros also are unable to hover in flight, which users and developers demanded in the 1940s.

A related machine is the compound aircraft, which is a helicopter or autogyro with fixed wings. It flies as a helicopter during vertical and hovering flight, but at higher forward speeds, the rotor is unloaded (similar to a free spinning autogyro rotor) and the wings generate most of the lift. Compound aircraft have much higher forward speed compared to a conventional helicopter. Some past examples of compound aircraft include the Fairly Rotodyne transport, (1958)[5] which was similar in size to a Chinook helicopter, and the Lougheed Cheyenne attack helicopter (1964).[6] In both cases the development programs were cancelled before these machines could enter service.

Several companies are reviving the concept of autogyros and compound aircraft. Groen Brothers[7] is offering conversions of existing high winged airframes, including the C-130 Hercules transport, while Carter Copters[8] is offering new airframe designs, including a C-130 sized tactical transport. A large transport with the size and lift capacity of a C-130 and the ability to take off and land vertically would open up amazing possibilities for the tactical commander. A patrol mounted on a light armoured vehicle (LAV) III, a tracked engineering vehicle or an entire dismounted company could be delivered unexpectedly almost anywhere in range by a single aircraft. In high intensity combat operations, Hercules sized payloads of soldiers or equipment and supplies could be delivered wherever sufficient space existed, reducing the need to capture or control existing airfields for tactical and operational combat and logistics support operations.

The availability of large airframes with vertical take off and landing abilities opens other possibilities as well. The large size and long ranges of these proposals would allow them to operate as electronic platforms with ground search radar and sensors ("Joint Stars"), or command and control platforms. Large gunships along the lines of the AC-130 Specter are also possible. Without the need for a dedicated airport or airfield, these aircraft can be dispersed for protection yet still be based close enough to the troops to provide rapid support when needed.

Smaller autogyros or compound aircraft can also serve in many of the roles currently taken by helicopters. Tactical troop lift, medical, reconnaissance, surveillance or electro-spectrum surveillance and target acquisition (ERSTA) platforms and close support gun ships to replace the Griffon are all possible. The high flight speed of these types of aircraft allows them to cover a greater area in a given response time. Support tactics might change, with compound aircraft "scrambling" against targets from

dispersed airfields or holding patterns in the rear area rather than lurking in rotor defilade near potential contact areas. Compound aircraft using these tactics would be less vulnerable to anti aircraft fire or discovery by enemy forces, and provide the commander with an element of tactical surprise.

Tilt Rotor and Tiltwing Aircraft

Although the United States is beginning to field the V-22 tilt rotor, the Canadair CL-89[9] tilt wing aircraft demonstrated similar abilities in 1965. These types of aircraft combine the speed, range and lifting capability of fixed wing aircraft with the ability to transition to vertical and hovering flight by changing the orientation of their rotors or propellers. Tilt rotors and tilt wing aircraft are mechanically complex, and both the CL-89 and the V-22's flight programs were marred by several crashes.

The tilt wing CL-89 did have one outstanding advantage over tilt rotor aircraft like the V-22 in that it can take off and land like an ordinary airplane, while the outsized rotors of a V-22 only permit vertical take off and landing. Conventional take off and landing provides a great savings in fuel and gives tilt wing designs an increase in range and endurance when not operating in the vertical take-off and landing (VTOL) mode. Small and medium sized aircraft have been designed and built using variations of the tilt rotor or tilt wing principle, and a proposal for a C-130 sized tilt rotor exists.[10] Payload and performance is comparable to similarly sized aircraft, with some reduction in endurance due to the extra weight of the tilt mechanism and the extra fuel consumed during vertical flight operations.

Tilt rotor and tilt wing aircraft have many of the disadvantages of helicopters, particularly mechanical complexity, the highly stressed rotors and the complex cross-shaft transmissions required to maintain flight safety should an engine fail. The trade off is the increased flexibility provided by the increase in range and speed compared to similarly sized helicopters. Although a tilt wing aircraft does not currently exist, the ability to function like a normal airplane when there is no need for vertical take off and landing provides a greater degree of flexibility and reliability compared to a tilt rotor design.

Hybrid Airships

Interest in airships is undergoing one of its periodic revivals. Companies like Cargolifter have proposed giant airships with the ability to airlift one hundred tonnes or more of cargo long distances,[11] While airships certainly have advantages over conventional aircraft in terms of lift capacity and endurance, one of the factors that have prevented their revival is their poor ground handling. Airships are positively buoyant, and require special handling when on the ground for loading and unloading. Grounded airships can be pushed out of place or damaged by winds, and strong or gusting winds can prevent the airship from landing. In the past, special airfields with mooring masts and large ground crews were available for airship operations, but this limited airship operations to secure routes with proper facilities at each end. Traditional airship designs would be at a disadvantage when attempting to operate out of an austere airfield in support of a Peace Support Operation (PSO), or in a theatre of operations.

One method to overcome ground-handling difficulties is to limit the lifting power of the helium to what is needed to balance the weight of the vehicle. Such neutrally buoyant airships then gain additional lift through aerodynamic forces; either by shaping the envelope into a lifting surface, the addition of wings or other lifting devices. Minimal

engine power is needed to achieve flight with heavy loads. Such an airship could also be designed as a "roll on/roll off" airship to minimize turn around time on the ground. The Areon Corporation pioneered this approach in the late 1960's; even building a flying prototype before funding ran out.[12] Many start up companies are attempting to revive this approach.[13]

Large hybrid airships would provide the ability to transport complete sub units of an expeditionary force with all their equipment and supplies. Airships of this size would be comparable to sea transport rather than air transport. The great endurance of an airship provides flexibility to loiter outside the theatre of operations if necessary, landing units or cargo at the most advantageous time and place for the commander. Airships can also carry out tasks in support of army operations, such as surveillance and targeting, carrying large antenna for radar or electronic intelligence gathering or acting as communications relays.[14]

Powered Lift Aircraft

The opposite of airships floating serenely through the air would be a powered lift aircraft, which is entirely supported by the power of its engines in vertical flight. This is a demanding requirement, and to date, only one successful example exists in wide use, the Harrier Jump-Jet. This is a compact aircraft designed to operate from ships and austere airfields to provide close air support and air cover to ground troops and task forces at sea. The power of its jet engine is diverted through a set of four thrust vectoring nozzles, allowing the Harrier pilot to take off or land vertically, as well as having the potential to suddenly change direction in flight (vectoring in forward flight (VIFF)). Practical demands of payload and fuel economy limit the standard flight profile to short take off/ vertical landing (STO/VL). In forward flight, the Harrier has the performance of a jet fighter or ground attack plane, with a greater range, faster response time and heavier payload than an attack helicopter.

Powered lift using the thrust of a jet engine uses a great deal of fuel, so while a Harrier can fly farther and faster than a helicopter, it cannot hover for extended periods of time. An alternative form of powered lift aircraft has been under development in the United States by Moller International.[15] Lift and forward thrust is generated by tandem ducted fans located in four nacelles, with each fan powered by a dedicated rotary engine. Moller has been developing the Skycar concept since the 1960's, with the limiting factor being the development of powerful, compact and fuel-efficient engines.[16] The entire machine is designed as a lifting body to provide lift in forward flight, allowing the overall vehicle to fit in an ordinary passenger car garage. Prototype designs exist for one and four passenger vehicles, and a six-passenger design is also being considered.

For military use, a vehicle based on the Moller design could be adapted to fill most of the roles of a light helicopter, yet it is smaller, faster and more economical. The compact dimensions allow commanders to disperse Skycar sized vehicles in ways impossible for any other aircraft. For example, a Skycar gunship could supplement armoured fighting vehicles in complex terrain, being capable of flying along streets or lurking in defilade behind buildings (or landing on the roof of a tall building).[17] Small unmanned aerial vehicles (UAVs) built with the same technology would have the benefits of compact dimensions, high endurance and wide flight envelopes. Unlike jet powered Harriers, Moller Skycar type vehicles could spend a fair portion of their flight hovering or loitering at low speed near the troops to carry out their support tasks, or

exploit their high flight speed to "scramble" to their task. This wide range of options would make enemy air defence a very difficult and frustrating proposition.

Prospects

The majority of design concepts in this survey exist either in prototype or advanced concept form. Direct purchase of military or suitable civilian aircraft "off the shelf" is not possible at this time. Knowing and understanding what is potentially available can guide our thinking about what we want to accomplish with manoeuvre warfare doctrine, and how to do it. This also gives the Army the opportunity to specify what we need to support our doctrine, and have the Air Force and manufacturers work to support our needs, rather than having to make do with "second best" solutions.[18]

Designs based on the autogyro or compound aircraft are the best understood and most mature, and offer the potential to provide both Griffon replacements/substitutes and heavy tactical airlift in a very short time frame. Conversions such as those offered by the Groen Brothers can be applied to Canadian Twin Otters, Buffalo, Caribou and C-130's, although the age of these airframes may limit the usefulness of this idea. New airframes designed specifically as autogyros or compound aircraft will be able to take full advantage of the possibilities inherent in the design. Tilt rotor or tilt wing aircraft are less developed, so more time and money must be spent gaining experience with this type of aircraft. The example of the CL-89 and the Bell Boeing Osprey exist to guide our thinking, and the speed and range advantages of this type of aircraft might offset the greater costs and complexity compared to either autogyros or conventional aircraft.

Hybrid airships are further behind in evolution, but offer the advantages of airships for heavy strategic airlift, as well as being convertible for various electronic support and surveillance roles. The ease of ground handling and fast turn around time is the greatest advantage this type of aircraft has over conventional airships, and this should certainly be a factor when considering their adoption and use.

Powered lift aircraft have the longest developmental path to follow, with only the Harrier "jump jet" existing as a fully developed and widely available model. Powered lift is best suited for smaller, tactical aircraft ranging from UAVs and unmanned aerial combat vehicles (UACVs), small liaison, medical or scout craft and gunships or attack craft. The compact dimensions of powered lift craft provide passive protection in flight and on the ground, and allow them to be transported easily, while the high top speed give powered lift craft a much broader flight envelope than most other vertical take off aircraft. These airframes would be used to provide direct, tactical support to deployed troops on missions.

The Army potentially needs a large number of aircraft to support manoeuvre doctrine. Getting sufficient numbers of aircraft could be a problem given the relatively high cost of new aircraft. A potentially large community of Canadian users and operators exists besides the Air Force; the Coast Guard can use large and long range search and rescue aircraft, various provincial governments have fleets of aircraft to fight forest fires, and a heavy lift vertical take off aircraft would compliment these fleets, while other government agencies and commercial operators may also be interested in the possibilities different post helicopter aircraft concepts offer. A user consortium could purchase a large number of common airframes or conversions at advantageous prices, reducing unit costs and giving the Army the opportunity to gain sufficient aircraft to

support operations, training and surge requirements under manoeuvre warfare doctrine.

Summary

How will our Army function in the expanded security environment and still have the versatility that helicopters afford? In order to meet future requirements in the expanded security environment and still have the versatility that a helicopter affords, new designs based on different principles must be vigorously examined and pursued. The Army community needs to examine what type of air support is needed to support operations under our doctrine, and work closely with the Air Force community to identify and develop promising aircraft and technologies.

The time is right to begin this work. Not only does the Army need to examine the types of support the Air Force can give to support our doctrine, but many of the aircraft in the Air Force fleet are quite old and very maintenance intensive. Replacement programs will have to be undertaken during the next decade, so the Army should specify the broad requirements of helicopters or post helicopter aircraft to meet our specific needs. This brief survey of post helicopter technologies demonstrates there are many potential avenues to creating versatile aircraft for tactical and strategic support of Army missions.

About the Author …

Sgt. Arthur Majoor joined the Canadian Armed Forces in 1981, and served in the Regular Army until 1986, when he joined the Primary Reserve. His operational tours include Cyprus, Domestic Operations, Disaster relief in OP RECUPERATION, and in Bosnia as part of OP PALLADIUM Roto 13. He holds a Business Finance Diploma from Fanshawe College in London Ontario, and serves in 31 Canadian Brigade Group Headquarters as the G6-IT. Sgt. Majoor is a regular contributor to the *Canadian Army Journal*.

Endnotes

1. Lift is a product of the speed of the blade's rotation plus the aircraft's speed through the air. The "advancing blade" generates greater lift because both values are positive, while the "retreating blade" generates less lift since it is moving in the opposite direction to the aircraft, thus the airspeed is a negative value.
2. See http://www.army-technology.com/projects/comanche/ viewed May 2004.
3. See http://www.worldhistory.com/iraq-war.htm viewed May 2004.
4. A stall occurs when the wing of an aircraft no longer generates lift. Stalls cause loss of altitude and control, and are a major cause of plane crashes.
5. See http://www.helis.com/50s/h_rotdyn.php viewed May 2004.
6. See http://www.globalsecurity.org/military/systems/aircraft/ah-56.htm viewed May 2004.
7. See http://www.groenbros.com/ viewed May 2004.
8. See http://www.cartercopters.com/ viewed May 2004.
9. See http://www.exn.ca/FlightDeck/Aircraft/Milestones/cl84.cfm viewed May 2004.
10. See http://popularmechanics.com/science/military/2000/9/v44_pentagon_transport/print.phtm viewed June 2004.
11. See http://www.cargolifter.com/ viewed June 2004
12. As chronicled by John McPhee in *The Deltoid Pumpkin Seed*, Farrar Straus Giroux; (April 1, 1981).
13. Interested readers can begin searching at http://spot.colorado.edu/~dziadeck/airship.html viewed June 2004.
14. LCol. Christopher Thurrot and Major Shane Jennings, "The Dirigible-a Phoenix rising from the ashes," *ADTB* Vol. 5 No. 3, Fall 2002, pg. 55-61.
15. See http://www.moller.com/ viewed June 2004.
16. If fuel economy was not an issue, small turbine or turboprop engines could power the M-400 Skycar. For even greater endurance of the current design, it might be possible to cross connect the two fans in a nacelle so only one engine is required to drive them when in flying in cruise mode.
17. Ralph Peters, "The Future of Armored Warfare", *Parameters*, Autumn 1997, pp. 50-59. "If we do work toward flying tanks—in the interests of systems economy—the more successful approach would probably be to ask how helicopters could change so that they can move, shoot, and survive on the ground."
18. Whatever its other virtues, the Griffon has cabin size and weight limitations as a troop lifter, which makes planning and executing airmobile operations difficult, particularly in winter warfare operations.

PRECISION PARACHUTE CAPABILITIES AND THEIR POTENTIAL EMPLOYMENT IN THE LAND FORCE

Lieutenant Colonel Bruce Ewing, CD

Canada's Army has transformed substantially over the past few years with the implementation of the Interim Army. It is going to transform even more over the next few years. Nonetheless, Canadian parachute forces have changed very little since the Canadian Airborne Regiment was disbanded 10 years ago. The only change has been the fact that the skill sets required to maintain any parachute capability have been slowly eroding as the Army simply tries to keep a limited parachute capability alive. That said, discussions by many proponents over the past few years concerning future parachute forces seem to have centred solely on the re-creation of a past capability, specifically, the airborne mass drop. This concept has been rightly challenged as being out of step with today's military, fiscal and political realities. In addition, the desire to step back into the past ignores the significant changes that have occurred in the world of parachuting and aerial delivery during the past several years.

In response to these conflicting views, this article examines both the nature of modern parachute operations and currently evolving precision parachute capabilities. As well, this article makes recommendations for the potential employment of such capabilities within the Canadian Army.

Background

Although the Light Forces Working Group (LFWG) is examining future parachute requirements for the Light Forces with guidance from the Assistant Chief of Land Staff (ACLS), that guidance is very limiting. It does not appear to take advantage of the improved capabilities provided by precision parachuting. Instead, other than possible improvements in aerial delivery for re-supply, the discussion appears to concentrate mainly on simply maintaining the present static line parachute capability of the three Light Infantry Battalion (LIB) parachute companies without any substantive role. For several reasons, it is believed that the time is right to make some major changes to our parachute forces to make them more relevant to the Contemporary Operating Environment (COE) in which the Canadian Forces (CF) will be committed in the future.

WO Kilcup from CPC ATES descends in freefall with the CT-6 while equipped with an Oxygen system during trials at Mountainview.

Some of the proposals described below could be implemented with relatively minor changes to our present parachute forces but would greatly increase their capabilities. Proposed changes would enable parachute forces to provide a Task Force Commander with enhanced options for inserting soldiers, either overtly or covertly, into many otherwise inaccessible areas in a theatre of operations. The proposals would also provide a meaningful role for our parachute forces while at the same time providing soldiers in each Infantry Battalion with another incentive/motivation to maximize their performance and progress to becoming reconnaissance patrolmen.

Essentially this proposal is to provide a parachute capability within each of the nine infantry reconnaissance platoons. This would include having at least some percentage of their soldiers parachute qualified with "precision" parachute insertion capabilities. This level of qualification could be developed in addition to the three LIB parachute companies that the Army presently has, or possibly instead of these three parachute companies. This, when combined with the allocation of Patrol Pathfinders[1] in each reconnaissance platoon, as well as the possible addition of parachutes as an additional insertion method for Snipers, etc. would provide a credible and valid role for our parachute forces while providing Task Force Commanders with capabilities that they presently do not possess but yet actually already exist in the Army. Though this article does not go into specifics with respect to the number of soldiers required for to achieve this capability, such details could be determined at a later point if the basic concept is considered worthy of a more in-depth review.

Paratrooper prepares for landing with CT-1, a traditional static line deployed round parachute, during a full equipment drop at the Canadian Parachute Centre

The ACLS Guidance to the LFWG with respect to parachuting outlined that the Army would retain a Parachute Capability[2] but not an Airborne Capability[3]. The proposal to have a parachute capability within the nine reconnaissance platoons follows this direction, but still provides a Task Force Commander the ability to place small detachments of reconnaissance troops (possibly pathfinders, possibly snipers, or just reconnaissance patrolmen) into a permissive area, or limited non-permissive if required. Parachute placement of reconnaissance teams would facilitate establishment of observation posts, the conduct ground reconnaissance and preparation of the battle space for any follow-on airmobile, amphibious, airborne, air-transported or ground link-up forces. In fact, considering these emerging parachute capabilities and the shift in their use away from mass drop to reconnaissance forces, it might be advisable to re-evaluate the arguments for parachute versus airborne capability.

These capabilities could have been employed during several of our recent operations including those executed by 3rd Battalion Princess Patricia's Canadian Light Infantry

during Operation APOLLO and by 3rd Battalion Royal Canadian Regiment during Operation ATHENA[4]. Because the Army already possesses and teaches some of these improved capabilities, this re-structuring could be accomplished within the already authorized level of paratroopers in the forces.

Some of the other reasons for making these proposals and changes now or in the immediate future include an analysis of the current state of and evolving improvements in precision parachuting; the progress of the LFWG to date; the restructuring of the Infantry Battalion Reconnaissance Platoons and Sniper Groups that is underway; and the lack of any realistic role for the three LIB parachute companies at the present time.

Improvements in and Proposals for Parachuting

There have been some major improvements in parachuting capabilities over the last decade. Some of the advantages that these improvements offer can influence a change in Canadian tactics from the normal "airborne assault"-style mass drop with round canopy parachutes to precision insertion with square canopy parachutes. The following list of new technologies and improvements in parachuting should also be noted:

Ram-air Canopies / Static Line Square (SLSQ) Parachuting

A Military Tandem Master prepares for landing with passenger and full equipment the at Canadian Parachute Centre.

Ram-air or square parachutes are basically flying wings, made semi-rigid by the flow of air into a canopy that is made up of several cells and functions on the same principle as an aircraft wing. Because of the canopy's wing-like design, forward speed is generated. The design provides greater manoeuvrability and allows parachutists an impressive capability to fly to their desired Drop Zone (DZ) and land with increased accuracy. Square parachutes require little for a DZ—an open area with a radius of 50 m is sufficient. This eliminates the need for a large drop zone and reduces the time on the ground required for reorganizing. Compared to the traditional "round" canopy parachutes the rate of descent is lower. This slower descent has the dual benefit of allowing larger loads to be carried and reducing in injuries. Ram-air parachutes are currently being used in the CF for free-fall parachuting. These include the CT-6 used by the Land Force, the SOV-3 used by DHTC and the C-SAR 7 used by the Air Force for search and rescue. While the CF has employed ram-air parachutes in the freefall mode for over 10 years, all of the ram-air parachutes in current service are capable of being configured for static line deployment. Such configuration provides parachutists most of the advantages of ram-air canopies without requiring them to be trained as freefall paratroopers. The two disciplines in this specialty training are

Military Freefall Parachuting (MFP) and Static Line Square (SLSQ) Parachuting. Both disciplines are closely related in that the skills the parachutist must possess when under canopy are identical.

MFP techniques permit the precise and relatively stealthy insertion of small groups of soldiers into smaller DZs using High Altitude High Opening (HAHO) or High Altitude Low Opening (HALO) techniques from almost any type of aircraft. The only disadvantage to MFP training is that it is longer because it includes additional training required by freefall parachutists.

A Military Freefall Parachutist with full equipment makes final adjustments before landing his CT-6, the Land Forces ram-air canopy

SLSQ parachuting uses a square canopy with static line deployment. The static line configuration allows precise insertion of small groups of well-equipped soldiers into smaller DZs. Using the Army's current CT-6 parachute inventory, the operating envelope for this type of deployment is from 2,500 to 25,000 feet mean sea level. The higher altitude deployments would be a HAHO jump that would allow a much greater degree of stealth and aircraft standoff during insertion. Delivery means are limited to static-line capable military aircraft. Because freefall techniques are not taught, the SLSQ course length is two to three weeks (weather dependant) rather than the four to five weeks required for MFP. It is believed that increased use of modern flight simulators may further shorten the SLSQ course.

Precision Airdrop

Precision airdrop allows aircraft to accurately deliver supplies while minimizing the risk and reducing the possibility of enemy detection of the intended DZ. Precision is achieved through improved mission planning software and steerable canopies. There are currently two types of precision airdrop under development.

The first type of precision airdrop is a single system called AGAS (Affordable Guided Airdrop System) that uses in-service round cargo parachutes. A detailed knowledge of the wind patterns at the drop location is used to calculate the required flight path and drop point. The flight path is maintained by the system's ability to pull slips which dump air from one side of the canopy. By incorporating wind data with this limited method of steering, the system has proven capable of landing an average of 48 meters away from the intended grid reference when deployed from 13 000 ft above ground level. This accuracy is phenomenal given that the present LF freefall cylinder rarely even hits a large drop zone when deployed from 5,000 feet above ground level (AGL). AGAS is the cheapest precision airdrop system presently available.

The second type of precision airdrop is the Precision Guided Air Drop System (PGADS). Several different systems are in development. The idea behind PGADS is

to use a ram-air canopy controlled by an electro-mechanical servo system. This flies a load into a specific location from a safe stand-off range vice just utilizing the safety of high altitude. Systems under development range in current weight capacity from 500 to 2000 pounds. The systems use various modes of operation. They can be controlled remotely from the ground or in the air, programmed to home in on a beacon or programmed to fly to a pre-determined gird reference via GPS navigation. The US Army is testing systems in the 2000 to 5000 pound range and NASA has successfully flown a PGADS at 38000 pounds. The SHERPA, a 2000-pound system, is employed by the U.S. Marine Corps and is reported to have been used successfully to support Special Forces in Afghanistan.

The main differences between the AGAS and PGADSs are the cost of the ram-air canopy and the standoff capability it provides. While AGAS is much cheaper, PGADS provides a standoff capability and more flexibility.

WO John Hapgood, a Military Tandem Master, in freefall with full equipment and cylinder attached as part of the Tandem Offset Re-supply Delivery System (TORDS)

Military Tandem Parachuting

While tandem parachuting was originally developed for the civilian market it has made a successful transition to the military. This system uses a slightly larger ram-air canopy than that used for one paratrooper and has a reinforced harness system to fly large loads. Whereas the civilian versions of the tandem parachutes are designed exclusively to carry a person, there are military systems available that can carry, including the paratrooper, up to 1,000 pounds. This load can consist of either a fully equipped passenger with rucksack and weapons, or any type of equipment load that can fit into a cylinder suspended from the jumper. This system is called Tandem Offset Re-supply Delivery System (TORDS.)

As the Centre of Excellence for parachuting, CPC presently has several qualified civilian Tandem Masters. CPC also has personnel that are qualified as Military Tandem Masters and as such are capable of parachuting with either non-freefall qualified specialists with equipment or TORDS. The present freefall cylinder that is used by our Patrol Pathfinders has several limitations and requires a 1000 m radius DZ. TORDS provides a significant improvement in that it allows the Tandem Master to use a DZ with only a 50 m radius and it guarantees equipment arrives with the parachutists.

Supplemental Oxygen

Current parachute operations from CF aircraft are limited to 10000 feet above ground level (agl) as crew oxygen is not readily available. To go above 10800 feet agl, supplemental oxygen is required to prevent injury to the parachutist. The additional altitudes permitted by supplemental oxygen offer greater protection for the aircraft from ground fire and enables the parachutist to fly further while under canopy. The

Land Forces currently has no supplemental oxygen capabilities. CPC has conducted trials on the use of supplemental oxygen for possible employment by CF parachutists if higher altitudes are deemed a requirement. CPC has also trialed navigational equipment required for a HAHO jump at higher elevations.

Simulation

One of the major costs in the training of airborne forces is aircraft hours. CPC strives to provide safe and realistic training while keeping the use of expensive aircraft hours to a minimum. Nevertheless, training costs can likely be reduced through the use of simulators, such as parachute flight trainers and vertical wind tunnels. Even if costs are not substantially reduced, increased use of simulators will be beneficial. Modern simulators provide an element of realism in training that is better than can presently be provided by any other means.. Both technologies could contribute to shorter training time, greater confidence and better jumpers who suffer fewer accidents, while reducing the dependence on costly aircraft.

CPC recently purchased parachute flight trainers to aid in the instruction of both malfunction drills and canopy control for square parachuting. The use of these parachute flight simulators will increase training realism for candidates. It might reduce the number of parachute descents required for SLSQ parachute training and thus reduce aircraft costs. Flight trainers also provide a limited capability to practice missions.

Vertical wind tunnels aid free-fall training by making it possible to teach freefall paratroopers to be stable in mid-air before they make their first jump. While there are a very limited number of vertical wind tunnels available, the US Army has used them extensively since the early 1990s. Although it might not be economically feasible for the CF to build and maintain its own vertical wind tunnel, the use of such tunnels has proven to be a great benefit to improving the flying skills of freefall jumpers. If vertical wind tunnel training reduces the number of aircraft hours required to train and maintain the skills of a military free faller, the technology may be cost effective even if it requires that military freefall parachutists travel to another location to use it.

MCpl Gorman at the controls of the Para simulator (sitting) puts Cpl Roach (Hanging) through the Parachute flight simulator at the Canadian Parachute Centre in Trenton

Improved Tactics

Collectively, these new technologies provide the opportunity to update our tactics. Rather than conducting an airborne assault by a mass parachute drop requiring large numbers of aircraft flying in close formation at low levels, the use of precision parachutes by small teams and for re-supply allow the use of fewer aircraft, spaced well apart and flying out of reach of anti-aircraft fire. These technologies would allow friendly aircraft significant standoff from the objective, with the ability to drop parachutists up to 40 kilometres away from their targets. As

Four AGAS land on target after having been dropped from 13 000 ft with the use of in-service round cargo parachutes

only one aircraft would likely be required for the insertion of several small teams or for re-supply, there will be no requirement for flying in formation, and the only deviation from an established flight profile is likely to be a simple slow-down to release the parachutists.

Re-supply, depending upon the type of precision airdrop used, could also be dispatched from great distances, or at least from an elevation well out of range from small arms fire. The main advantages of insertion from a great distance or height are stealth, standoff for the aircraft and the ability for parachutist to land in a DZ with 50 m radius with greater loads. This is especially important to reconnaissance elements preparing the way for follow-on forces that will be inserted by any type of vehicle platform including airmobile, vehicle and foot. Just as important, such a precision airdrop enables Task Force Commanders to place observation/surveillance elements in otherwise difficult or inaccessible terrain in either an overt or covert manner. This ability is becoming increasingly relevant to the type of missions Canadian Task Forces are conducting. Tandem jumping can bring in medical personnel and other non-freefall qualified specialists who might be required. Forward Effects Officers (FEO), for example, might best be positioned where they can only be inserted by parachutes.

Assuming that parachute operations will only be conducted in conditions of air supremacy or at least air superiority, the primary risk to any parachute force during the insertion is the destruction of the aircraft by ground fire. Employing the tactical procedure of high altitude or standoff parachuting, made possible by the technologies of ram-air parachutes and supplemental oxygen, the aircraft can be effectively protected from ground fire by altitude and distance.

Parachute Capable Reconnaissance Platoons and Sniper Groups

At present, Infantry Battalion Reconnaissance Platoons and Sniper Groups are in the process of being re-organized with 29 soldiers and 18 soldiers respectively. Both Reconnaissance Platoons and Sniper Groups are organizations that could benefit from the precision parachute capabilities that the CF already possesses. The capabilities of Patrol Pathfinders are an excellent example, as their insertion options increase dramatically when they are able to deploy by steerable parachute from great heights and distances.[5] The only problem is that only the three LIB Reconnaissance Platoons presently possess any type of parachute capability and that capability is primarily limited to the use of round static line parachutes with a few military freefall paratroopers if they are lucky. A far greater effect could be achieved if these Reconnaissance Platoons had personnel with a mixture of Freefall, Static Line Square, and Round qualifications, depending upon one's employment.

The overall proposal is to have all personnel in all nine Infantry Battalion Reconnaissance Platoons and Sniper Groups be designated parachute capable, with designated personnel also qualified as MFP parachutists and others designated as SLSQ qualified parachutists. For example, all Patrol Pathfinders could be freefall qualified (which automatically also gives them the SLSQ qualification) while a section of reconnaissance patrolman as well as possibly a section or a detachment of snipers could be qualified SLSQ. As the Basic Parachute course is a pre-requisite for both the MFP course and the SLSQ course, all reconnaissance patrolman and/or snipers could easily progress to either of the other more advanced precision parachute capabilities. This example would mean having, in each Reconnaissance Platoon and Sniper Group, about 8 personnel qualified as Military Freefall Parachutists, 12 to 16 qualified as SLSQ, and all or any number of the remaining personnel in the platoon and group just qualified as basic parachutists. Multiply this number by 9 (each of the nine recce platoons should be the same) and that means 72 personnel qualified MFP, 118 to 144 qualified SLSQ, for a total of between 180 and 216 persons with either the MFP or SLSQ qualifications.

MMIST's PGADS system, the SHERPA flies under it's ram-air canopy during a test flight

There are presently about 375 authorized parachute positions in the 3 x LIBs divided between the 3 Parachute Companies and the 3 LIB Reconnaissance Platoons. Each of the nine Reconnaissance Platoons and Sniper Groups could easily be made completely parachute capable using about 425 parachute positions or roughly the same number of parachute positions currently in the field force. If there was ever a requirement to put a large number of parachute forces into the Arctic or elsewhere, these same reconnaissance forces could be utilized by just combining one or more reconnaissance platoons to make up the force required and inserting them either by round canopy or by freefall or SLSQ. Ideally, a limited number of soldiers in each platoon could also be qualified as Tandem Masters in order to insert non-parachute qualified specialists or equipment for the team.

While this is a simple explanation, there would likely be some growing pains, the largest of which would be the number of years to train the increased number of personnel MFP and/or SLSQ. However, this training target is feasible over a several year period. Additionally, it would require a small increase to the number of riggers and parachute instructors who are in the system. Some people might think that it would be difficult to maintain these additional parachute skills but I would disagree. With a clearly stated parachute role for these soldiers, unlike our presently case with the parachute companies of the LIBs who do not have a clearly defined parachute role, the maintenance of these skills would not likely be a major issue.

Conclusion

While this proposed re-alignment of parachute forces and tactics in the Army would

require a complete change in mindset for most people, I believe that it would truly provide, probably for no additional cost, a credible, capable and vital force. Such a force will provide great flexibility to deployed Task Force Commanders, especially given the asymmetrical environment in which we suspect we will be operating in the future. I believe, therefore, that in conjunction with the re-alignment of the infantry battalions and more specifically the infantry reconnaissance platoons, the time has come to take advantage of the new parachuting technology now available to us. We must move beyond the simple round parachute capability that we have maintained for the past decade. The Army already possesses, or can easily obtain in limited numbers, many of these improved parachuting capabilities right now.

With respect to those capabilities already available—the Army already trains military free fallers for the Pathfinder role and the Army is in the process of conducting static line square training for DHTC as well as for the Canadian Parachute Centre (CPC) for its MAJAID (major air disaster) tasking. CPC has qualified tandem masters including some trained to parachute with equipment and has conducted trials on both the use of oxygen and a navigational system for use by jumpers exiting an aircraft above 10,000 feet agl. With respect to precision aerial delivery for re-supply, the Air Force has reportedly already initiated a Statement of Requirements for such a system.[6] Given the fact that we have no clear role for the light infantry parachute companies equipped with round parachutes clearly are unlikely to even employ them as such, making use of these improvements in parachuting, combined with their employment by members of the Infantry reconnaissance platoons, offers a valid role and capability for the Land Forces' parachute forces.

In summary, it is recommended that this proposal—to provide a parachute capability to all nine Infantry Reconnaissance Platoons—be reviewed as a possible way to re-align the Army parachute forces. The proposal would provide Task Force Commanders with some capabilities for inserting reconnaissance forces into areas either overtly or covertly by means of precision parachutes. Recce forces would then be able to conduct pathfinder tasks, general reconnaissance tasks, observation tasks or sniper tasks. It is also recommended that the Army purchase the TORDS system as a replacement for the freefall cylinder currently used by Military Freefall Parachutists and mandate the appropriate training be conducted to provide this capability to the field force.

The Army should also review the SLSQ capability as a possible insertion method for both reconnaissance patrolmen and snipers and should mandate the appropriate number of courses to be conducted to provide this capability to the field force. The Army should purchase both a Supplemental Oxygen system, and a Navigational system to facilitate standoff parachuting from altitudes above 10,000 ft agl by both Freefall and SLSQ parachutists.

Finally, the Army should emphasize to the Air Force the importance of purchasing a precision aerial delivery system to replace or supplement the present "dumb drop" system currently utilized by the CF for dropping of equipment and supplies.[7]

About the Author …

LCol Bruce Ewing joined the militia in 1978 and served two years with the Princess of Wales Own Regiment in Kingston. In June 1980 he transferred to the regular force and spent the next four years at the Royal Military College of Canada. Upon graduation in 1984 with a BA in Military and Strategic Studies, he became a member of The Royal Canadian Regiment and was posted to the 3rd Battalion in Winnipeg, Manitoba.

LCol Ewing has spent half of the past 20 years serving in Infantry Battalions and has completed five Regimental tours of duty: two with 3rd Battalion, The RCR; two with 1st Battalion, The RCR; and one with the Canadian Airborne Regiment. His last Regimental appointment was as the Deputy Commanding Officer of 1st Battalion. He assumed Command of The Canadian Parachute Centre on 10 May 2004.

Operational deployments include a tour in Cyprus in 1986, a year in Croatia in 1994/95, and a tour in Afghanistan from which he returned in Jan 04. Foreign postings include a tour with 4 CMBG in Baden-Soellingen, FRG, and a posting as an Exchange Officer with the US Army Forces Command in Atlanta, Georgia. Other employment opportunities included a posting to NDHQ as the Career Manager for Infantry Non-Commissioned Members and a posting as the Team Leader of the 2CMBG Change Management Team where he helped coordinate Army Transformation issues within 2 Brigade for the two years prior to being posted to the Canadian Parachute Centre.

LCol Ewing is married. His wife Colleen and two young boys, Simon and Riley, reside with him in Trenton.

Endnotes

1. The primary role of Patrol Pathfinders is to insert anywhere on the battlefield via a variety of methods in order to set the stage for follow-on operations. They are deployed when a Commander either requires the establishment of landing zones or drop zones or is required to secure austere airstrips or beachheads prior to the arrival of a main force.
2. As outlined in the Canadian Forces Parachute Capability Study Report dated 18 May 2000, a 'Parachute Capability is defined as 'the ability to deploy personnel, equipment and/or material by parachute into permissive and limited non-permissive environments.'
3. As outlined in the Canadian Forces Parachute Capability Study Report dated 18 May 2000, an 'Airborne Capability' is defined as 'the ability to conduct combat operations once deployed by parachute.'
4. In OP APOLLO, 3PPCLI conducted several airmobile operations for which parachute insertion could likely have been utilized in order to insert pathfinders to ensure that the Landing Zones (LZs) were properly prepared and secure. In OP ATHENA, 3RCR inserted reconnaissance platoon persons into mountain areas by foot and helicopter. Insertion by precision parachute would likely have allowed some of these insertions added a greater element of stealth than was actually achieved with conventional methods. It would also have prevented soldiers from climbing high altitudes with heavy rucksacks and equipment.
5. When some persons think of Patrol Pathfinders, they think only as a means of forced entry into a theatre but that is incorrect as they can be equally advantageous to a commander for use within a Commander's AOR or within a mission area. In addition to their primary role, their skill set also makes them ideal for both deep recce as well as observation / surveillance tasks. In many cases, insertion by parachute is the safest means of entry for them and the precision that the use of square canopies provides has been understood since parachutes started to become steerable.
6. CPC has recently been apprised that the Air Force is apparently awaiting confirmation that the Land Force deems precision aerial delivery a requirement before they proceed with their SOR for the AGAS. CPC's understanding is that we are in a bit of a catch-22 situation. The AF does not want to proceed until the LF states this is a requirement while at the same time DLR is not prepared to provide this direction because they deem that it is not in accordance with the Land Forces current policy on Parachuting to maintain the status quo.
7. See footnote 6.

DUNSTERFORCE: A CASE STUDY OF COALITION WARFARE IN THE MIDDLE EAST, 1918-1919

Lieutenant Timothy C. Winegard

The evolution of the Allied strategy during the First World War resulted in many attempts by the British Expeditionary Force (BEF) to expedite victory by deploying missions that circumvented the Western Front. According to British Prime Minister David Lloyd-George, "the events in those forgotten and despised theatres in the East brought the war to an end in 1918; but for them it might have dragged its bloody course into the spring and summer of 1919."[1] A secret force formed for operations in the Caucasus carried out one of the most covert of these missions. Known as Dunsterforce, it clearly exemplified the greater strategic thought that had evolved within Allied supreme command leading into the final year of the war. It was also an early deviation from the typical trend towards mass armies that plagued most of the European fronts throughout the war.

Dunsterforce Convoy

Dunsterforce was indeed an early style Special Forces unit, and it was given a Special Forces style assignment. Made up of choice soldiers from across the Allied armies, it was a highly elite, albeit undersized unit commanded by, and named after, Major-General Lionel Dunsterville. Included among its ranks were forty-one Canadian officers and men.[2]

Dunsterville's first task was to organize a coherent body of resistance out of the miscellaneous, and often mutually hostile, groups of anti-Bolshevik Russians and anti-Turkish Georgians, Armenians and Assyrians spread across the Caucasus region.[3] Once established, the primary mission of his collective force was to guard the Trans-

Caucasian railway line from the Russian cities of Baku to Tiflis, in addition to protecting the oil fields at Baku from the Turks.[4] It was also hoped that Dunsterville could aid in the establishment and maintenance of an independent group of nations—Georgia, Armenia, and Azerbaijan. Another reason for occupying Baku was to prevent the enemy from obtaining a route to India.[5]

While most historical works on the First World War are justifiably focused on the Western Front, there were a number of other relatively obscure Allied campaigns, including Dunsterforce.[6] These operations have received considerably less documentation. Correspondingly, little has been written on Dunsterforce. It receives token mention in numerous writings, but is usually amalgamated into the broader theme of Allied intervention in Russia. Dunsterville's own account, *The Adventures of Dunsterforce* (1920), is the only manuscript dedicated in its entirety to this specific mission.[7]

War in the East: 1917-1918

The capitulation of their Russian ally and the collapse of the Eastern Front in November of 1917 had serious ramifications for the Allies.[8] Although initially the Allies welcomed the revolution, thinking that democratic rule would perhaps revive the morale of a war-weary Russian population, those hopes were short lived. Alexander Kerensky's weak leadership and dispersed power was not strong enough to unite the country and his Socialist Revolutionary Party could not hold back the Bolshevik insurgency.[9]

With the confusion of politics surrounding the Russian Revolution and Leon Trotsky's "no war, no peace" policy, which delayed the Treaty of Brest-Litovsk, the Germans commenced a rapid invasions into southern Russia and the Ukraine. They had also captured islands in the Baltic Sea and were pushing up through the Baltic provinces toward Petrograd.[10] Even with the signing of the treaty on 3 March 1917, the Allies feared that Germany would continue its advance in the east, unopposed. The German goal was to capture the important natural, industrial and military resources of an internally embattled Russia.[11] Incorporated into this larger strategy was the absorption of Asia Minor, and the penetration into further Asia, by means of the Berlin-Baghdad Railway.[12] These fears were significant factors in the Allied decision to deploy forces to Archangel and Murmansk, the Dunsterforce into the Caucuses, and to initiate intervention in Siberia.[13]

Winston Churchill later wrote that, "the reconstitution of an eastern front against Germany and the withholding of Russian supplies from the Central Powers seemed even from the end of 1917 vital to win the war."[14] To Aleksandr Kolchak, Cossack commander of the anti-Bolshevik forces in Siberia, the treaty was "the heaviest blow…It was clear to me that this peace signified our complete subjugation by Germany, our complete dependence on her, and the final loss of our political independence."[15] It was clear to Allied leaders, including Lloyd George, that:

> Although the Bolshevik Government of Russia had deserted the Entente and signed a separate peace with Germany, it was obvious in these circumstances that the Entente could not afford to abandon Russia to the domination of Germany…which stood to gain from its treaty spoils…of foodstuffs and fodder, of oil and minerals. By controlling the Ukraine and the Black Sea, the Caucasus,

> and penetrating into Siberia, they hoped to escape from the stranglehold of the Allied blockade…. Further, there were very considerable military stores…at the ports of Archangel, Murmansk, and Vladivostok…the danger was that these would fall into the hands of Germany and be used against us…. Had their hopes been fully realized, the war might have had a different outcome.[16]

Correspondingly, with the collapse of the Eastern Front by late 1917, the Germans began to relocate men and material to the Western Front in preparation for a massive offensive. By the time the Treaty of Brest-Litovsk was signed, they had already transferred 40 divisions.[17] Between November 1917 and 21 March 1918, when the great German Kaiserschlacht offensive began, they had increased their fighting strength on the Western Front by 30 percent. In comparison, the Allied strength fell by 25 percent over the same time period.[18] The German offensive threatened to prolong the war indefinitely.[19] By early 1918, the situation in the Caucuses was equally troublesome. Not only were the Germans entrenched in the Ukraine, they also seemed to be on the verge of achieving results in their ambitious scheme to penetrate Central Asia.[20]

By 1914 the Ottoman Empire, the world's greatest independent Islamic power, was in irreversible decline. It had suffered recent military humiliations in the Balkans and in Libya. Although, having been relatively docile over the past decades, it decided to join the Central Powers with the hopes of reclaiming lost territory, world dominance and past glory. The Ottoman/Turkish Army at the outbreak of war numbered roughly 600,000 men, divided into 38 divisions of relatively unknown quality.[21] The Ottoman Empire's decision to enter the war against the Allies produced numerous problems. Most importantly it threatened Allied colonies in the region and had the prospect of causing serious consequences to the much-needed trade routes between these colonies and their European powers. Thus, it was inevitable that the Middle East would become another theatre of the Great War.

The history of the Middle East in the Great War, up to the deployment of Dunsterforce, is extremely complicated For the sake of summary, it can be divided up into three distinct phases. The first, from November 1914 lasting until the end of 1915, marks a period in which Britain, Russia and Turkey violated Persia's proclaimed neutrality.[22] In short, Britain, France and Russia made a pact for a new division of Middle Eastern properties, and the Persians, with the aid of Germany and Turkey, made a valiant attempt to drive out these foreign forces.

On 2 February 1915, the Turks launched an offensive against the British forces in the Sinai, with a view to overrunning the Suez Canal and also to act as a catalyst for an Islamic revolution in Egypt. The Turkish force, under the strategic command of General Liman von Sanders, a German, and under operational command of Turkish commander Djemel Pasha, was relatively small numbering 39,000 men. The strength was indicative of the Turkish commander's confidence that he could ignite a Moslem revolution in Egypt, and with propaganda produce a holy war. The campaign was a miserable failure and the envisioned *Jihad* never materialized.[23]

By the autumn of 1915, northern Arabs were tired of Turkish domination and under Sherif Hussein of Mecca, lobbied to revive the long-fallen Arab Empire. The British Government welcomed his opposition to the Central Powers and began negotiations

with him in October 1915. However, Britain could not promise independence to Syria and other regions of Arabia due to stubborn French interests.[24]

Still, there were other Allied interests in the area, specifically, the Dardanelles. The strategical advantage in this region, without going into lengthy detail, was the geographical benefit in transportation and trade: he Dardanelles connected the Mediterranean Sea to the Black Sea. The profits of getting through the Dardanelles were so obvious that Winston Churchill, then Lord of the Admiralty, planned a naval operation. On 18 March, under the direction of Major-General Sir Ian Hamilton, a combined British and French fleet assembled at the Dardanelles Straight and bombarded costal defences. With no amphibious landings planned, the naval attempt to force the straight was unsuccessful and was aborted.[25] However, the plan to take the Dardanelles was not. On 25 April 1915, now known as ANZAC Day, British, French, Australian, New Zealand and Newfoundland troops landed on the Gallipoli Peninsula, supported by a naval bombardment. The campaign was a disaster and the Allied forces abandoned the operation in January 1916.[26]

General Lionel Dunsterville in the Middle East

The second phase was from the beginning of 1916 until March 1917. During this time, the British and the Russians again invaded Persia, and they successfully drove out the Turks. With the advent of the Sykes-Picot Agreement, the Middle East was partitioned into British, French and Russian spheres of influence. Britain extended her control over the rest of the southern and eastern regions, and eventually captured Baghdad in March 1917.[27]

At this time, the war began to extract a toll on civilians. Widespread famine began to devastate the local populations in Persia in early 1917. Local crops withered and the import of foodstuffs from India, Mesopotamia and the United States became non-existent, due to the use of the local transportation means for war supplies by both sides. In addition, the Allies refused to pay for local oil, which greatly aggravated the conditions brought on by the drought and famine. Between 1917 and 1919, it is estimated that nearly one-half (9-11 million people) of the Persian population died of starvation or disease brought on by malnutrition.[28] Those men fit enough to fight, took up active resistance against the British, who now controlled most of the region.[29]

The third phase ran between April 1917 and January 1918. In this phase, the Russian Revolution unfolded, causing the Russian armies in Persia and the Caucuses to disband and evacuate their positions. The agreements of 1907 and 1916 between the Allies and Russia became moot.[30] The United States officially joined the Allied war-effort in April. With the potential of more manpower on the Western Front, thanks largely to

the United States, Britain afforded more troops to General Sir Archibald Murray's Mesopotamian Expeditionary Force (MEF).

Murray's successes in Mesopotamia, including the capture of Baghdad in March 1917 from the Turks, drastically changed the situation in the Middle East, whereby Britain could, if given appropriate troop allocations, conquer all of Persia, as well as, nearly the entire Near East. However, Murray delayed any further attacks and subverted the British War Office with phoney reports of his progress. Hence, General Sir Edmund Allenby replaced him in June 1917. Allenby proceeded to launch successful attacks on Gaza in November 1917, and on Jerusalem in December of that same year.[31] With these regions safely under British control, the main railway lines from the Mediterranean ports across Syria, through Arabia to the Persian Gulf were in Allied hands. Also, ports on the Mediterranean, Red, and Caspian Seas, the Persian Gulf and the Tigris and Euphrates Rivers were open for Allied shipping.[32]

In addition, Arab guerrillas, led by T.E. Lawrence since 1916, were wreaking havoc on German and Turkish reinforcement and supply depots in Palestine and Western Arabia, distracting sizeable enemy forces from the main battlefronts.[33] However, in early 1918, the decaying situation in the Middle East, which was spawned by the collapse of the Tsarist Regime, became even more threatening to local Allied strategy.

With the signing of the Brest-Litovsk Treaty, the Russian troops, under General Judentich, who had been embattled with both German and Turkish forces in the southern Caucuses since 1915, disintegrated. Until the summer of 1917, the Russian line extended from South Russia, through the Caucuses, across the Caspian Sea, through North-West Persia until its left flank joined General Allenby's British forces in Mesopotamia, east of Baghdad.[34] By October 1917, this continuous Allied line was melting away. Russian troops were deserting *en masse* and the entire Russian Army announced its intention of withdrawing from the area completely. With the advent of the Russian Revolution, and the final collapse of the southern Russian forces in November 1917, the British faced an entirely new strategical situation.[35]

The Turkish Army, acting as an unconscious vanguard for German follow-on forces, found nothing between itself and the long-coveted possession of the oil rich region of the Southern Caucuses, and began to work their way along the Trans-Caucasus Railway. A gap, some 450 miles wide, was forming on the right flank of the British Mesopotamian Army, through which Turkish and German agents and troops could encircle the Allied forces and pour into Central Asia.[36] General Allenby's forces were not strong enough to repel this inevitable onslaught and alterations were needed to safeguard British interests in the Middle East.[37]

The situation in the Caucus region of southern Russia, and in the neighbouring northwest Persian region—east of the Turkish border—was of extreme importance to the Allies, most notably to Britain. Throughout the war, India was challenged by the threat of danger from the northwest frontier, aggravated by the hostility of a considerable portion of Afghan nationals. Any advance by Turkey into India would affect the fortunes of, not only India, but also the British Empire as a whole. India was the source of a considerable wealth of raw war materials, which were vital to the Allied war effort.[38]

The strategical solution to avoiding such a catastrophe was to limit Turkey's access to the transportation routes leading south to India. The majority of these were located in the Middle East. The main cities on both the Tigris and Euphrates Rivers, including Mosul, Baghdad, Fallujah and Basra, and northern ports of Enzeli and Baku, were vital ground in halting any southern Turkish advance. With the Russian departure and Allenby's forces already drastically undersized, it was necessary to insert secondary forces to meet the strategical objectives in the Middle East. However, the Russian force that had long held the Caucus-Persian Front fluctuated between 100,000 and 200,000 soldiers.[39] The Allies could not spare sufficient forces from any theatre to replace these numbers. Highly mobile and highly trained special forces seemed to be the only Allied alternative.

The Creation of Dunsterforce

With the envisaged scenes of conflict too far removed from any sizeable force already in the Middle East, the British needed to safeguard the remote regions of the Caucuses with Special Forces. Dunsterforce was one of three "hush-hush" missions, which were secretly inserted, to safeguard British strategical interests in the Middle East. As Lloyd-George noted:

> There was an…area of Russian territory where, after the collapse of Russia and the Treaty of Brest-Litovsk, we found it necessary to intervene in check to prevent them from securing valuable supplies. This was in the south, around the Caspian, where were the oil-wells at Baku…. [T]he road to that valuable region lay open, both the Germans and the Turks began a race for it. Our concern was to prevent either of them from winning.[40]

Nationality	Main Objective or Agenda
1) Turks	To conquer Trans-Caucasia and its resources.
2) Anti-Bolshevik Russians	To control the Caspian Sea and link up with British Forces.
3) Bolshevik Russians	To make peace and return home.
4) The Trans-Caucasian Republic (Formed April 1918, consisting of: and Turkey.Georgia, Russian Armenia and Azerbaijan.)	To obtain independence of both Russia
5) Turkish Armenians (mainly Christian)	To escape Turkish genocide and oppression.
6) Germans (penetrating the Ukraine)	To penetrate into Persia and Afghanistan to control natural resources and trade routes.
7) Persia (neutral)	To be void of all parties. Equally suspicious of all invaders motives.
8) British	To prevent the Turks/Germans from overrunning the Middle East, while protecting India, natural resources and trade routes.[45]

In December 1917, into January 1918, the Eastern Committee of the War Office, under the direction of Sir William Robertson and Lord Curzon, began organizing special military missions to combat the threat of a joint German/Turkish push south into Central Asia:[41]

> Unless by the end of the war democratic Russia can be reconstituted as an independent military power it is only a question of time before most of Asia becomes a German colony, and nothing can impede the enemy's progress towards India, in defence of which the British Empire will have to fight at every disadvantage.[42]

In accordance, three distinct missions were designed to negate these possible disadvantages. The western most force, Dunsterforce, was to move through Persia from Baghdad, with the goal of reaching the ports of Enzeli and Baku, on the Western shores of the Caspian Sea, and establishing contacts with pro-Allied elements in Transcaucasia. A second mission, under command of Major-General Sir Wilfrid Malleson, was to operate east of Dunsterforce. Its objective was to travel north along the Persian-Afghan border in order to safeguard the cities of Meshed and Ashkhabad, the latter being situated on Trans-Caucasia Railway. Major-General Sir George Macartney was placed in command of the third, and smallest, special force. His mission, operating further east, was to proceed via Chinese Turkestan (Kashgar) into Russian Turkestan to the city of Tashkent, again a vital stop along the railway.[43] However, Dunsterforce was given the most critical and dangerous assignment, as its zone of operation was closest to the Turkish threat and was under what the Russians labelled before the war "German orientation."[44]

General Lionel Dunsterville

Seldom has any portion of the world been occupied by such a mosaic of conflicting parties and interests as the region in which Dunsterforce operated in 1918. There were numerous groups, ethnicities and forces battling for the region of the southern Caucuses by early 1918:

Naturally, with the turmoil created by the various interest groups and factions operating in the region, it was necessary for the commander of the "hush-hush" force to be familiar with Russian culture and language, as well as, the state of affairs in the Middle Eastern regions. Dunsterville met these criteria: "My own knowledge of the Russian language and known sympathy with Russia had probably a good deal to do with my selection for the task."[46] He was widely travelled and had a vast amount of knowledge of Russian institutions, including fluency in Russian dialects. He was commissioned in 1884 and had served in India, Waziristan and China. At the outbreak of war he was posted to India and remained there until his selection to lead the force that would take his name.[47]

On Christmas Eve, 24 December 1917, while in command of the 1st Infantry Brigade on the Northwest frontier of India, Dunsterville received secret orders to proceed to

Army Headquarters at Delhi, with a "view to proceed overseas on special work."[48] His stay in Delhi was brief, as the War Office was pushing to expedite the insertion of a Special Force into the Caucuses. After the selection of his General Staff, he embarked at Karachi on 6 January 1918, reaching the port of Basra in Mesopotamia on 12 January.

However, during his conferences in Delhi, Dunsterville had dispatched a special request, through the War Office, to all corps commanders on the Western Front. Interestingly, special attention in the message was given to the commanders of the Canadian, Australian, and South African Dominion contingents. By this time, Dominion soldiers had earned, through bloody victories, the reputation as being the finest soldiers in the Imperial ranks. On 3 January, Australian Corps Commander Lieutenant-General Sir William Birdwood, his Canadian counterpart Lieutenant-General Sir Arthur Currie, and South African leader General Jan Smuts all received the same letter from the Eastern Committee of the War Office. The request stressed that co-operation was needed for "a very important and difficult mission":

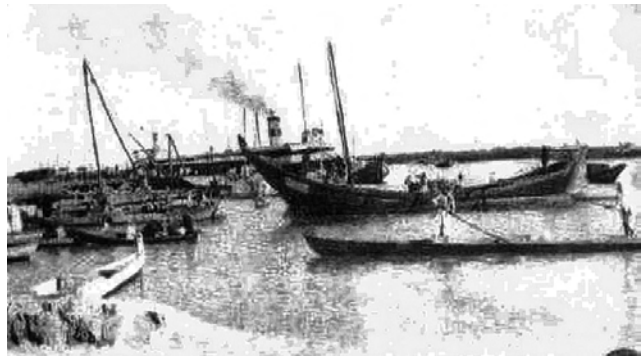
> We realize how difficult it is for you to spare good officers, and especially the kind of officers we want…but you will realize what a big question is involved—nothing more or less than the defence of India and the security of our whole position in the East. If we only stem the rot in the Caucuses and on the Persian frontier and interpose a barrier against the vast German-Turkish propaganda of their Pan-Turanian scheme, which threatens to enflame the whole of Central Asia including Afghanistan, our minds will be at rest as regards Mesopotamia and India, the latter of which is practically bled white of Indian troops.[49]

Although, Currie had been notified on 3 January, Britain had secured Canadian consent by directly submitting a formal request for the use of Canadian troops to the Minister of Overseas Military Forces of Canada, Sir Edward Kemp, in late December 1917. Kemp immediately acquiesced to the British appeal for soldiers without consulting Canadian Prime Minister Robert Borden. Only on 24 February 1918 did Kemp casually report his concurrence to the Prime Minister:

> The Imperial authorities were confronted with a difficult and hazardous situation owing to the demoralization and retirement of the Russian Army in the Caucasus which was operating on the Eastern or right flank of the British Army in Mesopotamia ... I was asked to furnish them with 15 level-headed Officers and 26 Non-Commission officers, to co-operate with the British Officers and Officers from other Dominions in organizing a somewhat mixed and irregular army of different tribes and nationalities which inhabit the territory to the North and East of the British Army..[50]

The Canadian contribution was one component of Dunsterville's request for 150 Officers and 300 N.C.O.'s of, "strong character, and adventurous spirit, especially good stamina, capable of organizing, training and eventually leading, irregular troops."[51] The process of selecting these elite soldiers was the same throughout the British/Dominion corps, active on the Western Front. The Canadian selection system can serve as the model.

On 5 January, two days after Currie received notification, a message was sent from Canadian Corps Headquarters directly to brigade commanders asking for volunteers to partake in "a hazardous enterprise in a foreign theatre of war."[52] The officers were



Shipping on the Tigris, near Bazea

Marching 600 Miles Through Persia

given no other specific details about the mission, but those who accepted the call believed that no duty could be worse than spending another winter in the trenches of the Western Front. On 7 January, another request was sent to the brigade commanders, for the officers who volunteered for the mission to be immediately sent to see Currie personally. At Canadian Headquarters on 10 January, a parade was held and after interviewing each volunteer, 15 officers were selected.[53]

These men were invited to suggest the names of N.C.O's who showed strong leadership attributes and who might work well in an irregular force. From the nominations forwarded by the selected officers, twenty-six self-reliant and distinguished N.C.O's were hand-picked from across the Canadian Corps. These forty-one men were told nothing of their destination; simply that they would leave for London in a week.[54] This process was mirrored in the Australian Corps and the South African Division at roughly the same time.[55] According to Major M.H. Donohoe, Dunsterville's intelligence officer, the soldiers assembled were indeed elite:

> With few exceptions our party consisted of Dominion soldiers gathered from the remote corners of the Empire. There were Anzacs and Springboks, Canadians from the far North-West, men who had charged up the deadly shell-swept slopes of Gallipoli, and those who had won through at Vimy Ridge. They were, in fact, a hardened band of adventurous soldiers, fit to go anywhere and do anything, men who had lived on the brink of the pit for three years and had come back from the Valley of the Shadow of Death…. [T]he cream of the fighting men from the South African contingent and from the magnificent

> Australian and Canadian Divisions. I do not recall a single officer or N.C.O who had not won at least one decoration for bravery.[56]

Dunsterville agreed with this assessment: "All were chosen for special ability, and all were men who had already distinguished themselves in the field. It is certain that a finer body of men have never been brought together, and that command was one of which any man might well be proud."[57]

The Deployment of Dunsterforce

Having arrived at Basra on 12 January 1918, Dunsterville travelled to Baghdad arriving at General Headquarters, Mesopotamia on 18 January.[58] Meanwhile, the Captains and Sergeants of Dunsterforce, including the Canadians, made there way from their units in the Western Front, and presented themselves as a group at the Tower of London on 14 January.[59] They were given medical examinations and outfitted with a variety of summer and winter clothing, which further confused them as to their destination.[60] They were then given a monetary advance and 10 days leave.

On 25 January, both officers and N.C.O's convened again, at the Tower, and were finally briefed on their forthcoming assignment on 28 January. A staff officer from the War Office explained:

> The capture of Baghdad by the British in March 1917, had been offset by the Bolshevik Revolution. The Russian Front…had now collapsed…leaving a wide-open door to the eastward advance of the Turks and the Germans. The age-old necessity of protecting India demanded some sort of barrier…and the Mesopotamian Army had no troops to spare. The situation was menacing. When things were at their blackest, however, a War Office visionary had a brainstorm. [The] proposition-to penetrate into the Caucasus Mountains, raise an army, and use that army, against the Turks.[61]

The following morning, 29 January, the Western Front volunteers left London, travelling from Southampton to Cherbourg and then across France and Italy by train. The steamship Malwa, escorted by three Japanese destroyers, carried them from Taranto in southern Italy to Alexandria, Egypt, over the course of four days. An overnight train trip carried them from Alexandria to Port Said. They then boarded a decrepit transport, the Nile, which carried them down the Red Sea, through the Indian Ocean, and up the Persian Gulf to Kuwait, eventually arriving at Basra on 2 March 1918.[62] Almost two months had passed since the Canadians and their counterparts had left their units on the Western Front.

After a delay of one week in Basra, orders were finally issued for the force to proceed up the Tigris River to Baghdad. The soldiers were loaded onto flat river barges, operated by 28 men of the First Overseas Canadian Pioneer Detail, and ferried north, arriving in Baghdad between 20-28 March. According to Major Donohoe:

> The navigation of the Tigris, even in peacetime, is a hazardous undertaking…. The despatches of the victorious generals in Mesopotamia…have entirely overlooked the great contribution of the men of the Tigris River Flotilla, who have apparently been left without reward or recognition…. The admirable part played by these river skippers…has never been told, and so has never been properly appreciated by their countrymen [Canadians] at home.[63]

Too Little, Too Late

With the delay of the main body and the increasingly uncertain conditions in the Caucasus, Dunsterville, being ordered to proceed with haste, was faced with the option of starting the expedition with only a small number of soldiers. Accordingly, on 27 January 1918, two months before the main body arrived in Baghdad, he drew a small number of soldiers from the Mesopotamian Expeditionary Force. This advance party, consisting of Dunsterville, 12 officers, 2 clerks and 41 drivers, headed north to Tiflis in four Ford touring cars and 40 Ford vans, on 29 January. Dunsterville was ordered to establish his headquarters in Tiflis and to direct his irregular forces from there.[64]

This journey, which Dunsterville later described as a "mad enterprise," was an extremely arduous undertaking. The terrain was always difficult; more so in the winter months, and there were no local services that could be drawn upon. In addition, the route was not secure and opposition from hostile groups in the region would be unavoidable. His advance party was to travel 335 miles northeast, over the 7,600-foot high Asadabad Pass to Hamadan, to proceed north (250 miles) to the port of Enzeli on the Southern shore of the Caspian Sea. From Enzeli, they were to continue north across the Caspian, on whatever aquatic transportation could be commandeered, to Baku. Finally, the last leg would be a 275-mile journey along the Trans-Caucasian Railway line to Tiflis.[65]

Dunsterforce Soldiers

Nevertheless, the 53 year-old Dunsterville, and his advance party set out from Baghdad determined to accomplish their objective. After having traveled 600 miles, through inhospitable territory, they reached the outskirts of Enzeli on 17 February: "Now we had to see how the Bolsheviks and other brands of revolutionaries would receive us."[66] Unfortunately for Dunsterville, he and his force, would not receive a cordial reception.

On 19 February, Dunsterville met with Bolshevik Committee who had taken over Enzeli with a force of 3,000-5,000 armed Russian supporters. They curtly told him that Russia had made peace with the Germans, Turks, and Austrians, "and among all nations, and they mistrusted only Great Britain as a symbol of Imperialism."[67] With a Soviet gunboat guarding the mouth of the harbour, and no hope of circumventing either the guards or the boat, Dunsterville did not argue or delay his withdrawal.[68]

Reinforcements were not yet available, and armed with the knowledge that Baku was more occupied and sympathetic to Bolshevik forces, Dunsterville's only option was to make the return trip to Hamadan, and plan another course of action from there. On the morning of 20 February, the now battered convoy of vehicles, turned south, arriving back at Hamadan on 25 February. There, Dunsterforce remained for the next

three months, "the original plan having for the time being quite broken down, we needed to take our bearings and see what could still be done to thwart the Turk in these regions."[69] Although the main body did arrive in Baghdad in late March, they were not to be transported to Hamadan until Dunsterville was ready to make a second attempt to reach Baku.[70]

In accordance, between 1-6 May, two groups totalling 67 officers and 204 NCO's, including all 41 Canadians, left Baghdad, led partially by two Canadians, Lieutenant-Colonel John Warden and his Adjutant Captain Cecil John Lewis. The groups travelled the first 70 miles by rail and walked the remaining 230 miles to join Dunsterville at Hamadan. With these reinforcements swelling his ranks Dunsterville again attempted an assault on Enzeli, which was finally occupied on 27 June. Further penetration was made into Baku by a small detachment of Dunsterforce in mid-July.[71] Among this group defending Baku were five Canadian officers.[72] However, during the five weeks elements of Dunsterforce spent in Baku, they were never in a secure position, nor did they control the surrounding areas. The Allied front at Baku consisted of approximately 6000 troops, the majority Armenian, holding a line 12 miles long.

Correspondingly, on 1 September, 14,000 Turks launched a determined offensive against the sparsely manned Dunsterforce lines in Baku, and sent another equally strong force south against Hamadan. On the morning of 14 September, the day Baku fell to the Turks, and when the massacre of Armenians commenced, Dunsterville arrived back in Enzeli, leaving behind 180 of his soldiers, dead or missing.[73] On the surface it appeared that his mission had failed. Lieutenant-Colonel Warden, the senior Canadian, wrote a final comment to what he labelled "Dunsterfarce" in his diary before evacuating Baku: "Major-General Dunsterville should be made full General and knighted and kicked out as they do everyone who makes a mess of his job.[74]" His disillusionment is understandable, if unwarranted to Dunsterville personally.

The return of Dunsterforce to northern Persia had numerous effects. The Turkish Army ceased its offensive south, and restricted itself to Baku and the Caucuses. However, Dunsterforce's return to Enzeli also led to its abolition. The War Office abruptly disbanded the force on 22 September 1918: "Orders were now received for the dispersal of the Force…. So ends the story of the adventures of Dunsterforce."[75] On the disbandment of the force, soldiers were offered similar roles in the theatres of Mesopotamia, North Persia (Noperforce) and Siberia. Of the Canadians, roughly one-third accepted; the remainder chose to return to their original units in France and Belgium.[76]

Conclusion

On 30 October 1918, the Armistice with Turkey was signed and hostilities ceased in the Middle East. Dunsterforce did not meet its operational goals. It failed to penetrate to Tiflis and never created the Caucasian forces to hold the railway line between Batum, Tiflis and Baku. However, it did perform its strategical functions. The forces mustered in North Persia, whose numbers were greatly exaggerated by local rumours, proved sufficient to hold Turkish penetration to the south, thus providing the right flank for the British Mesopotamian Force. Neither this force nor India were ever seriously threatened. Although Turkey occupied Baku and the oilfields, it was only for one

month at the closing of the war. Dunsterforce did succeed in denying the Central Powers the Caspian oil at a time when its possession would have been of immense value.[77]

Dunsterforce clearly exemplified the greater strategical thought that had evolved within Allied supreme command leading into the final year of the war. In addition, it illustrated a deviation from the typical mass armies that plagued the European Fronts. Dunsterforce was indeed a Special Forces unit, which was given a special forces-style assignment. The strategic success of the Dunsterforce mission confirmed the validity of its deployment. General Sir Henry Wilson, who succeeded General Robertson as Chief of the Imperial General Staff, on 16 February 1918, believed the Trans-Caucuses was very important to British strategy: "The despatch of a small force at Baku has been sanctioned, admittedly as a gamble, but the stakes involved are so valuable as to make the hazard justifiable."[78] For the Allies, the gamble paid off.

About the Author …

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Endnotes

1. David Lloyd-George, *War Memoirs, Vol. VI* (London: Ivor Nicholson & Watson, 1936), p. 3197.
2. Major-General Lionel Dunsterville, *Stalky's Reminiscences* (London: Jonathan Cape, 1923), pp. 9-10. Dunsterville was commissioned in 1884 and had served in India, Waziristan and China. At the outbreak of war he was posted to India. He was the character "Stalky" in Rudyard Kipling's schools boy tale, *Stalky & Co.* They had gone to school together as young boys. After the war, Dunsterville wrote a book, *Stalky's Reminiscences*, about his entire life, including the war, using this nickname. He died in 1946. A list of the Canadian members of Dunsterforce can be found in an appendix to the first installment of Captain W.W. Murray, "Canadians in Dunsterforce," *Canadian Defence Quarterly* (January 1931).
3. Sir Llewellyn Woodward, *Great Britain and the War of 1914-1918* (London: Methuen & Co. Ltd., 1967), p. 440. These refer to ethnic groups which were, in most cases, not associated with an actual country of the same name. They were part of the Ottoman Empire or undefined border regions within the Middle East. The geography will be explained later in the paper.
4. Roy MacLaren, *Canadian in Russia, 1918-1919* (Canada: Maclean Hunter Press, 1976), p. 12. The British later found out that secret negotiations between the Germans and transcaucasian representatives for the sale of cotton, manganese, and oil had taken place, which clearly ignored Turkish interests. General Erich Ludendorff flatly stated on 9 June 1918, that any attempt by the Turks to occupy Baku would be regarded by Germany as an act of open hostility.
5. MacLaren, *Canadian in Russia, 1918-1919*, pp. 14-24; Michael Kettle, *The Road to Intervention; March—November 1918* (London: Routledge, 1988), pp. 205, 217, 296-299; John Silverlight, *The Victor's Dilemma: Allied Intervention in the Russian Civil War* (London: Barrie & Jenkins Ltd., 1970), pp. 95-99.
6. There were "side shows" all over the world encompassing: Africa, Northern Russia, Siberia, the Balkans, South/Central America, China, New Guinea, and for the importance of this essay in the Middle East.
7. Major-General Lionel Dunsterville, *The Adventures of Dunsterforce* (London: Edward Arnold, 1920); Colonel A. Rawlinson, *Adventures in the Near East, 1918-1922* (London: Andrew Melrose, 1923). Colonel Rawlinson's work contains a very fine primary account of Dunsterforce as well. He was the brother of General Sir Henry Rawlinson, commander of the Fourth British Army.
8. The Allies failed to recognize that what was taking place was very different from the March 1917 Revolution.
9. Major-General Sir Edmund Ironside, *Archangel 1918-1919* (London: Constable, 1953), pp. 14-15. It was actually the German General Staff who tipped the balance of the political scales to the left. They found V. I. Lenin in exile in Switzerland and helped him across Germany into Russia. He arrived in Petrograd on 4 April and was reunited with Trotsky. Trotsky had also been in exile. He had been living in France but was arrested and taken to Spain. Spain proceeded to send him to Cuba, but he was secretly redirected to New York, where he made passage aboard a Swedish ship to Stockholm. However, this ship had to dock in Halifax and he was arrested there, but again found himself on a Swedish ship and eventually reached Petrograd through Finland.

10. Lloyd-George, *War Memoirs, Vol. VI*, pp. 3155-3157; Leon Trotsky, *The Trotsky Papers, 1917-1922: Vol. I, 1917-1919* (The Hague: Mouton & Co., 1964), pp. 10-25, 50-55; General Erich Von Ludendorff, *My War Memories, 1914-1918, Vol. II* (London: Hutchison, 1919), pp. 511, 544-550; NAC RG9IIIA3 Vol. 358, File 39. American HQ, Intelligence Summaries. Petrograd is modern day St. Petersburg. The Germans had 12,000 troops in the Baltic provinces and an additional 33,000 in Finland under General Von der Goltz. He also commanded some 50,000 Finns. The Bolsheviks were also receiving aid from Sweden in the form of: 123,000 rifles, 9,000,000 Swedish crowns, and the passage of German weapons through its land.
11. Trotsky, *The Trotsky Papers, 1917-1922: Vol. I, 1917-1919*, pp. 10-25, 50-55; General Erich Von Ludendorff, *My War Memories, 1914-1918, Vol. II*, pp. 511, 544-550; Richard Luckett, *The White Generals* (London: Longman Group Ltd., 1971), pp. 109-112.
12. Dunsterville, *The Adventures of Dunsterforce*, p. 2; C.E.W. Bean, *Official History of Australia in the War of 1914-1918, Vol. V* (Sydney: Angus and Robertson Ltd., 1937), pp. 735-738.
13. See: Major-General Sir Edmund Ironside, *The Diaries of Major-General Sir Edmund Ironside 1920-1922* (London: Leo Cooper, 1972); Major-General Sir Charles Maynard, *The Murmansk Adventure* (London: Hodder & Stoughton Ltd., 1969); Andrew Soutar, *With Ironside in North Russia* (London: Anchor Press, 1940). 130 British Royal Marines landed in Murmansk ("Syren") on 6 March 1918. The Allies landed at Archangel ("Elope") on 2 August 1918. By December 1918, the Allies had 14,475 personnel at Murmansk and 15,996 at Archangel. The total combined force of Murmansk and Archangel never exceeded 35,000. The contributing nations were: Britain, Canada, France, United States, Italy, Poland, Serbia, Finland and White Russia. The Allies began landing at Vladivostock in Siberia in April 1918. The contributing nations were: Japan (70,000), United States (10,000), Poland (12,000), Britain/Canada (6,000), Serbia, Romania (4,000 each), France (2,000), Italy (2,000), in addition to the Czech-Slovak Legion (70,000) fighting the Bolsheviks along the Trans-Siberian Railway. Murmansk, Archangel and Vladivostock all had large quantities of Allied military and civil stores that had been provided on credit to the Tsarist regime. The main objectives of these forces were: 1) to reconstruct Russian or Allied forces in the area to oppose Germany; 2) the prevention of access to the sea through Archangel, Murmansk and Vladivostock should the Germans continue their advance into Russia and; 3) to support the White Russians and prevent supplies from falling into Bolshevik or German hands. Major-General Frederick Poole was assigned command of the overall forces in Northern Russia (March-September 1918) but was replaced by Major-General Edmund Ironside (September 1918-October 1919). Brigadier-General R.G. Finlayson commanded the Archangel force, while Major-General Sir Charles Maynard commanded the force at Murmansk. General Lord Henry Rawlinson, who had commanded the Fourth Army on the Western Front, was chosen to orchestrate the evacuations of the British forces from Northern Russia in September-October 1919. Japanese General Kikuzo Otani, appointed on 18 August 1918, was Allied Commander-in-Chief in Siberia. Lieutenant-Colonel John Leckie was the senior Canadian on the Murmansk front, while Lieutenant-Colonel Charles Sharman was senior at Archangel. Major-General James H. Elmsley was placed in command of the Canadian Siberian Expeditionary Force, which included two British battalions, marking the first occasion that a Canadian was placed in command of an Imperial unit.
14. Churchill as quoted in MacLaren, *Canadians in Russia, 1918-1919*, p. 2; Margaret MacMillan, *Paris 1919* (New York: Random House, 2003), pp. 67-82. Churchill, the British Minister for War, was vehemently opposed to Bolshevism: "Of all the tyrannies in history, the Bolshevik tyranny is the worst, the most destructive, the most degrading."
15. Aleksandr V. Kolchak, *The Testimony of Kolchak and Other Siberian Materials* (U.S.A.: Stanford Press, 1935), p. 102. On 18 November 1918, Admiral Kolchak executed a successful coup d'etat against the Socialists and assumed dictatorship over Siberia under the title of Supreme Ruler. He was recognized by the Allies to represent the provisional Russian government in Siberia. He was captured and shot by the Bolsheviks in 1920.
16. Lloyd-George, *War Memoirs, Vol. VI*, pp. 3157-3158. By the end of 1917, the Allied naval blockade was finally beginning to take a toll on the German war machine and it was worrisome for Allied leaders to think that the Central Powers might gain in the east the oil, food and resources that the blockade finally began to deny them.
17. Ludendorff, *My War Memories, 1914-1918, Vol. II*, p. 584; MacLaren, *Canadians in Russia, 1918-1919*, p. 2. Due to the overwhelming success of their Caporetto offensive, the Germans were able to redirect troops from the Italian Front to the Western Front.
18. B.H. Liddell Hart, *The Real War, 1914-1918* (Toronto: Little, Brown Co., 1930), p. 388; NAC RG9IIIA3 Vol. 362, File A3SEF115. Notes: Brigadier-General James H. Elmsley, Military Intervention in Siberia. Also, after peace with Russia, prisoners of war from the Central powers, estimated as high as 1.6 million, were freed, producing another increase in manpower. Some of these prisoners formed a fifth column within Russia to help the German cause of attaining Russian resources.
19. NAC RG9IIIA3 Vol. 362, File A3SEF115. G.S. War Office: Allied Intervention in Siberia, 19 June 1918. In June 1918, the Central Powers still had 51.5 infantry divisions and 7 cavalry divisions in Russia, the Ukraine, the Baltics, and Caucasia.
20. George A. Brinkley, T*he Volunteer Army and Allied Intervention in South Russia, 1917-1921* (U.S.A.: University of Notre Dame Press, 1966), p. 60. Turkey expected the 1918 German offensive on the Western Front to alleviate British power in the Middle East, and coupled with the withdrawal of Russian forces, would allow Turkey to launch an offensive.
21. Ferguson, *The Pity of War*, pp. 143-147.
22. Captain Andre Judge, "With General Dunsterville in Persia and TransCaucasus," *Army Review* (London, 1998), p. 3. The Turks over-ran Persia in 1915, destroying crops and villages. They also began the mass slaughter of Armenians, in what would prove to be a terrible genocide. The Russians drove the Turks out in 1916 but were not any kinder to the

local populations, save for not persecuting Armenians.
23. Lieutenant Staniforth Smith, *Australian Campaigns in the Great War* (Melbourne: Macmillan & Co., 1919), p. 11. The Turks suffered roughly 800 dead with another 3,000 wounded or taken prisoner. British losses were 50 killed and 150 wounded. Liman von Sanders was in command of all Turkish and German forces in the southern sector, including Gallipoli. He had been appointed the head of the German military mission in Turkey in 1913, and began training Turkish forces. He commanded the Fifth Turkish Army at Gallipoli and then was transferred to Palestine in 1917.
24. Woodward, *Great Britain and the War of 1914-1918*, pp. 118-121. Between December 1915, and May 1916, Sir Mark Sykes, a Brit, and M. Georges Picot, a French diplomat, drew up an agreement, which was accepted by their respective governments, and also by the Russian government. The Sykes-Picot agreement set out the mandates for these three countries, and divided the Middle East into spheres of power or influence among these three countries. Arab independence was only given lip-service in order to acquire Arab support for the war effort. Nevertheless, Hussein led the successful Arab Revolt in June 1916, with the help of T.E. Lawrence, against the Turks in Palestine and Arabia.
25. Smith, *Australian Campaigns in the Great War*, pp. 14-41. Two British battleships and one French battleship were sunk by mines. Another French battleship ran ashore and was captured and a British cruiser was disabled beyond repair. Four other ships were also damaged. Hamilton was replaced by Major-General Charles Munro in September 1915. He immediately recommended evacuation of the Dardanelles. His evacuation operation is credited with saving a bulk of Allied soldiers. Hamilton had estimated 50% casualties for his evacuation plan. Munro succeeded in evacuation all soldiers with relatively few casualties.
26. John Keegan, *The First World War* (Toronto: Vintage Canada, 2000), pp. 237-243. ANZAC stands for Australian New Zealand Army Corps. In all 500,000 troops were deployed by the Allies. Roughly 265,000 became casualties. The Turkish losses numbered 300,000. It was at Gallipoli that Mustapha Kemal made a name for himself while commanding the 19th Turkish Division. He was one of the earliest Young Turks and would rise to power in Turkey after the war as Ataturk. He had a profound impact on modernizing Turkey and bringing it into the "western fold."
27. Richard H. Ullman, *Anglo-Soviet Relations, 1917-1921: Britain and the Russian Civil War, Vol.1- 2, Vol. 2* (Princeton: University Press, 1968), pp. 68-70. However, before securing the region of Mesopotamia, including Baghdad, the British suffered a devastating defeat at Kut-et-Amara in April 1916. Major-General Sir Charles Townsend and his force of 10,000 surrendered to Turkish forces on 29 April, after a 143 day siege by General Goltz.
28. Mohammed Gholi Majd, *The Great Famine and Genocide in Persia, 1917-1919* (Toronto: University Press of America Inc., 2003), pp. 3-8; Major M.H. Donohoe, *With the Persian Expedition* (London: Edward Arnold, 1919), pp. 88-89, 117-131; Rawlinson, *Adventures in the Near East, 1918-1922*, pp. 41-62. Dunsterville, T*he Adventures of Dunsterforce*, p. 102. The famine in described in Donohoe, Rawlinson and Dunsterville's primary accounts.
29. David Payne, "Dunsterforce: On the Caucasian Front in the Great War," *The Western Front Association* (London: 2004), p. 1. In March 1916, General Sir Percy Sykes raised an outfit similar to Dunsterforce at Bandar Abbass, Persia, dubbed the South Persia Rifles. It succeeded in bringing the hostile Persian tribes in the countryside under control and largely neutralized German influence and covert operation in the region.
30. Ullman, *Anglo-Soviet Relations, 1917-1921: Britain and the Russian Civil War, Vol.1-2, Vol. 1*, p. 303; John Swettenham, *The Allied Intervention in Russia 1918-1919: And the Part Played by Canada* (Toronto: The Ryerson Press, 1967), p. 41; Smith, *Australian Campaigns in the Great War*, pp. 2-4. Britain and France arrived at an agreement in 1904 to divide the Middle East into regions and promote the idea of "splendid isolation" in the region. In 1907 Russia, France and Britain arrived at an agreement over trade and resource rights within the Middle East. Russia formally recognized British interests in Afghanistan, Persia and Tibet and agreed that no Russian troops would be placed at the borders surrounding British held territory. The main British fear was of Russian interests in India. The latter is the 1916 Sykes-Picot Agreement.
31. Keegan, *The First World War*, pp. 414-415; *The Holy Bible* (London: Zondervaan Corp., 1996), Book of Revelation 16:12-16:16; Lloyd-George, *War Memoirs, Vol. VI*, pp. 3224-3225. Allenby had been a commander on the Western Front and had a credible reputation. He had been the BEF cavalry commander and the commander of the Third Army. He was the 34th conqueror of Jerusalem, and the first Christian since the Crusades. Allenby's breakthrough was completed with the defeat of the Turks at Megiddo, 19-21 September 1917, and was according to Lloyd-George a, "brilliant operation." Allenby captured 75,000 Turks, while inflicting another 8,000 casualties. British losses were roughly 5,500. Megiddo was the sight of the first recorded battle in history. Once an ancient fortified city, historians believe it was the site of more battles than any other location in history. The archeological record indicates that Assyrians, Canaanites, Egyptians, Greeks, Israelites, Persians, Philistines and Romans all fought at Megiddo. Also, according to the Book of Revelation (16:12-16:16) it is to be the site of a great clash between East and West shortly before the end times: "...the kings of the whole world, to assemble them for battle on the great day of God the Almighty. And they assembled them at the place which is called in Hebrew Armaged'don [Megiddo]."
32. Dunsterville, *The Adventures of Dunsterforce*, pp. 4-8; G.W.L. Nicholson, *The Official History of the Canadian Expeditionary Force, 1914-1919* (Ottawa: Queen's Printer, 1962), pp. 460-472. In 1916, British and Canadian engineers were sent to build bridges in Palestine in support of General Allenby's campaign. From 1915 onwards, a total of 4,000 Canadians (mostly from British Columbia) operated barges in the Middle East along the Tigris and Euphrates Rivers. (A portion helped transport Dunsterforce).
33. Keegan, *The First World War*, pp. 414-415; T.E. Lawrence, *Seven Pillars of Wisdom* (Toronto: J. Cape Co., 1935).
34. Silverlight, *The Victor's Dilemma: Allied Intervention in the Russian Civil War*, pp. 93-95.
35. Dunsterville, *The Adventures of Dunsterforce*, pp. 1-7.

36. Lieutenant-Colonel A.H. Burne, *Mesopotamia: The Last Phase* (London: Gale & Polden Ltd., 1936), pp. 6-10. Germany was arming tribes in Persia, who were hostile to the British. By the beginning of 1918, 300,000 rifles had been given to these tribes.
37. The majority of Allenby's troops were Indian and were not very skilled. He had a smaller number of British troops, as well as, an American contingent from the West Indies. His cavalry was the Australian/New Zealand Brigade. The cavalry performed heroically by all accounts and was a key to later British victories in the Middle East.
38. Swettenham, *Allied Intervention in Russia 1918-1919: And the Part Played by Canada*, p. 41. The British also needed to protect the road from Baghdad to the port of Enzeli on the Caspian Sea. The road, 630 miles long, climbed through a succession of mountain ranges and desolate regions, and was frequently raided by Turkish or hostile Persian forces being encouraged by German/Turkish agents. The protection of this route was under Allenby's mandate, but he could not devote any resources to its security, as his numbers were so low. In addition, hostile tribesman controlled all approaches to Enzeli.
39. *Ibid*, p. 41.
40. Lloyd-George, *War Memoirs, Vol. VI*, pp. 3193-3194.
41. Bean, *Official History of Australia in the War of 1914-1918, Vol. V*, p. 728; Brinkley, *The Volunteer Army and Allied Intervention in South Russia, 1917-1921*, p. 60.
42. War Cabinet Memorandum 25 July 1918: British Military Policy 1918-1919 contained in Ullman, *Anglo-Soviet Relations, 1917-1921: Britain and the Russian Civil War, Vol.1-2, Vol. 1*, p. 305.
43. Captain L.V.S. Blacker, *On a Secret Patrol in High Asia* (London: John Murray, 1922), pp. 6-7. See Map of these three missions. Macartney's mission consisted of himself and 16 others. The soldiers were all cavalry and were selected based on linguistic prowess in the languages and dialects of the region. Blacker was part of this mission, as he acted as a guide in the Afghan area throughout the war. His work is an excellent primary account of this little-known mission.
44. Dunsterville, *The Adventures of Dunsterforce*, p. 4. The Christian ethnicities of the Georgians, Armenians and Assyrians feared Turkish occupation and whole sale slaughter of their peoples if Turkish forces occupied the Caucuses.
45. Burne, *Mesopotamia: The Last Phase*, p. 88.
46. Dunsterville, *The Adventures of Dunsterforce*, p. 9; Dunsterville, *Stalky's Reminiscences*, p. 270.
47. *Ibid*, p. 9; *Ibid*, pp. 174-270. See the latter for detailed accounts of his past military services and campaigns.
48. Dunsterville, *The Adventures of Dunsterforce*, p. 11.
49. 3 January letter as quoted in Bean, *Official History of Australia in the War of 1914-1918, Vol. V*, p. 729. The letter received by the Dominion commanders was different from that sent to British corps commanders. Smuts was also a permanent member of the Supreme War Council.
50. Swettenham, *Allied Intervention in Russia 1918-1919: And the Part Played by Canada*, pp. 43-44. In the past, Kemp had "loaned out" Canadian soldiers in small numbers without consulting anyone, as this was a right within his portfolio. Given that the British only wanted a small detachment for Dunsterforce, Kemp was within his powers to provide it, without consulting his leader.
51. 5 January statement General Plumber to Lieutenant-General Arthur Currie as quoted in MacLaren, *Canadians in Russia, 1918-1919*, pp. 9-10. Given these criteria, it was believed Dominion troops would be better suited, as they had earned the reputation as being the most dominant soldiers of the Allied forces. Due to the nature of their countries of origin, and what was perceived by the British to be, sturdy physiques due to "hard living," they would stand up better under the conditions of the mission.
52. *Ibid*, p. 10.
53. Swettenham, *Allied Intervention in Russia 1918-1919: And the Part Played by Canada*, p. 44; MacLaren, *Canadians in Russia, 1918-1919*, pp. 9-10.
54. MacLaren, *Canadians in Russia, 1918-1919*, pp. 9-10. All men selected below the ranks of Captain and Sergeant, were promoted to these ranks.
55. Bean, *Official History of Australia in the War of 1914-1918, Vol. V*, p. 730; Like Currie, Birdwood facilitated the selection himself. On 8 January, names of volunteers had been forwarded to him and by 11 January, after interviews, the selection of 20 officers and 20 N.C.O's was complete.
56. Donohoe, *With the Persian Expedition*, pp. 3-4; MacLaren, *Canadians in Russia, 1918-1919*, p. 10. Of the Canadians, all had won at least won commendation for bravery, valour or courage. Also, 10 of the 15 officers and 8 of the 26 N.C.O's had previously been wounded in fighting on the Western Front.
57. Dunsterville, *The Adventures of Dunsterforce*, p. 9.
58. Dunsterville, *Stalky's Reminiscences*, p. 275; Dunsterville, *The Adventures of Dunsterforce*, p. 11; MacLaren, *Canadians in Russia, 1918-1919*, p. 15. Dunsterville had contradicting dates. In the former he claims to have reached Baghdad on 6 January. In the latter, 18 January is given as the date of arrival. It appears that 18 January is correct.
59. Bean, *Official History of Australia in the War of 1914-1918, Vol. V*, pp. 730-731; MacLaren, *Canadians in Russia, 1918-1919*, pp. 10-18; Swettenham, *Allied Intervention in Russia 1918-1919: And the Part Played by Canada*, p. 44. In total 271 men were gathered: 67 officers and 204 N.C.O.'s. The figures of nationality are conflicting and incomplete. However, these numbers are correct: Canada: 15 officers, 26 N.C.O.'s, Australia: 20 officers and 20 N.C.O.'s, New Zealand: 10 officers, South Africa: 12 officers, Britain (Scotland and Ireland): 20 officers (some were to serve as staff officers).
60. Nicholson, *The Official History of the Canadian Expeditionary Force, 1914-1919*, p. 494. Three Canadians were found to be medically unfit and were replaced in England.

61. As quoted in MacLaren, *Canadians in Russia, 1918-1919*, pp. 11-12.
62. Donohoe, *With the Persian Expedition*, pp. 6-18. Most of these Canadian barge operators remained in the Middle East until 1920.
63. *Ibid*, pp. 37-38.
64. Dunsterville, *The Adventures of Dunsterforce*, pp. 12-14.
65. Dunsterville, *The Adventures of Dunsterforce*, pp. 13-19; Bean, *Official History of Australia in the War of 1914-1918, Vol. V*, pp. 732-734. The roads were not paved and were in terrible condition. The geography to be traversed consisted of desert, mountains and jungles. Snowstorms frequently blocked all routes through the mountains. There would be no military support and the force would pass through numerous towns which were hostile to British motives. The highest peak of the Elburz Mountains is Demavend, near Tehran, standing at 18,000 feet above sea level,
66. Dunsterville, *The Adventures of Dunsterforce*, pp. 36-50; Donohoe, *With the Persian Expedition*, pp. 74-131. In Hamadan, the evidence of the famine was unavoidable. For detailed accounts of this journey and the famine see the sources referenced above.
67. Silverlight, *The Victor's Dilemma: Allied Intervention in the Russian Civil War*, p. 96; Dunsterville, *The Adventures of Dunsterforce*, p. 45. In addition to Bolshevik forces in Enzeli, there was also the Jangali, a Persian nationalist reform movement led by Kuchik Khan. His advice to Dunsterville was to return from where he had come from.
68. MacLaren, *Canadians in Russia, 1918-1919*, pp. 16-17.
69. Dunsterville, *The Adventures of Dunsterforce*, pp. 51-57.
70. Bean, *Official History of Australia in the War of 1914-1918, Vol. V*, pp. 736-738; Donohoe, *With the Persian Expedition*, pp. 113-116.
71. Brinkley, *The Volunteer Army and the Allied Intervention in South Russia, 1917-1921*, pp. 61-62. Before departing for Enzeli, elements of Dunsterforce provided a hastily constructed rearguard to enable fleeing Armenians to reach safety at Hamadan. Seven Canadians took part in this operation.
72. Nicholson, *The Official History of the Canadian Expeditionary Force, 1914-1919*, p. 494; MacLaren, *Canadians in Russia, 1918-1919*, pp. 24-25. The five were: Warden and Lewis, Captain John William Henry Gerritt Hopman Van Den Berg, Captain Robert Harrison, and Captain Gordon Scott Hopkins. Several Canadian Sergeants later joined them, as did a sixth officer, Major Adam H. Gilmour.
73. Brinkley, *The Volunteer Army and Allied Intervention in South Russia, 1917-1921*, pp. 63-70; MacLaren, *Canadians in Russia, 1918-1919*, pp. 23-25. Some 10,000 Armenians were killed. Canadian casualties in the Dunsterforce operations numbered only one. On the night of 31 August, Sergeant Ambrose J. Mahar, was wounded in the shoulder in fighting 10 miles north of Baku. However, Sergeant D.J. MacDonald had been evacuated with smallpox and eventually died in Bombay on 5 December 1918.
74. Warden as quoted in MacLaren, *Canadians in Russia, 1918-1919*, p. 33.
75. Dunsterville, *The Adventures of Dunsterforce*, p. 317. Ironically, another British force led by Major-General W.M. Thomson, dubbed Norperforce (North Persian Force), would re-occupy Baku and the Caucuses on 17 November 1918, after the signing of the Armistice.
76. Nicholson, *The Official History of the Canadian Expeditionary Force, 1914-1919*, p. 496; Bean, *Official History of Australia in the War of 1914-1918, Vol. V*, pp. 756-757; Swettenham, *Allied Intervention in Russia 1918-1919: And the Part Played by Canada*, p. 50. Captains Peter S. Murray and Guy B. Roberts and Sergeants David F. McWhirter and Alfred P. Gattey volunteered for the Mesopotamian force. Joining Norperforce were Lieutenant-Colonel Harold M. Newcombe, Captain Adam H. Gilmour and Sergeants Lorne F. Weidmark and Samuel Hamilton. To the Canadian Siberian Expeditionary Force went Lieutenant-Colonel Warden, Captain Lewis and Sergeants Ambrose J. Mahar, John Lawrence and Alexander Ramsey.
77. Swettenham, *Allied Intervention in Russia 1918-1919: And the Part Played by Canada*, p. 50.
78. Wilson as quoted in MacLaren, *Canadians in Russia, 1918-1919*, pp. 23-24.

NOTE TO FILE—THE BLOGS OF WAR

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

The medium is the message.
—Marshall McLuhan (1911-1980)

With the advent of commercially available web page construction software during the mid-1990s, people who were already actively engaged in computer network-based communication and data exchange employed these new tools to further exploit the media capabilities of the Internet and the World Wide Web (WWW). Of particular note was the rise of regularly updated web-based publications consisting primarily of periodic articles written by a single author or group of authors. In 1997, this type of website was referred to by psychologist and researcher Jorn Barger as a 'weblog' on his site, *Robot Wisdom*. Soon after 'web logs' became known simply as 'blogs', and the people who wrote them were known as 'bloggers'.[1]

'Blogging' (the act of writing a blog entry) rapidly evolved into a widely accepted form of Internet based communication and reporting. Although most early weblogs were laborious to regularly maintain, later developments in automated maintenance software and browser-based utilities greatly reduced the work involved in creating and maintaining a blog. The facilitation of blog creation made them accessible to a much wider public at large, allowing both technically and non-technically oriented people to carve out a presence online.

Perhaps the greatest attractions offered by blogs were their collaborative natures, as well as their timeliness. They became a new medium of communication, disseminating raw data immediately from nearly anywhere in the world to an unprecedented audience size scattered across the entire globe. Blogs could be used to simply 'spread the word', or even harness collective intelligence and critical thinking at dizzying speeds to tackle more serious problems and issues. Today, blogs have tremendous capability and potential, and they are undoubtedly here to stay (at least until the next great Internet invention).

Since their arrival less than a decade ago, blogs have permeated every aspect of society. They can range in scope from the personal daily diary of a single person to one hosted by a large organization. Blogs cover all ranges of topics. They can be hosted by a single author, or be the result of a collaborative effort amongst a group of authors. Blogs can be static or they can become interactive. Some blogs allow the public at large to leave comments, which can lead to a community of readers centered on a certain blog. Blogs are also highly reactive to current events. The totality of blogs and blog-related websites is often referred to as the 'blogosphere', and when a particular event or activity causes an increase in postings and/ or discussion across the blogosphere, it is sometimes called a 'blogstorm' or 'blogswarm'.

With blogs increasingly ingrained in average society and people's everyday lives, it was inevitable that this form of communication would soon cross paths with defence and

the military. When armies deployed overseas or went to war in the aftermath of 9/11, bloggers were among them, and the blogs they wrote presented an unprecedented view of the military experience in theatre and at war. During the Second World War, a soldier's account of life and death at the front might have taken weeks or months to reach readers back home, but today it may take only minutes. As one American soldier wrote in his blog from somewhere in Iraq, "Never before has a war been so immediately documented."[2]

Recent conflicts in the Middle East and Southwest Asia have resulted in the creation of over a hundred military blogs (milblogs) composed by uniformed members also known as 'milbloggers'. American soldiers author by far the majority of these blogs, but soldiers from other countries are also slowly getting engaged in the medium. Overall, they provide a remarkable insight into daily events in places like Afghanistan and Iraq that are often completely ignored by larger and more traditional media outlets. More importantly, many argue that milblogs provide a critical degree of balance to an otherwise biased and politically motivated mainstream media agenda.

Milblogs written by American soldiers currently serving in Iraq and Afghanistan have received considerable attention worldwide. Some have even influenced both the American government and the public back home. The milblog, A Line in the Sand (http://www.missick.com/warblog.htm) authored from Iraq by Sgt. Chris Missick, easily overtook official Department of Defense (DoD) and C-Span related websites in describing Iraq and American soldier's experiences there to the average American. Another milblog, Armor Geddon (http://avengerredsix.blogspot.com/), written by 1st Lt. Neil Prakash, was also notable for his incredibly frank day-to-day accounts of the fighting in Fallujah and Baquba last autumn.[3] Others still talk about life as a Marine in Anbar Province, as a Medic in Baghdad, and even as a Logistics Officer at Camp Falcon. The range and scope of the hundred or so more serious U.S. milblogs provide an image of stability and reconstruction operations in Iraq that is simply inaccessible from other media means.

The rise of 'frontline' milblogs prompted the U.S. Army to issue official policy on the matter, but instead of shutting blogs down completely in theatre (which would have undoubtedly adversely affected morale) it took a guardedly supportive approach to the subject. There were certainly growing pains; soldiers were required to adhere to operational security as well as register their blogs with the chain of command. It was a challenge to determine what subjects could be discussed and in how much detail while still supporting some degree of freedom of expression. Some sites were shut down as a result of what they reported, but others were allowed to go on even when they offered less than complimentary views and opinions of U.S. army policies and operations. In the end, the U.S. Army was satisfied and the milblogs went on.

A brief Internet research survey conducted by the author earlier this year revealed that Canadian milblogs are for the most part much less evolved. There are two official blogs, the first being Canadian Armed Forces, (http://canadianarmedforces.blogspot.com) and the other, Canadian Military Police (http://canadianmilitarypolice.blogspot.com). Both are little more than alternative sites

for official DND press releases, and do not display any degree of interaction similar to that witnessed in other milblogs.

Turning to unofficial milblogs, currently there does not appear to be many more to choose from. The milblog with by far the largest active community is Army.ca (www.army.ca), whose current registered membership is just over 7993.[4] In addition, there is a small handful of personal milblogs such as The Narcoleptic Private—My BMQ/SQ in the Army Reserve Coop Program (http://spaces.msn.com/members/militarymatt/), My Life in the Military (http://www.nathaliegareau.blogspot.com), and Seven Six Two Millimeter Full Metal Jacket (http://davidkrystal.com). Still, none of these blogs originate from a Canadian theatre of operations, further suggesting that perhaps the Canadian Army has yet to witness the advent of its own blogs of war.

Some may see milblogging as a passing fad, while others might declare it dangerous and impossible to support and sustain in theatres of operation. It may perhaps make Army life a bit more complicated, but there is little likelihood that milblogging will fade away (until the next great Internet invention anyway). For this and the next generation of soldiers growing up in the Internet age, blogging from the front lines may eventually become as natural as it was for Canadian soldiers in Flanders to scrawl a message home on a post card in 1915.

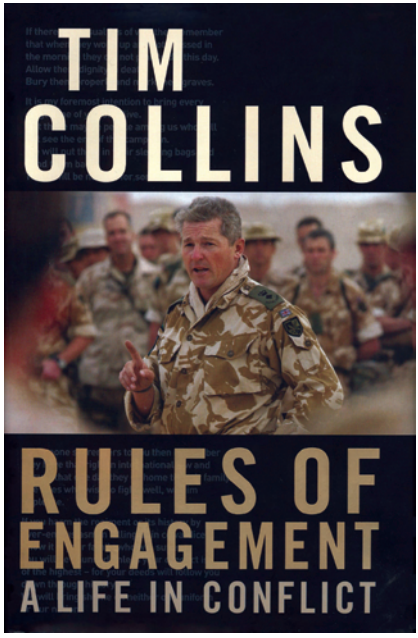
Endnotes

1. Peter Merholz is credited with coining the term 'blog' on his website sometime in April or May 1999.
2. Sgt. Chris Missick. Missick served with the U.S. Army's 319th Signal Battalion in Iraq, and is the author of the widely popular blog 'A Line in the Sand'.
3. 1st Lt. Prakash was also awarded the Silver Star for bravery in 2004 during actions in the Sunni Triangle, Iraq.
4. The registration at this site is impressive when considered in a larger cultural context. Imagine if only half of those registered at Army.ca were currently serving soldiers, it could suggest that as much as 13%of the total Army (regular force and reserve) might be members of just this one website.

— BOOK REVIEWS —

RULES OF ENGAGEMENT: A LIFE IN CONFLICT

By Tim Collins (Headline Book Publishing, 2005), ISBN 0 7553 1374 7; 406 pages, maps, photographs, index. $39.95 Cdn.



Reviewed by Mr. Vincent J. Curtis

Colonel Tim Collins, OBE, came to the attention of the world from a speech he gave to his command just prior the invasion of Iraq. He said to the troops of 1st Bn Royal Irish Regiment:

"We are going to Iraq to liberate and not to conquer….We are entering Iraq to free a people…if you are ferocious in battle, remember to be magnanimous in victory…Iraq is steeped in history; it is the site of the Garden of Eden, of the Great Flood, and the birthplace of Abraham. Tread lightly there."

Colonel Collins was born in Belfast, Northern Ireland, in 1960. He attended the all-boy Royal Belfast Academical Institution, a school founded on the ideals of the United Irishman movement, and, perhaps as a result, betrays no evidence of the sectarian prejudices that are the ruin of Northern Ireland today. (He is certainly deeply aware of the reality of life in Northern Ireland, but is no partisan himself. He was a young boy when "the troubles" broke out.) Later, he attended Queens University and was commissioned into the British Army upon graduation in 1981. He confesses to desiring to be a great soldier since he was a boy.

Colonel Collins has written a good, readable account of the latter part of his career, from near the pinnacle, through his fall, to subsequent recovery. His story contains many examples of the perils faced by western militaries today, and by their commanders; and the reader can easily slip into the author's shoes and try to guess what he would do in the same situation before finding out what ultimately happened.

Colonel Collins begins his narrative in August 2000, when he was the lieutenant colonel responsible for the operations of the United Kingdom's Special Forces. A guerrilla gang in Sierra Leone had captured eleven British soldiers, including a company commander, company sergeant major (CSM), and battalion intelligence sergeant, of 1st Royal Irish Regiment, the unit he was slated soon to take over. The gang, called the West Side Boys, was one of a number of armed bands fighting in the failed state that Sierra Leone had by then become. It had appeared that a political resolution in Sierra Leone was on the horizon, and tensions had greatly eased. Thus the patrol, composed of a disproportionate number of important people, was not on its guard when the West Side Boys decided upon abduction rather than parlay. Who would have guessed that a murderous, undisciplined, drug-addled gang of thugs might behave unexpectedly and not in the best interests of all concerned, themselves included?

To rescue the members of his future command either by negotiation or by force became Colonel Collins' mission. Force was necessary, the rescue was effected, and the West Side Boys paid a heavy price for their foolishness. Nevertheless, the humiliation of being taken unawares by African irregulars deeply affected the morale of members of his new command.

Collins writes frankly of the common problems faced by battalion commanders: drugs, gangs, homosexuality, training accidents, tragedies involving members of the regimental family, higher headquarters, and being constantly under strength. His perspective and actions make worthwhile reading. Without going into the details of tactics, he covers the way in which he and 1 R Irish handled a tour in Northern Ireland, and which by strength, discipline, and restraint, kept a lid on volatile situations without exacerbating them. This tour presented some ticklish problems unique to 1 R Irish, for many in the battalion were born and raised in the area of operations, and knew and were known by the rival members of the IRA and the several protestant gangs, and who could have exacted revenge upon them or upon members of their family if it became known they were there.

As the war on terrorism turned towards Iraq, Collins prepared his battalion for the land battle ahead. The men were honed to readiness by demanding physical exertions, by training courses with American forces, and by vigorous live-firing range exercises (including several in CFB Wainwright). He continually sought to impart his knowledge, experience, and expectations to his officers and troops.

Finally, the order for deployment to Kuwait came, and the bulk of the book is devoted to detailing Collins' personal experiences as commander of 1 R Irish in Iraq and the aftermath. His battalion captured Al Rumaylah, Al Medina, crossed the Euphrates to capture Al Qurhah and Al Amarah. By his account, resistance by the Iraqi Army proper was light. Although its equipment was old, it was well maintained, and the Iraqi Army was well trained and could have given a good account of itself. But the average Iraqi soldier had no heart. Realizing this, Collins took advice from Sun Tsu, that it is better to defeat your enemy without a battle, and sent ahead of his column respected members of the Iraqi community from places already conquered. His Iraqi delegates told the defending forces that if they chose to withdraw and leave behind their equipment, they could go unmolested; but if they chose to test their mettle, the Irishmen over there would oblige them. Thus the Iraqi forces before Collins melted into the desert.

By not forcing battle onto the Iraqi army, by psychology, and by mercy Collins was able to capture his objectives without losing a member of his command. Collins was more fortunate in his enemies than other coalition commanders were, but it was because of his experience, knowledge of Irish history, and perception that he grasped the special situation before him, and chose a course of action that minimized bloodshed. The campaign fought by 1 R Irish in Iraq was decidedly not of the old textbook.

If organized resistance nears the least of Collins's worries, unorganized resistance was near the highest. The Baathists and were preparing to foment chaos in the rear areas of the advancing coalition armies. The liberated Iraqi people, as if possessed by a sudden madness, began to loot and destroy, creating a condition in which the population would have to rely on the coalition forces for fresh water, food, and electricity. Collins describes the vigorous actions he undertook to put a stop to looting

and destruction of valuable infrastructure, and to handle the delicate political situation that arose from the vacuum of the collapsed regime. (Niccolo Machiavelli is another of Collins's favorite authors.)

For commanders in the era of the three-block war, the most important part of Collins's tale is not the war fighting, it is the political struggle he waged. Saddam created a society which had fierce internal conflicts so that the population could not unite against him, and he used the Baath party in the same way that the East Germans used the Stasi: to spy, divide, and control through fear. Somehow, this society, newly freed, but still twisted by fear, hatred, and rivalry had to be made to function again on its own, and the only stature Collins had to impose his will on the growing chaos was the fact that he was the boss of the strongest gang in town. Important, but not in itself sufficient. Yet, he succeeded in getting basic municipal services working again, and the areas he administered were regarded as a model for the rest of the British sector. His experiences of the divisions of Northern Ireland were helpful to him in patching together a self-reliant, functioning municipal government.

In the midst of all this, the reader encounters Re Biastre, a major from a US Army reserve civil affairs group, who made the mistake of believing that his status as an American made him independent of the formidable Collins's tactical control. His embarrassment and humiliation led him to accuse Collins of war crimes.

Near the end of the war, Collins was a media figure in Britain who was widely regarded for his flamboyant leadership style. This is precisely the sort of character that the anonymous spokesman loves to bring low. And that is exactly what happened. Within days of receiving a warm letter of admiration from Prince Charles, Collins got word of an impending investigation against him for war crimes. It is one thing for a brave commander to lead his men into battle—from the front—but it is quite another to combat the character assassin, the invisible staff process, and the press leak. It seems that all the senior commanders who ought to have dealt with the matter expeditiously took a pass, and one is tempted to believe that personal careerism and adverse political optics had a hand in their decision to let the staff process take its lengthy, winding, tortuous course. According to the author, at no time does it appear that anyone observed that even if the alleged facts were true, they did not amount to a "war crime." The mere allegation itself appears to have been enough to send the most senior officers in the British Army running for cover.

The substance of the allegations against Collins apparently were: that from time to time he discharged his pistol to put a stop to looting, struck a couple of Iraqi men engaged in crime, roughed up and frightened a known Baathist official who was in the midst of plotting murder, abused the poor Major Biastre, and obliged an off-duty corporal of the British military police (a personage not under his direct command) to stand guard when there was literally no one else available. All this shocking behaviour was alleged to have occurred in a war zone under a regime of martial law.

Collins was eventually cleared of all charges, promoted to full colonel, and awarded the Order of the British Empire. However, the experience of being abandoned in his time of trial by the senior British Army Command disheartened him from continuing his career. He retired from the British Army in August, 2004. Colonel Collins was gracious enough to give a presentation of his experiences in Iraq to the Canadian Infantry Conference that was held in Hamilton in June, 2004.

In reading his memoirs, commanders are brought face to face with some of the perils they may encounter in fighting a Three-Block war. The Three-Block war is not about out-maneuvering and annihilating an organized and recognized enemy force on the battlefield. It is about politics in its most raw form. It is about the use of murder to gain political ends, about putting down local tyrants and bullies, and it is about overcoming sectarian rivalries to a sufficient degree that the people are free, the economy functions, society is self-reliant, and the basic needs of ordinary people are met: clean water, food, electricity, schools, garbage collection, and routine law enforcement. Other than the military force at his command, the singular political advantage that the commander possesses in the midst of a highly fluid political situation is that he stands for the common good of all, and all the factions opposed to him aim only at their own particular selfish ends. Collins was able to weave the factions he met into a workable government precisely because the leaders of each of these factions were made to realize that the common good of the community as a whole was their second best political choice, one that gave each of them legitimacy.

In a Three Block war, a commander may have to become a temporary political overlord, as Collins was, and may have to use the force at his command for local, direct political purposes. That might, but not necessarily, include the use of lethal force. Are the governments of the western powers prepared to let their battalion commanders be the political overlord of a foreign city? And are western governments prepared to expose their commanders to the threat of legal action for conduct that in calm peacetime might seem outrageous, but which in the context of the war situation on the ground be the only sensible course of action? Will western governments let the adverse political optics of the accusation of war crimes interfere with the military justice system? How much discretion, in other words, are western governments prepared to give their commanders in the field before political support collapses from the predictable accusations of war crimes? How much of the Clive in India are we prepared to let our commanders be?

On the current situation in Iraq, Collins holds with the traditional British approach to pacification as exemplified by Sir Robert Thompson during the Malayan emergency. These include a time frame for political progress, separating the insurgents from the population, acting scrupulously within the rule of law, strengthening the local economy, and basing operations on sound intelligence so as not to alienate the population. One discerns here the deft hand of the British imperialist. In her wars, America tends to be either a conqueror or a liberator, either too politically dominant in the captured territory or not at all. That delicate middle ground of political oversight, of guiding from behind the scenes, is the domain of the effective imperialist, and is the method instinctively preferred and adopted by Collins.

Tim Collins was a casualty of the Three-Block war. Fortunately, the wound proved mortal only to a career. However, his experiences are worthwhile for senior commanders to reflect upon, both for the way in which he succeeded in managing the political vacuum that resulted from the collapse of the Saddam regime, and for lessons that need to be learned about protecting an army's most precious resource: its fighting commanders.

ARMED SERVANTS: AGENCY, OVERSIGHT AND CIVIL-MILITARY RELATIONS

Peter D. Feaver, (Cambridge, MA: Harvard University Press, 2003)

Reviewed by Major James R. McKay, Ph.D.

The current paradigm of the study of civil-military relations is dominated by some well-written and carefully considered works that date from the Cold War, such as Samuel Huntington's *The Soldier and the State* and Morris Janowitz's *The Professional Soldier*.[1] It is interesting to see a new challenge to that paradigm. This challenge comes from Peter Feaver, the Alexander F. Hehmeyer Professor of Political Science and Public Policy at Duke University. Feaver has been a rather prolific author, with a number of books and articles on civil-military relations as well as American foreign and defence policies.[2] *Armed Servants*' genesis spans his academic career, and it represents a very well synthesized compilation of his earlier works.[3]

Feaver, in *Armed Servants*, skilfully summarizes the existing paradigm and then challenges it with a new theory. Feaver notes that Huntington's work was a reaction to the tension between American societal values such as individualism and liberalism and the need for security in the face of the Soviet threat. If America became liberal as it has been naturally inclined through most of its history, then the U.S. military would not be capable of providing sufficient security to deal with the Soviet threat.[4] Feaver acknowledges his intellectual debt to Huntington and uses the same point of intellectual departure.[5] The civil-military paradox lies at the foundation of all studies of civil-military relations: the very institution designed to protect the nation-state against external threats has the ability to change the nature of the nation-state through armed violence.[6] Huntington, in his original work, argued for 'objective control' of the military, which Feaver summarizes as a situation where: ". . . autonomy leads to professionalization, which leads to political neutrality and voluntary subordination, which leads to civilian control . . ."[7] In essence, Huntington argued that if the military retained its professionalism by remaining outside the political sphere, then its civilian masters would guarantee a relatively independent sphere of military action, which would lead to the existence of sufficient security for the nation. In his book, Feaver challenges this model by noting that Huntington's theory is not supported by the evidence of the Cold War. He argues that his model reaches vastly different conclusions.[8]

The book is based on "agency" theory. The theory has its origins in microeconomics, and Feaver believes that the theory is applicable to a civil-military relations context because it represents a dynamic (i.e. fluctuating) relationship in a hierarchical setting.[9] He argues that this theory helps explain the: " . . . strategic interaction between civilian principals and military agents . . ."[10] He does an excellent job of explaining how the theory functions by noting that:

> The employer (principal) would like to hire a diligent worker (agent), and, once hired, would like to be certain that the employee is doing what he is supposed to be doing (working) and not doing something else (shirking). The employee, of course, would like to be hired, and so has an incentive to appear more diligent during the interview than he really is; this fact complicates the

> employer's efforts to pick the sort of employee who will want to work hard, a phenomenon referred to as the adverse selection problem. Once hired, moreover, the employee has an incentive to do as little work as he can get away with, all the while sending information back to the employer that suggests he is performing at an acceptable level; this fact complicates the employer's efforts to keep tabs on the employee and is called the moral hazard problem. The principal-agent approach, then, analyzes how the principal can shape the relationship so as to ensure his employees are carrying out his wishes in the face of the adverse selection and moral hazard problems that attend any agency situation.[11]

While the original theory holds that all principals want work to occur for minimum pay and agents want pay for minimum work, Feaver convincingly argues that it can be adapted to a civil-military setting. Both parties would like to ensure that there is sufficient security for the state, but may differ on the means to obtain it.[12] Shirking occurs when the agent does not obey the civilian masters. The concept must be understood clearly; at the one end it can include military coups, but in the American case, shirking consists of the agent trying to ensure its desired outcomes occur as opposed to those desired by the principal. Such behaviours would include attempts to "situate the estimate" (i.e. shaping the information to obtain a particular result), "end runs" (i.e. soliciting political support for the agent's preferred outcome) and the imposition of bureaucratic delay.[13]

Agency theory has several schools of thought, but Feaver opts for the middle ground. One school of thought holds that agents work best under "optimal" monitoring, i.e. where the incentives to shirk are minimized and the effort remains cost-effective. The other school of thought holds that monitoring is inherently inefficient and it is therefore best to ensure a consilience of the principal's and the agent's goals. Feaver argues in favour of a blended approach.[14] Feaver's book is very clear in terms of where it fits into the broader literature surrounding civil-military relations and agency theory. Feaver's depth of knowledge of the theories and the evidence is demonstrated throughout, and as he argues early in the work, the evidence supports the predicted outcome of the theory.

It is difficult to criticize this book. Others have done so by indirect means; they noted that agency theory tends to reduce multi-faceted relationships to only two actors, a monolithic government principal and an equally monolithic military establishment.[15] The theory, however, has been extended to other situations by other authors, which weakens such criticisms.[16] Without a basic understanding of game theory, readers will find that the sections on game theory are difficult to comprehend.

Feaver has presented a strong challenge to the existing paradigm. He provides a comprehensive review of the dominant civil-military relations theories as well as a well-argued counterpoint to those theories. While Huntington has been used in a number of Canadian Forces individual training and educational establishments to instil professional ethos, it should never be considered the final thought in a broader debate. After all, Huntington argued for a particular form of control in 1957 which was not followed and yet the US did not succumb to the Soviet threat. While reviewing the book, there was a strong temptation to try to apply agency theory to the Canadian

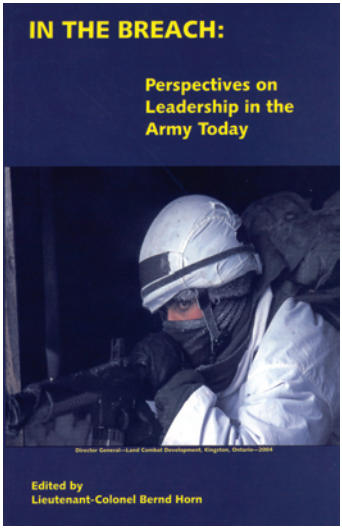
experience. It would be inappropriate to do so in this review, but those interested in doing so should read *Armed Servants*, examine the available evidence, and draw their own conclusions.

Endnotes

1. See Samuel Huntington, The Soldier and the State: The Theory and Politics of Civil-Military Relations (Cambridge, MA: Harvard University Press, 1957) and Morris Janowitz, The Professional Soldier: A Social and Professional Portrait, (New York: The Free Press, 1971).
2. See: http://fds.duke.edu/db/aas/PoliticalScience/faculty/pfeaver/publications for details.
3. Peter D. Feaver, Armed Servants: Agency, Oversight and Civil-Military Relations, (Cambridge, MA: Harvard University Press, 2003), pp. vii and x.
4. Feaver, pp. 18-19.
5. Feaver, p. vii.
6. Feaver, p. 4.
7. Feaver, p. 18.
8. Feaver, p. 9, 16, 20, and 37-53.
9. Feaver, p. 54-55.
10. Feaver, p. 2.
11. Feaver, p. 55.
12. Feaver, pp. 59 and 65.
13. Feaver, p. 68.
14. Feaver, p. 56.
15. For examples, see: Andrew Bacevich, "Absent History: A Comment on Dauber, Desch and Feaver", *Armed Forces & Society*, Vol. 24, No. 3 (Fall 1998), pp. 447-454 and James Burk, "The Logic of Crisis and Civil-Military Relations Theory: A Comment on Dauber, Desch and Feaver", *Armed Forces & Society*, Vol. 24, No. 3 (Fall 1998), pp. 455-462.
16. For example, see: Thomas Sowers, "Beyond the Soldier and the State: Contemporary Operations and Variance in Principal-Agent Relationships", *Armed Forces & Society*, Vol. 31, No. 2 (Spring 2005), pp. 385-409. On p. 385, Sowers noted that even Feaver admitted that this represented an abstraction on pp. 294-295. Feaver stated that he treated the executive branch of the US government as the primary principal, but noted that the legislative branch also retained significant power that affected the military decision to work or shirk.

IN THE BREACH: PERSPECTIVES ON LEADERSHIP IN THE ARMY TODAY

LCol. Bernd Horn (ed.), Kingston: Director General—Land Combat Development; 2004. (218 pp).



Reviewed by Mr. Peter Gizewski

Much has been written on the subject of military leadership over the years. Indeed, the question of what constitutes sound leadership, and the myriad obstacles and challenges that confront its realization have always generated considerable thought and reflection. Primarily however, such work has been focused at the most senior levels of command and has largely been the province of the academic community or of retired (or soon to be retiring) generals. Sustained treatments focusing on lower rank levels are far less evident. And, works addressing the issue from the standpoint of these practitioners themselves are rarer still.

This is hardly surprising. Often, the wide-ranging responsibilities and day-to-day pressures of life at the

unit level can leave little time or opportunity for thorough reflection and documentation of thoughts and impressions. And even when opportunities for such an exercise do exist, any desire to follow through can easily be dampened by concerns over censure. In an organization that is essentially hierarchical, and which relies heavily on the development of unity of thought and purpose for its success, incentives for candour and searching critique are often eclipsed by a perceived need to "go along" to "get along," particularly at the lower ranks.

Still, such gaps are unfortunate. It is within the battalion (i.e. the unit) that the need for effective leadership is often most crucial. As the "sharp edge" of the combat spear—it is at this level where the proverbial "rubber meets the road."

The study *In the Breach: Perspectives on Leadership in the Army Today*, marks a welcome and much needed attempt to address this gap. In fact, the volume is unique—offering a collection of essays by soldiers themselves—on various aspects of leadership both in the CF in general and the Army in particular. The result is a study that is both highly readable and interesting.

Authors are drawn from a range of rank levels, and topics covered are diverse. Indeed, discussions vary from the challenges involved in gaining the respect and loyalty of troops, to the problem coping with fear and uncertainty under fire, to cultivating and maintaining the *esprit de corps* essential to a unit, to the leadership challenges imposed by the arrival of women in Army battalions. The issue of command is examined at the platoon, company and unit levels. And, the book even includes a piece on the utility (or more accurately, lack thereof) of a military college education as essential preparation for command.

Yet common to many of the offerings is a recognition of the increasing difficulties that have confronted both the development and practice of leadership in recent years. Faced with a post cold-war environment in which threats and challenges are ambiguous and in which nations anxious for a peace dividend have consistently slashed military budgets, sense of purpose and morale have suffered. So too, has training, recruitment and the sense of duty so crucial to a cohesive, effective military. Add to this an increasing public suspicion of governments generally and a growing atmosphere of political correctness throughout government and society, and the exercise of leadership is even more daunting.

In fact, the credibility of military leadership itself has suffered—with negative impacts becoming ever more apparent over the past decade. Not only has army service become increasingly viewed as "just another job," but "service to country" increasingly competes with a "service for self" culture. A growing tendency among leaders themselves to turn a "blind eye" to violations of policy and procedure is also evident. At a time when recruits are ever more intelligent and are less willing to defer immediately to authority and rank, this can only confound the exercise of effective leadership.

Rectifying these problems may require shifts in policy. In fact, a number of authors call for improvements in training, as well as changes in procedure. Even more critical is the need to place greater emphasis on officer education—not only in terms of tactics but also in the realm of overall military policy and strategy.

By and large however, prescriptions focus on self-help. Commanders must become "better role models" and take a more active interest in their troops. They must work harder to earn "the power and privilege to lead." And qualities such loyalty, integrity, and honesty along with technical, conceptual, human, and tactical skills should be more fully cultivated. To gain the respect and loyalty of their troops, commanders must actively seek out advice from those they lead (particularly from the second in command and from section commanders), display technical competence and knowledge, and accept responsibility for their actions. They must maintain close communication with subordinates—keeping them as fully informed as possible at all times. And, they must avoid elitism and the use of double standards.

Such advice is difficult to dispute. In fact, one could contend that most represent blinding statements of the obvious. Still, the fact that they are offered by those serving in the trenches, and are often accompanied by anecdotes based on the personal experiences of the writers themselves gives them a credibility that is compelling. Accordingly, the advice provided warrants our attention.

Less understandable is the absence of a concluding piece that reflects upon and summarizes the many observations and insights offered throughout the work itself. Although chiefly intended as a study for soldiers by soldiers, the work nevertheless stands as a rich source of primary material which could clearly serve as a springboard for deeper, more refined analysis. And, a chapter systematizing the observations and recommendations made would have been a useful means for encouraging and facilitating such inquiry.

This criticism aside however, In the Breach remains a valuable work. Well organized and well written, it not only provides a useful guide on leadership for soldiers themselves, but serves as an important data source in an area too often ignored by past treatments of the subject.

THROUGH THE HITLER LINE: MEMOIRS OF AN INFANTRY CHAPLAIN

By: Laurence F. Wilmot, MC Wilfrid Laurier University Press, Waterloo, ON (2003), HC, 142 pages.

Reviewed by Captain R.D Tesselaar

"But here, in the field of battle, all I could do was to maintain an openness to God and faith in his presence to guide me under these most harrowing circumstances."

Padre Wilmot, pg. 44

In *Through the Hitler Line: Memoirs of an Infantry Chaplain*, Padre Wilmot recounts his experience as an army chaplain during World War II, in particular his time as the padre of the West Nova Scotia Regiment. Aside from a few typographical or editing errors, such as inconsistent rank abbreviations that will only disturb those with a slightly pedantic nature, the book is well written in a straightforward, easy to follow manner. This book will become a classic on conflict from the perspective of a chaplain, and it is "a worthwhile addition to any library," to use the typical review phrase.

Padre Wilmot was appointed as a chaplain in June 1942 and served in a number of positions in Canada and England before finally joining the West Novas outside Ortona,

Italy, on February 10, 1944. He would stay with the regiment until the end of the war in Europe. His service included much of the Italian campaign and the liberation of Holland. Throughout this time Padre Wilmot was heavily involved in caring for the wounded and worked closely with the stretcher-bearers in evacuating casualties during and after battles. Padre Wilmot was awarded the Military Cross for actions he took in organizing the aid parties during the Battle of the Gothic Line.

The book is a first person narration based upon Padre Wilmot's personal journals and memories. Although comments throughout the book indicate that he has studied the Italian campaign, very little contextual material is provided to describe the actions of the West Novas within the bigger picture. Instead, Wilmot focuses on the impact of events and actions upon the soldiers in the unit from the perspective of a padre. He became a confidant of both the leaders and the men of the unit, gaining the trust of the CO by proving that he was there to look out for the interests of the troops and not just interested in conducting church parades. Padre Wilmot's story provides names and personalities that bring this story to life, where other histories provide only dry statistics and commentary. It is this rare point of view that makes this book a recommended read for army leaders and health service providers.

Padre Wilmot colourfully describes the timeless challenges of coping with the results of a battle, from searching for dead and wounded and providing aid to tracking the movement of casualties through the various aid stations and hospitals. He vividly describes the action at the Foglia River, where he led an all-volunteer party of stretcher-bearers out to attend to and retrieve wounded men in a situation considered to be suicidal by the commanding officer and company commander.

These tales and anecdotes are juxtaposed with tales of his R&R activities, during which he had an audience with Pope Pious the XII, toured some of the oldest and most sacred sites of Christian faith, and even attended his first Italian opera. The contrasts of these experiences serve to highlight the challenges faced by a padre in providing a moral compass and support to the soldiers.

As can be expected, Padre Wilmot frequently discusses how his faith helped him face each new circumstance and how his religious teaching helped the soldiers in the unit. He does so from an ecumenical perspective, rather than being overly evangelical. In fact, on occasion he belies the old stand-by that "there are no atheists in a foxhole," describing some who felt "no need for God," and their struggles with the same questions and dilemmas as people of faith. One in particular was a young Corporal Johnson with whom Padre Wilmot seemed to have an ongoing theological debate.

For commanders, this book provides an example of what professionals like the padres and medical officers can provide to a unit, and insight into their perspective of the challenges faced on the battlefield. An interesting anecdote tells of a meeting held between the division commander, Major-General Chris Vokes and his chaplains to resolve some concerns about morale which started as a lecture and ended having educated the General on the realities of the situation. For padres and other support professionals, this book is thought provoking, as the essence of the challenges and coping strategies remain the same sixty years later. If nothing else, this book should serve as a catalyst to discussions on the roles of these professionals and the relationships with the chain of command at all levels.

EXAMINING THE ARMY'S FUTURE WARRIOR: FORCE-ON-FORCE SIMULATIONS OF CANDIDATE TECHNOLOGIES

Randall Steeb, John Matsumura, Paul Steinberg, Thomas J. Herbert, Phyllis Kantar and Patrick Bogue, (Santa Monica, CA : RAND Corporation), 2004. ISBN 0-833-3518-5, $25.00 US

Reviewed by Mr. Paul Roman

In the summer of 2001 the US Army Science Board came to a startling revelation: with all this emphasis on the Future Combat System (FCS) and the equipment for the objective force, they had not been paying adequate attention to the objective soldier. This is a familiar theme in combat development where emphasis on new technology tends to overshadow the challenges associated with actually operating it under combat conditions. In Canada we need look no further than the Multi-Missions Effects Vehicle (MMEV) to find an example of a technology that is undeniably feasible but that will undoubtedly push the soldiers operating it beyond anything they are currently expected to do. Will a single gunner be capable of performing direct, indirect and anti-air missions with a single interface? Imagine further, as is the case with FCS, that a single operator may also be responsible for multiple remotely controlled unmanned vehicles. The human factor challenges associated with these concepts are significant and it is my opinion that, unless we are ready to hand over control to the machines, it is the human, and not the technology that will be the primary determinant of success on the future battlefield.

The RAND Corporation, a non-profit US think-tank charged with providing objective analysis and effective solutions to sponsors from both the public and private sectors, conducted this study under contract to the US Army. Building on previous FCS platform studies that revealed issues with dismounted operations, this study adopted higher resolution[1] scenarios that more accurately depicted dismounted operations in complex terrain. The primary improvement was in the terrain database adopted that used 9 m versus 30 m spacing compared to the previous study. The problem with high-resolution terrain databases is that they become extremely large creating a trade-off between the accuracy of the depiction and the size of the terrain box available for the study. This is a significant improvement, and as many of the *Canadian Army Journal* readers are well aware, ground plays a pivotal role in dismounted operations. Unfortunately, the so called "complex-terrain" in this study was limited to a tree lined defensive position for Red being attacked first by Blue forces with current equipment under normal conditions with good weather (the baseline case) and subsequently by FCS equipped soldiers operating in various weather and combat conditions. The primary advantage of simulation is the flexibility provided in terms of the ability to control all of the variables of interest (technology, tactics, procedures, conditions) and through detailed experimental design being able to attribute measured outcomes in such a way that cause and effect relationships can be postulated. This naturally leads to recommendations regarding those variables which the combat developers have the power to influence through decisions.

The underlying methodology for this study is fundamentally sound. The primary simulation tool used was the analytical version of Janus, however the authors also

assessed the benefits of adopting more sophisticated models including JCATS (Joint Conflict and Tactical Simulation) and OTB (OneSAF Test-bed). In the baseline case a 40-soldier platoon of Blue dismounted soldiers attacked a 13-soldier squad of Red infantry dug into a tree line. With M-16s and M-240 machine guns facing an enemy squad with AK-74s and machine guns, the Blue force was unsuccessful; losing half of its number while the enemy also lost half of its force. Improvements to the force were tested one at a time and then in combination. Significant improvements occurred when indirect fire and the Objective Individual Combat Weapon (OICW) and Forward-Looking Infrared (FLIR) were made available to the blue force resulting in Loss-exchange ratios (LER, number of enemy dismounts killed divided by the number of Blue dismounts killed) improving by a factor of five. When body armour capable of stopping small-arms fire was added to this mix, the LER reached seventeen times improvement compared to the baseline case. In other scenarios, the use of obscurants and Unmanned Ground Vehicles (UGVs) were shown to also improve survivability in some circumstances. Tradeoffs were also evident as equipping only portions of the Blue forces with the OICW resulted in more than proportional improvements in outcomes as measured by LER. Similarly, reachback fires were useful, but they required substantial firepower to achieve a limited number of kills of dug-in forces.

To the credit of the authors, they are quick to highlight some of the shortcomings of this study. They clearly state that their parallel examinations of JCATS and OTB showed that these simulation tools (that the Canadian Army have already used to replace Janus) had great potential for modelling interior fighting, representing non-combatant interactions, collateral damage, and visualizing event chains. They argued for more man-in-the-loop simulation, especially for command and control issues (one of the approaches adopted by the Canadian Army Experimentation Centre) and field experiments. Furthermore, the need for better measures of effectiveness (MOEs) and Measures of Performance (MOPs) above and beyond the very limited loss exchange ratio is clear. Not surprisingly, this analysis vendor argues that all of these issues should be the subjects of future studies.

If you enjoy reading operational research studies and are interested in the design and execution of well-run constructive simulation experiments, this report is for you. As the authors themselves highlight, however, the tools and methodology adopted have significant limitations that lead more to the requirement for future studies than concrete recommendations. This is normal considering that these technologies do not actually exist and as a result are impossible to properly validate in simulation. It is also comforting to note that in most cases, the Army Experimentation Centre and the Operational Research (OR) team that supports them in Kingston are already adopting the suggestions RAND makes for improvement. Overall, however, this report is still about technology. RAND took a much closer look at the dismounted battle than the earlier FCS studies, however, it was still the technology provided to the soldier that was the primary variable of interest. The human factors can be addressed to a certain degree with humans in the loop (a synthetic environment), but the real proof will come when these systems are modelled with humans operating reasonable representations of their actual interfaces and then later when prototypes are available for field trials that can be further used, in part, to validate the simulation models developed to help define the requirements for the systems in the first place. No this is not a vicious circle,

rather an approach called spiral development supported by simulation based acquisition that will maximize the probability that the systems developed will meet the requirements defined including those attributed to human factors.

Returning to the Canadian MMEV example, the fact that DRDC is conducting technology demonstration projects aimed at determining not only battlefield effectiveness but also assessing the ability of a two or three-man crew to operate the weapon system is proof that this is becoming a lesson learned. Employing their purpose-built simulators in synthetic environments created to test these issues collaboratively with the FCS projects further suggests that these issues are beginning to receive the attention they deserve. Constructive simulation studies like this one will continue to play an important role in terms of assessing the force-on-force outcomes of candidate technologies, however, this is only a small part of what simulation has to offer in terms of overall support to capability development.

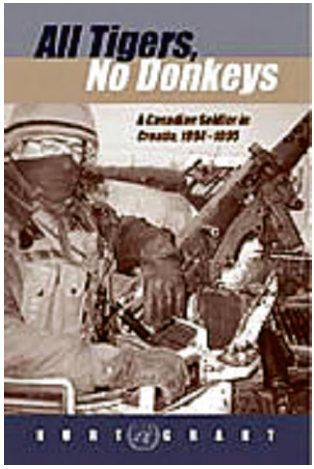
Endnote

1. The term higher resolution in this context refers to a greater level of detail. The preferred term for improved level of detail is higher fidelity, however since the authors of this study use higher resolution, it has been adopted for this review.

ALL TIGERS, NO DONKEYS—A CANADIAN SOLDIER IN CROATIA 1994-1995

Kurt Grant, All Tigers, Vanwell Publishing Limited: St. Catherines ON, 2004.
ISBN 1-55125-091-8. 319 pages. $29.95

Review by Captain Steve Nolan



Over the last fifteen years or so, the term Peacekeeper has been used in relation to the missions of the Canadian Forces, yet there is very little in the way of contemporary writing on a subject that so clearly resonates with Canadians. Kurt Grant's *All Tigers, No Donkeys—A Canadian Soldier in Croatia 1994-1995* is adapted from the journal he wrote when he was a Canadian Peacekeeper. It is an entry into the topic of Peacekeeping and more specifically the Canadian experience with service with the United Nations. Grant served with the 1st Battalion, The Royal Canadian Regiment during its deployment to the Former Yugoslav Republic of Croatia. The unit was part of the United Nations Protection Force, more commonly known as UNPROFOR.

Kurt Grant uses his unique viewpoint as a reservist employed with a regular army unit, to explore what it means to be a Peacekeeper. The book is a very easy read in the style of a modern BLOG (Internet Log or Web Log) rather than an academic exploration of the topic. The writer's intent is to create something to give to his family upon his return from Croatia in order for them to understand what he went through while employed with the UN. He took several years to self-edit his journal in order to

develop this into a book (his first). What he has come up with is an account that would appeal to soldiers, their families and interested Canadians on what a peacekeeper would likely experience while employed with the United Nations.

The book is broken down into four distinct sections that quickly make sense to anyone who has deployed on a peacekeeping mission. The four sections describe applying for the job, the necessary training, deploying overseas, and finally home leave and the re-deployment home. The first section, 'Getting Ready,' gives a very good account of what a reservist goes through before he even begins training with the unit that he (or she) will join. It is quite poignant in its description of his dealings with the reserve bureaucracy and regular force administration. It also highlights the strain of quitting a job and convincing your family that it is a good idea to serve your country in a war zone only to be unemployed when you return to Canada six months later. The second section deals with the pre-deployment training and how soldiers and the chain of command structure prepare for a UN mission. Of note, this section includes the development of the interpersonal relationships that Grant has with his peers and superiors. These relationships, and specifically Grant's positive and negative impressions of these people, form the real focus of the book. There are some telling accounts of what the soldier goes through and what the soldier expects of the mission.

The last two sections detail the time that Grant spends in Croatia. He describes the arduous process of just getting into the area of operations with all of his equipment and personal belongings. Essentially, Grant's writing in his journal is upbeat and energetic at the beginning of the tour, yet noticeably descends towards frustration, cynicism and eventual apathy towards his duties, the unit's mission and towards the concept of peacekeeping in general. More than any other part of the book, the change in tone is the most telling indicator of what Grant (and by extension most peacekeepers) experiences. His anecdotal accounts of incidents that happen to him, those that happen to his immediate platoon, and the rumours he hears of other incidents happening to other junior officers and soldiers guide the reader through the experience. Some of the stories are quite humorous and some quite frightening. Some of the accounts can better help families understand some the very real dangers faced by the members of the Canadian Forces while deployed on these types of missions.

Kurt Grant will do doubt suffer some criticism for some of the things that he wrote. Some of the descriptive passages detail incidents that he witnessed, or heard through first-person accounts, and these deserve some more scrutiny. Kurt Grant shows every indication of trying to give an honest and frank account of what he went through as part of CANBAT 1. However, in some parts he describes what may be interpreted as breaches of professionalism (his admission about his and his peers abuse of the alcohol regulations come readily to mind). Grant pulls no punches when he describes what he sees as the shortcomings of the soldiers and officers in his chain of command. It can be easily surmised that some of the comments about his underlying respect for the chain of command were inserted during the editorial process and were not part of the initial diary entry. He has changed the names of the soldiers and officers; however, any person who served with 1RCR can quickly ascertain who is who.

One can only hope that the anecdotal entries about (then) Pte Grant's dealings with his direct chain of command serve not as an overall criticism of the chain of command (though at times his critique is quite harsh), but as a sincere account of what a private

experiences and thinks of his leaders and the decisions that are made, which have a direct impact on him. For this reason, Kurt Grant's book is both unique and a valuable addition to the small but growing development of the Canadian perspective regarding peacekeeping.

Grant's book comes at a time when the Army is collectively looking back on the 1990's and trying to come to terms with the experience. The privates, corporals, lieutenants and captains who served with both the UN and NATO during that time of tremendous change and operational activity have all moved on. Some have left the Forces and some have risen in rank. The missions that they served on influenced them and the way they view the world as well as the Canadian Army's place in it. It is with the experiences of the peacekeepers of the nineties that the first tentative ideas about a need for change began to develop. Pte Grant's account of the experiences of an individual soldier in a large organization, which is grappling with a changing world, unintentionally gives a hint about the necessary changes the Army would need to face in the near future.

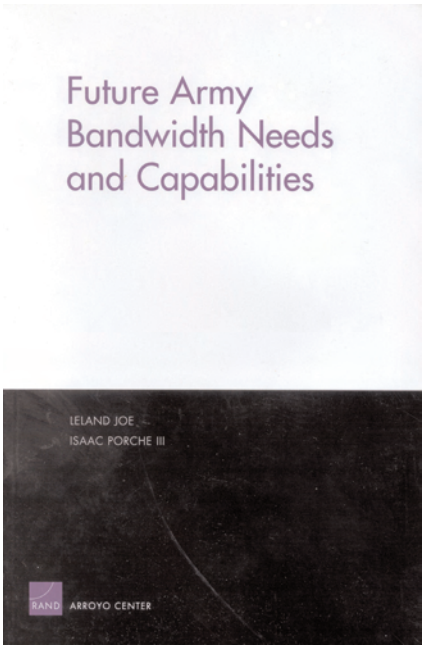
FUTURE ARMY BANDWIDTH NEEDS AND CAPABILITIES

By Leland Joe and Isaac Porche III, (Santa Monica: RAND Corporation, 2004)

Reviewed by Lieutenant Colonel P.C. Cooper

"Bandwidth is like beer you can never get enough of it"

An anonymous Signals Officer



In twenty-seven years as a signals officer, I have been constantly confronted with the topic of bandwidth, particularly with regards to how much is needed/provided with the deployment of the Tactical Command Control Communication System and especially with the roll out of the Land Force Command & Control Information System. With the employment of more and more command support software applications, coupled with Army transformation towards a knowledge based, network enabled, command centric capability, the topic of Army bandwidth requirements has never been more relevant.

While directly applicable to the United States Army, *Future Army Bandwidth Needs and Capabilities* (FABNC) is an excellent read from a Canadian military perspective, as bandwidth requirements and limitations are extremely similar between the two countries. The differences really only relate to scale and time frame. Thus Joe's and Porche's observations and deductions are a good basis to consider in addressing the Canadian Land Force situation, both present and future.

FABNC is a US Army G6 sponsored initiative contracted to the RAND cooperation. Joe and Porche undertook a review of public and government literature, conducted interviews with industry contractors and selected Army personnel, conducted data analysis of various Army digitisation exercises, applied modelling and simulation in determining both future Army bandwidth needs and estimated network systems capacities. Very specifically, they focused on the operational architecture of the Stryker Brigade Combat Team (SCBT) and Future Combat System in determining both the information and bandwidth requirements.

The report is structured into five chapters and three appendices. Chapter One is an introduction to the problem domain. It provides definitions of terminology and introduces various issues at a macro level. Blending technical and non-technical nomenclature, Chapter One does a good job of orienting the reader. The most startling fact presented here is the ten-fold increase in bandwidth demand between the Gulf War of 1991 and Operation Iraqi Freedom in 2003. Furthermore, estimates predict a substantial gap between future demand and available bandwidth.

Chapter Two describes the US Army's present and near term bandwidth capabilities. Chapter Three describes future communication needs and systems capabilities as applied to the Future Combat System concepts that the US Army is in the midst of developing/deploying. Chapter Four presents a number of methodologies that may be considered in order to increase bandwidth capacity. Specifically, it investigates using directional antennas, increasing link capacity via higher frequency bands, improving data transmission routing protocols, adding a vertical "airborne" communications node, building software applications that require fewer and/or smaller data updates and managing operational bandwidth needs. Chapter Five presents findings and recommendations. Appendices A, B and C provide much greater detail on advances in communications technologies, data routing protocols and communications for mobile users.

As stated above, Chapter Five specifies major findings and recommendations. First, it confirms that the planned future communication system for Future Combat Systems will fall short of meeting bandwidth demands. Second, Chapter Five notes that some developing technologies hold promise to mitigate the demand to availability gap. However, Chapter five's third finding is that demand will always exceed supply despite advances in both technology and human processes. A fourth discovery indicates that while bandwidth is and will remain a concern, equal attention needs to be paid to interoperability, information assurance and mobile communications. And finally, FABNC finds that the Army needs to leverage effort being applied by the Department of Defence to the overall United Sates Department of Defence bandwidth shortage and engage in collaboration with them in seeking solutions.

As to the book's recommendations—there are five specific ways ahead: reassess information demands and needs, change application software to require fewer data updates, manage operational demand, increase network routing and finally increase network link capacities. These recommendations are indicative that there is no silver bullet to increasing bandwidth. The recommendations also indicate that the solution set does not solely reside in technology. Interestingly, these recommendations have been known as networking best practice for years. However, it is my opinion that historically our bandwidth demands were easily met and therefore did not necessitate adherence to best practices. Such is not the case now.

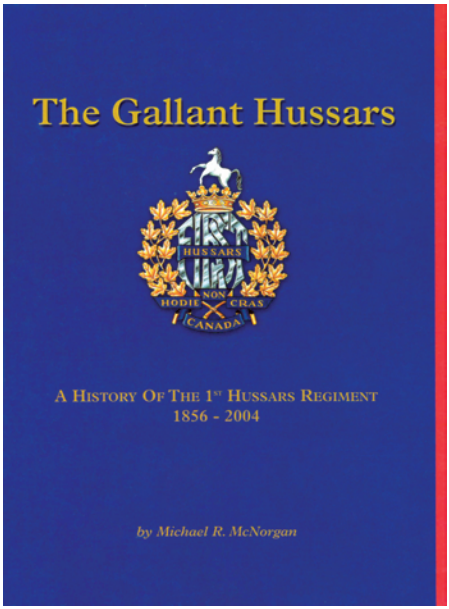
In conclusion, I highly recommend FABNC as a very good profession of arms read for both technical and non-technical Army personnel. It is well written and summarizes

many divergent approaches to defining and resolving Future Army Bandwidth requirements and capabilities. It is grounded in the technology of today or near term and by no means does it advocate a "star wars" approach. You do not need to be an engineer to digest it, (although it always helps to be an engineer in doing anything…but I digress). Lastly, although *Future Army Bandwidth Needs and Capabilities* was directly written and oriented for the United States Army, it definitely is applicable to the Canadian Army's destination. We can learn much from these observations.

THE GALLANT HUSSARS: A HISTORY OF THE 1ST HUSSARS REGIMENT, 1856—2004

Michael R. McNorgan, published by the 1st Hussars Cavalry Fund, 2004.
ISBN 0-09694659-1-2. Hardcover, 359 pages, illustrations, maps, 12 appendices, index.
Available from the 1st Hussars at www.firsthussars.ca.

Reviewed by Major John R. Grodzinski, CD



The last several years have witnessed a revolution in the regimental history, taking the genre from the typical "how our regiment won the war" narrative that was accompanied by a few blurred photos and poorly drawn sketch maps to well researched, detailed study loaded with illustrations, superb (and original) maps and published in a nicely designed format. A few examples of titles meeting this new standard include Donald E. Graves' *South Albertas: A Canadian Regiment at War*, Graves' *Century of Service: The History of the South Alberta Light Horse*, John Marteinson and Michael McNorgan's *The Royal Canadian Armoured Corps: An Illustrated History* and George W. Beal's *Family of Volunteers: An Illustrated History of the 48th Highlanders of Canada*. These books have not only enriched our understanding of the "regimental system" inherited from the British, but also our appreciation of military history. The *Gallant Hussars* continues this recently established tradition.

The 1st Hussars owe their origin to the St Thomas Troop of Volunteer Militia Cavalry and the First Troop of Volunteer Militia Cavalry of London, both formed in 1856. Eventually both troops merged to become the St Thomas and London Squadron of Canada, and in 1872, the unit was expanded and renamed as the 1st Regiment of Cavalry. By 1892, they became the 1st Hussars. The regiment defended Canada during the Fenian Invasions and provided volunteers for the South African War, specifically to the 2nd (Special Service) battalion the Royal Canadian Regiment of Infantry, A Squadron of the Royal Canadian Dragoons, the 6th Canadian Mounted Rifles and the South African Constabulary. Like many other regiments, the 1st Hussars did not mobilize during the First World War. Rather, they provided volunteers for other newly created regiments,

such as the 1st Battalion, Canadian Expeditionary Force, the 7th Regiment, Canadian Mounted Rifles and the Canadian Light Horse. Following the travails of the interwar period, the 1st Hussars were mobilized on 1 September 1939. They served briefly with the ad hoc 1st Canadian Cavalry Regiment (Mechanized) before converting to an armoured regiment in February 1941 with the designation 6th Armoured Regiment (1st Hussars). The Hussars landed in Normandy on D Day as part of the 2nd Canadian Armoured Brigade. They continued operations in North West Europe to the end of the war. Since then, the regiment has been stationed in London, Ontario, where it has continued training as a reserve armoured regiment and providing augmentees to domestic and international operations and to other units and formations.

The *Gallant Hussars* is not the first published history of this unit. In preparing it, Mike McNorgan sought to add to previous studies by offering greater detail about pre-Second World War history and to provide a "wider audience with some of the unit's rich history." McNorgan was an outstanding choice to write this book as he commenced his military career with the 1st Hussars. After joining the Regular Force and the Royal Canadian Dragoons, his interest in his former regiment continued throughout his career. He continued to collect documentation and oral history dealing with the 1st Hussars.

While this is a popular history, McNorgan has made good use of the primary and secondary sources, creating a readable and interesting account. While both the history of the regiment's early years and the modern era are well covered, most of the book deals with the regiment in the Second World War. The author provides a good general overview of the conversion of a cavalry regiment to armour. He describes the challenges of training and preparation for the landings in Normandy, where two squadrons of the 1st Hussars employed the Duplex Drive Sherman tanks that were to "swim" ashore after being launched from the LCTs. The third squadron was equipped with the Sherman Vc Firefly, armed with a 17 pounder gun. The Firefly was the only allied tank that could take on German armour. Perhaps the most interesting chapter deals with the 1st Hussar's "Black Day" that occurred during the June 1944 Battle of Normandy, where along with several other Canadian regiments, they experienced heavy casualties. On 11 June 1944 at Le Mesnil-Patry the 1st Hussars, with a company of the Queen's Own Rifles of Canada under command, suffered 45 fatal casualties. McNorgan has studied this battle for many years and his account is not restricted to a simple narrative—he lays the blame for its failure with the commanders of the 3rd Canadian Division and the 2nd Canadian Armoured Brigade. McNorgan believes these commanders rushed into the operation at the cost of sufficient planning and preparation. His analysis provides more fire for the debates on Canadian performance in Normandy.

Perhaps the most difficult period to write about in the history any regiment is the period after 1945. Despite the many policy changes regarding the reserves implemented over the last half-century, major equipment and doctrinal changes, wars, domestic and international operations and other major events, few useful records from this period have found their way into regimental and national archives. The job of any historian researching this period is therefore, difficult. Notwithstanding the lack of records, McNorgan has managed to give an insightful look at the challenges faced by

the post-war Militia, and the valuable role it has played in the conduct of international operations, such as Bosnia or Somalia, and in the normal routine of the Army.

The *Gallant Hussars* concludes with a number of excellent appendices, covering such topics as the nominal rolls, several rolls of honour listing dead and wounded, orders, medals and decorations, including citations where known, a list of commanding officers and regimental sergeants-major among others.

The illustrations are well chosen and in many cases, presented for the first time. They offer insights into many aspects of regimental life, personalities, the cavalry, the armoured corps, wartime and other operations. Generally, their quality is quite good, although, unfortunately, several were blurred—apparently as a result of being digitized.

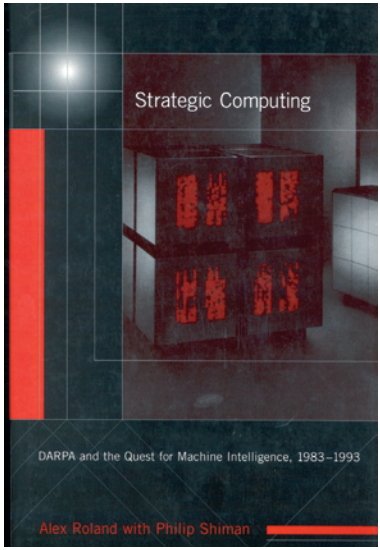
Of particular quality are the splendid maps, charts, organizational diagrams and illustrations produced by Chris Johnson, an armour enthusiast who has established himself as one of the finest technical illustrators and certainly the best cartographer in Canada.

With its solid research, outstanding illustrations and appendices, *The Gallant Hussars* succeeds in the author's aim of documenting the 1st Hussars rich history. It is well illustrated and supported by outstanding maps and diagrams. *The Gallant Hussars* follows the tradition of other recently published regimental histories and provides insight not only into a specific regiment, but the history of the Army as a whole. While some readers might demur from regimental histories, they will undoubtedly agree that the insight offered in *The Gallant Hussars* makes it a valuable addition to any library.

STRATEGIC COMPUTING: DARPA AND THE QUEST FOR MACHINE INTELLIGENCE, 1983-1993

By Alex Roland with Philip Shiman, (Cambridge: The MIT Press, 2002), 427 pages, HC, USD$50.00.

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



The rearmament of the United States in the early 1980s was perhaps most often characterized by the Strategic Defense Initiative (SDI). SDI, popularly referred to as "Star Wars", was a project of monolithic proportions that symbolized what U.S. President Ronald Reagan described in March 1983 as "…a comprehensive and intensive effort to define a long-term research and development program to begin to achieve our ultimate goal of eliminating the threat posed by strategic nuclear missiles…". Specifically, SDI proposed a combined ground and space-based ballistic missile defence system that, in theory at least, would create a near impenetrable wall against any possible large-scale Soviet nuclear attack. Though the Cold War ended before SDI became a reality, "Star Wars" remains synonymous with this period in history.

Interestingly, SDI was not the only large scale research and development project undertaken by U.S. defence agencies at this time. Among the many equally publicly politicized ventures was the Strategic Computing Initiative (SCI), an extraordinary billion dollar effort by the U.S. Department of Defense to hasten the advent of artificial intelligence (AI). In their insightful book *Strategic Computing: DARPA and the Quest for Machine Intelligence, 1983-1993*, Alex Roland and Philip Shiman explore this decade long endeavour by the Defense Advanced Research Projects Agency (DARPA) to develop connected hardware and software and, ultimately, thinking machines.

The SCI approached machine intelligence as a single problem composed of interrelated subsystems. The SCI strategy was "to develop each of the subsystems cooperatively and map out the mechanisms by which they would connect". In turn the connection of these subsystems, it was hoped, would lead to artificial self awareness. However, before machines could think and talk back to humans other connections were necessary first, and the authors explore the Defense Department's quest for AI through these various connections—namely the connection of people with others, the connection of various computer systems, and the connection of new technologies to users. Although in the end, the connection failed and strategic computing never achieved the machine intelligence it had promised, the program did achieve some remarkable technological successes that shaped both defence and civilian sectors in later years. In addition, the program was notable for its considerable work in advancing military robotics, autonomous vehicle experimentation, user interface technologies, precision warfare and battle management systems.

Strategic Computing: DARPA and the Quest for Machine Intelligence, 1983-1993 is divided into three parts; the first identifies key actors in the project, the second details various defence concepts and experiments and the third describes the ultimate demise of SCI after the end of the Cold War. Although the three parts chronologically overlap at times, the thematic organization keeps the reader engaged. The history of large-scale technological development is often very complex, but both Roland and Shiman do an admirable job of keeping the richly detailed narrative within the broader themes of their academic analysis.

At the beginning of the 1980s DARPA was considered a relatively small defence agency with less than 150 staff and a modest budget. It was known for its pursuit of successful defence technology but its reputation was in decline. DARPA's image changed dramatically in 1981 when Dr. Robert Khan, a visionary electrical engineer and computer networks specialist who headed DARPA's Information Processing Techniques Office (IPTO), conceived of SCI. He guided the project from its inception through its political ratification in 1983. Though Dr. Khan had not invented the concept of strategic computing, he was the first to articulate a vision for what SCI might achieve and to develop a politically viable rationale that secured considerable long-term funding for it from Capitol Hill. Through great personal effort, he led the idea of strategic computing to fruition.

Roland and Shiman devote the first chapter of their study to the role played by Robert Khan in organizing SCI. The next two chapters present Khan's lieutenants, Robert Cooper—who sold SCI to Washington D.C. and Lynn Conway—SCI's first program manager who got the program up and running within DARPA. Any reader involved in

defence project leadership, management, definition, analysis or implementation will find these chapters of particular interest, as the authors examine the dynamics of program development and the influence of personalities when government, defence and technology cultures converge.

The second part of the book may force social historians to suffer, but for those with an interest in the history of defence projects or technological innovation, Roland and Shiman offer four weighty chapters discussing a selection of the various technical concepts that SCI generated during its lifetime. Of particular note is the discussion of the transformation and evolution of microelectronics. This discussion reveals a fascinating tale of the quest for HAL-like supercomputers, robotic armies, autonomous land vehicles and R2D2-like pilot's associates. In addition, SCI attempted to limit or defeat the fog of war through the testing of battle management systems, with goals similar of those set out today by Network-Centric Warfare (NCW) or its Canadian version, Network-Enabled Operations (NEOps). Roland and Shuman provide a fascinating opportunity to observe the point where science-fiction attempted to become technological fact, in the end with a mixed degree of success.

The last part of the book presents examines the ultimate political demise of SCI in light of the changing political landscape that followed the end of the Cold War and its limited success towards the goal of achieving machine intelligence. After an investment of ten years and just over one billion dollars, strategic computing was reoriented towards high performance computing and the quest for self aware computers was abandoned. Although SCI was not officially cancelled, it disappeared from the forefront of DARPA's research priorities as other projects and concepts came into vogue.

The ten-year billion dollar defence investment in strategic computing was made possible by the convergence of political and technological opportunity. In the early 1980s Soviet-American relations had returned to an acrimonious posture and President Ronald Regan wanted to unleash free enterprise in the United States while challenging the Soviet Union more aggressively worldwide. At the same time Japan initiated its own challenge to American developments in hardware and software engineering, and was poised to take a commanding lead in knowledge engineering, expert systems and activities related to machine intelligence. With the U.S. assailed both politically and technologically, Khan, Cooper and Conway harnessed great personal energy and resources to convince the government that the time had come to seriously advance computer technologies and possibly to achieve the ultimate goal—artificial intelligence. Washington D.C. agreed.

In general terms, *Strategic Computing: DARPA and the Quest for Machine Intelligence, 1983-1993*, presents a fascinating look into large-scale American defence politics and spending during the 1980s. It offers a technically detailed yet readable history of one of the most important defence research projects of the late twentieth century. Students of the Cold War and the American Strategic Defense Initiative will enjoy this important companion study.

NAPOLEON: A POLITICAL LIFE

By Steven Englund, Harvard University Press, Cambridge, Massachusetts: 2004. 575 pages. ISBN 0-674-01803-6 (paperback)

Reviewed by Major Paul Gillies

With literally thousands of books available on the life, military strategy, campaigns and battles of Napoleon Bonaparte, there is little undiscovered territory left to be found concerning the Corsican-born artillery officer who rose to become Emperor in the wake of the turbulent French Revolution. Instead, most contemporary Napoleonic writers now choose to focus on very specific details or events of his life and career. In the case of *Napoleon: A Political Life*, Steven Englund has chosen to re-examine the influences, beliefs and practices of his subject character as they relate to the running of the French state by one of history's most controversial personna.

Englund, who has taught history at UCLA and in France for several years, is an eclectic author who has written on topics as far ranging as Princess Grace of Monaco to politics in Hollywood in the period 1930-1960. This is his first book on Napoleon, though, fulfilling a lifelong dream that began with an interest in Napoleonic history as a teenager in Los Angeles.

Napoleon: A Political Life, makes extensive use of both English and French sources. It is itself divided into four, separate, chronologically-situated books that cover Napoleon's early years, his military and political rise during the French Revolution, the pinnacle period of his career in which he becomes First Consul and eventually Emperor, and his eventual downfall and death. To achieve this, Englund provides us with a quasi-biography of Napoleon, including small snippets of his personal and military exploits in order to aid us in understanding the man behind the throne.

The author paints a picture of a young, but brilliant and ambitious, ideologue turned opportunist who is a product of his time and upbringing. As a *petit noble* in a newly won French province, he is initially pro-French Revolution (it was unlikely that he would ever have risen so far, so fast under the *Ancien Régime*), but after witnessing confusion, corruption and atrocities attendant of this era, he grows to become an anti-republican, bent on preventing a return to the anarchy that scarred him and a generation of Frenchmen. He begins a miraculous climb up the military ladder (achieving the rank of brigadier-general at the age of 24), eventually breaking his way into the French political elite. After further military success, he achieves leadership of the nation as First Consul and, later, Emperor, through a combination of coup and plebiscite, surviving several assassination attempts along the way. As the head of a growing empire, he continues to consolidate power domestically, while resorting, more and more, to war to obtain international goals, all the while trying to secure some form of legitimacy for his regime. In this, he ultimately fails and, with the decline of French military power after the disastrous campaign in Russia, he is forced to concede the power that he fought so hard to attain and retain.

Englund makes no real secret of his pro-Napoleon slant, though he tries to represent the darker side of Napolean's leadership as well. It's hard not to admire an essentially self-made man who, even in his own time, was known as the 'God of War,' but who, in a period of only two years, also wrote a new constitution, established modern

administrative structures and the Bank of France, ended class and religious persecution and established elements of a meritocracy where deserving individuals could attain great status. Of course, he also suppressed freedom of speech and the press, re-established slavery in the French colonies and increasingly resorted to war to settle national strategic problems. Englund does not neglect to bring these out, though his tone is almost apologetic for the French ruler. What he does conclude, in a fairly balanced manner, is that Napoleon sought to build a modern and efficient, but centrally controlled, state that would not fall prey to the whim of democratic excesses that he had witnessed during the nadir of the Revolution. But his ambition knew no limits and, ever the general at heart, he increasingly relied on purely military power to achieve his domestic and international goals until, in the period 1812-14, he found himself strategically overstretched, and succumbed to the same combination of diplomacy and military power that had originally brought him to power.

The prose of the book is a relatively easy read, though it is punctuated with literary gems like "febrile, scrofula and marmoreal." It is not a military history and probably is not for the Napoleonic beginner, as some knowledge of the period is required to prevent the reader from becoming lost in the continuing parade of individuals and events that fill this period. As for the data contained therein, this reviewer was surprised to encounter so many errors of military fact, especially from someone who advertises themselves as an enthusiast of the Napoleonic Wars. For instance, he refers to General Kellerman as leading only a cavalry regiment at the battle of Marengo when he in fact commanded an entire brigade (p. 175). In addition, he speaks of Napoleon committing the Imperial Guard infantry at Austerlitz when, in fact, these elite infantrymen sat out the entire battle in reserve (p. 278). These are small but worrying oversights that lead one to question the other information being relayed in the book. With 474 pages of text and another 66 of notes, the book is also not a short read.

But if one is interested in discovering a wider view of what went on between 1799 (when Napoleon first came to power) and 1815 (when he lost his last chance of regaining his lost empire), then *Napoleon: A Political Life* will reward those patient enough to push through a lesson in vocabulary, the military errors and the lengthy book to discover what took place behind and in between the battles, campaigns and wars of the man who created the First French Empire.

THE STAND-UP TABLE

Commentary, Opinion and Rebuttal

HISTORICAL OVERSIGHT?
The Polish Army, Ideas, and Leading Change

Major John Grodzinski, CD, Royal Military College writes ...

Major Tod Strickland's article, "Cavalry Charging Panzers: An Evaluation of Leadership Doctrine in the Canadian Army," (Vol 8.1) opens using the well-known story of Polish cavalry and German armour in the Polish Campaign of September 1939. While I love finding uses for historical examples, this particular one, and especially its lessons, highlights the difficulties of injecting history into contemporary military debate. For example, this article concludes that: "There are several reasons that this action took place, but foremost among them is that fact that the Poles did not realize the lessons of the First World War and had not developed, or copied, a doctrine of mechanized combat" (p. 39). Generalities are often ill founded, but in this case may be forgiven by an overwhelming bias towards *Wehrmacht* operations in western historiography and the paucity of English language literature on the interwar Polish Army and the conduct of the September Campaign. The actual situation was far different from what is popularly believed.

The first Polish armoured forces were created in 1919 and by 1930 a separate armoured branch had been formed, but its growth and development as an independent manoeuvre arm was limited by financial and technical factors. French influences dominated Polish doctrine and staff college training that placed undue emphasis on employing tanks in support of infantry, however plans were made to motorize four cavalry brigades. Designs of a new family of armoured vehicles were prepared and trials of French and British tanks were also conducted.[1] By 1939, total Polish armour holdings included 1,134 vehicles (quick, how many did Canada have at that time?), most of which were light tanks supporting infantry divisions or cavalry brigades. Despite this progress, the September 1939 campaign demonstrated that Polish armour was too light, under-gunned, lacked prolonged sustainability and its doctrinal subordination to other arms resulted in its not having any appreciable affect on the outcome,[2] although Polish tanks did have a few notable actions, such as at Tomaszow Lubelski from 17-20 September 1939.[3]

Polish military doctrine also examined formation level mechanization and was partially realized by the formation of the 10. *Brygada Kawalerii Pancernej* in 1937. With two regiments of motorized cavalry,[4] recce, motorized artillery, anti-tank and armour units, the brigade was officially listed as "armoured-motorized formation." However, it was hardly "similar to corresponding formations of the German, Russian and French Armies . . . the proportion of armoured to motorised components was so insignificant that it amounted to no more than the ordinary equipment of an infantry or cavalry unit with armoured reconnaissance vehicles."[5] Nonetheless, it possessed considerable defensive firepower and was ably handled in southern Poland during the September 1939 Campaign as part of *Armia Kraków* and later *Armia Karpaty*, where it successfully

delayed the advance of the *XXII Panzer Korps*. By mid-September, the brigade was in the Lwów area and was soon ordered into Hungary, from where the majority of its personnel escaped to France and later Britain, where its personnel formed the basis of the 1st Polish Armoured Division. A second mechanized brigade was also forming in Warsaw, but was only in the initial stages of formation when the war began.

Before leaving the story of the Polish cavalry charge, it should be noted that while it did no damage to the vehicles, the German infantry accompanying them were forced to withdraw and the Poles managed to capture the standard of one German infantry regiment. Imagine going into battle in 1939 carrying a standard!

So what is the point of this narrative? Simply put, we must be careful when using history and even more careful in drawing conclusions from it. What is the significance of the charge of the 18th Lancers? Not that "the Poles did not realize the lessons of the First World War and had not developed, or copied, a doctrine of mechanized combat," rather, the charge demonstrates that although the Poles did learn the lessons of the First World War and, more importantly, the developments of the interwar years, they were unable to modernize their army to any great extent. Why? Polish staff college candidates studied mechanized doctrine, armour development, visited foreign armies and wrote on these subjects; combined arms exercises by armoured and mechanized units were held and an armoured weapons training centre was established. Armour and mechanization terminology became part of their lexicon, but Poland simply lacked the economic and industrial capacity to produce a large mechanized army. As a result, by 1939 the Polish Army was largely a "legacy" force that had undergone limited "transformation," that was further constrained by limitations within the officer corps and internecine branch interests. Might we be heading down a similar road? What lessons might this offer our army?

Here Major Strickland hits the nail on the head and offers a bold challenge to focus leadership doctrine, discourse and practice. This important, albeit specific plea could also be expanded to include other disciplines, for as the author says, "the officer corps . . . needs to revitalize its profession . . ." During my tenure as Managing Editor of the Army Doctrine and Training Bulletin, many potential authors noted they wanted to submit articles, but finding the time to write proved difficult if not impossible. For me, this reason was a difficult one to counter, but I often wondered if it was as significant a problem as some made it out to be. Several officers, occupying busy posts, wrote regularly, while other submitted articles from across Canada and even while on operations. Surprisingly, some of the most intriguing articles came from non-commissioned personnel. For example, who can forget Master-Corporal Richard P. Thorne's "An Analysis of Strategic Leadership" (Army Doctrine and Training Bulletin, Vol 3, No. 3, Fall 2000)? This was the only article to examine this issue based on a solid intellectual foundation that did not get lost in staff or doctrinal bafflegab. Even more surprising was that it proved to be the only contemporary background reading available by a Canadian author for the DP 4 Writing Board (Colonels and General Officers) held in 2001!

Other examples abound, which leads to a further questioning about whether the reason for the paucity of authors was indeed time or something else. Could it be some had nothing to say or were they fearful of career implications resulting from making

public their views? Or is it that the daily grind has bogged down the officer corps so much that they have lost sight of their profession, and find greater comfort being bombarded by PowerPoint minutiae, rather than professional development? Even the Canadian Land Force Command and Staff College, for a myriad of competing reasons, has reduced an ambitious professional development package to insignificance. If we do not offer these subjects in a rigorous institutional environment, then where do we get them from—website chat rooms?

In the end, the officer corps is probably writing a lot. OPME, academic programs and the Canadian Forces College require authorship of several papers. However, what may be missing is an important practice in academia that holds whatever you write is for publication. Consequently, potential articles for our professional journals may abound, but are languishing somewhere in various data storage systems. This is a surprising contrast to non-commissioned members, who perhaps being more practical, find little value in writing as an end in itself; something must be done with it. What may be an odd cultural difference has to a degree resulted in a greater reliance on junior and senior non-commissioned officers and warrant officers to lead the discourse on certain subjects. If this continues, then the officer corps might as well go home. As great and important as NCM input is, officers must, as Major Strickland and many others have noted, lead the way. So dig out those papers and get your ideas published!

Endnotes

1. In 1939, one French R-38 and one British Matilda infantry tank had been received for trial.
2. The 217 German tanks lost in the campaign were largely the result of anti-tank and artillery fire rather than encounters with other tanks.
3. Zebowski, *Polska Bron Pancerna*, p. 274-278; Steven Zaloga and Victor Madej, *The Polish Campaign 1939* (New York, 1985), p. 65.
4. Two units, the *10 Pulk Strzelców Konnych (Mounted Rifles)* and the *24 Pulk Ulanów (Lancer Regiment)* were the primary manoeuvre elements of the brigade.
5. F.S. Kurcz (translated by Peter Jordan), *The Black Brigade*, Harrow, 1943, p. 4. The name given for the author, who is described as having been Chief of Staff of the 10th Mechanized Cavalry Brigade in Poland and France, was a pseudonym for Major Franciszek Skibinski, the actual Chief of Staff of the brigade, later holding several key appointments in 1 Polish Armoured Division through 1942 to 1945, although there is no evidence he wrote the book.

QUIS CUSTODIET IPSOS CUSTODES

Major L.R. Mader writes ...

Operational (or operations) research (OR) is the ". . . application of the methods of science to complex problems arising in the direction and management of large systems of men, machines, materials and money in industry, business, government and defence."[1] In addition to its analytical focus, its quest for scientific truth gives OR a certain independent auditor role. One of the tools available to OR scientists to evaluate the effectiveness of land systems and forces is the use of combat model-based wargames. These models cannot answer all questions but are often the only tools available that can capture the dynamics and synergies—at times unexpected—of land combat situations.

For decades, the Army benefited from the independent research wargaming capability found in the variously named Canadian operational research community, currently the Operational Research Division (ORD). Two Ottawa-based ORD teams—one scientific

and one primarily military—conducted combat model-based studies for the Army. In the latter part of the 1990s, a second land OR team was created and collocated with the Land Staff directorates in Kingston (now mainly in the Director General Land Capability Development (DGLCD) division) to support them directly. This team works closely with the experimentation element of the Army's Directorate of Land Synthetic Environment (DLSE), also established in the second half of the 1990s.

It has been announced that the CF's land combat modelling capability will be focused in Kingston after the disbandment of ORD's Ottawa-based research wargaming team.[2] The land OR team in NDHQ (LFORT) will continue to operate but without dedicated, full capability research wargaming support. Such a change risks undermining OR's arm's-length relationship with its Army sponsors. This could lead to the perception that the OR studies conducted for the Army are potentially biased and thus unusable by the CF. This loss of unimpeachably independent analytical support could force the Army to base its capability development work on unscientific pillars.

Concerned by this possibility, this writer analysed the situation and identified a number of feasible options for reaffirming the independence, and thus the utility, of the OR conducted for the Army. Based on this analysis, it is felt that two significant alternatives exist to improve the new land OR paradigm.

The first one (Alternative A) consists of three major elements, the first of which is moving the Kingston OR team elsewhere in the city (possibly to RMC-CMR) away from the DGLCD staff. This would be a low cost activity that would publicly emphasise the team's institutional independence from its key sponsor.

Alternative A's second element is the use of joint study teams made up of scientists from the Kingston and LFORT OR teams for, at least, major and/or high profile studies (be they done for the Kingston or Ottawa Land Staff directorates). The presence of members of both teams on such studies would significantly affirm OR's independence by, in effect, having the "visiting OR team" (be it LFORT or Kingston) provide the reassurance of an "honest broker" for studies led by the "home OR team." At the same time, the presence of a "home team" would facilitate liaison with sponsors found in either Kingston or Ottawa.

The final element of Alternative A consists of modifying the Army's current approach to experiments by introducing an autonomous simulation—such as the US Army's CASTFOREM—into service. With such a tool available, DLSE could continue with its standard procedures for setting up experiments in consultation with the staffs in Kingston and NDHQ. As is already done, appropriate numbers of personnel would be brought together to conduct an experiment over the required number of weeks.

The difference in approach due to the availability of an autonomous simulation would be that DLSE would not have to conduct a large number of "production" games to generate the data needed for OR analysis. Instead, the gaming staff could spend their time doing their battle procedure, implementing their plan(s) in a capable interactive wargame and recording their options and choices at the various decision points that arise during gaming. At the same time, LFORT staff would capture the scenarios, plans and decision point choices for loading into the new simulation. The subsequent autonomous gaming would generate the necessary quantitative data for operational

research analysis. The DLSE interactive battles would allow the validation of the scenarios, plans and decision points while providing a structured opportunity to develop informed Judgements and Insights (J&I). Over time, the completed autonomous simulation scenarios could form a validated set of starting points for future work, if the underlying conditions remained unchanged.

This approach would provide a clear institutional separation between the sponsor and the OR analysis. The Army could still have confidence in the modelling, as it would have provided the scenarios, force structures and decision point choices during the interactive DLSE gaming phase. Similarly, the J&I qualitative results would be initially identified during the Army's own interactive games. Thus, major portions of each study's results would flow directly from the Army's efforts. LFORT's unassailable institutional separation from the Army would, however, provide reassurance to study report readers of the independence and relevance of the results contained therein. A similar approach is used by the US, British and Australian armies. However, introducing such a simulation into Canadian use would entail additional support and employment costs.

The second alternative (B) would forego the benefits and costs of fielding an autonomous simulation but would retain the other elements of Alternative A. Thus, it would consist of:

- moving the Kingston OR team elsewhere in the city; and
- using joint study teams from LFORT and the Kingston OR team.

Of the two alternatives discussed above, the first one is to be preferred as it introduces a valuable new simulation into the Army's supporting OR architecture. Use of this tool by OR scientists to generate results for analysis would reaffirm the independence of the supported studies. Such reassurance would come with an additional cost.

Therefore, it is recommended that the Army adapt its new approach to research wargaming by implementing Alternative A as a matter of priority, with the less expensive Alternative B being retained as a worthwhile back-up solution, if the necessary resources are not available to procure and properly employ an autonomous simulation.

Endnotes

1. Alain Martel, *Techniques and Applications of Operations Research*, (St Jean sur Richelieu: Administration Department, Collège militaire royal de Saint-Jean, 1975), p. 1.
2. See ADM(S&T) memorandum 1901-1 (DGOR) 13 Aug 04.

THE INTELLIGENCE BATTLE IN THE ASSYMETRIC ENVIRONMENT

Major D.J. Travers writes …

During the past fifty years or so, the Canadian Army has focused the majority of its doctrine and training on the conventional, Cold War, battle. This is not a criticism but a statement of fact, and the reality of the situation is that in order to fight terrorism, a military must first have a sound foundation in conventional doctrine. Fighting in the asymmetric environment is simply an extension of the conventional fight into a different type of battle space. The major factor in the asymmetric environment is the need for detailed and accurate intelligence to conduct truly intelligence driven operations. It is no longer a matter of fighting for intelligence during an advance to contact and changing the plan as enemy positions become well defined. In the asymmetric environment the need for timely and accurate intelligence is paramount to the success of the mission and the protection of Canadian lives. In this article you will not read about the details of intelligence driven operations in Kabul due to their security classifications and ongoing requirements for force protection. Suffice to say that during Op Athena Roto 2 there have been many intelligence driven operations, they have been successful, and they have saved Canadian lives.

The enemy we face in Afghanistan cannot be easily defined in NATO or Western doctrinal terminology. As a Western/NATO army, Canada has evolved fighting inside a box with two up and one back so anything outside that box, or an enemy who does not use a detailed operational planning process, is seen as foreign to us and requiring a different doctrine to fight it successfully. During the last twenty five years I have watched as people of various rank levels insist that we change doctrine each time we start a different mission, when in fact existing doctrine with some refinements is all that is needed. We already possess doctrine that provides guidance on how to fight the asymmetric threat, or any other threat. That is, the method of attacking enemy cohesion through pre-emption, dislocation, and disruption.[1] This holds true for the asymmetric threat as well. While the threat itself may be asymmetric, there is a decision-action cycle involved and as such it has an inherent weakness that can be attacked: the decision maker. In the case of terrorists, there are four distinct and doctrinal methods in the conduct and execution of a terrorist action. Regardless of the type of attack or the target, the methodology has been consistent, and usually follows the process defined below:

♦ Phase 1—Planning. Terrorists are an extremely patient enemy. The planning for local actions inside Kabul usually takes months while the more complicated terrorist actions, which have a global impact, will take years of planning. The planning is always methodical, deliberate, and compartmentalized in order to ensure minimum exposure and dislocation in the event of discovery or a security breech.

♦ Phase 2—Surveillance. Shortly after arriving in Kabul for Roto-2, Canadian assets came under effective and regular surveillance. Although we can never completely prevent surveillance against our forces, we can dictate what the enemy sees. In the case of Roto-2, everybody, regardless of rank, MOC, gender, or capability, presented themselves as a hard target. This was accomplished by having soldiers

dressed to the same standard, presenting the same force protection posture, carrying weapons properly and professionally, and always looking alert and intimidating. Whether a soldier is a clerk or an infantryman, the enemy should only ever see a ready, combat capable soldier.

♦ Phase 3—Movement. Terrorists blend in with the local populace, they know the ground and through coercion, outright popular support or covert action they can easily move about the city. The pieces of an attack will only move into place when it is safe to do so and a target has been chosen. In the case of suicide bombers as an example, the detonator, vest, and person will arrive in the target area separately and shortly before the attack is executed.

♦ Phase 4—Execution. A terrorist attack is a swift and violent action and frequently employs tactics of deception and diversion. The key factor of any terrorist attack is the ability to operate without the benefit of a time line. Terrorist attacks are based on targets' weakness and opportunity.

The terrorist in Afghanistan is an exceptionally patient enemy. Timings and anniversary dates, which may have specific meaning in the Western world, do not carry the same implications for terrorist operations. There are no rigid time lines a terrorist attack follows as most terrorist operations are phased operations based on events leading up to the execution and the opportunity for the execution itself. The patience of the Afghan terrorist is not due to any formal training, but to his culture. Prayer times change daily based on moon and sun phases and celebrations such as Eid-al Adha and the end of Ramadan never occur on the same day one year after another. It is this cultural upbringing and typical Afghan characteristics of initiative, aggressiveness, and tenacity that make the terrorists in Afghanistan a difficult enemy to pin-down.

We have learned quickly in Kabul that as soon as we stop doing something, for example surveillance of a named area of interest (NAI), the terrorists will attack. In one case rockets were launched from a NAI within twelve hours of an observation post being withdrawn. Another example of this patience is the suicide bomber attack on Chicken Street that occurred in October 2004. The terrorists waited until some nations had dropped their security posture sufficiently and allowed their soldiers to start shopping downtown. Once it became routine for these soldiers to stop by and do some carpet shopping the terrorists struck using one suicide bomber. The result was two civilian females killed and three International Stabilisation Force (ISAF) soldiers wounded.

It is very difficult to defend against these types of attacks. Hence the reason we must continually be on the offensive and these offensive operations must be driven by detailed and accurate intelligence with the aim of disrupting terrorist planning. The first characteristic of a perspective terrorist target we look for from an intelligence point of view is maximum effect for minimal terrorist effort. The target is usually an area of soft targets where Westerners congregate or ISAF has demonstrated a weakness. Once that is determined, we can decide on the most effective means to mitigate the threat of an attack. Mitigation is not just accomplished through direct action but also takes the form of active and aggressive patrolling, 24/7 overt surveillance operations, and making every attempt to disrupt the terrorist' planning phase. The bottom line is, if you come to Kabul thinking you will only conduct

defensive operations from within Camp Julien, then Canadian soldiers will die and terrorists will operate around you with impunity. The key is to deny the terrorists freedom of movement and prevent them from gaining the initiative.

The term disruption is used throughout this article in an effort to force home the point that terrorism will not be defeated in the Western sense of the term, as there will be no mass surrenders and no final battles to signify the end of the war on terrorism. The only way to be victorious against the terrorist threat is through constant, proactive, disruptive actions, and not through a defensive mindset, which will keep our combat power behind the wire. This disruption needs to occur on the physical plane and the moral plane,[2] and is not only accomplished through aggressive patrolling and directed operations. We must also use information operations to its full extent to include psychological operations, public affairs and civil military cooperation. Through intelligence driven operations that focus on the planning and surveillance phases of terrorist operations, the target can be engaged with the right weapon at the right time to maximize impact. If terrorists do not have time to plan and are continually kept off balance then even in a compartmentalized planning structure, disruption could stall violent actions for months to come. A vehicle borne improvised explosive device (VBIED) is an incredibly difficult threat to defend against and once detonated, whether on target or not, represents a victory for terrorists. A case in point is the DYNCORP bombing that took place in August 2004. This attack was in the planning phase for a number of months and surveillance was executed for a lengthy amount of time until the right time of day was decided upon for the attack. Through the use of local knowledge and outside technical assistance the terrorists were able to kill nine people with a well-placed and well-timed car bomb.

Without proper intelligence, fighting the terrorist threat becomes a defensive battle, and as stated before, only defending against terrorism will lead to Canadian casualties. To conduct effective offensive operations against a terrorist enemy in the Afghan environment requires accurate and actionable intelligence. In Kabul, 70% of actionable intelligence came from human intelligence (HUMINT) sources while 25% came from electronic warfare (EW) and the remainder from open source (OSINT). Fusing all this information into one coherent product useful enough to conduct operations from is the focus of intelligence staff. To do so, it is time to realize that operations have become increasingly intelligence driven and the architecture to support these operations must remain constant. The intelligence requirements of an infantry company are no different than a brigade group when conducting operations, especially in an asymmetric environment. To put it more succinctly, if a brigade group requires three pages of intelligence to fight the asymmetric battle, the infantry company requires the same three pages, not less. The war on terrorism is not going to end any time soon and a new era in full spectrum operations is just beginning. We owe it to our soldiers and to our nation to continue in an offensive mindset when dealing with the terrorist threat at home or abroad.

Endnotes

1. B-GL-300-001/FP-000, Chap. 2, Sect. 3.
2. B-GL-300-001/FP-000, Chapter 1.

SHOWING SUPPORT FOR THE TROOPS

Mrs. Wendy Sullivan-Brown of Toronto writes …

I am writing because I feel that our military isn't getting the support it deserves from ordinary Canadians—not because the support isn't there, but because we are being restricted from expressing it. I am one of those ordinary Canadians, one who has no brother, sister, cousin, or friend serving in the Forces. But that does not mean I am indifferent to the job they are doing, nor am I unappreciative of them.

In the United States, there are programs through which the average citizen can reach out to a member of the armed forces, by sending letters, care packages, and words of encouragement. These programs, like Soldiers' Angels and Angels'n'Camouflage (http://www.angelsncamouflage.org/deployedwantsadopted.html)—I am a member of both—are nothing new. Writing letters to American soldiers is a tradition almost as old as war itself on this continent.

They work in two different ways. A soldier can sign him/herself up to receive mail, or a friend or family member can sign up a soldier. That is the premise under which the two above-mentioned groups work. The other way is to have someone on the ground, a captain or other commander of sorts, to receive mail in his or her name, and distribute it to those who need a pick-me-up. The American 82nd Airborne has just such a program in place, where their major receives an envelope from an identified source—someone whose name has been submitted to him—and that envelope contains 5 or 6 sealed letters, un-addressed. The major then hands those letters out to his troops. Currently I am sponsoring four soldiers in the 82nd, whose names I do not even know, despite having sent them care packages, snacks, DVDs, postcards, and letters. The major is very appreciative, and he tells me that his men are, too—we correspond by email regularly, and that is how he knows to expect my packages, and that I am not sending hate mail or anything unsavoury.

I have attempted, via the Deployment Centre and the CF Family Resources Centre, to create a similar program for Canadian Forces, so that they do not feel left out or unsupported. In both instances, I was sent a "form letter" email, using wording directly from the Forces website, thanking me for my interest and telling me to use the message board if I want to contact any soldier. I do not wish to contact any soldier. I wish to contact a specific member of the Forces, or maybe two members, and give to them whatever I can, as they serve their time in a foreign land, lives at risk. Do they not deserve a handwritten note and a bag of Oreos? Just because they are Canadian, and not American? That hardly seems fair.

In my frustration, I have appealed to my "sisters" at Angels'n'Camouflage, who support not only deployed service members, but veterans as well. They have put out the call that their organization would welcome any Canadian, Australian, or British armed forces member who wishes to receive support. I posted this message on the message board that I was twice directed to, only to have my message be refused as "solicitation", with all its negative connotations. It is as if the powers that be at the Canadian Forces simply do not want any contact between the soldiers and those they are protecting. I understand the security aspect of the situation, but I do not see how having an adequately addressed package sent over to a soldier constitutes a risk. I am

simply asking that I be able to find said soldier that I may write to him or her if they wish.

With this open letter, I am hoping to either sway the top dogs into beginning a program of their own, something Canadian-based, which I would be more than happy to help institute, or, at the very least, persuade our brave boys and girls to give their names and addresses to Angels'n'Camouflage and receive the support of people from all over the world for their efforts in the war on terror. Better they are supported by an American organization, than not supported at all.

14 July, 2003
Kabul, Afghanistan

Canadian soldiers in a LAV III (Light Armoured Vehicle) drive past the ruins of the King's Palace in Kabul, Afghanistan.