ARTICLES

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The Canadian
Army Journal

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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 publication of the Canadian Army. This periodical is dedicated to the expression of mature professional thought and informed debate 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 military personnel and those civilians with 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 Canadian 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 Canadian Army, as well as members from other environments, government agencies, and academia concerned with the Canadian Army, defence, and security affairs.

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PROFESSIONAL DISCOURSE IN THE CANADIAN ARMY: A CALL TO ARMS

Observe constantly that all things take place by change, and accustom thyself to consider that the nature of the Universe loves nothing so much as to change the things which are, and to make new things like them.

—*Marcus Aurelius*

It is change, continuing change, inevitable change, that is the dominant factor in society today. No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be...

—*Isaac Asimov*

Lieutenant-General Wayne D. Eyre, CMM, MSC, CD

Even a hermit would be hard-pressed not to feel the tremors of tectonic change upon us. The sweeping forces of geopolitics, climate, technology, demographics and more, all against the backdrop of human fallibility, are transforming our world in ways hard to imagine. Our reality is not what it once was, and certainly will not be the one we envisioned for our future selves.

This change is nowhere more apparent than in our security environment. Geopolitically, we are seeing the re-emergence of the spectre of great power competition. With liberal democracy already under threat with the rise of populism, including in the West, China, Russia and other authoritarian states seek its further demise, as well as to undermine the international rules-based order by sowing corruption, discontent and disorder to remake it in a way that better promotes their own model and national interests. Climate change, pandemic disease, homegrown and international extremist terrorism, population migration, weak governance, inequalities, the scarcity of resources, and truth manipulation are all posing significant security challenges.

This evolving environment will have profound impacts not just on our Canadian Armed Forces (CAF), but Canada as well. One could say that we are at a strategic inflection point. What we have done, how we have done it, and the tools and techniques we have previously used may not suffice. What does that mean for the Canadian Army (CA) which, as part of the CAF, is bound to be increasingly part of whole-of-government approaches, as one among many instruments of national power? No single individual has the answers, but collectively we must find them.

As I read the last edition of the *Canadian Army Journal* while in COVID-19 imposed distancing, I reflected on previous generations and how they wrestled with the challenges of the day through informed debate on the pages of Canada's previous military journals. Prior to the Second World War, as the lessons of the Great War were still fresh and social and technological change unfolded, there were ongoing deliberations on numerous topics, such as the Simonds-Burns exchange on Army mechanization. Similarly, debates on how to fight on the conventional-nuclear battlefield arose in the post-war era.

I also reflected upon the utility of having a forum to conduct this reasoned debate. After a hiatus of several years, I applaud the rejuvenation of the *Canadian Army Journal*. Any profession worth its salt has its own forum where ideas are shared, debated and become part of its body of professional knowledge. The CA has been lacking in this regard for some time.

At this inflection point, the decisions we make over the coming years will have a profound impact our future, not only as an institution, but how we are able to defend our country. We need to think deeply about these changes, and more specifically, what they mean for and how we adapt the CA. I would like to see the pages of this *Journal* become a forum where the challenges we confront and their proposed solutions are hotly debated. More so than a tweet, or a social media post, putting pen to paper (or fingers to keyboard) for deliberate publication requires research, reflection and writing skills so critical for the creativity, critical thinking and communication that underpins our profession.

The very role of land power is itself in question. With the rise in importance of other domains, the centrality of the land domain in conflict has been arguably supplanted by the information domain. Despite this, war is still a contest of human will. Humans, at least for now, live in the land domain. Thus we intuitively know, as has been the case throughout history, that the ability to control ground, to have a physical and psychological presence amongst the population, and "to put boots on the ground" as the ultimate manifestation of national commitment will all remain imperative. But there are still many unanswered (and unformulated) questions, and thus we must debate and determine the appropriate role of land power in the security environment.

Our operating concepts must be continually challenged and updated. The Army's recently released capstone operating concept, *Close Engagement,* is a statement of how we envision operating in the future. Like all concepts, it will not come to fruition as imagined, and its underpinnings need to be frequently re-assessed in order for it to be right enough to guide us to success. What do we need to change in it to ensure we remain aligned with the CAF's soon to be published *Pan-Domain Force Employment Concept*? How do we address the imperative to weave the information domain into every mission and task, to make it central and not just an adjunct or bolt-on afterthought to lethal fire and movement?
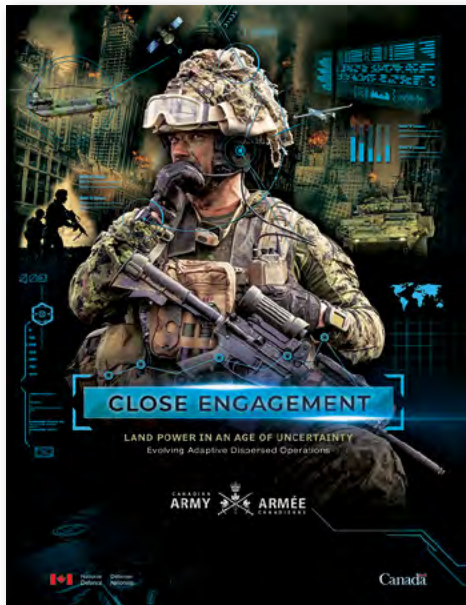
Inherent in *Close Engagement* is the earlier-introduced concept of *Adaptive Dispersed Operations* (ADO). Highly networked, and reliant on reach-back intelligence, joint fires, and sustainment, decentralized small teams that cumulatively create physical and psychological presence and concentrate their effects at the right time and place are the way of the future. While some manifestations of ADO have spawned organically, much more work is required to determine what ADO looks like in practice. For example, what do platoon / troop and combat team attacks look like in ADO? How do we conduct sustainment in ADO? The list of questions goes on.

Our forces structure must likewise be studied and modified accordingly. Our command posts (CP) are large and clunky. How do we disaggregate unit and brigade CPs so they are less of a target while still functioning? How does our infantry battalion structure change? The combined arms team, forged in the latter part of the First World War, has served us well for the past century, but is it still fit for purpose? How do we account for the trend of the downward proliferation of combined arms? Is it better to keep arms and services centralized in garrison for training and then disaggregate them into tailored teams, or create a cohesive team that is force generated as it operates? How will reconnaissance evolve? With ubiquitous autonomous sensors and emerging robotic capabilities, how does ground reconnaissance change? Do we need formation reconnaissance squadrons, or do they morph into something else? How do we enable our force to conduct security force capacity building while still retaining sufficient leadership in our units? In all, what is the optimal full-time/part-time capability mix, command and control organization, and investment balance to achieve a better integrated One Army?

I fear that our lethality has atrophied in comparison to the high-end pacing threats in the Russian and Chinese inventories. What needs to be the future of our armour and antiarmour capabilities? What is the future of ground fires, especially in ADO? Does our artillery give us the range and precision we need, or should we invest in long-range precision rocket/missile capability? Will unprotected tube artillery survive long enough to support the close fight? How do we reintroduce air defence to defend against the rapidly evolving threats of drones, rockets, and missiles? Much of this comes down to a fundamental challenge of how we balance the design of an affordable force for the most dangerous (but hopefully less likely) missions that is still highly capable for the more likely, less dangerous missions.

With the pluralization and globalization of threats and menacing ambitions from Arctic and "near-Arctic" adversaries, the subject of continental defence has become very topical. Many view this as the responsibility of NORAD, the exclusive purview of other domains, but perhaps the most profound changes could be in the land domain. The presence of and ability to rapidly establish land power capabilities in the far North creates a psychological effect and changes the decision calculus of any future adversary who questions our sovereignty in the region. How do we rapidly project land power to this region, especially if it is required between the often distant nodes of infrastructure? How do we sustain it? How does it move? How does it survive? How does it fight? With a potential focus on NORAD modernization, what should be the Army's role in any future ground-based Ballistic Missile Defence? If our Arctic archipelago becomes contested, do we need to import operational lessons from China's illegitimate militarization of the South China Sea? Do we need our own anti-access / area denial (A2AD) concept? Does the Army need an anti-ship capability?

We have seen an eruption in natural disasters for which the Army, ostensibly the force of last resort, has been called upon to reinforce municipal and provincial/territorial efforts. Indeed, the five years between 2014 and 2019 saw an order of magnitude increase in person days on domestic response operations over the previous five year period. How do we reconcile the need for readiness and proficiency in combat operations when our force generation time is under challenge? How do we better employ the Army Reserves for these operations? Do we need to create a Civil Defence Corps, as a sub-component of the Reserves, solely focused on domestic disaster relief, and if so, what should be the balance and relationship between the civil defence and traditional components?

Everything we do is predicated on the proficiency, will, and availability of our people. In the battle for talent, understanding and designing the Army workforce of the future is critical. How do we balance the needs and aspirations of the individual with the demands of the service and the absolute requirement to produce combat capability that fights and wins? How do we attract, train, and retain the best talent? How do we improve gender integration in the Army, especially in the combat arms? Understanding our personnel system is rooted in the industrial age, do we have the right rank and trade structure along with flexible-enough entry programs for the future force? How do we change our training to incorporate new

learning methodologies and technologies? How do we reduce the administrative burden and streamline bureaucracy, especially in the Army Reserve, to make us more efficient? Do we have the branch, corps, and regimental system right?

If it's not clear by now, we need to think deeply about all aspects of our profession, share our thoughts, and help turn the conceptual into reality. As we collectively examine our future, nothing is out of scope, yet at the same time, in many ways, we are prisoners of our unique history, culture, and geography. Moreover, our reality will always be grounded in a resource-constrained environment. This will demand hard decisions, but they need to be informed ones, and debated, dissected, and refined in a professional milieu. They will be driven by, and in turn inform, policy. "Adapt or die" is an oft-used phrase in a Darwinian context, but it applies to us in this era of accelerated change. I have many questions, but few of the solutions as we go forward … those need to come from you.

So, from a social, educational and professional perspective, writing and perhaps most importantly, debate on the crucial questions and issues affecting the land domain, some touched upon above, must be addressed with a critical eye in order to better understand and influence our future. The nature of our profession demands nothing less as we make decisions to forge ahead into a complex and uncertain environment, characterized by rapid change. Change as a condition, (e.g. what is happening) is a part of the reality we must accept; change as a process (e.g. through leadership and action) is ours to influence. With this in mind, I extend a personal challenge to all members of the Army and our extended land operations team across the CAF, to share your ideas and engage in informed debate which, in turn, will contribute to our professional body of knowledge and influence change. The outcome will be a more informed and effective CA. I look forward to reading, and as applicable, acting on, your contributions. 🍁

Lieutenant-General Wayne D. Eyre, CMM, MSC, CD
Commander of the Canadian Army

EDITORIAL

Lieutenant-Colonel Michael A. Rostek, CD, Ph.D., APF

I am honoured and privileged to be writing to you from the position of Editor-in-Chief of the *Canadian Army Journal* (CAJ). Naturally, my first order of business is to acknowledge the previous editors who were at the helm of CAJ prior to my arrival, in particular, Lieutenant- Colonel (Retired) Ron Bell and Major John Bosso. Together, with the assistance of the very capable Army Publishing Office team, they contributed much to the editorial process for this edition, and I am grateful for their efforts. I took on the Editor-in-Chief position just as CAJ 18.1 went to print and began my work with CAJ 18.2 in its near-completed state. As such, I wanted to publicly acknowledge and thank them and members of the past Editorial Board for their contributions to this edition.

As readers know, CAJ is a well-established professional journal with a history that extends back to the Second World War. While interest and support for the journal has ebbed and flowed over the years, I am pleased to announce that it is undergoing considerable revitalization and reinvestment by the Canadian Army. Key within this revitalization process is the Army Commanders' (Patron of CAJ) interest and support for the journal and his desire for greater professional discourse. Lieutenant-General Eyre graces the pages of this edition with a guest editorial; a "call to arms" highlighting the need to reflect upon our past and write and debate the issues facing the Army today and tomorrow. Indeed, he poses a number of questions in his editorial, which provides a rich menu of research questions. We are indeed fortunate to have this level of support and interest and as such, I want to encourage all to take up the writing challenge posed by Lieutenant-General Eyre, and I eagerly look forward to your contributions.

It is a well-known axiom that we live in a period marked by considerable change. As noted above, this change extends to the CAJ, which is undergoing a revitalization process as I pen this editorial. This edition of CAJ will be last in this format, with a new format to be launched with CAJ 19.1 scheduled for publication Winter–Spring 2021. Everything from cover design, to publication size, to article lengths and new features have been refreshed with a view to maintaining a visually captivating journal while maintaining the professional rigour to which you are accustomed. Included in our plans is the establishment of a closer connection to the Army field force and expansion of the Editorial Board with a view to streamlining the peer review process and increasing the rigor of the content. Indeed, I am indebted to all who willingly answered the call to participate on this board.

Within this edition, the future and impact of technology on the Army underpins three separate articles, each with their distinctive thesis. Perhaps what is truly interesting is the notion of intuitive decision making addressed in both Major Mathew Rolls', and Colonel Howard Coombs' and Lieutenant-Colonel (Retired) Steven MacBeth's articles. These articles tie nicely together in considering the military ethical framework proposed by Dr. Joelle Thorpe, Dr. Kimberly Girling and Dr. Alain Auger, a framework that assesses the ethics of emerging technologies on the battlefield. Dr. Megan Thompson and Dr. Ritu Gill extend their highly valued research on trust and effectiveness in diverse teams into the realm of distrust or "confident negative expectations" and its significance in the complex mission spaces where the CAFs find themselves currently deployed. In highlighting the complexity of CAF mission spaces, Dr. Shelly Whitman and I call for the need to educate for strategic complementarity; that is, how to effectively integrate efforts across a wide number and variety of actors in resolving a complex security challenge such as that represented by child soldiers. Darryl Cathcart and Lieutenant-Colonel (Retired) Joe Parkinson explore the field of training and education highlighting a new approach to professional military education. This field is currently garnering much attention in full recognition of the renewed thinking and significance of intellectual capacity required from soldiers in the emerging operating environments. Closing out our feature article listing is a detailed investigation by Guy St-Denis into the history of Sir Isaac Brock and his untimely death at the Battle of Queenston Heights. His article challenges the long-held view that Brock was an impetuous commander who died rashly leading a frontal attack against a strong enemy position.

Last, I would like to draw your attention to Sergeant (Retired) Rod Henderson's biography of Captain John Richardson. Captain Richardson was a "tanker" and passed away earlier this year at 100 years of age, and was the last known serving officer of the Ontario Regiment who served in WWII. I knew John well, and his stories were a source of inspiration to all members of the "Ontarios" family. While many readers will not have heard of John, the significance of his sacrifices and his dedication to service were important to capture as we have fewer and fewer soldiers from that era to remind us of the significance of their sacrifice to this great nation.

In closing, I would like to highlight Lieutenant-General Eyre's (CAJ Patron) "call to arms" once again; that is, to read, reflect, debate and write about our history and the issues facing the Army today and tomorrow. I have been quite impressed with the level of interest and quality of the articles received during my short tenure. As we move to revitalize the CAJ, we need your sustained interest and submissions. I look forward to future articles, and please pass on your comments concerning specific articles and/or the *Canadian Army Journal* in general.

Lieutenant-Colonel Michael A. Rostek, CD, Ph.D., APF
Editor-in-Chief

DEVELOPING COUP D'OEIL:[1] TACTICAL DECISION GAMES AND THEIR TRAINING VALUE FOR THE CANADIAN ARMY

Major Matthew Rolls

Tactical Decision Games (TDG) are abbreviated tactical exercises without troops (TEWT) meant to place those executing them into a scenario with little information and time to arrive at a solution. They require few resources, allowing for a repetitious approach to training. TDGs have been prominent training tools for the US Army and particularly the United States Marine Corps for several years. They are a flexible and effective training aide that will help soldiers, non-commissioned officers (NCO), and officers with their analytical and intuitive decision-making skills. TDGs are not completely foreign to the Canadian Army (CA); however, their use has not been institutionalized.

Tactical Decision Games are a highly efficient means of training tactical decision-making and should be institutionalized within the CA, within both schools and operational units. Commanders employing TDGs will be able to mentor and develop the decision-making skills of their subordinates during periods outside collective training. Trainers can use them to discuss and exercise concepts prior to deploying to the field for practical application.

This article provides an overview of TDGs and how they differ from other training tools. It then reviews what makes TDGs useful training aides and concludes with a discussion on how to conduct a training session. A TDG example is included at the end of the article.

WHAT IS A TACTICAL DECISION GAME?

Fundamentally, a TDG is similar to a TEWT. A TDG places a student into a tactical situation and requires that they arrive at a solution. Tactical Decision Games, however, differ in practice from what most CA leaders would associate with a TEWT.

A TDG requires that the student express their solution in the form of direction to subordinates. This grants the student an opportunity to practice delivering direction verbally, but also using tactical graphics on a diagram or map. Canadian courses, such as Developmental Phase (DP) training, the Army Tactical Operations Course, and the Army Operations Course, often require students to work through the estimate process, presenting a multi-page product including deductions based on the direction they received. This process culminates in the selection of a course of action (COA) and then a back brief to one's superior. However, this process does not always result in the natural next step of drafting and delivering orders, which is the critical skill set linking problem solving and decision making to action. The schoolhouse approach places a great deal of emphasis on the student "showing their work." The student is to demonstrate how they proceeded from a fact to a deduction for a task, an element of planning guidance, grouping, or coordinating instruction. This approach has merit when instructing students with little to no experience; however, it is not a realistic depiction of

decision-making on operations and falls short of the critical requirement of passing direction to subordinates, particularly in time constrained environments. Tactical Decision Games address this shortfall by shifting the focus to decision making and issuing direction.

Tactical Decision Games put students under severe time constraints. A common time limit on a TDG is to issue direction to a platoon or company/combat team 5 to 10 minutes after having completed reading the situation. Often, commanders and staff in training and on operations will need to decide rapidly and in a situation that continues to evolve during the decision-making process. Canadian Army TEWT, usually grant those executing them several hours to either walk the ground, if in location, or to work their way through the orders and then execute the estimate. While battle procedure time on operations will change based on the situation, what does not change is the advantage gained by those who decide faster than their enemy. Tactical exercises without troops, as currently practised, do not highlight the time constrained nature of combat and do not force students to develop strategies and abilities that allow them to make competent decisions in very short periods of time. Tactical exercices without troops, at least those executed in schools, are generally process-oriented versus results oriented.

Tactical Decision Games are intentionally ambiguous. Within a TDG scenario, a student does not have all the details desired to support the decision-making process. Information is intentionally left out to simulate the fog and friction of actual combat and operations. This is critical to train leaders on becoming comfortable with making decisions in conditions of uncertainty. Tactical exercises without troops often come with a complete orders package, which enables the decision-making process, and contain a complete plan for the operation and full Situation paragraphs or even Intelligence annexes. During operations, when a unit crosses the line of departure, ambiguity will be the rule and the ability to work within the commander's intent will be paramount. When direction comes, it will likely be via radio, data, runner, or if lucky, a very quick face-to-face with the commander as he/she tours the battlefield.

WHY USE TACTICAL DECISION GAMES?

The factors of severe time constraints and ambiguity should work in tandem over a series of TDGs, particularly with good mentorship and coaching, to help our leaders realize that they should be aiming to make decisions that are good enough versus optimized. An optimal solution is, of course, a great thing; however, it comes at a cost in time. That cost in time is often not possible for our leaders. The problem is particularly acute for our commanders from section to company level who lack the staff necessary to analyse and plan while the commander is engaged in the current operation. The CA's planning processes for the combat estimate, the estimate, and the operations planning process (OPP), are meant to optimize solutions via analyses which produce a comparison of multiple COAs. Yet decisions are made much more intuitively than these tools depict, particularly at subunit level and below.[2] Tactical Decision Games are meant to build an intuitive and timely decision-making capability that will provide leaders an edge in combat.

Generally speaking, human beings make decisions in two ways. A decision can be made analytically based on an understanding of all the factors involved, arriving at a series of potential solutions. The decision maker then compares the solutions to each other based on criteria deemed relevant. The other option is that a person relies on an intuitive interpretation of the situation. This is when a solution jumps out at the decision maker, or perhaps one might experience a "gut feeling." Intuition, however, is not magic. It is not the gift of those born with a God-given genius for war. Intuition is the realm of the expert. It is pattern recognition.[3] It is the human brain's ability to rapidly recognize situations that are similar to those experienced in the past and then, based on a previous successful response to that situation, undertake a similar response.[4] This response will not be perfect, but if the decision maker has been well trained, it is likely to be good enough and made rapidly. The advantage of deciding and acting before your opponent cannot be underestimated and is explicitly recognized in our doctrine under the auspices of the Observe, Orient, Decide, and Act cycle[5] and the concept of pre-emption in the Manoeuvrist Approach.[6] While some may feel such an approach to decision making is haphazard, it is in fact a reflection of expertise. It is the ability to recognize the commonalities in a situation and to rapidly propose a solution. Further, this is what humans typically do when under the pressure of time constraints and the friction of operations.[7] Consequently, the CA must train leaders to be able to make decisions in this manner.

Daniel Kahneman, a professor of psychology and winner of the Nobel Prize for his work on decision making, argues in his book *Thinking Fast and Slow*, that humans are prone to several cognitive biases and that System 1 thinking (intuitive and subconscious processes) dominates our decision making. This system of thinking is very rapid, almost instantaneous, but is also error prone. It contains those portions of our brain evolved to make rapid and crude assessments to support survival as a hunter and gatherer. It does not involve complex analysis.[8] There is also System 2 thinking, which is rational and checks System 1 processes. System 2 thinking entails those cognitive processes that engage in analytical decision making, such as the combat estimate, estimate, and OPP. It is, however, slow and cognitively demanding, which leads to people often relying on their intuitive impressions.[9]

Kahneman does not directly comment on the impact of emotional states on a person's ability to impose System 2 thinking; however, it is self-evident that some emotional states can make people less rational. An angry, fearful, or depressed emotional state will degrade an individual's ability to engage System 2 processes and make that individual more likely to make decisions based on intuition. The physical and emotional domains are not separate and as leaders become more tired, cold, or hungry, they are likely to experience more negative emotions. This process works both ways—negative emotions may make physical symptoms more acute.

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In the combat environment, there will be few factors in place to enable slow, deliberate and rational decision making. Leaders will be under great stress to perform, they are likely to be physically uncomfortable and exhausted, and likely scared, angry or sad at various times from the violence they have experienced and/or inflicted. This environment will curtail the leader's ability to apply the full range of their cognitive abilities through System 2 thinking and will place a premium on intuitive decision making.[10] Tactical Decision Games are an exceptional training opportunity not only to mitigate the effects of being forced to make intuitive decisions but also to prepare our leaders to thrive in such an environment and make better decisions faster.

A key to getting appropriate intuitive responses to tactical situations is "tactical reps." These are similar to an athlete in the gym who executes repetition after repetition of an exercise or movement, they eventually become more efficient at the exercise and more skilled at the movement. Top-level chess players offer an even more appropriate comparison. Chess players at the highest levels can play dozens of games simultaneously. How can this be possible? It's a matter of an intuitive response to the pieces positioned on the game board based on having experienced thousands of games and analyzing the patterns. The player is able to instantaneously understand the position, what the key elements of that position are, what moves are possible and how to exploit them.[11] This is the "Coup d'Oeil" that Clausewitz spoke of and that he believed Frederick the Great and Napoleon possessed.[12]

In this situation, there is a dichotomy. Cognitive biases plague human decision making, such as the desire for confirmation or anchoring on a particular piece of information. This means that in unfamiliar situations we should engage the rational portions of our brain to determine what is important and how we will use that piece of information. War, however, is a time-competitive process, and the human brain has very real limits to how much information it can absorb. Too much information will in fact activate cognitive biases.[13] Importantly, our intuition is the result of thousands of years of successful evolution and competition to survive. This is a tool that would be foolish to ignore, particularly in a situation where one's life and the lives of those they command hang in the balance. These are the types of situations for which our intuition has evolved.

In a perfect world, CA leaders would get "tactical reps" through high fidelity training, particularly free-play force-on-force exercises. Resource limitations and operational tempo, however, do not allow for this. Not all commanders will have an opportunity to go through Exercise MAPLE RESOLVE and even that experience provides no guarantee of a sufficiently broad and deep experience of "tactical reps," to allow them to start reliably making sufficiently good intuitive decisions. Tactical Decision Games offer an additional low cost training venue to expose soldiers to a variety of tactical scenarios and cover gaps in knowledge and experience.

Tactical Decision Games offer a great opportunity to be bold. History teaches, and doctrine espouses, that commanders should take risks, use their imagination, and do the unexpected in war.[14] Having said this, often we find ourselves executing schemes of manoeuvre very similar to our peers and unimaginative COAs that seek to eliminate all risk. Live fire ranges are particularly prone to this, which we often use for validation, due to the safety limitations that rightly must be put in place. During a TDG there is no risk of anyone dying and mission failure is an opportunity to learn and grow. The Instructor executing the TDG should put those participating at ease and limit the impact of egos so that students feel free to express creative solutions. If leaders cannot come up with bold, imaginative solutions in the comfort of a no-risk learning environment, then their ability to do so during operations may also

be hindered. Leaders should tell their subordinates that this is the time to be bold, to build a habit of innovation, so that they might be ready when similar solutions present themselves during more trying times.

In the context of the field force, TDGs are a superior tool for building implicit communication and learning about your subordinates.[15] A typical subunit commander will go to the field with his company for a few weeks during the fall and then some form of winter warfare exercise. Some will be lucky enough to do high readiness training in Wainwright. During these windows, there is a variety of training that must be completed and only a small proportion of it will be at the platoon and company level. The company will design much of this training itself, meaning it will not be high-fidelity live fire or force-on-force training. The situation for battalion commanders is even grimmer. This means that there are few opportunities to really discover how one's subordinate commanders think, observe their strengths and weaknesses, and build mutual understanding between commanders. It is this mutual understanding that builds cohesion and allows for increased speed of action on operations. A leader who executes TDGs on a regular basis will gain great insight into how subordinates analyze problems, think creatively, and accept risk. This will allow the commander to notice trends in their subordinates' solutions and will facilitate the development of individualized development plans for each subordinate.

Tactical Decision Games can reinforce lessons learned or prepare an audience to receive instruction or training. As part of a "crawl, walk, run", methodology, a TDG works well in the crawl phase before units head to the field to start executing a specific type of operation. The author experienced this as Officer Commanding I Company, Second Battalion, The Royal Canadian Regiment. Prior to embarking on a two-week urban operations concentration, several TDGs were selected that were set in an urban environment. The company's leadership reviewed the relevant doctrine as well as reading and discussing a series of articles on the importance of suppression in infantry tactics, particularly in urban operations.[16] With this theoretical foundation established, the TDGs were executed where numerous participants applied lessons from the readings to their solutions. Upon moving to the urban ops site, the platoons executed the training force-on-force with one platoon commander acting as the company (minus) commander with his platoon and one other while the remaining platoon commander was the opposing force. It was evident that lessons gleaned from the readings and the TDG transferred into the live execution against thinking, highly motivated human opponents. As an example, one of the platoon commanders established an elastic and active defence oriented on counter attacking rather than just holding a rigid line of buildings.

Lastly, TDGs are an efficient method of training soldiers and leaders two levels up. Doctrine demands that we understand our superior commander's intent, know our higher commander's concept of operations and be ready and able to assume the higher commander's position if required.[17] Most TDGs completed by I Company were at the Company/Combat Team level. Some were at the Battalion level. Tactical Decision Games were also executed with section commanders which were all at the platoon level. Occasionally, a TDG was conducted with the whole company present, targeting junior soldiers who would assume the role of the section commander. These initiatives were well received by soldiers, cost nothing, and opened the door to discussions that furthered subordinates' understanding of tactical situations and increased the potential for implicit communication between leaders and subordinates across the company's chain of command.

HOW TO EXECUTE A TACTICAL DECISION GAME

There are three major ways that TDGs can be employed: solo, group, or two-sided play.[18] Solo play is where an individual plays the TDG alone. This offers the least training value with no critical discussion after the game. Published solutions can improve this method by allowing the player to compare their solution to those of others in order to find strengths and weaknesses and consider how they came to their solution versus the rationales of others. Two-sided play is like a war game. It is force-on-force play between two players or two teams. This method requires an active moderator and is significantly more demanding than the other two methods but also offers the greatest learning potential.[19]

Group play offers the best balance between resource demands and providing a learning environment for one's subordinates. In this method, a group receives the TDG which includes the time limit and what the expected returns are for a solution. Once all members have read the problem, the clock starts. After a specified time has elapsed, members will present their solutions. A large diagram of the TDG is useful at this stage to facilitate briefing the group. Players should start their response by explaining their understanding of the situation so that the audience understands why they chose their solution. This will prevent the discussion from overly focussing on minor details by ensuring that those listening to the solution are aware of the assumptions that were made in support of the response.[20] The presenter will then complete the remainder of their response in the form of direction that they would deliver to their subordinates. This will most likely sound something like an operation order with Situation, Mission, Execution, Service Support, and Command and Signals, however, it may not. Giving the requisite information to subordinates is more important than the format of delivery. The group could then discuss the advantages and disadvantages of using different approaches to communicating direction.

The moderator and fellow participants should then analyze the solution. They should ask questions such as:

- What is the enemy's key weakness and does your plan exploit that?

- What are the friendly vulnerabilities and how do you protect them?

- Does your COA meet your higher and superior commander's intent?

- Did you consider any other COAs?

- Why did you select that form of manoeuvre?

- What was your main effort, how did you weight it, and why?

- What reports would you make to higher command?

- Who would you coordinate with and what would you coordinate?

- How could you mitigate the risk in your COA?

These questions will serve to force greater analysis of the problem and its relevant factors, and while much of the solution created by the player was likely done so intuitively, this discussion will help to sharpen player's analytical faculties and improve upon what will occur to them intuitively. As other players present their solutions and go through the process, all players are exposed to a variety of responses. This allows for a COA comparison, as well as drawing out additional relevant factors that some players missed. By the conclusion, all participants, including the moderator, have been exposed to a variety of solutions to a similar situation thereby increasing everyone's knowledge of possible responses.

The importance of the follow-on analysis should not be underestimated. It is during this portion where deeper understanding can be achieved; the moderator must be critical in its execution. Returning to world class chess players, Josh Waitzkin was a chess prodigy whose early life provided the basis for the book and film *Searching for Bobby Fischer.* He now runs a consulting business that focuses on highly individualized learning plans for business elites looking to improve their performance to allow them to be the best within their fields.[21] In his book, *The Art of Learning: An Inner Journey to Optimal Performance* he describes how he internalized lessons from chess and created intuitive knowledge of what had been an unfamiliar situation.

> These moments where the technical and psychological collide, are where I directed my study of the game. In the course of a nine-round chess tournament, I'd arrive at around four or five critical positions that I didn't quite understand or in which I made an error. Immediately after each of my games, I quickly entered the moves into my computer, noting my thought process and how I felt emotionally at various stages of the battle. Then after the tournament, armed with these fresh impressions, I went back to Vrholvje [Waitzkin's coach] and studied the critical moments… Usually long study sessions went like this: I began with the critical position from one of my games, where my intuitive understanding had not been up to the challenge. At first my mind had been like a runner on a cold winter morning—stiff, unhappy about the coming jog, dreary. Then I began to move, recalling my attacking ideas in the struggle and how nothing had fully connected. I tried to pick apart my opponent's position and discovered new layers of his defensive resources, all the while my mind thawing, integrating the evolving structural dynamics it had not quite understood before…

> When I looked at the critical position from my tournament game, what had stumped me a few days or hours or weeks before now seemed perfectly apparent. I saw the best move, felt the correct plan, and understood the evaluation of the position. I couldn't explain this new knowledge with variations or words. It felt more elemental, like rippling water or a light breeze. My chess intuition had deepened.[22]

What should be evident from Waitzkin's experience is that the analysis following the game is what allowed for the internalization of his experiences. This internalization is intuitive knowledge, recognition of the new position, which then allowed him to draw on it in later games with an understanding of a position that was instantaneous.

Establishing a conducive learning environment is critical to the success of TDGs. The games must be executed in a manner that those playing do not come to feel overly intimidated. It is not an easy position to be in as a lieutenant asked to come up with a battle group scheme of manoeuvre and brief it in front of your peers and superiors. The question period cannot be treated as an inquisition and must be done in a manner that coaches all participants to improve. Senior members must be self-aware of the comments they provide and the context in which they provide them. As the questions above indicate, a decision on a COA being good or bad, pass or fail, is not required. The question period is an opportunity to explore how the decision was made, how it was justified, and to be exposed to other potential solutions. Facilitators must also be wary of bias towards an approach building up as the group becomes familiar with the methods that influential members of the group prefer. As an example, if the commanding officer (CO) habitually prefers plans that are less bold and risky, then subordinates will begin to shape their plans in this manner. In one way this is advantageous, as the unit's leadership learns the CO's preferences it will allow for better mutual understanding on operations. Conversely, it can lead to the ossification of thought within the unit. The disproportionate influence of the senior officer present is inevitable, but it can be mitigated by having them speak last and allowing conversation, and debate, to take place prior to their final comments. It is inevitable that there will be different opinions in the room from the most senior officer present and in this way, they will be heard and can be discussed before the senior officer speaks.

CONCLUSION

This article argued that the CA should institutionalize TDGs. This would cost little, and the first step can be with the attached TDG and its use and discussion across the CA. Publications such as the *Canadian Army Journal*, the *Infantry Corps Newsletter*, and the *Armour Newsletter* could begin printing TDGs in each issue, receive responses and print the best responses in the following issue. *The Canadian Army Doctrine and Training Bulletin*, which pre-dated this publication, did just that for a short period of time.[23] The *Canadian Military Journal* could also pursue something similar to a TDG but use more joint problems, potentially at the operational level of war. Operational decision games are now being used at American staff colleges.

Source: Combat Camera

Employment of TDGs at the Combat Training Centre Schools will begin paying dividends rapidly and could be immediately pursued. As an example, after a class on offensive operations on infantry officer DP 1.1, students would execute an offensive TDG to help reinforce the class they just received on the relevant principles of war, fundamentals of the offence, and stages of the attack. Eventually, the TDGs published in the professional journals and created by the field force should be consolidated into a single digital reference which would be distributed across the force.

The field force could immediately integrate TDGs into their respective unit professional development programs. The field force is exceptionally busy, and professional development is often sacrificed to achieve operational outputs, training objectives, or support to the institution. Ultimately, there is only so much time in the day. A TDG, however, takes very little of that time compared to other initiatives and can achieve disproportionate effects.

Tactical Decision Games are a cost-effective and time-efficient means of training one's subordinates. They have a role to play in our professional journals, our classrooms, and in the operational units. While most CA tactical decision-making training is directed at completing an analytical process to arrive at what is hoped to be an optimized solution, the TDG works on a participant's recognition primed intuitive decision-making abilities. These abilities will be critical on operations. Tactical Decision Games do not, however, completely forgo analytical skills. Through group discussion and critique, players analyse factors and compare COAs after multiple members of a group present solutions. If we seek to create soldiers, NCOs and officers who can decide faster than our future opponents, then what we need is a means of making more decisions. Like a fighter looking to sharpen his jab, single leg take down, or triangle choke, we need more "tactical reps."

SAMPLE SCENARIO: DECISION AT THE BLUE RIVER

You are Officer Commanding (OC) I Company (Coy) Combat Team (Cbt Tm), 2nd Battalion, The Royal Canadian Regiment Battle Group (2 RCR BG). You have two organic mechanized infantry platoons and headquarters as well as an attached, operational control (OPCON), Leopard 2 troop (4 x Leopard 2) from C Squadron of The Royal Canadian Dragoons (RCD) and a forward observation officer (FOO) / forward air controller (FAC) party from The Second Regiment Royal Canadian Horse Artillery (2 RCHA). Your third mechanized infantry platoon has been detached, OPCON, to C Squadron, RCD.

2 Canadian Mechanized Brigade Group (2 CMBG) has been operating in Atropia for three months. Following successful defensive operations, the brigade (bde) is back on the offensive. Donovian forces are withdrawing to what is assessed to be a main defensive area in vicinity of the regional capital. Covering their retreat is a rear guard that is utilizing delaying tactics to buy time for the main body to establish the main defensive area. This rear guard is estimated to be a task organized battalion tactical group (BTG) made up of three motorized rifle companies equipped with BMP-2M and a tank company with T-72B. This BTG likely also has its own artillery, air defence, antiarmour, and electronic warfare units. It is assessed that the BTG will attempt to take maximum advantage of the Blue River to impose heavy delays on the bde by forcing and then disrupting a deliberate crossing operation. It is assessed the enemy will attempt to defend on both sides of the river, and reconnaissance assets have confirmed the presence of motorized platoon-sized elements at battle group objectives (BG Obj) 1 and 2.

Commander 2 CMBG is looking to rapidly seize crossings over the Blue River and establish a bridgehead on the far side to allow the Multinational Division Commander to commit a US Army Armored Brigade Combat Team (ABCT) to continue the pursuit of the enemy and give them as little time as possible to make defensive preparations. To do this he has tasked 1 RCR and 2 RCR each to seize two crossings, establish a bridgehead, and conduct a forward passage of lines with the ABCT. The RCD BG will be in reserve to exploit success and to establish the bridgehead on the far side of the river. The coalition has achieved local air superiority for this offensive but is very cautious in the use of close air support due to the adversary's localized point air defence systems and man-portable air defence systems.

The Commanding Officer of 2 RCR (CO 2 RCR) intends to simultaneously seize BG Objs 1 and 2 with infantry heavy combat teams allowing him to dominate the crossings and the far bank with fire followed by the seizure of BG Obj 3 by the C Sqn Cbt Tm. He will pass C Sqn through whichever crossing is seized first. His end state sees both crossing points secure, C Sqn Cbt Tm occupying BG Obj 3, and the BG prepared to initially pass the RCD BG followed by the ABCT. His main effort is C Sqn Cbt Tm seizing BG Obj 3.

To accomplish your task, you decide to execute a very shallow left flanking with a fire base provided by your attached troop of four tanks (1 Tp). 1 Tp is tasked to support by fire, 7 and 8 Platoons (Pl) are tasked to destroy enemy in the vicinity of BG Obj 1. Upon the dismount,

your light armoured vehicle (LAV) Captain will assume control of your LAVs and get them oriented to the north of the Blue River while you complete the assault and reorganize for the passage of C Sqn Cbt Tm. You and OC H Coy coordinated your H-hours so they are staggered by ten minutes allowing you to receive support from 2 RCHA before they switch their support to Hotel Company (H Coy). The CO was concerned that he wanted his attacks to be simultaneous to overload the enemy's ability to respond but accepted that ten minutes was a sufficiently short window.

At 0700h your FOO establishes surveillance on BG Obj 1 from a turret down position, adjusts rounds of fire and then calls fire for effect with a suppression mission against what appears to be a motor rifle platoon, dug in, in hull down positions. With rounds effective on the enemy position, 1 Troop occupies their support by fire position. The troop leader delivers the fire orders for a troop shoot and four Leopard 2 tanks expose their gun barrels and let loose with a volley of 120 mm sabot rounds. Two of the rounds impact what appears to be a dummy position, another flies over the turret of a BMP and the fourth hits the middle BMP and shears its turret off, sending it spinning into the air. It is now 0705h and your LAVs depart their attack position and cross the line of departure. The remaining BMPs now pop multi spectral smoke for cover, playing havoc with the tank and LAV sights. What can be made out is that the BMPs appear to be backing out of their prepared positions and moving down into the low ground toward the crossing site. You continue your assault towards BG Obj 1 frustrated that the enemy appears to be getting away and notice that there is a continuous hiss coming from your headset in your ear, almost as if someone were sitting on their press-to-talk switch on the BG Command net.

You arrive on BG Obj 1 and confirm that the enemy has successfully escaped; however, they left many of their dismounted infantry who are in no mood for a fight and quickly surrender. Your LAV Capt rapidly orients your LAVs to the north and engages the fleeing motorized rifle platoon, destroying an additional vehicle. It is now 0720h, and H Coy should have commenced their attack ten minutes ago. The sounds coming from the east indicate that there is an intense fire fight going on and you can catch broken pieces of conversation on the radio (Call Sign 0 [C/S 0]) which makes it sound like H Coy is heavily engaged. While you can't understand what is being discussed, a few minutes later, you recognize the voices of the CO and OC C Sqn on the BG Command net. You try to raise the CO to report your situation but can't get through. It is now 0725h and your gunner elbows your leg. He indicates you ought to check your day site and when you do, you see what appears to be a large dust cloud billowing up from behind BG Obj 3.

What now Major?

In five minutes determine what your COA will be. Your response should be in the form of direction to your subordinates, a diagram, and any reports you would attempt to send to higher levels. 🍁
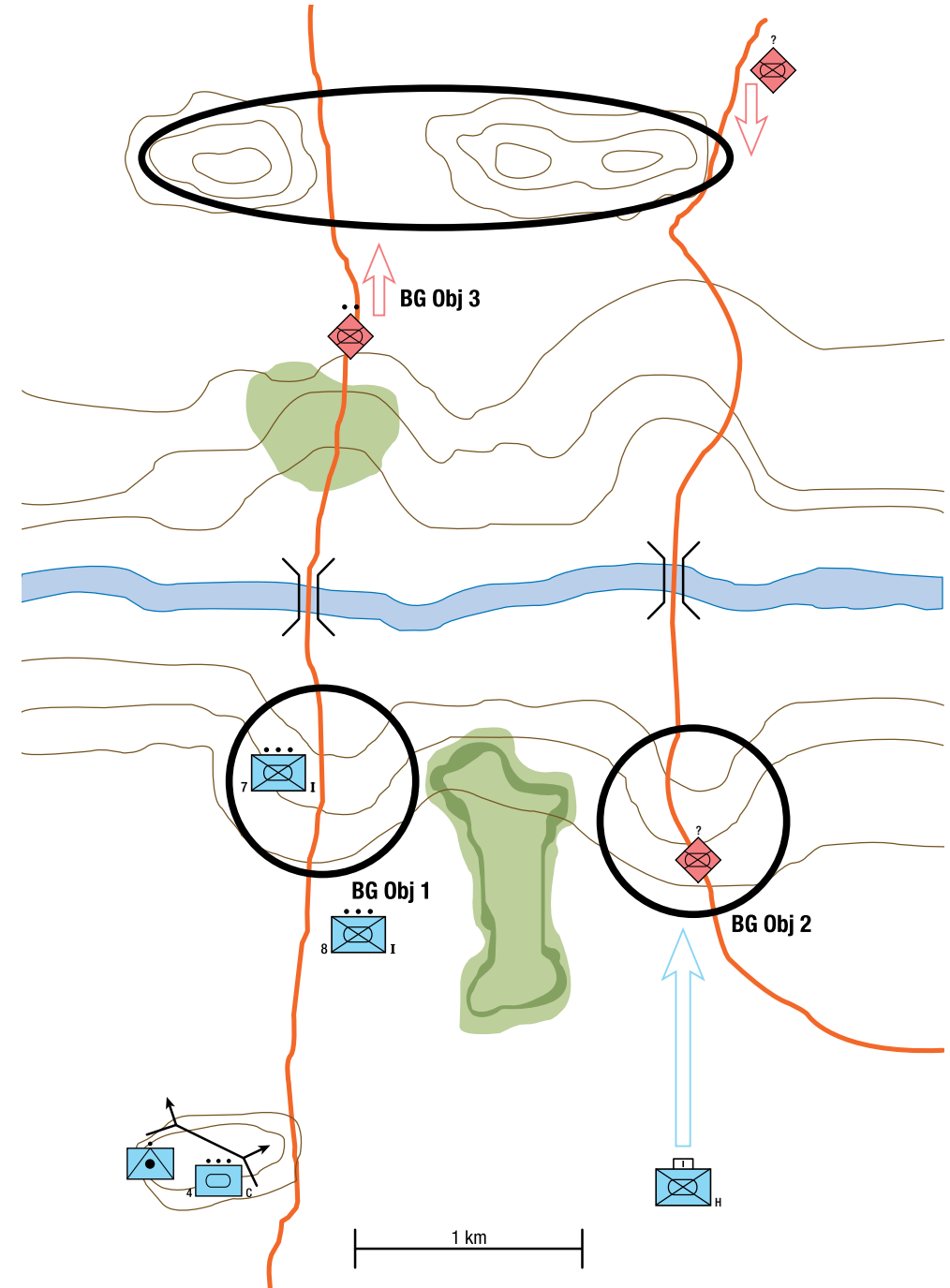
Source: Combat Camera

ABOUT THE AUTHOR...

Major Matt Rolls enrolled in the Canadian Armed Forces in 2006 as an infantry officer and later joined The Royal Canadian Regiment. Major Rolls has spent all of his regimental time with 2 RCR, having been a platoon commander, company 2IC, Asst Ops O, Adjt, and rifle company and admin company OC. He deployed as a rifle platoon commander with both the Kandahar Provincial Reconstruction Team and the 1st Battalion, The Royal Canadian Regiment Battle Group on TF 1-10 and then spent time in Latvia for Op REASSURANCE as a rifle company OC. He graduated from the US Marine Corps Expeditionary Warfare School and the Joint Command and Staff Program. He has a bachelor's degree in political science from Dalhousie University and a master's degree in defence studies, and he is in the process of completing a master's degree in military studies. He is currently employed in D Mil C as the senior infantry career manager.

ENDNOTES

1. Carl von Clausewitz, *On War*, Translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press. 1976), 102.

2. Gary Klein, *Sources of Power: How People Make Decisions* (MA: MIT Press, 2017), 15–31.

3. Ibid.

4. Ibid.

5. Department of National Defence, B-GL-300-003/FP-001, *Command in Land Operations* (Ottawa: Department of National Defence, 2007), 1-13.

6. Department of National Defence, B-GL-300-001/FP-001, *Land Operations* (Ottawa: Department of National Defence, 2008), 5-68.

7. Gary Klein, "Strategies of Decision-making," *Military Review*, (May 1989): 63; Gary Klein, *Streetlights and Shadows: Searching for the Keys to Adaptive Decision Making* (Cambridge, MA: MIT Press, 2011), 86; Klein, *Sources of Power*, 299; Peter Thunholm, "Decision-making Under Time Pressure: To Evaluate or Not to Evaluate Three Options Before the Decision is Made?" (unpublished paper, National Defence College and Stockholm University, 2003), 28. https://www.researchgate.net/publication/237281532_Decision_Making_Under_Time_Pressure_To_Evaluate_or_Not_to_Evaluate_Three_Options_Before_The_Decision_is_Made

8. Daniel Kahneman, *Thinking Fast and Slow* (Canada: Anchor Canada, 2011), 19–31.

9. Ibid, 39–50.

10. Kahneman, 41–43.

11. Josh Waitzkin, *The Art of Learning: An Inner Journey to Optimal Performance* (New York, NY: Free Press, 2007), 135–148.

12. Clausewitz, 102.

13. Kahneman, 130.

14. Department of National Defence, *Land Operations*, 3-6 to 3-7.

15. Captain James D Gonsalves, "The Tactical Decision Game (TDG): An Invaluable Training Tool for Developing Junior Leaders," *Armor* (May–Jun 1997): 35–38. http://www.benning.army.mil/armor/eARMOR/content/issues/1997/MAY_JUN/ArmorMayJune1997web.pdf

16. The articles reviewed are as follows. Major JP Storr, "FIBUA – The Tactics of Mistake?" *British Army Review*, 128: 33-37; Lieutenant Colonel Michael Krause, "Lest We Forget: Combined Arms Assault in Complex Terrain," *Australian Army Journal,* 1 No 1 (June 2003): 41–46; Lieutenant Colonel David Killcullen, "Rethinking the Basis of Infantry Close Combat," 1 No 1 (June 2003): 29–40; Dr. Jim Storr, "The Real Role of Small Arms in Combat," *RUSI Defence Systems* (June 2009): 44–46; Maj Brendan B. McBreen, "Suppression is *the* Critical Infantry Task," *Marine Corps Gazette*, 85 No 10 (Oct 2001): 40–41.

17. Department of National Defence, *Command in Land Operations*, 2-8 to 2-11.

18. Major John F. Schmitt, "Are You the Next Napoleon? For Tacticians at the Tip of the Spear," *The Marine Corps Gazette,* 100 No. 7 (July 2016), https://mca-marines.org/gazette/are-you-the-next-napoleon/.

19. Ibid.

20. Colonel Thomas X. Hammes, "TDGs Return: Some Thoughts on TDG Utilization," *The Marine Corps Gazette,* 94 No. 5 (May 2010), https://mca-marines.org/gazette/tdgs-return/.

21. Josh Waitzkin, "Peak Performance Training." http://www.joshwaitzkin.com/peak-performance-training/

22. Josh Waitzkin, *The Art of Learning: An Inner Journey to Optimal Performance*, 73–74.

23. Tacitus, "A Simple Tactical Problem 'Mission Analysis,'" *The Army Doctrine and Training Bulletin*, 3, No 2 (Summer 2000), 47, http://publications.gc.ca/collections/Collection/D12-9-4-2E.pdf; Tacitus, "A Simple Tactical Problem, 'Auftragstaktik,'" *The Army Doctrine and Training Bulletin*, 3, No 3 (Fall 200), 53, http://publications.gc.ca/collections/Collection/D12-9-4-3E.pdf; Tacitus, "A Simple Tactical Problem, 'Selection of the Aim,'" *The Army Doctrine and Training Bulletin*, 4, No 4 (Winter 2001), 83, http://publications.gc.ca/collections/Collection/D12-9-4-4E.pdf; Tacitus, "Tactical Problem Building Combat Power Through Grouping," *The Army Doctrine and Training Bulletin*, 5, No 4 (Winter 2002–2003), 91, http://publications.gc.ca/collections/Collection/D12-9-5-4E.pdf.

Source: Library and Archives Canada

BATTLE GROUP DECISION MAKING AND RELATED PLANNING PROCESSES: INTUITIVE OR DELIBERATE? AN ONGOING DIALOGUE

Colonel Howard G. Coombs and Lieutenant-Colonel (Retired) Steven K. MacBeth

Over the past 100 years… the estimate process has been subject to a nearly constant doctrinal battle between those seeking to hone command intuition and those seeking a more scientifically based staff decision-making process.[1]

INTRODUCTION

United States Army War College researchers Kristan Wheaton and James Morningstar, in a recent *War Room* article, accurately captured the dialogue between those who favour intuitive processes for decision making—and, by extension, planning—and those who support more deliberate and structured models. The crux of the argument appears to be a perceived tension between thinking and acting rapidly, guided by command intuition, and conducting a slower methodical estimate and formal planning cycle. Despite the seeming gap between these two positions, one can argue that current Canadian Army tactical decision-making doctrine permits battle groups the flexibility for both approaches and a myriad of permutations between them.[2]

The current operations planning process (OPP) has been used by the Canadian Army for more than 20 years, following work at the Canadian Army Command and Staff College (CACSC) to "Canadianize" the United States Army Military Decision Making Process and create a systemic and consistent planning model for tactical utilization. Initial usage and testing were completed using CACSC courses and elements of 1st Canadian Division Headquarters. These efforts proved successful, and the Canadian version evolved.[3] The latest version aligns the Canadian OPP with NATO Standardization Agreements and corresponding Allied Administrative Publications. This doctrine also reflects interoperability requirements with the United States Army from brigade level and below under the America, Britain, Canada, Australia, New Zealand treaty and Canadian Army bilateral training initiatives. Despite this ongoing work to keep Canadian Army doctrine relevant within current operational obligations, there have been recent instances of other decision-making/planning models being used successfully by units in lieu of doctrine at the Canadian Manoeuvre Training Centre (CMTC). Given these events, an examination of tactical decision-making and planning doctrine is warranted.[4]

THE CANADIAN ARMY IN THE SECOND WORLD WAR[5]

Before examining the current situation vis-à-vis tactical decision making and planning, it is useful to understand how previous Canadian commanders dealt with the dilemmas of decision making and planning in a complicated and violent time-constrained environment. During the Normandy breakout and exploitation battles from June to August 1944, Lieutenant-General Guy Simonds, Commander II Canadian Corps, and his subordinate

commanders were beset by numerous challenges as they attempted to destroy the withdrawing and hard-fighting German *Wehrmacht*. Tactical decisions needed to be made, planned and disseminated quickly. An illustrative example is Simonds's command-driven processes prior to the 07 August 1944 commencement of Operation TOTALIZE, the second-last operation prior to the closing of the Falaise Gap and the link-up with the United States Army from 12 to 21 August.

> Simonds did this [estimate] in isolation. As Elliot Rodger [then Brigadier General Staff], stated: I well recall his O Group before Operation Totalize when the several div comds sat in a circle under the pine trees (all being much older than GGS [Guy Granville Simonds] and some with desert sand in their ears) to whom he opened, 'Gentlemen, we will do this attack at night with armour.' Their jaws dropped noticeably. Prior to then I believe that not I nor any of the Corps HQ Brigs [Brigadiers] knew of this plan. Perhaps he had some prior discussion with Clark (CSO) [Chief Signals Officer] on the considerable plans needed to help the tanks and defrocked 'priests [prototype infantry carriers] keep direction in the dark. But the whole plan poured forth complete and crystal clear.

One of the division commanders pointed out that it had never been done before, to which Simonds replied, "That's why I'm doing it."[6]

Simonds's approach offers a Canadian example of the intuitive command-led approach to a tactical problem together with dissemination of a concept of operations, which was executed soon afterwards. II Canadian Corps used this methodology, along with abbreviated combat estimates and orders derived from them, to ensure rapidity of decision and action in a quickly changing environment of violence. Moreover, it was observed that once Falaise was taken Simonds no longer issued Corps direction on paper; instead, he commanded via oral orders and constant personal visits. An operations order amid the violence and chaos of the Falaise pocket would no doubt have been a hindrance to decision making and tactical action. The 4 Canadian Armoured Brigade Pro-forma of Immediate Mental Appreciation and Orders is illustrative of this process:[7]

> **[Mental Appreciation]**
>
> 1. Object—My task is…
> 2. Location of Enemy—Where are his likely positions?
> 3. Firepower of Enemy—Tanks, guns or inf?
> 4. Ground—From where can I deal with him best?
> 5. Courses Open to the Enemy—What is he likely to do if I do so and so?
> 6. Plan—My plan is…

Orders

1. Information—

   Enemy (location/strength/armament)

   Own Troops (strength/positions)

2. Intention—I will destroy/capture/seize…

3. Method—

   My plan is…

   I will do it like this…

4. Administration—Petrol, ammunition and wounded will be dealt with as follows…

5. Any Questions

(From Appendix B to "4 Cdn Armd Bde Trg Instr No. 28, d/23 Mar 44, Pro-forma of Immediate Mental Appreciation and Orders, To be practiced by all ranks until it becomes a drill.")[8]

Key to this rapid decide, plan and execute sequence were standardized tactical decision-making and planning directives that allowed for intuition or "*coup d'oeil*" like that of Simonds, along with more deliberative processes, to be framed consistently and transmitted quickly. Current Canadian doctrine appears to possess similar degrees of flexibility.

CANADIAN AND ALLIED DOCTRINE

The Canadian Army continues to utilize the estimate process within a consistent planning process, the OPP. This process begins with a commander's estimate that provides planning guidance. The estimate is the primary tool in command and staff decision making at the unit level and can be a lengthy formal process or a truncated combat estimate. Canadian doctrine acknowledges that, due to the rapidity of decision making, combat estimates are derived intuitively but as a minimum should include (1) ground, (2) enemy, (3) friendly forces, (4) surprise and security and (5) time and space. All of this is very similar to the Second World War example laid out previously. In addition, the staff follows an estimate process to develop supporting plans with the OPP cycle. The OPP consists of five stages: (1) Initiation, commencing the cycle and creating a warning order, (2) Orientation, confirming the mission and refining the warning order, (3) Course of Action Development, generating workable options, testing them, and selecting the most appropriate, (4) Plan Development, resulting in orders being generated to support the chosen course of action and (5) Plan Review, monitoring the execution, with adjustments, further orders, branches or sequels occurring as required. This process can be adjusted to fit the time available. For fluid operations, fragmentary orders based on the initial orders, rather than re-commencement of a planning cycle, are the norm. The OPP is a scalable process and can be truncated as much as possible given the situation.[9]

Our allies use similar processes. The United States Army utilizes a seven-step military decision-making process (MDMP) which corresponds approximately to the Canadian OPP. Similar forms of estimates are used. Commanders' estimates are articulated as mental processes tied to their "visualization," which make use of all types of inputs from intuition to subordinate commander and staff inputs to inform their planning guidance and ongoing assessments of the operation. Instinct is utilized where facts are incomplete, and timely decisions and actions are of the essence. Staffs produce estimates within the MDMP, much the same way they are done in Canada. There are two types of estimates: initial estimates, which initiate activities, and "running" estimates, which are ongoing, resulting in amendments to ongoing planning or execution.[10] These visualizations and estimates are created in the following way:

> Commanders and staffs use the operational and mission variables to help build their situational understanding. They analyze and describe an operational environment in terms of eight interrelated operational variables: political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT). Upon receipt of a mission, commanders filter information categorized by the operational variables into relevant information with respect to the mission. They use the mission variables, in combination with the operational variables, to refine their understanding of the situation and to visualize, describe, and direct operations. The mission variables are mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC).[11]

Although on the surface there seems to be little formal structure to a commander's visualization, it is in fact informed by the need to consider the significant aspects of the operational environment and mission variables. The level of resolution in how these factors are approached for both visualizations and staff estimates will be dependent on time and information. In the U.S., as in Canada, the decision and planning processes can be abbreviated. U.S. Army doctrine emphasizes the role of commanders in providing "expertise, intuition, and creativity" in shortening the MDMP, as well as the need for the staff to ensure that all requirements are addressed through understanding of the MDMP and practice in using it.[12]

The British Army takes a more Socratic approach, using its version of the combat estimate, known as the "seven questions," in operational settings where the tactical aspects are known and accelerated decisions and planning are required:

1. What is the situation and how does it affect me?
2. What have I been told to do and why?
3. What effects do I need to achieve and what direction must I give to develop my plan?
4. Where can I best accomplish each action/effect?
5. When and where do the actions take place in relation to each other?
6. What control measures must I impose?

The purpose of the seven questions remains the same as that of other military decision-making systems: to determine "What is my goal, and what factors do I need to consider in achieving it?" Like Canadian doctrine pertaining to the estimate process, the seven questions can be utilized for guidance in a longer directed planning process or a much shorter cycle resulting in rapid orders.[13]

Australia uses a military appreciation process and connects it to a planning system. Appreciations are done by commanders and staff to inform the planning cycle, which is command-led. Commanders complete combat appreciations when time is short. Those mental assessments lead directly to a course of action and orders:

> The combat military appreciation process is a combat decision-making tool that is derived from the individual military appreciation process and is used post-H-hour in response to a contact or incident that requires an immediate response. It draws on the commander's knowledge of previous planning processes, accumulated battlespace knowledge, military judgement and tactical experience. A commander will normally conduct a combat military appreciation process when there is insufficient time to consider all factors. There are four steps in the combat military appreciation process:
> - mission analysis
> - enemy/threat analysis
> - terrain analysis
> - develop and execute.

It is largely based on intuition and situational awareness (SA).

Neighbouring New Zealand adapts Australian Army doctrine for its own use[14].

Another Canadian ally, France, also uses a planning process that is guided by a commander, who must define the "Why," "What" and "How" of the operation in the planning guidance to the staff. The process utilized is a series of sub-questions that provide resolution to these three primary foci. The scope of the questions and the deductions that are derived from them are very similar to those in the Canadian estimate process. The French army procedure allows for options and determinations that are communicated to subordinates via tactical orders. The French tactical doctrine has been adapted from operational and strategic decision making.

It seems to encourage a deliberate and structured, rather than intuitive, approach, although it also emphasizes that "Doctrine is a guide that maintains freedom of action for the combined arms commander in charge of the organization of forces in operations, and of the design, planning and execution of missions." In other words, it allows for different approaches.[15]

CANADIAN ARMY BATTLE GROUPS AND THE CONTEXT OF TACTICAL DECISION MAKING AND PLANNING

The battle group (BG) is an ad hoc grouping based on an infantry battalion or armoured regiment, which is normally commanded by a lieutenant-colonel. It usually consists of a headquarters (HQ) and a combination of integral and attached infantry and armour sub-units, with their integral combat service support, or sustainment, elements. Also included are combat support organizations, which provide immediate tactical assistance, in the form of reconnaissance, mobility, counter-mobility or direct and indirect fire support, to combat elements. Additional combat service support elements may be attached when necessary. For the Canadian Army, the BG is arguably the principal land tactical manoeuvre unit for current deployed operations. The BG is expected to be able to operate throughout the continuum of conflict, ranging from peace to general war. In order to span this range of operations, the Canadian BG must be able to execute both "shaping" and "decisive" operations. At the tactical level, shaping includes the activities that link, support or create the favourable conditions for other operations. Decisive operations are the vital tactical actions that are necessary to achieve operational objectives.[16]

In order to support command of the BG in a wide variety of possible missions from humanitarian assistance to warfighting, the BG HQ is structured and equipped to ensure deployability, continuity of command, survivability, fusion of command and staff effort, interoperability, size, modularity, capacity and range. These characteristics enable the BG HQ to execute four overarching functions necessary for tactical activities. These roles are to plan future operations, coordinate current operations, develop intelligence, and support decision making.[17] With broad parameters for operations and often with the requirement to execute these four functions simultaneously throughout the continuum of operations, the BG HQ must be an organization that can think both critically and creatively. These dual capabilities are recognized in Canadian doctrinal decision making and planning as the "rational approach" and the "intuitive approach." The rational approach is to produce the optimal solution through methodical analysis and reasoning guided by experience. This method encompasses a command-led, staff-driven operational planning process, while the intuitive approach supplants or enhances methodical analysis with subjective, intuitive assessment because of a lack of information and/or time, with the aim being to produce a satisfactory solution rather than the optimal one. The success of the intuitive approach depends on sound military judgement, which is based on an informed perception of the situation that stems from a commander's professional knowledge, intellect and experience.[18] This approach is best represented in the Recognitional Planning Model (RPM) developed by American researchers John Schmit and Gary Klein. This planning model utilizes recognitional (intuitive) decision making as a prescriptive process to increase speed of planning and as

a descriptive model to better utilize the strengths of experienced planners. It presupposes a detailed understanding of the planning environment, experienced staff and the involvement of commanders.[19]

Canadian BGs utilize both cognitive systems, either simultaneously or consecutively. This creates a tension in planning between tempo and process. Elements of the BG HQ may need to engage intuitively, guided by a commander, for rapidly moving current operations, while using rational processes in planning for later missions. Canadian doctrine highlights that the rational approach "should be used whenever possible and is the preferred method for planning."[20] Rational and structured processes reduce or eliminate cognitive bias that may be present in intuitive processes and provide assured planning outputs throughout the process, leading to a coordinated plan.[21]

Israeli-American psychologist Daniel Kahneman, in *Thinking, Fast and Slow*, describes these modes of thought as System 1 (intuitive, or "thinking fast") and System 2 (structured, or "thinking slow"). The ideas in *Thinking, Fast and Slow*, which were originally considered by the Israeli military for aerial combat, have helped inform discourse on military cognition.[22] Moreover, these descriptions are helpful in describing what military HQ must accomplish during planning. A BG must utilize both systems, either simultaneously or consecutively. This creates a tension in planning between tempo and process. Battle group HQ may need to engage System 1 (intuitive, or "thinking fast") for rapid-tempo tactical activities, while planning for subsequent missions and tasks using System 2 (structured, or "thinking slow"). Kahneman argues that, despite the belief of many that System 2 thinking is dominant, it is System 1 thinking that informs most actions.[23] This is an important distinction, as it is likely the source of tension between commanders who rely on "thinking fast" and staffs who rely on "thinking slow." Figure 1 demonstrates this dichotomy within a HQ.

Consequently, friction between commanders "thinking fast" and staffs "thinking slow," coupled with an increase in command-enabling technology, has resulted in commanders seeking ways to enable their intuitive thinking processes. This tension has been exacerbated by an evolving threat environment and the constant need to maintain information flow and connectivity to subordinate and higher HQ.

THE CONTEMPORARY TACTICAL THREAT ENVIRONMENT IN EASTERN EUROPE

The present conflict in Ukraine illustrates the emerging security setting within which a BG will be required to operate. This operational environment is very unlike that of the deployments in Afghanistan between 2002 and 2014, which came to be characterized by deliberate operations launched from immobile forward operating bases. The insurgents were normally lightly armed and depended on asymmetric means, including suicide bombers and improvised explosive devices, to attack coalition forces.
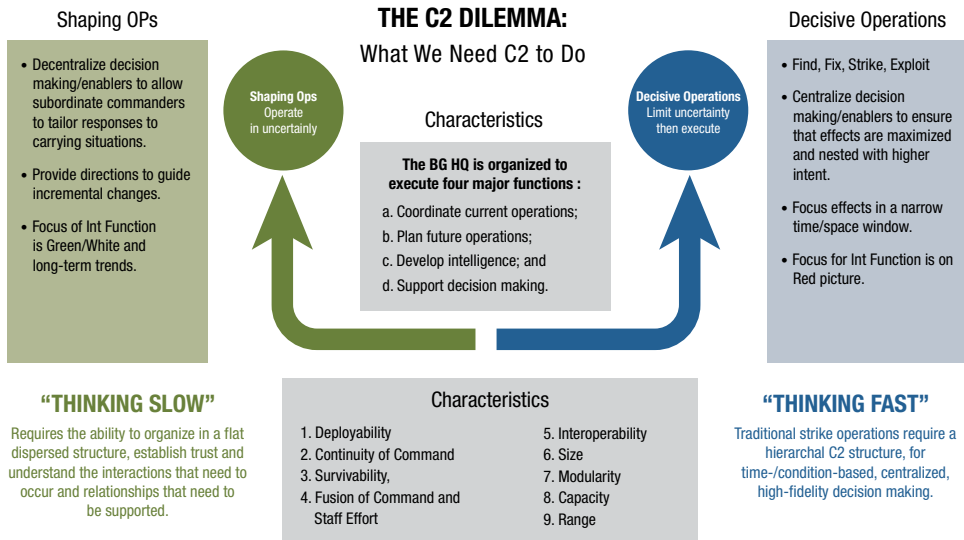
Figure 1: The Command and Control Dilemma: What We Need Command and Control to Do[24]

Contrast the recent past with today's potential battlespace in Eastern Europe. That environment is characterized by the presence of massed fires and omnipresent intelligence, surveillance, and reconnaissance coverage within a distributed, or low-density, battlespace. High-density fires and unmanned aerial surveillance of all types could quickly be used against Canadian units. Countering these threats requires flexibility, agility and mobility with constant repositioning of command and control (C2) assets. Headquarters must move frequently. In addition, belligerents, the threats they normally pose and the range of tools they utilize are not always easily discernable or attributable, as they range from covert to overt across the spectrum of conflict. Participants in Eastern Europe rely mostly on unconventional means, such as propaganda, economic pressure and non-state actors that do not constitute formal state-on-state conflict.[25] This operational setting is illustrated in Figure 2.
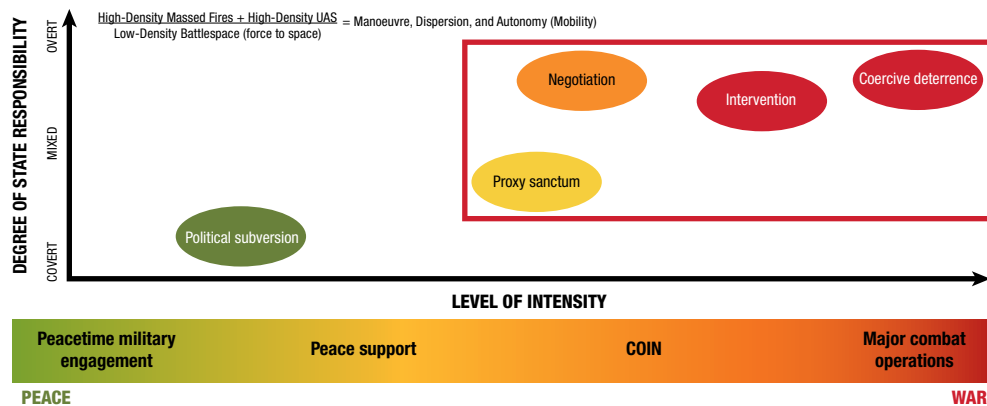
Figure 2: Contemporary Continuum of Conflict[26]

In this environment, there is increased demand for preparedness to pre-empt or counter wide-ranging hybrid, as well as grey-zone, threats and to be ready, if necessary, for major combat operations. Speed of decision making and planning is paramount for any BG HQ.

CANADIAN MANOEUVRE TRAINING CENTRE BATTLE GROUPS: DECISION MAKING AND PLANNING 2014–2019 (QUANTITATIVE OBSERVATIONS)

Canadian Manoeuvre Training Centre Take Home Packages, consisting of the pertinent observations on units participating in the Exercise MAPLE RESOLVE series from 2014 to 2019, were reviewed to obtain a perspective on the types of decision making and planning conducted by armoured- and infantry-based BGs during that period. The data demonstrates that many BGs follow the established doctrinal norms for decision making and planning: the estimate and the OPP. Of 21 battle groups during that period, 1) 13 or 62% utilized doctrinal models; 2) five or 24% utilized the RPM; 3) three or 10% utilized "bespoke," or customized, unit methods; and 4) one or 4% utilized the United Kingdom tactical doctrinal model based on the "seven questions." Figure 3 illustrates this distribution of battle group decision making and planning processes.[27]
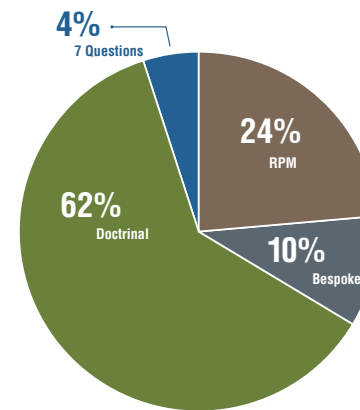
Figure 3: Distribution of Battle Group Decision-Making and Planning Models, 2014–2019

Two interesting observations can be made based on this quantitative data. Firstly, the BG decision making and planning models differ from one formation to another: 1) BGs of 5 Canadian Mechanized Brigade Group (5 CMBG) utilize Canadian doctrine; 2) 1 CMBG increasingly uses RPM, and 3) 2 CMBG uses Canadian doctrine, bespoke and the seven questions.[28] Secondly, from a timeline perspective, most BGs have not used doctrinal models since 2016. From 2016 to 2019, eight BGs used non-doctrinal models and seven used doctrine. There seems to be a perception in the field force, more anecdotal than not, that alternate forms of decision making and planning better represent the requirements of those utilizing them than does doctrine. However, further study will be required to determine whether this trend is temporary or permanent, as well the implications of the specific formation usage. For example, one avenue of inquiry is whether the use of non-doctrinal models for decision making and planning is attributable to individuals or part of a broader movement. As Canadian Army BGs deal with the realities of current and future battlefields, ensuring that Canadian doctrine is as right as it can be is a critical necessity.

Despite the recent increasing, but seemingly localized by formation, use of non-Canadian doctrinal models, there are no specific quantitative indicators assessing the results of these non-standard types of BG decision making and planning. Nevertheless, these figures reflect BG decision making and planning processes over a six-year period. It is also important to recognize that all BGs, regardless of the process each one used, had a decision-making and planning foundation of Canadian doctrine. Some type of estimate was utilized, and the

OPP formed the basis of planning.[29] Consequently, the use of other methodologies instead of Canadian doctrine could be viewed as an adaptation of, rather than an outright departure from, that doctrine.

CANADIAN MANOEUVRE TRAINING CENTRE BATTLE GROUPS: DECISION MAKING AND PLANNING 2014–2019 (QUALITATIVE OBSERVATIONS)

A myriad of battle group qualitative trends emerged in the review of the six years of CMTC observations. These comments concern the execution of planning, time management, and information technology and its impact on HQ. It must be stressed that these qualitative assessments are not the products of consistent measurement or methodology; they simply reflect observer controller team opinions of the described combat functions at that time.[30]

Battle Group Planning Outcomes. Only 4 of 21 BGs, or 19%, were deemed to be lacking in planning processes and received recommendations to continue to develop their planning ability in their follow-on training. Among the four that required improvement, all types of BGs were represented: one light infantry, one mechanized infantry, and two armoured units. Of these four BGs, two used doctrine and two followed bespoke unit methods. This would seem to indicate that the planning issues identified arose from other challenges within the unit systems, rather than the processes that were followed. Overwhelmingly, planning was a strength of the BGs exercised at CMTC, specifically during the deliberate planning cycle at the commencement of the CMTC exercises.

The trends in BG planning that were common areas for concern, directly affecting planning or transitioning those plans to execution, were 1) time-compressed planning, 2) the impact of digital tools, 3) digitization and process and 4) the transition of planning to operations. Importantly, while these issues are staff-related, they all enable a commanding officer's ability to command, and they will affect how successfully the results of the CO's decision making can be operationalized. Commanding officers, in turn, inform these processes.

Time-Compressed Planning. In the early phases of Exercise MAPLE RESOLVE, BGs tended to demonstrate a lack of ability in receiving formation orders and processing them in a way that would give battle group sub-units time to conduct their own battle procedure and to prepare for operations. In 2017, this observation was made

> [At the beginning of the exercise] the bde did not follow the general rule of using 1/3 available time for planning and reserving the other 2/3 time for subordinate comds, greatly impacting the BG. This trend improved as the exercise progressed, but it initiated a discussion on the utility of the 1/3 - 2/3 Rule. Eventually, the bde's rapidity in passing information and its ability to share draft documents for collaborative and parallel planning evidenced that a strict adherence to the rule may be excessive. *Regardless, the CO committed to increasing the BG's planning tempo, thereby ensuring that subordinate comds had the necessary time to plan and prepare for operations.*[31] (Emphasis added.)

Though warning orders were heavily utilized to enable subordinates to commence planning, many waited for the formation and BG to make decisions on operational concepts and resource allocation prior to commencing a detailed evaluation of courses of action or options. The seven BGs that followed RPM did so in order to abbreviate planning in a time-compressed planning environment.[32] The seven questions, in the middle ground between intuitive and rational decision making and planning, also facilitated planning timelines. The time savings for the one BG using it seemed to result from focused command engagement and the utilization of graphics rather than text for communication. This facilitates production of overlay orders, which can be quickly transmitted via data links to subordinates. In any case, the initial issue is that BGs had challenges with managing time in the decision-making, planning and dissemination of orders cycle but, regardless of methodology, almost all improved.

Impact of Digital Tools. Of the 21 BGs, 15, or 71%, struggled with digital tools.[33] No exercise year was exempt from these challenges, but in general they lessened with time. Despite this, the ability to fully exploit the full capability of digital tools had a direct correlation in enabling rapid decision making and planning. A CMTC comment from 2016 clearly lays out the impact of digitization:
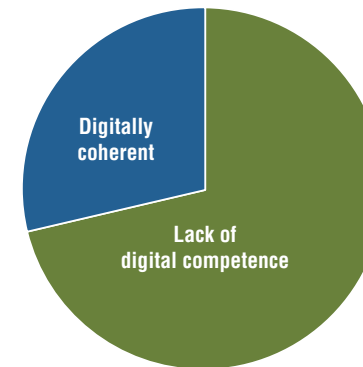
The Battle Group Command Post (CP) clearly demonstrated that they can operate in a digitally degraded environment, using maps, transparent overlay and pins. However, their usage of the digital tools is very limited. *Digitization offers commanders the ability to accelerate decision making and collaborative planning.*[34] (Emphasis added.)

Figure 4 – Battle Group Competency with Digital Tools, 2014–2019

Digital competence, or the ability to consistently maintain digital communications, is the mechanism by which BGs create a shared understanding and synchronize their efforts with those of superiors and subordinates. High levels of digital competence were often exhibited during the initial stage of Exercise MAPLE RESOLVE when BGs were static. On the other hand, during periods requiring movement and manoeuvre, the inability to maintain the digital operating picture negatively impacted battle group ability to anticipate and plan, and it also frustrated formation HQ ability to communicate direction and plans. This 2017 example illustrates the difficulty:

Situational Awareness and Information Passage. While there was a dramatic improvement from the beginning of MR17 to the end, there is still room to improve SA and information passage in the … TOC. Data feeds information which feeds knowledge which turns into understanding. This understanding allows the commander the requisite tools to make timely and accurate judgements which in turn speed his decision action cycle. It is recommended that the … BG continue to refine and increase it[s] staff function of assessment, knowledge and passage of information to the Comd, Higher HQ and Sub-Units. A06701002E – Establish and Maintain Command and Control.[35]

This tension between digitization and mobility is elaborated on in the following section.

Digitization and Process. Battle group HQ seem to have been slow to fully adopt digital tools for planning and execution, due to the competing demands of digitization, decision making and planning, along with mobility and survivability.[36] This conflict is embodied in the time it takes to work effectively in the digital realm combined with the obligations to maintain mobility and a low emissions signature. The latter obligations must be met in order to offset peer competitor electronic warfare, intelligence, surveillance, target acquisition and reconnaissance, in conjunction with their capability for rapid and devastating fires.

Canadian divisional HQ communicate exclusively in the digital domain, brigade HQ increasingly communicate digitally, and BGs receive information digitally but must translate that data into analog (voice or paper), orders for their sub-units who do not have digital capacity. This immediately slows processes, as BG need to speak the digital language of their higher HQ, while constantly reducing information into suitable voice or paper formats. Furthermore, digital tools are enabled by servers that are not necessarily responsive to the demands of agility imposed by the contemporary conflict environment. This has negative impact on the availability of digital tools whenever serves are displaced. Presently, digital coherence cannot be maintained while mobile, which could be often. During Exercise MAPLE RESOLVE 2019, this gap in digital capability was underscored:

> **Command – Maintain Situational Awareness – Control / Command Post Structures and Process**: Despite the inherent transportable (not mobile) nature of CA C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance) structures and the data gap which exists at the BG level with data-enabled bde CPs and analog sub-unit CPs, the refinement of defined CP structures would enhance the BG. The CP was sub-optimal at times, affecting SA and resulting in some degradation of common operational picture (COP) at critical junctures through degraded or lost communications or cutting secure data altogether too early. Defined scalable CP structures and more detailed and synchronized SOPs and plans for CP movement and handover of control would enhance SA and preserve COP through CP movement.[37]

The question of data processing has driven much planning procedure evolution as BGs attempt to build manageable data packets that can be moved through relatively small data pipelines, or within compressed time windows when they are static. This creates a requirement to reduce map detail and text, both of which are prominent in the estimate and OPP. In addition, due to the requirement for BGs to maintain analog files and voice communications to sub-units, staffs often use both digital and analog efforts, making methodical processes more work-intensive. Subsequently, the necessity in a high-threat environment to be digitally competent while maintaining mobility and survivability is sometimes at odds with a methodical estimate and OPP, encouraging intuitive, less process-intensive, models.

Transition of Planning to Operations. The 24-hour tempo of the conflict environment forces battle groups to streamline the movement of plans to operations. Battle group planning processes, along with the transition of plans to execution, must take place concurrently alongside operations. Given these multiple demands, it is often the ability of those involved, rather than a specific decision-making or planning model, that facilitates success. This comment from Exercise MAPLE RESOLVE 2016 illustrates the role of training and experience:

> [The battle group] had an efficient planning process that was more detailed than the combat estimate and faster to execute than the OPP. The steps were well understood from all planning staff in the BG CP, enabling timely and effective decision making. *However, the coordination between the current operations and the plans battle rhythm was not always efficient.* When no bde orders were issued, the plans officer was employed on security tasks. A better way of employing him could be to develop contingency plans to refine the existing plan when it has been handed over to the Ops. This is even more important when bde does not allow sufficient planning time to subordinate units. During the defensive ops, many supporting plans were missing. The plans officer could have helped the Ops cell in developing those plans.[38] (Emphasis added.)

At the same time, when BG staff understand a more intuitive model and are empowered and enabled by a commanding officer, positive results can be achieved. One such example was brought forward during Exercise MAPLE RESOLVE 2017:

> Execute Operational Planning. [The battle group] does not use the CA OPP, instead using the Recognition Primed Decision Making Model (RPM). Key to the RPM is the early and regular engagement of the CO in the identification and operationalizing of the COA to be used during the assigned operation. The use of RPM in the HQ was well understood and worked well to transform the CO's concept into a detailed plan. Of particular note was that RPM still remained effective as the pace of operations increased and plans were conducted concurrently to operations. *Brief touchpoints from the CO allowed the staff to understand his COA concept, and work within his intent in its development.*[39] (Emphasis added.)

For the BGs that participated in the Exercise MAPLE RESOLVE series from 2014 to 2019, the need to transition plans to execution, together with concurrent planning and operations, were consistently important themes. The challenges experienced by various BGs in these areas are not necessarily attributable to a specific doctrine or process but could just as easily be related to expertise within specific BG. These issues were also present when RPM was utilized. Further study of the differences between BG HQ structures may be worthwhile, as light infantry, mechanized infantry, and armoured battle groups have different capabilities to support planning and operations functions.[40]

CONCLUSION

"Doctrine is not dogma. Doctrine provides principles relevant to current operational imperatives however it is never constraining."[41]

—Colonel Mike Cessford,
"Ex MAPLE GUARDIAN 0604 After Action Report" (2006).

The Deputy Commander Joint Task Force – Afghanistan, Colonel Mike Cessford, made that pithy observation in 2006. Doctrine is meant to create shared perspective and provide a common methodology in military activities. There are aspects of doctrine that can be taken as descriptive, while other parts are prescriptive. However, doctrine as a whole should never be dogma, rigidly adhered to regardless of circumstances. In some ways, this examination of aspects of battle group decision making and planning in Exercise MAPLE RESOLVE between 2014 and 2019 has demonstrated that Cessford's maxim is as true today as it was in 2006, when Canada commenced significant levels of combat operations in Afghanistan.

In retrospect, based on a review of the results of six years of Exercise MAPLE RESOLVE, it can be stated that the majority of 21 BGs used Canadian doctrine, followed by RPM, then bespoke methods, and lastly, the seven questions. These trends differ between the three Canadian formations, with the growing use of RPM over recent years being more evident in 1 CMBG than in the other two brigades. The reason for this localized increase was not apparent in the material examined while conducting this research. However, based on theories of knowledge transmission such as those of Thomas Kuhn and Ludwik Fleck, one could suggest that it originated with specific individuals. Both theorists emphasize the role of experts and concurring practitioners in the spread of knowledge. Consequently, if RPM was the preferred model of a formation commander, then subordinate battle group commanding officers would likely adopt the same methodology. That seems to have been the case in 1 CMBG during Ex MR 2019.[42] In addition, it is important to recognize that all of the battle groups had a sound foundation of Canadian doctrine regardless of the decision-making and planning model they utilized.

In the course of this research, it was determined that tactical planning, and by extension decision making, was a battle group strength. Despite that, recognition of the impact of the factors that enable tactical decision making and planning is still evolving. Those factors range from available technology and information handling, through HQ workflow, to the conduct of critical thinking and decision making by BG commanding officers and the relationship of this activity to the operational planning process.[43]

Consequently, we can conclude that current Canadian tactical decision making and planning seem to be suitable for current operations in hybrid, grey-zone environments. What may be less than adequate is our grasp of the doctrine's application in this evolving context or of the ways in which doctrine can be amended to accommodate commanding officers' cognitive methodologies. Another thing that needs to be clarified is the implications for existing doctrine in a highly digitized, consistently time-compressed setting, requiring continuous and overlapping planning and execution cycles. Most important, we need to gain a better understanding of the sufficiency of existent technological tools and interfaces. It is unclear whether technology and its users' expertise is adequate to deal with blended analog and digital tactical settings that sometimes require transmittal of the same information through both mediums. In addition, the sheer quantity of information available to battle groups, in addition to the information demands of higher HQ, and the concomitant need to stay digitally linked, may together mitigate against manoeuvre command.[44] The quest to resolve these factors may, at least in part, explain the rise of RPM, along with other decision-making and planning methods. These facets of the operational environment and their connection to decision making and planning should form lines of inquiry during future BG training activities such as Exercise MAPLE RESOLVE. 🍁

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Colonel Howard G. Coombs, OMM, CD, Ph.D., retired from regular duty with the Canadian Armed Forces in 2003 and transferred to the Canadian Army Reserve, where he continues to serve on a part-time basis with the Office of the Chief of Reserves, located at National Defence Headquarters. He is currently the Associate Chair, War Studies Program, at the Royal Military College of Canada. Coombs has deployed to the former Yugoslavia and Afghanistan, on regular and reserve service, in addition to being employed as a civilian advisor in Afghanistan.

Lieutenant-Colonel (Retired) Steven K. MacBeth, MSC, MSM with bar, CD, MDS, after completing various command and staff positions, including leadership of the 1st Battalion, Royal Canadian Regiment, retired from the Canadian Armed Forces in 2019 after leading the NATO Enhanced Forward Presence Battle Group in Latvia. In addition to his most recent deployment to Latvia, MacBeth has served in Yugoslavia and multiple times in Afghanistan. He is currently the Visiting Canadian Defence Fellow, Centre for International and Defence Policy, Queen's University.

ENDNOTES

1. Kristan Wheaton and Dr. James Kelly Morningstar, "Estimating the Situation: Intuition, Deliberation, or a Third Way?" (Carlisle, PA: US Army War College, *War Room*; available at https://warroom.armywarcollege.edu/articles/estimating-the-situation/), accessed 14 November 2019.

2. Ibid. See also Canada, Department of National Defence, Canadian Army, B-GL-335-001/FP-001, *Decision-Making and Planning at the Tactical Level* (2017).

3. The Commandant of the CACSC and 1st Canadian Division during this initial period was Colonel (later Brigadier-General) Serge Labbé. Some of the initial work of creating a Canadian Army planning process was led by Lieutenant-Colonel (later Colonel) Peter Kramers, a United States Army Command and General Staff College graduate.

4. Canada, Department of National Defence, Canadian Army, B-GL-335-001/FP-001, *Decision-Making and Planning at the Tactical Level* (2017); and Canada, Department of National Defence, Canada and United States Bilateral Army Training Strategy 2020–2027 (Draft) (2019).

5. I would like to thank Major (Dr) John Rickard, Canadian Army Staff College, for his assistance in assembling this historical background.

6. Elliot Rodger, letter to Dominick Graham, in *The Price of Command: A Biography of General Guy Simonds* (Toronto: Stoddart, 1993), 148. Rodger was occupying a position analogous to today's Chief of Staff and was a witness to these events.

7. Email from Major John Rickard, Fri 2019-11-29 7:26 AM.

8. Appendix B to 4 Cdn Armd Bde Trg Instr No. 28, d/23 Mar 44, "Pro-forma of Immediate Mental Appreciation and Orders, To be practiced by all ranks until it becomes a drill" (Library and Archives Canada, Record Group 24, C-3, Vol. 14,051).

9. Canada, Department of National Defence, Canadian Army, B-GL-335-001/FP-001, *Decision-Making and Planning at the Tactical Level* (2017); and, Canada, Department of National Defence, Canada and United States Bilateral Army Training Strategy 2020–2027 (Draft) (2019), 2-13, 3-1 to 3-2, 4-1 to 4-26. See also Canada, National Defence, Canadian Army Command and Staff College, "CACSC-PUB-500, The Operational Planning Process: OPP Handbook" (April 2018), which clearly lays out the connection between a commander and the various stages of the OPP.

10. See United States, Department of Defense, United States Army, *Army Doctrine Publication 5-0, The Operations Process* (2012); and United States, Department of Defense, United States Army, *Army Tactics, Techniques and Procedures: Commander and Staff Officer Guide* (2011).

11. United States, Department of Defense, United States Army, *Field Manual 6-0, Commander and Staff Organization and Operations* (2014), A-2.

12. United States, Department of Defense, United States Army, *Army Tactics, Techniques and Procedures: Commander and Staff Officer Guide* (2011), 4-39.

13. United Kingdom, Ministry of Defence, British Army Land Warfare Centre, *Army Doctrine Publication AC 72099, Planning and Execution Handbook (PEHP)* (2018), 3-6 and 3-73 to 3-76.

14. Australia, Australian Defence Force, Australian Army, *Land Warfare Doctrine 5-0, Planning* (2018), 30; and New Zealand, New Zealand Defence Force, *New Zealand Defence Doctrine Publication: New Zealand Defence Doctrine*, 4th ed. (November 2017), 61.

15. France, Ministry of Defence, French Army, Doctrine Division, *PFT 5. 1 (CDT 60.001), Tactical Decision Making Process for Operations / Methode d'Elaboration d'une Decision Operationnelle Tactique (MEDOT)* (2014), 2-4, 16, 19 and 43. Quote from page 2.

16. Canada, Department of National Defence, Canadian Army, B-GL-321-005/FP-001, *Battle Group in Operations* (2012), 1-6, 2-3 and 3-7.

17. Ibid., 4-8 to 4-9.

18. Canada, Department of National Defence, Canadian Army, B-GL-335-001/FP-001, *Decision-Making and Planning at the Tactical Level* (2017), 1-1.

19. Both Schmit and Klein have produced a considerable body of work in this area. In particular, for details of the RPM, see John Schmit and Gary Klein, "A Recognitional Planning Model," (paper presented at the Command and Control Research and Technology Symposium, held at the U.S. Naval War College, Newport, Rhode Island, 29 June–01 July, 1999; available at https://apps.dtic.mil/dtic/tr/fulltext/u2/a461179.pdf), accessed 15 December 2019.

20. Canada, Department of National Defence, Canadian Army, B-GL-335-001/FP-001, *Decision-Making and Planning at the Tactical Level* (2017), 1-1.

21. "[T]hink of these cognitive biases as heuristics, simple rules of learning that have evolved to help us think faster, deal with too much information (and too little meaning), and to decide what is worth remembering." Researcher Buster Benson, cited in Kristan Wheaton and Dr. James Kelly Morningstar, "Estimating the Situation: Intuition, Deliberation, or a Third Way?" (Carlisle, PA: US Army War College, *War Room*, 14 November 2019; available at https://warroom.armywarcollege.edu/articles/estimating-the-situation/), accessed 14 November 2019.

22. See Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus & Giroux, 2011).

23. Cited in Ameet Ranadive, "What I learned from 'Thinking Fast and Slow'" (*Medium*, 20 February 2017; available at https://medium.com/leadership-motivation-and-impact/what-i-learned-from-thinking-fast-and-slow-a4a47cf8b5d5), accessed 09 December 2019.

24. Lieutenant-Colonel Steven K. MacBeth, "2 CMBG – Lessons Learned from MR 17 – Battle Group C2" (presentation for 2 Canadian Mechanized Brigade Group at Canadian Forces Base Petawawa, September 2017).

25. See Dani Belo and David Carment, "Grey-Zone Conflict: Implications for Conflict Management" (Ottawa: Canadian Global Affairs Institute, December 2019; available at https://www.cgai.ca/grey_zone_conflict_implications_for_conflict_management?utm_campaign=pp_greyzone&utm_medium=email&utm_source=cdfai), accessed 14 December 2019. See also Phillip A. Petersen and Nicholas Myers with Jānis Bērzins et al., *The Baltic Security Net Assessment*, 2nd ed. (Vienna and Tartu: The Potomac Foundation and Baltic Defence College, 2018; available at https://www.baltdefcol.org/files/files/publications/BalticSecurityNetAssessment2018.pdf), accessed 14 December 2019.

26. Adapted by Major Ben Rogerson, Chief of Staff, Enhanced Forward Presence Battle Group Rotation 3, from Phillip A. Petersen and Nicholas Myers with Jānis Bērzins et al., *The Baltic Security Net Assessment*, 2nd ed. (Vienna and Tartu: The Potomac Foundation and Baltic Defence College, 2018, 74; available at https://www.baltdefcol.org/files/files/publications/BalticSecurityNetAssessment2018.pdf), accessed 14 December 2019. Proxy sanctum includes consolidating controlled areas using a core cadre of "volunteers" or militia, and destroying government infrastructure. It is characterized by local recruitment. Major Anthony M. Clas, "Commanding in Multi-Domain Formations," *Military Review* (March–April 2018): 92. This *Military Review* article is valuable for its perspectives on command in a hybrid, grey-zone conflict environment.

27. See Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Snr OCT), Exercise MAPLE RESOLVE 1401 (MR 1401) Take Home Package, 24 June 14"; Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "4500 1 (Snr OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE 1501 (EX MR 1501), 29 June 2015"; Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (EX MR) 16, 19 July 2016"; Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (MR 17), 17 Aug 2017"; Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (CMTC OCT Coord), Take Home Package (THP) – Exercise Maple Resolve 18, 04 June 2018"; and Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE 19, 3 June 2019" (henceforth *CMTC THPs 2014–2019*).

28. One of the widest unit variances was observed during Ex MR 17, where each of the four Battle Groups utilized a different planning model: OPP, RPM, the seven questions, and a bespoke methodology. See Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (MR 17), 17 Aug 2017."

29. See *CMTC THPs 2014–2019*.

30. Ibid.

31. Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (MR 17), 17 Aug 2017," A-4/5.

32. See John Schmit and Gary Klein, "A Recognitional Planning Model" (paper presented at the Command and Control Research and Technology Symposium, held at the U.S. Naval War College, Newport, Rhode Island, 29 June–01 July 1999; available at https://apps.dtic.mil/dtic/tr/fulltext/u2/a461179.pdf), accessed 15 December 2019.

33. *CMTC THPs 2014–2019*.

34. Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (EX MR) 16, 19 July 2016," C-2/2.

35. Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (MR 17), 17 Aug 2017," D-4/5.

36. See Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (EX MR) 16, 19 July 2016."

37. Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE 19, 3 June 2019," G-3/3.

38. Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (EX MR) 16, 19 July 2016," C-1/2.

39. Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE (MR 17), 17 Aug 2017," B-1/3.

40. Light infantry battalions and mechanized battalions utilize their Deputy Commanding Officer to facilitate a Chief of Staff and planning function. In addition, mechanized infantry battalions, by and large, use their Combat Support Company Commander to create a dedicated planning capacity and work in conjunction with the Deputy Commanding Officer to facilitate headquarters staff effort, and the armoured regiments do not have a Combat Support Company Commander nor do they normally forward deploy their Regimental Second in Command (Deputy Commanding Officer). Thus, armoured regiment headquarters are often left with an inexperienced captain to deal with planning. This variance has been noted, and Lord Strathcona's Horse (Royal Canadians) (1 CMBG) deployed its Regimental Second in Command to assist with this function on Exercise MAPLE RESOLVE 2019 – an indication that this may close the gap. However, the trend cannot be confirmed. The structures of the different units result in different capacity, and staff organization is often left to commanding officers rather than following a standardized model. See Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE 19, 3 June 2019," E-1/4.

41. Canada, Department of National Defence, Joint Task Force – Afghanistan, "1000-1 (DComd) Ex MAPLE GUARDIAN 0604 After Action Report – DComd JTF-AFG (ROTO 3), 13 Dec 06," 4/8.

42. See Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (Chicago: University of Chicago Press, 1996) and Ludwik Fleck, *Genesis and Development of a Scientific Fact*, with a foreword by Thomas S. Kuhn, edited by Thaddeus J. Trenn and Robert K. Merton, translated by Fred Bradley and Thaddeus J. Trenn (Chicago: University of Chicago Press, 1979; reprint 1981; original edition Basel, Switzerland: Benno Schwabe & Co., 1935). See also Canada, Department of National Defence, Canadian Army, Canadian Manoeuvre Training Centre, "3500-1 (Chief OCT), Take Home Package (THP) – Exercise MAPLE RESOLVE 19, 3 June 2019."

43. Efforts have been made to address some of these processes with the impending publication of Canada, National Defence, Canadian Army, "Tactics, Techniques and Procedures, Canadian Army Doctrine Note (CADN) Unit and Formation Headquarters TTP CADN 19-02" (forthcoming, 2020).

44. "Subordinate commanders are to be given, to the greatest extent possible, the responsibility, information, and resources to act as the tactical situation demands, *without further reference to higher authority*. In effect subordinates are empowered to perform and respond to situations as their commander would have, had the commander been there in person. To realize this command philosophy, leaders must know their subordinates intimately and trust them implicitly; subordinates in turn, must not only be skilled in the military art, but fully aware of their responsibilities to their commander and committed to fulfilling them." (Emphasis added.) Canada, Department of National Defence, B-GL-300-000/FP-00, *Canada's Army: We Stand on Guard for Thee* (01 April 1998), 86–87. In the digital environment, which creates constant awareness and understanding of subordinates' actions, one wonders whether unfettered manoeuvre command is possible.

Source: Combat Camera

The Fast Lightweight Autonomy program of the Defense Advanced Research Projects Agency (DARPA) recently completed phase 2 flight tests, demonstrating advanced algorithms designed to turn small air and ground systems into team members that could autonomously perform tasks dangerous for humans, such as pre-mission reconnaissance in a hostile urban setting or searching damaged structures for survivors following an earthquake.

Source: DARPA

A FRAMEWORK TO ASSESS THE MILITARY ETHICS OF EMERGING TECHNOLOGIES

Dr. Joelle B. Thorpe, Dr. Kimberly D. Girling and Dr. Alain Auger

INTRODUCTION

Advances in science and technology are increasingly complex and pervasive. From smartphones to wearable health monitors to virtual reality headsets for gaming, advanced technology is becoming progressively engrained in everyday life. But as science and technology becomes more advanced, we face equally complex ethical challenges in how we interact with and use new technologies, and how those technologies function in society. An illustrative example that raises a number of ethical dilemmas is the driverless car. Several thought experiments have been described to demonstrate the kinds of ethical decisions that may be faced by driverless cars.[1] For instance, in a situation where a driverless car must "choose" between hitting an elderly person or a small child, which is the correct response? Is there a "correct" response? Would there be a correct response expected of a human driver in this situation? Should a driverless car turn to avoid being rear-ended by an approaching truck, but in doing so put a group of children crossing the road at risk of being hit by the truck instead? The answers to these questions are often not straightforward. Moreover, different technologies will pose different ethical problems in different situations and contexts; indeed, military use of emerging technologies presents some unique ethical challenges.

Military interest in science and technology is not new. The Defense Advanced Research Projects Agency in the United States has been funding military science and technology research and development for decades, with an annual budget of $2.9 billion in 2015 alone.[2] Although science and technology are advancing at a rapid pace, steadily providing emerging technological solutions to military problems, our regulatory policies lag behind, leading to gaps in our knowledge about the ethical, social and legal consequences of using particular technologies on the battlefield, a concern pointed out by many.[3] Some of the most profound ethical questions for the military are raised by emerging technologies for human enhancement[4] and autonomous or robotic systems.[5] For example, would an enhanced soldier be seen as something more or less than human and therefore be treated inhumanely by adversaries?[6] Will an autonomous robot be able to reliably distinguish between a civilian and a combatant in accordance with international law?[7] Is a soldier operating an uninhabited aerial vehicle (UAV) in a warzone overseas from a domestic location considered a combatant and therefore a fair military target on home soil?[8] As with technologies for civilian use, many ethical questions raised by military use of emerging technologies do not have clear answers. Regardless, it is crucial that developers, stakeholders, and policymakers are aware of potential ethical issues associated with an emerging technology before it is widely available—for civilian or military use—so that these ethical issues can be mitigated through modifications to the technology or the policies that regulate its use.

One way to ensure that potential ethical issues are recognized is to create a comprehensive framework that facilitates the identification of ethical issues that may arise when using any particular technology of interest. There are several existing tools that guide ethical assessments of emerging technologies with checklists of pertinent questions and considerations.[9] For example, Elin Palm and Sven Hansson propose a nine-item checklist including: dissemination and use of information; control, influence and power; impact on social contact patterns; privacy; sustainability; human reproduction; gender, minorities and justice; international relations; and impact on human values.[10] Philip Brey also proposes a checklist approach with the following items, under which several examples are given: harms and risks; rights; justice; well-being and the common good.[11] David Wright proposes a framework that consists of principles under which some values or issues are listed along with questions to be answered during the assessment: respect for autonomy (right to liberty); non-maleficence (avoiding harm); beneficence; justice; privacy and data protection.[12] Federica Lucivero, Tsjalling Swierstra and Marianne Boenink recommend that ethicists avoid too much speculation when it comes to considering a technology's plausibility, but use more imagination when considering how the technology will be viewed by and function in society. To facilitate this, they propose three categories of consideration: technological feasibility, societal usability and desirability of the technology.[13] While these ethics assessment frameworks are useful for identifying ethical issues associated with emerging technologies used by civilians, they are insufficient for assessing military ethics, which has some unique characteristics.

Although there are some shared values between military and civilian ethics (for example, privacy and health concerns), there are also special considerations when it comes to military use of emerging technologies. For instance, military action must comply with the Law of Armed Conflict (LOAC), which regulates the means of warfare and protects non-combatants and civilians affected by conflict.[14] In addition to international laws, militaries must comply with their own country's laws and codes of conduct. For example, the Canadian Armed Forces (CAF) has a Code of Ethics and Values that defines values that CAF members must adhere to, including respecting Canadian law and serving Canada above self, and values that they must exhibit such as integrity and courage.[15] Any new technology introduced into the military that leads to or promotes violations of international law, national laws or codes of conduct may raise ethical concerns.

Research ethics principles are essential for ensuring that human research subjects, including soldiers, are treated ethically during the experimental testing phases of a new technology. In fact, modern human research ethics principles were borne out of a history of reprehensible acts by military researchers in the name of research.[16] When research subjects are members of the military, challenges can occur if the line between research and military necessity becomes blurred, and complications can arise particularly around informed consent.[17] These issues serve to highlight and bolster the importance of ethics in military research. But even if research ethics principles are followed when designing and testing a new technology, ethical issues can still arise with the use of the technology. There are some similar ethical principles, such as informed consent, and privacy and confidentiality, which should be considered in both the research phase and the subsequent use of a technology.[18] However, there is an important distinction between research ethics and military ethics; military ethics deals specifically with the ethical use of a technology and therefore requires additional considerations beyond those made for ethical research.

Even if laws and codes are followed, and other ethics principles such as those for research are considered, a new technology is still not necessarily ethical for military use—further considerations must be made. For example, could a new technology lead to inequalities between soldiers and result in decreased unit cohesion? Who is accountable if a flawed technology results in an unintended casualty? Does a technology put soldiers at risk of being detected and targeted by adversaries? There are many serious concerns to reflect upon when determining whether a technology has any military ethical problems. Moreover, others have considered the relationship between new technologies and military ethics from the inverse viewpoint, asserting that military ethics guiding soldier behaviour should be modified to attain the potential ethical advantages of certain emerging technologies.[19] This further underscores the complexity of the relationship between military ethics and emerging technologies.

Given the number of military ethical considerations required for the full assessment of a technology and the potential gravity of any ethical violation on the battlefield, a military-specific ethics assessment tool is urgently needed. Other groups have adapted various ethical principles into frameworks for discussing ethics and military technologies.[20] However, to our knowledge there is no practical ethics assessment tool that can be used to guide systematic ethical assessments of emerging technologies of interest to militaries.

In order to fill this gap, we have created a comprehensive framework called the Military Ethics Assessment Framework (the Framework) that incorporates broad considerations from across relevant social, legal, research and military ethics domains to help users and decision makers identify potential ethical issues that may arise from the military use of human enhancement technologies. Although the Framework was designed to be broad enough for ethics assessments of many different types of emerging technologies, our initial testing of the Framework focused on emerging human enhancement technologies because they are of great interest to militaries and because they raise many ethical questions. Future studies will examine the Framework's utility for identifying ethical questions raised by other emerging technologies of potential interest to militaries such as those enabled by artificial intelligence. The purpose of this paper is to present the Framework and to illustrate how this tool is used by demonstrating how it can help identify potential ethical issues associated with two different human enhancement technologies of interest to militaries.

MILITARY ETHICS ASSESSMENT FRAMEWORK

Our proposed framework consists of twelve categories with sample guiding questions that an assessor can work through to identify potential military ethical issues associated with an emerging technology.[21] The twelve categories are: Compliance with National Laws and Codes of Conduct; Compliance with *Jus ad Bellum* Principles; Compliance with Law of Armed Conflict / *Jus in Bello* Principles; Health and Safety; Accountability and Liability; Privacy, Confidentiality and Security; Equality; Consent; Humanity; Reliability and Trust; Effect on Society; and Preparedness for Adversaries. Each category is defined below with sample questions and scenarios. The development of this framework, including the guiding questions, was informed by authoritative sources from the literature that is included in the endnotes.

1. Compliance with National Laws and Codes of Conduct. Many militaries, such as the U.S. military[22] and the Australian Army,[23] are governed by principles meant to direct the appropriate behaviour of force members according to national laws, values and ethic. It is necessary to determine whether the use of a new technology by a military could violate these codes of conduct.

The Canadian Department of National Defence and Canadian Forces Code of Ethics and Values is a set of principles and standards to which members of the Department and the Forces must adhere while performing their professional duties.[24] The code consists of three principles: respect the dignity of all persons, serve Canada before self, and obey and support lawful authority; and five values: integrity, loyalty, courage, stewardship and excellence. A new technology may raise ethical concerns if its use by military members[25] violates these principles and values.

Example Question. Could the use of a technology that entirely removes the risk incurred by a soldier[26] engaging in conflict, for example, a remotely controlled system, violate the value of courage?[27]

2. Compliance with *Jus ad Bellum* Principles.[28] Just War Theory outlines how states should act before, during and after a conflict to ensure that it is just.[29] *Jus ad Bellum* is a set of principles within Just War Theory that should be met before a state can enter into a conflict. It is particularly important when considering the ethics of technology to look at the principles of last resort and proportionality within *Jus ad Bellum.* The first states that all non-violent options must be tried before entering into a conflict. The second affirms that a state's response must be proportional to the threat received, the amount of force used must be the minimum required to achieve objectives, and the benefits achieved by conflict must outweigh the costs incurred. Violations of these principles may raise ethical questions about a new technology.

Example Questions. Could technologies such as exoskeletons, remotely controlled UAV or genetically-engineered super soldiers reduce the risk incurred by a state's soldiers to essentially nothing, and could this lower the barriers to entering a conflict, thus violating the principle

of last resort?[30] Technological asymmetry between the sides of a conflict may also violate the principles of last resort and proportionality. If a state declares war and uses UAV against another state without such technological advances, is the resulting extreme asymmetry in risk incurred immoral? The initiating state arguably has options other than conflict at its disposal, and the threat received is likely much lower for the technologically advanced side.[31]

3. Compliance with Law of Armed Conflict / *Jus in Bello* Principles.[32] This category outlines international laws and principles that direct states' actions towards civilians and combatants during conflict. LOAC is a set of international laws governing conflict, and includes *Jus in Bello* principles from Just War Theory.[33] The overarching purpose of these laws is to protect those who are not actively involved in conflict, for example, civilians and prisoners of war, and to restrict and regulate means of warfare. To comply, the following must be observed:

- A soldier must distinguish between combatants and civilians, and civilians must not be targeted.

- Prisoners of war must be treated humanely, and adversaries who are injured or who surrender must not be targeted.

- Weapons or means of war that are evil or cause unnecessary suffering, such as ethnic cleansing and mass rape, may not be used.

Source: DARPA
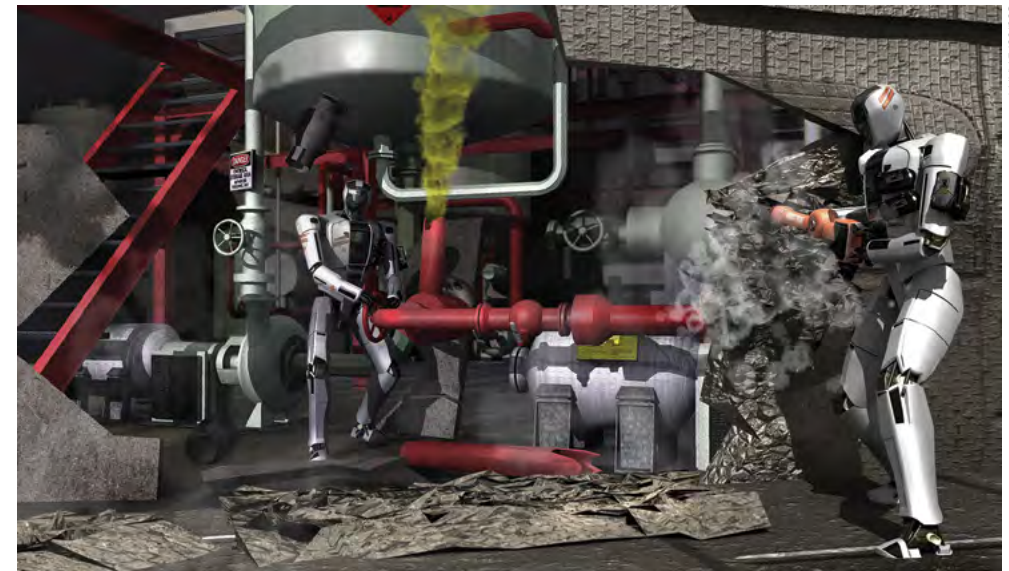
The primary technical goal of the DARPA Robotics Challenge (DRC) is to develop human-supervised ground robots capable of executing complex tasks in dangerous, degraded, human-engineered environments. Competitors in the DRC are developing robots that can utilize standard tools and equipment commonly available in human environments, ranging from hand tools to vehicles.

- There must be no discrimination of individuals based on gender, race, religion or any other aspect of humanity.

- Force used must not be excessive, that is, it must be proportional and appropriate to achieve objectives.

- The use of weapons banned by international law is prohibited, including weapons of mass destruction and biological or chemical weapons.

New technologies adopted by militaries that lead to violations of any of these principles may raise ethical concerns.

Example Questions. If a drug taken by a soldier to reduce sleep requirements leads to impaired judgement resulting in the accidental targeting of civilians, does this violate the principle of distinction, since the soldier is impaired in his/her ability to distinguish between combatants and non-combatants? Can autonomous systems make decisions that comply with the LOAC? Some *Jus in Bello* principles may be open to interpretation. For instance, what should be the acceptable threshold for excessive force? Would a new technology that might violate this principle be excluded from military equipment, or would restrictions simply be placed on its use? Even when international and national laws and policies are met by an emerging technology, there may still be outstanding ethical questions to consider. The remaining categories in the Military Ethics Assessment Framework address these ethical considerations.

4. Health and Safety.[34] This category includes questions about the direct or indirect impact an emerging technology may have on soldiers' or civilians' physical and psychological well-being. This is particularly pertinent for human performance enhancing technologies, such as drugs or wearable devices. Technologies in their early stages, with low technology readiness levels, will likely have greater health and safety issues.

Example Questions. Are there side effects associated with the use of the technology? Will the technology degrade over time? Will the technology work differently depending on the user? Could the technology exacerbate underlying physical or psychological issues? Are there long-term effects of using the technology? Could the technology lead to unintended results? Could the technology lead to a larger theatre of war, putting more civilians at risk?

Example Scenarios. Could a new drug have a side effect that negatively impacts a soldier's health in the future? Could drugs that increase attention result in impaired judgement, leading to unsafe behaviour and subsequent injury? Are soldiers in one country, operating UAV in a different country, lawful targets, and if so, does this put the civilians around them at risk?

5. Accountability and Liability.[35] This category includes questions about risk and responsibility when technologies fail in the field. Specifically, the questions highlight concerns about unanticipated or undesired effects of using a technology and who should be held accountable in these circumstances.

Example Questions. Who is accountable for the failures of a technology that results in negative consequences—the user, the developer, the commander in charge or another party? What about autonomous systems that operate without any human control? Is there a back-up plan in case a technology fails in the battlefield? To what extent should soldiers using the technology be held accountable for their actions?

Example Scenarios. If an autonomous UAV incorrectly targets and kills a civilian, who is responsible for the death? If a soldier uses facial recognition software to incorrectly identify a civilian as an adversary resulting in a civilian casualty, should the soldier be held accountable if the error was a result of faulty technology?

6. Privacy, Confidentiality and Security.[36] This category includes considerations about data ownership; how and whether information collected by a technology should be shared, stored and used; and security risks posed by a technology due to detection or hacking by adversaries. Security of confidential materials is necessary for preserving the integrity of government information, military operations and the personal information of soldiers. Technologies that gather or store critical or personal information may have inherent risks and could raise ethical questions.

Example Questions. How is the information, such as genetic information, biometric data and brain scans, which is gathered by the technology, used, stored, protected or shared, and with whom? Can this personal information be used ethically for recruitment into the military, for performance assessments or for assignment allocation decisions? Is there an increased safety or security risk to soldiers using the technology? Can adversaries gain access to secure information or hack the technology and use it against us? If the technology is permanent, for example, an implant, what happens when the soldier leaves the military? Who owns the technology and the data collected by it?

Example Scenarios. Could biosensors that collect and wirelessly transmit health information about soldiers be hacked by adversaries to locate and target less fit members? Could a robot that carries military supplies for soldiers pose a security risk to those soldiers by enabling adversaries to locate them due to noise produced by the machine?

7. Equality.[37] This category raises questions about the influence of a technology on fairness and functionality within and between militaries and in society in general.

Example Questions. Will the technology create changes in unit cohesion, morale or communication? Will soldiers using the technology be seen as superior or inferior to those not using the technology? Could the technology lead to an unethical work environment? How is the technology distributed among force members? If the technology is only provided to some soldiers and not to others, could this create a hiring or pay gap? Will the technology result in some soldiers having to take on riskier tasks or make riskier decisions? If the technology is permanent, for example, implanted, what happens when the soldier returns to civilian life? Is it removed? If not, will this negatively impact how he or she integrates back into society? Could some technologies be viewed as providing an unfair advantage, similar to attitudes toward "doping" in athletics? Will injured soldiers using the technology be given priority over injured soldiers not using the technology because of the technology's value or a differential probability of survival? Will interoperability between coalition forces be disrupted or negatively influenced if only one or some coalition partners integrate the same technology into their militaries? Could this create inequality between soldiers who have access to the technology and those who do not? Could it result in soldiers with access to the technology having more opportunities to assist on missions or being placed at greater risk compared to those without access to the technology?

Example Scenarios. If a soldier has access to a technology that gives her/him a significant advantage over others, could this result in other soldiers in the unit feeling resentful and in turn impact how well the unit works together? Will drugs that reduce sleep requirements create the expectation of a 24-hour workday? Will a soldier with a permanent implanted technology struggle to find work after returning to civilian life, or alternatively, be given unfair advantages over civilians without access to the implanted technology?

8. Consent.[38] This category includes questions about whether the use of a new technology is mandatory or voluntary for armed forces members. This category is particularly relevant to technologies that modify or enhance human performance, especially technologies that are permanent, consumed (e.g. drugs), or collect and use personal information.

Example Questions. Will soldiers be mandated to use the technology or will they be able to choose whether or not to use it? If the use of the technology is voluntary, is it possible to ensure that soldiers who consent to use the technology do so free from coercion?

Example Scenarios. Consider a situation in which the majority of soldiers in a unit have consented to take a drug that reduces their sleep needs. As a result of that drug's effects, those soldiers are working very long hours and are highly productive. In that situation, will another soldier feel pressured into consenting to take this drug for fear of seeming lazy or being less productive than fellow soldiers? Is this truly consent free from coercion? If a soldier must consent to use a technology to be included in a mission, is this coercive? That is, if a soldier is given a choice between using the technology and being excluded from a mission, is this actually a choice?

9. Humanity.[39] This category includes considerations about the influence a technology may have on the morals and personhood of armed forces members.

Example Questions. Does the technology interfere with or sacrifice moral judgement? Does the use of the technology reduce the courageousness of a soldier or remove the virtues of hard work and study? Does the technology impact what it means to be human? Does the use of the technology sacrifice dignity? Will the use of the technology be seen as militaries attempting to "play God"? Will the technology change the way humanity behaves?

Example Scenarios. Will a soldier with a robotic prosthetic, controlled with a brain-computer interface, be seen as something more or less than human? Will soldiers engaging in conflict remotely through the use of military robots be more likely to display dispassionate and immoral behaviour towards those on the ground? Will a technology that removes a soldier's need for sleep or enables him/her to eat food that humans normally cannot consume change what it means to be human? Could genetic techniques be used to modify germline DNA and thereby influence human evolution?

10. Reliability and Trust.[40] This category includes questions about how close a technology is to commercialization and use by the military, and whether there are remaining modifications required before a technology is usable on the battlefield.

Example Questions. How confident are we that the technology will work as intended? Will the technology be able to withstand military use? Has the technology been tested and validated in an operational environment?

Example Scenarios. Is a technology that was designed for sterile medical use appropriate for use on the battlefield where sterile conditions are less reliable? Is the technology rugged enough to withstand rough terrain and other harsh conditions on the battlefield? Will a military robot respond quickly enough to a soldier's commands to be practical for military use, that is, is the latency between command and response acceptable?

11. Effect on Society.[41] This category concerns how a technology may impact civilians and how its use by the military may be perceived by individuals outside of the armed forces.

Example Questions. Should the government inform the general public about its use of the technology? Is there a moral responsibility to keep the public informed? Could this increase security risks for the military? Is the technology commercially available, and if not, should it be made available to the public? Outside of military users, who will the technology affect, and will this be negative or positive? Will society push back against the technology? Could this pushback harm military operations, for example, by making it difficult to win the hearts and minds of civilians in regions of conflict?

Example Scenarios. If a permanently implanted technology is used in soldiers, could this lead to a situation in which more veterans require support from government agencies due to long-term health effects or the inability to find employment after leaving the military? Could this situation result in increased taxes for everyone or longer wait times in healthcare? Would this impact how society views the military's use of this technology? If civilians in a region of conflict are afraid of the technology, would using it prevent soldiers from earning their trust? Could this inhibit a military's ability to win the hearts and minds of the civilians in the region, and could this hamper peacekeeping objectives?

12. Preparedness for Adversaries.[42] This category raises questions about how adversaries may view our use of a technology, and about whether our adversaries may use a technology themselves.

Example Questions. How might adversaries view or react to our use of the technology, and could this put our soldiers at increased risk? Will the use of the technology make us appear more or less threatening to adversaries, and could this influence the likelihood of achieving military objectives? Should the military keep their use of the technology secret so it is not exploited by our adversaries? Are our adversaries using the technology even if we have deemed it unethical or illegal? Are we prepared to counter an attack from adversaries using the technology?

Example Scenarios. Could the use of robots be seen as cowardly by our adversaries, and could this reduce the likelihood of achieving peace objectives in the region or increase the risk of violent retaliation? Will adversaries begin to take advantage of germline genetic engineering techniques to create "super soldiers" or synthetic biology techniques to develop new biological weapons?

INTENDED PURPOSE OF THE MILITARY ETHICS ASSESSMENT FRAMEWORK

It is important to note that our framework is not meant to be used to advocate for or against the use of a technology by the military, nor to make specific policy recommendations or rank the importance of particular ethical issues. The Framework should be used to increase awareness about potential ethical issues that could arise with the use of a new technology. With more awareness about possible ethical issues, policymakers can develop policies for the ethical use of a new technology in parallel with its development, with the goal of reducing the likelihood of these ethical issues occurring if and when it is fielded. Moreover, if an assessment is done early enough in the development phase, this increased awareness may enable developers to mitigate some ethical concerns by altering design features or characteristics of the technology before it is ready for use.

Case Studies. We have evaluated the utility of the Framework by using it to identify ethical challenges raised by 34 emerging human enhancement technologies.[43] The following two case studies demonstrate the utility of the Framework for identifying ethical issues that may be associated with specific human enhancement technologies of interest to the military.

CASE STUDY NO. 1: EXOSKELETON

Soldiers often walk long distances and carry heavy loads, which can result in fatigue and lead to injury. Armies are therefore interested in using wearable exoskeletons to facilitate walking and increase the weight soldiers are able to carry.[44] One such exoskeleton in development is the multi-joint soft exosuit.[45] This exoskeleton has the benefit of being lightweight, and although it is not meant to increase the weight soldiers can carry, it can reduce the metabolic cost of walking, which could reduce fatigue and the likelihood of injury.[46] While this has obvious utility for the military, the technology raises some questions at this stage. Using the Framework, ethical questions were identified in the following areas.

Health and Safety
- The long-term effects of wearing an exoskeleton are unknown. Is it possible that gait, strength or balance could be affected when a soldier who is accustomed to wearing the exoskeleton needs to perform the same tasks without it?

- Could the use of an exoskeleton encourage soldiers to carry heavier loads or walk further since the metabolic cost of walking is reduced, and could this result in increased risk for long-term injury, such as joint problems?

- If wearing exoskeletons encourages soldiers to walk greater distances, could this put them at risk of being too far from a medical facility in the event of an injury requiring casualty evacuation?

Privacy, Confidentiality and Security
- Does the system generate noise and could this put soldiers wearing the exoskeleton at risk of detection and being targeted by adversaries?

- Will soldiers wearing the exoskeleton become primary targets because they represent a bigger threat to adversaries?

Equality
- How will the military distribute exoskeletons among force members? Will they be required of everyone or only some members? Would decisions about who is assigned an exoskeleton be based on underlying fitness levels or tasks to be performed? Could this lead to reduced unit cohesion?

- If soldiers with exoskeletons are given riskier tasks, does this put them at an unfair disadvantage compared to soldiers without exoskeletons?

- Could the exoskeleton promote an unethical work environment with the expectation that soldiers will walk much further distances?

- If the system does increase the risk of detection by adversaries, is it fair to put some soldiers at increased risk over others if the exoskeleton is assigned only to certain soldiers?

- It has been suggested that some users find the exoskeleton easier to adjust to than others (Cornwall 2015).[47] If it is required of every soldier, could this contribute to inequality among soldiers if some find it more helpful than others?

Reliability and Trust
- Currently, the exoskeleton is less effective on uneven terrain and has not been tested for running.[48]

- Although the exoskeleton has been tested on soldiers in the U.S., to our knowledge it has not yet been tested in a military operational environment. Reliability in operational environments must be demonstrated in order for the technology to be trusted.

CASE STUDY NO. 2: AUGMENTED REALITY GLASSES

Cognitive burden is an ongoing challenge for soldiers; any device that can reduce this burden, for example, by decreasing the amount of information a soldier must remember, is desirable. Augmented reality (AR) glasses are wearable devices that display images, record audio and video, and provide information in the visual field of the user. Augmented reality glasses are of interest to militaries because they may improve situational awareness by incorporating many functions into one hands-free device, and these functions do not require a soldier to look away from the battlefield.[49] Augmented reality glasses can provide many capabilities, such as Bluetooth communication, GPS, video/audio display and recording, graphics overlaid in the visual field and object identification.[50] Augmented reality glasses offer a potential solution to cognitive burden for soldiers by providing them with instant access to information without having to look away from their surroundings. However, there are some ethical questions about the use of AR glasses on the battlefield. Using the Framework, ethical questions were identified in the following areas.

Health and Safety
- Are there side effects associated with wearing AR glasses for long periods of time, such as eye strain or disrupted sleep?

- Are there long-term effects on the eyes or brain from electromagnetic wave exposure from AR glasses?

- Could AR glasses distract soldiers by providing too much information? Could this distraction result in increased risk of injury or decreased safety?

Accountability and Liability
- If AR glasses are used to identify a potential target and they provide incorrect information resulting in a civilian, blue force or local forces casualty, who is accountable? Could the soldier wearing the AR glasses not be held responsible for this casualty if her/his actions were guided by faulty software?

- If the glasses are hacked and disabled by adversaries, could this result in soldiers being stranded in the field without access to vital information, such as maps or GPS capabilities? Is there a backup plan for scenarios like these?

Privacy, Confidentiality and Security
- Could video recording/streaming, Bluetooth, and GPS capabilities increase the risk of adversaries being able to locate soldiers wearing AR glasses?

- Could soldiers wearing AR glasses be targeted by adversaries for intelligence?

- Could AR glasses be hacked by adversaries to gain access to sensitive information recorded and stored within the devices?

Equality
- How will the military distribute AR glasses? Will all soldiers be required to use the device or only some? Could this result in decreased unit cohesion?

- Could the use of AR glasses provide some force members with an advantage over others?

- Could AR glasses disadvantage those using them due to distraction, increased responsibility or increased risk of being located by adversaries?

Reliability and Trust
- Can the technology withstand military use in an operational environment?

- Could the high power and energy requirements of AR glasses reduce their practicality? Is the force member put at risk if the battery dies in the middle of a mission?

HOW THE MILITARY ETHICS ASSESSMENT FRAMEWORK COULD GUIDE MODIFICATIONS TO TECHNOLOGY DESIGN AND REGULATORY POLICIES

The Framework has utility for technology developers and policymakers alike. Developers can use it to guide technology design modifications to prevent certain ethical problems when in use. For example, software in AR glasses could be improved to reduce the likelihood of recognition errors that might result in accountability issues on the battlefield.
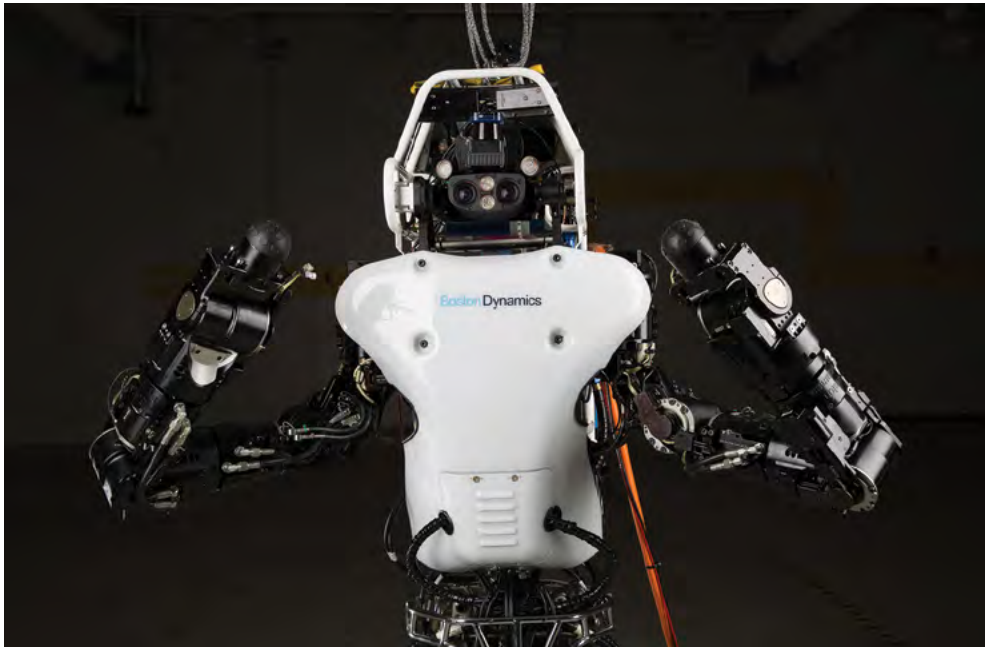
Source: DARPA

The DARPA-developed Atlas robot used by teams in the DRC.

In turn, policymakers can use it to inform policies that account for potential ethical scenarios arising as a result of the military use of a technology. For instance, policies could restrict the number of hours each day that soldiers can work under the influence of a sleep-reducing medication, thereby decreasing both the pressure for other soldiers to consent to use the drug and the possibility of unethical working conditions, that is, 24-hour workdays. Policies could also be created to reflect how the use of a technology may impact military operations. For example, policies about the number of, and distance between, medical facilities on the battlefield could be modified such that soldiers who can walk greater distances with the use of exoskeletons are still sufficiently close to a medical facility in case of injury and the need for casualty evacuation. Although the Framework includes many guiding questions to assist the user, it is not static—new questions within each category may emerge depending on the characteristics of the technology being assessed. We view the Framework as a tool that encourages the assessor to think broadly about ethical issues while also providing guidance to make the task of assessing the military ethics of emerging technologies a relatively straightforward and systematic endeavour.

CONCLUSION AND FUTURE WORK

Advances in science and technology are certain to continue providing means and methods to increase the safety and efficiency of military operations. The need to improve soldier performance and resilience and to shift the "dull, dirty and dangerous" work to autonomous/robotic systems is helping to drive the development of new and promising technologies.[51]

But the gap between advancing science and technology and our understanding of the ethical use of emerging technologies on the battlefield grows ever larger as regulatory policies, laws and ethics trail behind research and development.[52] There is an urgent need for ethical conversations and debate to catch up to the pace of science and technology advancement in order to close this gap. These conversations should include continued general discussion about the ethics of fields of research, such as human enhancement, in addition to more systematic analyses of specific military ethical issues associated with particular emerging technologies.

We developed the Framework to facilitate the systematic ethical analyses of particular technologies related to human enhancement. However, we intentionally incorporated broad categories and considerations into the framework so that it can be modified for use with other emerging technologies of interest to the military. For instance, regardless of the kind of emerging technology of interest, it must not promote violations of international law, and there are many technologies that could present privacy or unit cohesion concerns, result in pushback from society and challenge peace objectives in regions of conflict. We are currently testing whether the Framework, with some modifications to the guiding questions within each of the twelve broad categories, has utility for assessing the ethical implications of artificial intelligence and autonomous systems in the military. We anticipate that ethical analyses using the Framework will aid in the development of policies that safeguard the ethical use of emerging technologies by militaries and inform developers so they can make modifications to these technologies before they are ready for use.

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ENDNOTES

1. Patrick Lin. "Why Ethics Matters for Autonomous Cars," in *Autonomous Driving: Technical, Legal and Social Aspects*, eds. Markus Maurer, J. Christian Gerdes, Barbara Lenz, and Hermann Winner (Berlin: Springer Nature, 2016), 69–85.

2. Annie Jacobsen, *The Pentagon's Brain: An Uncensored History of DARPA, America's Top-secret Military Research Agency* (New York: Little, Brown and Company, 2015); Arati Prabhakar and Steven H. Walker, *Breakthrough Technologies for National Security*. Defense Advanced Research Projects Agency Technical Report (Arlington, VA: DARPA, 2015).

3. Peter W. Singer, "The Ethics of Killer Applications: Why Is It So Hard To Talk About Morality When It Comes to New Military Technology?" *Journal of Military Ethics* 9.4 (2010): 299–312; Patrick Lin, Maxwell J. Mehlman and Keith Abney, "Enhanced Warfighters: Risk, Ethics, and Policy," Case Research Paper Series in Legal Studies, Working Paper 2013-2 (1 January 2013), https://ssrn.com/abstract=2202982; Jean-Lou Chameau, William F. Ballhaus and Herbert S. Lin, eds., *Emerging and Readily Available Technologies and National Security: A Framework for Addressing Ethical, Legal, and Societal Issues* (Washington, DC: National Academies Press, 2014); Dave Shunk, "Ethics and the Enhanced Soldier of the Near Future," Military Review (January-February 2015): 91–98.

4. Lin, Mehlman and Abney. We have defined human enhancement as any science and technology approach that temporarily or permanently modifies human functioning. Some examples of human enhancements in various stages of development are exoskeletons that facilitate walking (Fausto A. Panizzolo, Ignacio Galiana, Alan T. Asbeck, Christopher Siviy, Kai Schmidt, Kenneth G. Holt and Conor J. Walsh, "A Biologically-inspired Multi-joint Soft Exosuit that Can Reduce the Energy Cost of Loaded Walking," *Journal of NeuroEngineering and Rehabilitation* 13:43 [2016]) and implanted technology that translates brain signals into directed movement of a robotic prosthetic (Leigh R. Hochberg, Daniel Bacher, Beata Jarosiewicz, Nicholas Y. Masse, John D. Simeral, Joern Vogel, Sami Haddadin, Jie Liu, Sydney S. Cash, Patrick van der Smagt and John P. Donoghue, "Reach and Grasp by People with Tetraplegia Using a Neurally Controlled Robotic Arm," *Nature* 485.7398 (2012): 372–375.

5. Patrick Lin, George Bekey and Keith Abney, "Autonomous Military Robotics: Risk, Ethics, and Design," for U.S. Department of Navy, Office of Naval Research, (San Luis Obispo: Ethics and Emerging Sciences Group at California Polytechnic State University, 2008).

6. Lin, Mehlman and Abney.

7. Lin, Bekey and Abney.

8. Jai Galliott and Tim McFarland, "A Survey of Legal and Ethical Issues Arising From the Use of Autonomous Systems by the Australian Defence Organisation," for The Defence Science and Technology Group of the Australian Department of Defence (Melbourne: University of Melbourne, 2015).

9. Deniz Tunçalp and Mary H. Fagan, "Anticipating Human Enhancement: Identifying Ethical Issues of Bodyware." in *Global Issues and Ethical Considerations in Human Enhancement Technologies*, ed. Steven J. Thompson (Hershey, PA: IGI Global, 2014), 16–29.

10. Elin Palm, and Sven O. Hansson, "The Case for Ethical Technology Assessment (eTA)," *Technological Forecasting & Social Change* 73 (2006): 543–558.

11. Philip A. E. Brey, "Anticipatory Ethics for Emerging Technologies," *Nanoethics* 6.1 (2012): 1–13.

12. David Wright, "A Framework for the Ethical Impact Assessment of Information Technology," *Ethics and Information Technology* 13.3 (2011): 199–226. Issue 3 https://dl.acm.org/citation.cfm?id=2035938

13. Federica Lucivero, Tsjalling Swierstra and Marianne Boenink, "Assessing Expectations: Towards a Toolbox for an Ethics of Emerging Technologies," *Nanoethics* 5.2 (2011): 129–141. Issue 2 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3166601/

14. Antoine A. Bouvier, "International Humanitarian Law and the Law of Armed Conflict," Virginia, USA: Peace Operations Training Institute, 2012; Huma Haider, "International Legal Frameworks for Humanitarian Action: Topic Guide," Birmingham, UK: GSDRC, University of Birmingham, 2013; David Lee, ed., *Law of Armed Conflict Deskbook*. Charlottesville, VA: The United States Army Judge Advocate General's Legal Center and School, 2015.

15. Government of Canada, Department of National Defence and Canadian Forces Code of Values and Ethics (2012), accessed 7 March 2017: http://www.forces.gc.ca/en/about/code-of-values-and-ethics.page.

16. Efthimios Parasidis, "Human Enhancement and Experimental Research in the Military," *Connecticut Law Review* 44.4 (2012): 1117–1132.

17. Jack P. Landolt, "Human Research Ethics Considerations: A Precursor for Ethically Implementing Advanced Technologies into NATO Military Operations," *Canadian Military Journal* 11.3 (2011): 14–21; Efthimios Parasidis, "Emerging Military Technologies: Balancing Medical Ethics and National Security," *Case Western Reserve Journal of International Law* 47.1 (2015): 167–183.

18. Landolt; Government of Canada, Tri-Council Policy Statement, Ethical Conduct for Research Involving Humans (2014) accessed 7 March 2017: http://www.pre.ethics.gc.ca/pdf/eng/tcps2-2014/TCPS_2_FINAL_Web.pdf. Although some considerations similar to those outlined by research ethics principles should be made when assessing the military ethics of an emerging technology, there may be different interpretations of what is and is not ethically acceptable depending on whether the use of the technology is for research or for military duty, for example in the case of informed consent (Lin, Mehlman and Abney).

19. For a perspective on how technologies influence military ethics rather than how military ethics influences technology design and implementation, see Marcus Schulzke, "Rethinking Military Virtue Ethics in an Age of Unmanned Weapons," *Journal of Military Ethics* 15.3 (2016): 187–204. Therein, Schulzke argues that new technologies, namely unmanned weapons, require militaries to rethink the style of ethical reasoning used to guide soldier behaviour. Military ethics is traditionally guided by virtue ethics. Virtue ethics gives soldiers some flexibility and autonomy in how to behave ethically because it is not rule-based, which enables soldiers to adapt their behaviour depending on their circumstance. This is particularly important for conflict on the battlefield, where soldiers must sometimes make quick decisions that could put their own lives at risk. A heavily rule-based ethic would be too cumbersome and cognitively burdensome when life or death decisions must be made in seconds. However, new technologies, such as UAV that remove soldiers from the battlefield and therefore from situations in which their lives are endangered, also remove the need for rapid life or death decisions. Although UAV operators do make decisions that can result in casualties, they do not experience the same threat to their lives as do soldiers on the battlefield. This changes traditional warfare, and as a result, challenges traditional military ethics. For instance, UAV greatly increase risk asymmetries in conflict, with UAV operators incurring significantly less physical risk than their adversaries on the battlefield. This risk asymmetry removes the opportunity for UAV operators to act virtuously in the same way soldiers on the battlefield can, which is a concern since military ethics highly values virtues such as courage and loyalty. Rather than trying to maintain traditional virtue ethics, Schulzke suggests that military ethics should be modified to embrace new means of warfare created by UAV. Specifically, ethical behaviour by UAV operators should be guided by strict rule-based deontological ethics. While deontological ethics is not practical for traditional warfare for reasons described above, Schulzke contends that it holds promise for guiding ethical behaviour of UAV operators. Unlike soldiers whose lives are at risk on the battlefield, UAV operators do not have to weigh the risk of being injured or killed if they do not shoot at an unknown person who may or may not be a threat. Therefore, UAV operators can exercise restraint in ambiguous situations, and as a result of this should be held to higher standards of acceptable or ethical behaviour. Deontological ethics not only gives UAV operators greater guidance about how to act in challenging situations, but it also encourages oversight and accountability. In this way, shifting military ethics from a virtue-based to a rule-based approach for UAV operators may reduce the risk of unintended casualties on the battlefield. Thus, deontological ethics could provide an avenue by which the possible ethical advantages of UAV can be achieved. While we approach ethics from a different angle in this paper, that is, examining how military ethics can guide changes to the design or implementation of a new technology, Schulzke eloquently articulates the converse: how a new technology can prompt changes to military ethics. These different perspectives highlight the complexity of ethical challenges and advantages that new technologies can pose for militaries.

20. Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; George R. Lucas, Jr., "Legal and Ethical Precepts Governing Emerging Military Technologies: Research and Use," *Amsterdam Law Forum* 6.1 (2014): 23–34; Rain Liivoja, Hannah Maslen, Julian Savulescu and Angus Willoughby, "Legal and Ethical Issues Arising from the Use of Personal Biomedical Devices by the Australian Defence Organisation," Melbourne: PREMT Research Paper, 2015.

21. For simplicity, we consider any new science and technology advance a "technology." For example, a new drug to be assessed for ethical issues will also be referred to as a technology.

22. Schulzke.

23. Matthew Beard, Jai Galliott and Sandra Lynch, "Soldier Enhancement: Ethical Risks and Opportunities," *Australian Army Journal* 13.1 (2016): 5–20.

24. Department of National Defence and Canadian Forces Code of Values and Ethics.

25. Beard, Galliott and Lynch.

26. For the sake of brevity, we have used "soldier" as a generic term to refer to a member of the armed forces throughout this paper; however, the Military Ethics Assessment Framework applies to all armed services and can be used to assess technologies pertinent to the navy and air force in addition to the army.

27. Schulzke, 196. "The relativity of virtues makes it impossible for someone who does not face personal risk on the battlefield to act courageously or loyally in the same way as someone who confronts physical risks."

28. The questions and considerations in Category 2, Compliance with *Jus ad Bellum* Principles, were informed by the following references: Lin, Bekey and Abney; Michael Lacewing, "Just War Theory," Routledge Taylor & Francis Group, 2010; Bradley J. Strawser, "Moral Predators: The Duty to Employ Uninhabited Aerial Vehicles," *Journal of Military Ethics* 9.4 (2010): 342–368; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Galliott and McFarland; Beard, Galliott and Lynch.

29. Lacewing; Lee.

30. Peter M. Asaro, "How Just Could a Robot War Be?" in *Current Issues in Computing and Philosophy*, Frontiers in Artificial Intelligence and Applications (Amsterdam: IOS Press, 2008), 50–64. This view is debated by others who suggest that it leads one to conclude that no attempts should be made to increase the safety of conflict for soldiers; taken to its extreme, then, we should endeavour to make conflict as dangerous and brutal as possible to reduce its likelihood, something with which many would disagree (Lin, Bekey and Abney). http://ebooks.iospress.nl/publication/4279

31. Jai C. Galliott, "Uninhabited Aerial Vehicles and the Asymmetry Objection: A Response to Strawser," *Journal of Military Ethics* 11.1 (19 April 2012): 58–66.

32. The questions and considerations in Category 3, Compliance with Law of Armed Conflict / *Jus in Bell*o Principles) were informed by the following references: Lin, Bekey and Abney; Peter W. Singer, "Military Robots and the Laws of War," *The New Atlantis* 23 (Winter 2009): 25–45; Lacewing; Noel Sharkey, "Saying 'No!' to Lethal Autonomous Targeting," *Journal of Military Ethics* 9.4 (2010): 369–383; Noel E. Sharkey, "The Evitability of Autonomous Robot Warfare," *International Review of the Red Cross* 886 (2012): 787–799; Strawser; Bouvier; Haider; Lin, Mehlman and Abney; Alex Leveringhaus and Gilles Giacca, "Robo-Wars: The Regulation of Robotic Weapons," Oxford Martin Policy Paper, 2014; Max Michaud-Shields, "Personal Augmentation – The Ethics and Operational Considerations of Personal Augmentation in Military Operations," *Canadian Military Journal* 15.1 (2014): 24–33; Galliott and McFarland; Lee; Liivoja, Maslen, Savulescu and Willoughby; Parasidis, "Emerging Military Technologies: Balancing Medical Ethics and National Security"; Beard, Galliott and Lynch; Heather A. Harrison Dinniss, and Jann K. Kleffner, "Soldier 2.0: Military Human Enhancement and International Law," *International Law Studies* 92 (2016): 432–482.

33. Lee.

34. The questions and considerations in Category 4, Health and Safety, were informed by the following references: Strawser; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Parasidis, "Emerging Military Technologies: Balancing Medical Ethics and National Security"; Tri-Council Policy Statement, 2014.

35. The questions and considerations in Category 5, Accountability and Liability, were informed by the following references: Lin, Bekey and Abney; Singer, "Military Robots and the Laws of War"; Singer, "The Ethics of Killer Applications"; Sharkey, "The Evitability of Autonomous Robot Warfare"; Chameau, Ballhaus and Lin; Dinniss and Kleffner; Leveringhaus and Giacca.

36. The questions and considerations in Category 6, Privacy, Confidentiality and Security, were informed by the following references: Lin, Bekey and Abney; Edmund G. Howe, "New Biological Advances and Military Medical Ethics," in *Bio-Inspired Innovation and National Security*, eds. Robert E. Armstrong, Mark D. Drapeau, Cheryl A. Loeb and James J. Valdes (Washington, D.C.: National Defense University Press, 2010), 9–19; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Michaud-Shields; Tri-Council Policy Statement 2014; Liivoja, Maslen, Savulescu and Willoughby; Dinniss and Kleffner.

37. The questions and considerations in Category 7, Equality, were informed by the following references: Lin, Bekey and Abney; Howe; William D. Casebeer, "Ethics and the Biologized Battlefield: Moral Issues in 21st-Century Conflict," in *Bio-Inspired Innovation and National Security*, eds. Robert E. Armstrong, Mark D. Drapeau, Cheryl A. Loeb and James J. Valdes (Washington, D.C.: National Defense University Press, 2010), 293–303; Patrick Lin, "Ethical Blowback from Emerging Technologies." *Journal of Military Ethics* 9.4 (2010): 313–331; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Michaud-Shields; Liivoja, Maslen, Savulescu and Willoughby; Shunk; Beard, Galliott and Lynch; Dinniss and Kleffner.

38. The questions and considerations in Category 8, Consent, were informed by the following references: Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Tri-Council Policy Statement 2014; Liivoja, Maslen, Savulescu and Willoughby; Parasidis, "Emerging Military Technologies: Balancing Medical Ethics and National Security"; Beard, Galliott and Lynch.

39. The questions and considerations in Category 9, Humanity, were informed by the following references: Philip Brey, "Human Enhancement and Personal Identity," in *New Waves in Philosophy of Technology*, eds. Jan K. B. O. Friis, Evan Selinger and Søren Riis (United Kingdom: Palgrave MacMillan, 2009), 169–185; Singer, "Military Robots and the Laws of War"; Casebeer; Sharkey, "Saying 'No!' to Lethal Autonomous Targeting"; Strawser; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Galliott and McFarland; Steven Olson, ed., "International Summit on Human Gene Editing: A Global Discussion," Committee on Science, Technology, and Law, Policy and Global Affairs, and National Academies of Sciences, Engineering, and Medicine (Washington, D.C.: National Academies Press, 2016).

40. The questions and considerations in Category 10, Reliability and Trust, were informed by: Chameau, Ballhaus and Lin.

41. The questions and considerations in Category 11, Effect on Society, were informed by the following references: Lin, Bekey and Abney; Lin, "Ethical Blowback from Emerging Technologies"; Lionel Clarke, "A Synthetic Biology Roadmap for the UK," Technology Strategy Board on Behalf of UK Synthetic Biology Roadmap Coordination Group, 2012; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Dinniss and Kleffner.

42. The questions and considerations in Category 12, Preparedness for Adversaries, were informed by the following references: Lin, Bekey and Abney; Singer, "The Ethics of Killer Applications"; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Michaud-Shields.

43. Kimberly D. Girling, Joelle B. Thorpe and Alain Auger, *Identifying Ethical Issues of Human Enhancement Technologies in the Military*, DRDC-RDDC Scientific Report 2017-R103 (Ottawa: DRDC, October 2017).

44. B. S. Richardson, ed., "Phase 1 Report: DARPA Exoskeleton Program," prepared by the Oak Ridge National Laboratory for the U.S. Department of Energy (2004).

45. Alan T. Asbeck, Kai Schmidt, Ignacio Galiana, Diana Wager and Conor J. Walsh, "Multi-joint Soft Exosuit for Gait Assistance," IEEE International Conference on Robotics and Automation 6197-6204 (2015).

46. Ye Ding, Ignacio Galiana, Alan T. Asbeck, Stefano Marco Maria De Rossi, Jaehyun Bae, Thiago Ribeiro Teles Santos, Vanessa Lara Araujo, Sangjun Lee, Kenneth G. Holt, Conor Walsh, "Biomechanical and Physiological Evaluation of Multi-Joint Assistance with Soft Exosuits," *IEEE Transactions on Neural Systems and Rehabilitation Engineering* 25.2 (2016): 119–130; B. T. Quinlivan, S. Lee, P. Malcom, D. M. Rossi, M. Grimmer, C. Siviy, N. Karavas, D. Wagner, A. Asbeck, I. Galiana, C. J. Walsh, "Assistance Magnitude versus Metabolic Cost Reductions for a Tethered Multiarticular Soft Exosuit," *Science Robotics* 2.2 (2017): 1–10; Panizzolo, Galiana, Asbeck, Siviy, Schmidt, Holt and Walsh.

47. Warren Cornwall, "In Pursuit of the Perfect Power Suit: A Longstanding Quest to Augment Human Performance with Robotic Exoskeletons Takes a Softer Approach," *Science* 350.6258 (16 October 2015): 270–273.

48. Ibid.

49. Mark A. Livingston, Lawrence J. Rosenblum, Denis G. Brown, Gregory S. Schmidt, Simon J. Julier, Yohan Baillot, J. Edward Swan II, Zhuming Ai and Paul Maassel, "Military Applications of Augmented Reality," in *Handbook of Augmented Reality*, ed. Borko Furht (New York: Springer, 2011), 671–706.

50. Alexis C. Madrigal, "How DARPA's Augmented Reality Software Works," *The Atlantic*, 27 May 2014, accessed 9 March 2017: https://www.theatlantic.com/technology/archive/2014/05/hows-darpas-augmented-reality-software-works/371652/; ODG Tech Sheet, accessed 9 March 2017: http://unicorn.osterhoutgroup.com/presskit/R-7-TechSheet.pdf ; ODG Innovation Award, "2016 North American Augmented Reality-enabled Smartglasses New Product Innovation Award," *Frost & Sullivan Best Practices Award*; Andrew Rosenblum, "Augmented Reality Glasses are Coming to the Battlefield," *Popular Science* (22 April 2015), accessed 9 March 2017: www.popsci.com/experimental-ar-glasses-offer-marines-hands-free-intel.

51. U.S. Department of Defense, "Unmanned Systems Roadmap 2007-2032," Office of the Secretary of Defense (2007), accessed 10 March 2017: http://www.globalsecurity.org/intell/library/reports/2007/dod-unmanned-systems-roadmap_2007-2032.pdf.

52. Singer, "The Ethics of Killer Applications"; Lin, Mehlman and Abney; Chameau, Ballhaus and Lin; Shunk.

An aircrew member waits for other members of Task Force Mali to board a CH-147F Chinook helicopter before departing to a small arms range near Gao, Mali.

DISTRUST, CONFLICT ESCALATION AND MITIGATION STRATEGIES: IMPLICATIONS FOR CIVIL-MILITARY COOPERATION[1]

Dr. Megan M. Thompson and Dr. Ritu Gill

BACKGROUND

Our past research has explored the dynamics of trust on the mission effectiveness of diverse teams in complex operations.[2] This information concerning how to build, maintain and repair trust in these settings is valuable especially in contexts in which the parties are not known to each other or have not had the opportunity to have positive prior experiences, or at the very least where the players have no reason to doubt the intentions of one another.[3] However, in today's complex missions, there are certainly cases in which the parties may have a negative history, ranging from past dysfunction and suspicion to years of armed conflict and ethnic cleansing. As this reality also characterizes the complex mission spaces within which the Canadian Armed Forces may operate, there is also reason to understand the dynamics and impact of distrust, defined as "confident negative expectations… that individuals will not behave in one's best interest,"[4] or that they "may act so as to harm one, [do] not care about one's welfare or [intend] to act harmfully, or [are] hostile."[5] Accordingly, this article reviews the distinguishing features of distrust, summarizes the key dynamics of distrust and conflict escalation, and outlines distrust-mitigation strategies. We conclude by discussing the particular relevance of this information to civil-military cooperation (CIMIC).

DISTRUST

Trust has been termed the "single most important element of a good working relationship;"[6] its absence is often implicated in the dissolution of alliances.[7] However, as early as 1998, Roy Lewicki and colleagues suggested that attention also should be paid to the concept of distrust, defined as "confident negative expectations… that individuals will not behave in one's best interest,"[8] or the belief that the other will be motivated to actively cause harm or intentionally fail to prevent harm from befalling the trustor.[9] Not surprisingly, distrust reduces self-disclosure, increases overmatching (i.e. escalation of responses), and increases a defensive posture to a greater extent than the presence of trust increases self-disclosure, positive emotions, or a willingness to be vulnerable to someone else.[10] As depicted in Figure 1, although linked to the same three underlying dimensions of _ability_, _benevolence_ and _integrity_, the assessments or evaluations associated with the dimension differ substantively for trust versus distrust.

In fact, theorists consider distrust to be distinct from trust, a contention supported by brain imaging studies that show that distrust activates different regions of the brain than does trust.[11] Research also shows that the effects of distrust are "much more catastrophic and disproportionate than for trust"[12] because distrust contains especially active emotional and cognitive components.[13] That is, distrust reduces self-disclosure, increases overmatching (i.e. escalation of responses), and engenders greater emotional volatility, active vigilance and a defensive posture to a greater extent than trust increases self-disclosure, positive emotions, or a willingness to be vulnerable to someone else.[14]

As a result, distrust can "lead to a much more dramatic effect on one's decisions with regard to maintaining and switching relations than can be attributed to a simple degrading of trust."[15]

DIMENSION OF TRUSTWORTHINESS	TRUST	DISTRUST
Ability	Perceived Competence—skills, abilities, competencies to do the job. Preparation, relevant knowledge, know how to perform in the situation.	Perceived Incompetance—lacking the skills, abilities, competencies to do the job, or being unable/unwilling to employ them in the situation.
Benevolence	Treats the other well; courtesy, respect, friendly, emotions positive or under control.	Does not treat the other well; discourtesy, disrespect, unfriendly, emotions negative and not under control.
Integrity	Other adheres to a set of principles that I find acceptable; value congruence; honesty, truthful and transparency; keeps commitments, acts professionally.	Others adheres to a set of principles that I do not find acceptable OR does not adhere to my principles; value incongruence; dishonesty, untruthfulness and lack of transparency; does not keep commitments, does not act professionally.

Figure 1: Dimensions of Distrust[16]

Leading trust researchers Roy Lewicki and Carolyn Wiethoff[17] have further made a distinction between two types of distrust. One, termed calculative-based distrust, involves a confident negative expectation that the costs of the relationship with the other outweigh the benefits. Calculative-based distrust is usually characteristic of the early stages of a relationship and/or of interpersonal associations that are largely task-oriented. As such, it is often linked most to assessments of ability or skill. A second form of distrust is rooted in the degree of identification that occurs between parties, that is, the extent to which they perceived that they share group membership, values, and/or a collective identity. Identification-based distrust is a confident negative expectation about the other that is based in the perceived lack of common objectives, goals, and values with the other party. As a result, identification-based distrust is often considered to be more affective in nature, to be based more on historical conflicts, and to be linked more to assessments of the integrity and benevolence of the other individual or group, compared to calculative-based distrust.

Regardless of its bases, distrust is considered to be particularly destructive because it triggers a range of negative perceptual biases (i.e. "blood-colored lenses"),[18] and selective perceptions, beliefs, emotions and actions. Together these initiate a dangerous spiral where each new event adds greater evidence of the other's harmful intent. For instance, distrust fuels the "sinister attribution error"—"the tendency of social perceivers to overattribute malevolent motives to others… the exaggerated perception of conspiracy, [and the] tendency to read coherent connections into individual social actions."[19] "[S]ince distrust is associated with the notion that appearances are false or misleading, it sensitizes individuals to departures from the

expected and increases the likelihood that they will search for irregularities."[20] Interestingly, as distrust evokes personal theories about the sender's motives for deceiving, it also generates a more rigid information processing approach that is biased towards theory-consistent evidence. Thus, "by elaborating in terms of a wrong theory, receivers are likely to miss the opportunities afforded by the obvious as well as the non-obvious implications of the message."[21] In other words, distrust creates a negative perceptual lens that makes people more sensitive to distrust-confirming evidence as well as leaving them less likely to notice evidence that might tend to negate the conclusion that the target is untrustworthy.

When distrust colours a relationship, one of its behavioural repercussions is that there will be a lack of willing or voluntary formal cooperation and an avoidance of informal interactions, meaning that the opportunities for witnessing and experiencing evidence that could invalidate the basis of distrust will be missing, thus reinforcing each group's negative perceptions of one another. Thus, distrust of others fosters not merely less cooperation and interaction but more active and explicit competitive responses and hostile behaviour—not merely lower commitment, but active disengagement,[22] as well as increases in coercive actions by distrusting parties (e.g. taking another's resources, not sharing important information, being absent from scheduled meetings).

In line with its differential perceptual and attributional characteristics outlined previously, distrust also has a distinct and profound effect on the nature and dynamics of conflict escalation. That is, normal conflict dynamics involve principles of *quid pro quo* and are largely limited to the specific source or topic of the disagreement or conflict. However, where distrust exists, conflict is marked by increasing volatility and is also distinguishable by its underlying value incongruence. Distrust then involves a disproportionate, self-amplifying and self-reinforcing cycle and a tighter alignment between negative perceptions and behaviors and "can pervade domains in the relationship that did not figure in the initial triggering of distrust."[23] Not surprisingly, convictions concerning the correctness of one's own views, and perceptions about the wrongness of the other's positions, become increasingly entrenched. The focus then becomes the need to defend oneself, to protect one's own interests and to "win" the conflict—all of which escalate the conflict further.[24]

The distrust-conflict relation is further complicated in a group setting. First, Roderick Kramer has noted that "basic cognitive processes such as social categorization may heighten distrust and suspicion between individuals from different groups within an organization."[25] Indeed, research shows that even minimal distinctions between groups can activate evaluations in which other groups become "outgroups," with their members being rated more negatively (e.g. less honest, reliable, open and trustworthy) than members of one's own group.[26] Remarkably, these results can be seen even when the basis of the group distinctions are based on "arbitrary, minimal and transient criteria."[27] Second, the need, and the need to be seen, to conform to one's own group's views can significantly influence an individual group member's negative perceptions of the other group. These, in turn, serve to further justify and intensify negative behaviour by the in-group toward the out-group.[28] Integrating these group processes

with the literature outlined previously, it is little wonder that, once engaged, distrust can turn even sincere "efforts to rebuild trust into suspicion-laden, negative attributions of malice… which reinforce distrust instead of paving the way to trust."[29] All this makes distrust difficult to ameliorate, and highly resistant to techniques that are used for trust building.[30]

The complexity and self-reinforcing nature of the distrust-conflict escalation dynamic is aptly depicted by Katinka Bijlsma-Frankema and colleagues as presented in Figure 2. As indicated, this cycle can begin with any factor within the model. Also of note is that each factor can be based in perception rather than reality. That is, one only needs to perceive value incongruence, malevolence of intention, and/or escalation of conflictual responses for the cycle to be initiated and perpetuated. Finally, the model also indicates the fuel that can be added when these dynamics unfold between groups.
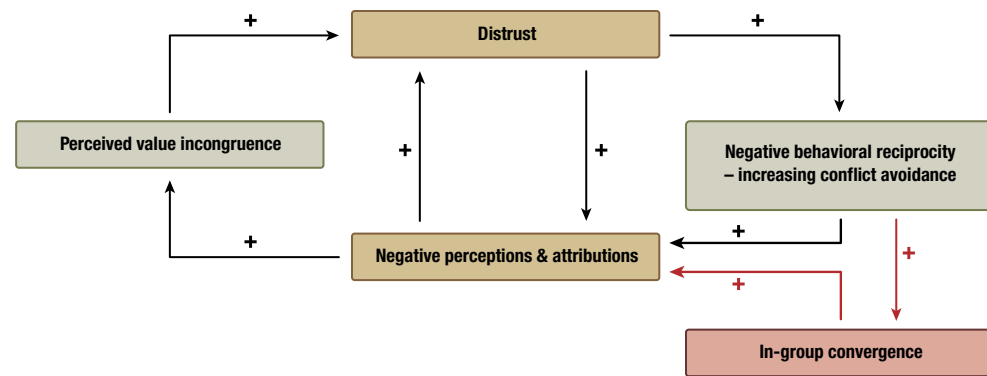
The Self-amplifying Cycle of Distrust, with Additional Group-Level Effects[31]

BACK FROM THE BRINK—STRATEGIES FOR MITIGATING DISTRUST

Despite its destructive nature, there are strategies for addressing and mitigating distrust. Perhaps the first thing to recognize is whether, and the extent to which, the dynamics of distrust and intractable conflict are at play. The existence of distrust would be indicated by statements by parties concerning pervasive, negative perceptions and beliefs concerning the malevolent intentions of others and marked by vigilance and a defensive protective stance regarding own rights and goals. Intractable conflicts are usually characterized by a long history of multiple interrelated high-stakes issues relating to basic external needs, such as resources, security and safety, and to internal ones, such as values, power, identity, respect, and control, with some of the deepest conflicts being rooted in irreconcilable value differences, or inequitable high-stakes distributional issues.[32] Evidence of disproportionate conflict escalation is also a signal to the intractable nature of conflict and of underlying distrust.

If these signals are apparent, the next step is to understand the roots of the distrust and conflict in order to be aware of and informed by this knowledge and to avoid obvious flashpoints, at least until some basic understanding is established—but still always approaching a flashpoint with caution. Susan Carpenter and W. D. J. Kennedy have noted that the roots

of conflict usually involve three dimensions: substantive issues; human relationships; and procedures.[33] Thus, any approach to addressing conflict needs to develop in light of these three areas. For instance, in some cases, especially when multiple symptoms of distrust and intractable conflict appear to be present, this may involve delving deeper than the apparent initial issues, such as "identifying and clarifying the parties' needs, fears, goals and exploring past and present patterns of interaction."[34] Ideally, adversarial parties should identify the central issue(s), defining it "as a mutual problem to be solved,"[35] as well as be thoroughly involved in (and thus more invested in) the development of mutual expectations about and relevant input into the design of an equitable conflict resolution process and the way ahead to address the issues, including addressing reciprocity and issue containment.[36] The focus should be on specific goals and/or manageable sub-goals, which may be more amenable to the development of mutually acceptable solutions. In addition particularly volatile issues (i.e. flashpoints) may be managed by identifying superordinate goals. This is an area where focusing on process may be beneficial, for instance by putting in place mutually acceptable withdrawal processes. Moreover, to the extent possible, another useful strategy is to encourage perspective-taking, that is to put oneself in place of the other group to better understand the other's position and reasons for the position.[37]

Lewicki and Wiethoff similarly contend that, regardless of whether distrust is calculative- or identification-based, the approach to de-escalation is the same, at least initially.[38] For instance, given its task-oriented nature or basis, when calculative-based distrust is present, suggested courses of action include parties agreeing on expectations, objectives, deadlines, and penalties for non-compliance, and identifying explicit expectations for behaviour. They further suggest that parties agree on procedures for monitoring and verifying one another's actions as a strategy to de-escalate conflict and distrust. Interestingly, despite the more divergent values and beliefs and deep-seated emotional nature of identification-based distrust, similar strategies are recommended at least as a starting point to de-escalation. The focus will be on cultivating at least sufficient calculative-based distrust between parties to allow them to begin a rapprochement on tangible tasks. Indeed, research suggests that this approach will at least contain the immediate arcs of conflict and allow for the development of short-term or focused solutions that may allow the parties to proceed positively in at least limited areas.[39] As identification-based distrust also implicates value differences,

> it may also be helpful for the actors to openly acknowledge the areas of their mutual distrust. By doing so, they can explicitly talk about areas where they distrust each other and establish safeguards that anticipate distrustful behaviors and afford protection against potential consequences (Lewicki and Stevenson, 1998)… Thus, for example, if the parties have strong disagreements about certain value-based issues (religious beliefs, political beliefs, personal values), they may be able to design ways to keep these issues from interfering with their ability to work together in more calculus-based transactions.… This enables them to interact in future encounters with some confidence that despite deep-seated differences, they will not be fundamentally disadvantaged or harmed in the relationship.[40]

Another powerful approach is the use of mutually trusted third parties,[41] who would function as conflict intermediaries, mediators, and conflict resolution facilitators, promoting communication, opening negotiations, mediating, or opening back channels for negotiation. Third parties may also serve as models for appropriate behaviours and responses, for instance, by suggesting or demonstrating emotional and behavioural restraint (i.e. by not retaliating, overreacting or escalating) and/or by suggesting or modelling initial limited concessions that are not tied to reciprocity by the adversarial party. A trusted third party may also be helpful by tactfully introducing an adversary's perspective and/or by establishing the boundaries of the conflict-related discussion, approaches to limit the escalation of a conflict, as well as the unbiased enforcement of those agreed upon issues and boundaries.[42]

Notably, these principles are consistent with well-known approaches to conflict de-escalation and negotiation, including the "tit for tat" strategy in which one adversary responds by being ready to mirror the most recent action(s) of the other, always being ready to respond to any positive actions in kind,[43] and **G**raduated **R**eciprocation **I**n **T**ension-reduction (GRIT),[44] in which one of the adversaries offers a unilateral cooperative move or series of moves. Reciprocity is invited, but conciliatory stances continue whether the other party responds with immediate reciprocity or not.

In support of these approaches, research shows that the behaviours that signal de-escalation of conflict can also lead to substantive shifts in attitudes.[45] This is because these behaviours implicate people's natural leaning toward cognitive consistency and a desire to reduce cognitive dissonance (a feeling of discomfort when inconsistency arises),[46] in order to maintain consistency between the attitudes they hold and the behaviours in which they engage—as long as they perceive that their attitudes and actions are voluntary.[47] A final point is that, given that intractable conflicts are often deep-rooted, it is also important to keep in mind that de-escalation is often a gradual, cumulative process, and one that may not always be linear in nature.[48] Thus, forbearance (i.e. patient self-control; restraint and tolerance) is also a necessary strategy to ensure that the negative cycle of distrust and conflict escalation will not be re-engaged should a setback be encountered.[49]

IMPLICATIONS FOR CIVIL-MILITARY COOPERATION

Understanding distrust and its role in conflict and conflict escalation is relevant to several real-world contexts, particularly those that bring together members of diverse groups,[50] those who may have very different goals, objectives, responsibilities, and focus, which are all common sources of conflict,[51] as well as parties with long histories of armed conflict or worse. One of these contexts involves international responses to complex crises; the complexity underlying most international crises, and the need for a wide range of expertise to address this complexity means a diverse array of groups populate these mission areas. This adds considerable ambiguity and may also increase the risks inherent in these missions.[52] For the armed forces of the world it means that "[w]henever a military force deploys somewhere, whether it is for a peace support operation, for humanitarian assistance, or for warfighting, there is always a civilian dimension to consider."[53] Yet that civilian dimension is not unidimensional.

Rather, it consists of a wide range of players, including local populations, foreigners, refugees and displaced persons, local and national officials, workers from governmental and international organizations, as well as various non-governmental and volunteer organizations. Not surprisingly these civilian components can often have very different goals and objectives.

In most militaries, it is the CIMIC personnel who constitute the primary interface between the military and the civilian components (i.e. governmental and non-governmental organizations, groups within the local population) in a mission area; indeed CIMIC is often the face of the military to the various civilian actors.[54] While the exact nature of their roles and responsibilities vary based on the mission type and the phase of the operation,[55] the primary focus of CIMIC is on "liaison, coordination, and facilitation of activities."[56] As such, CIMIC personnel are often key links between the military and civilian components, often functioning as boundary spanners within the mission (i.e. people who through their organizational role and/or personal characteristics reach across organizational boundaries).[57] The diversity among the many players in the mission area, as well as the coordination that needs to be achieved under conditions of complexity, ambiguity and risk, can be fertile breeding grounds for distrust and conflict, and can make CIMIC a challenging endeavour. Thus, although CIMIC personnel can be critical to facilitating trust and cooperation as boundary spanners and as trusted third parties in negotiations, notably, missteps, misperceptions and asymmetries in power may also fuel distrust and suspicion with the various players in the mission area.[58] This issue and its consequences are recognized in NATO CIMIC doctrine, which states: "Friction between… actors can delay, degrade or impair essential security, governance and development actions."[59] Interestingly, reflecting the complex nature of many of the relationships and interactions in a mission area, Myriame Bollen contends that it is possible for trust and distrust to exist simultaneously in CIMIC contexts.[60]

Based on this complexity, we recommend that the information concerning distrust, its distinction from trust, its relationship to conflict escalation, and strategies to mitigate distrust be integrated into CIMIC educational curricula. This addition need not be stand-alone; indeed, for maximum utility, it should be integrated into existing negotiation lectures and training. Given the destructiveness of distrust, an understanding of its nature and consequences, as well as mitigation strategies, should be a useful addition to the CIMIC toolbox.

CONCLUSION

Distrust is a particularly destructive interpersonal phenomenon that can derail the ability for parties to work together. Thus, understanding the dynamics of distrust, its relation to conflict escalation, as well as strategies for its mitigation, will be of value to CIMIC personnel who are key links between the military and civilian components in missions that are increasingly diverse, risky, complex, and ambiguous—fertile breeding grounds for distrust and conflict. Given the current and continued importance of CIMIC to operational effectiveness in complex mission spaces, it is imperative for personnel to understand the potentially destructive dynamics of distrust on interactions and to learn techniques to diffuse

Source: Combat Camera

Captain Ken McClure, Civil–Military Cooperation (CIMIC) Team 1 Leader, and Lieutenant Noah Robinson from Company XO, discuss their CIMIC requirements with Afghan villagers.

Source: Combat Camera

Members of the Armed Forces of the Republic of Ivory Coast and Canadian Armed Forces work together to improve interoperability as part of MINUSMA in Timbuktu, Mali, during Operation PRESENCE – Mali.

these situations when they arise. Based on this, we recommend the adding of information concerning distrust and distrust mitigation strategies into existing CIMIC educational curricula on negotiation. Indeed, while important for CIMIC, this information is useful for all Canadian Armed Forces personnel whose roles require an understanding of the range of interpersonal dynamics among the various players in a mission area. ❦

ABOUT THE AUTHORS...

Megan M. Thompson obtained her Masters and Ph.D. in Social Psychology from the University of Waterloo. She joined the Department of National Defence as a National Sciences and Engineering Research Council Postdoctoral Fellow, subsequently becoming a Defence Scientist at the Toronto Research Centre. Her research areas are collaboration within diverse teams, with a focus on trust, optimizing moral and ethical decision making in military operations, and stress and resilience in deployments. She has served on several international defence research panels in NATO and The Technical Cooperation Panel (Panel Chair, TTCP AG 26 The Comprehensive Approach to Operations; NATO HFM 227 Collaboration in the Comprehensive Approach to Operations; NATO HFM 179 Moral Dilemmas and Military Mental Health Outcomes; TTCP TP 10 Survival Psychology; TTCP TP 13 Psychological Health and Operational Effectiveness) and was keynote speaker at the NATO HFM 142 Symposium on "Adaptability in Coalition Teamwork." She has authored over 100 publications and is a Consulting Editor for the American Psychological Association journal *Military Psychology*.

Ritu Gill received her Ph.D. in social psychology from Carleton University. She started her career as a research manager in the Research Branch, Correctional Service Canada. Currently she is a defence scientist at the Toronto Research Centre where she is the Group Leader of the Influence Group within the Intelligence, Influence, and Collaboration Section.

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ENDNOTES

1. This article is based on Megan M. Thompson, Ritu Gill and Jay Weinbender, "Distrust, Conflict Escalation and Mitigation Strategies: An Application to Civil-military Cooperation," presented at the 11th Workshop on Distrust and Conflict Escalation in Organizations and Societies, Gronigen, The Netherlands, January 2016. **It was originally published as the Defence Research and Development Canada Scientific Letter, DRDC-RDDC-2017-L330, October 2017.** Used by permission of the Toronto Research Centre Director.

2. Thompson and Gill, "The Role of Trust in Whole of Government Missions," in *Mission Critical: Smaller Democracies' Role in Global Stability Operations*, eds. Christian Leuprecht, Jodok Troy and David Last (Montreal and Kingston: McGill-Queen's University Press, 2010), 225–244; Thompson, *A Conceptual Model to Understand Interagency Trust: and an Application to Comprehensive Approach (CA) Missions*, Scientific Report DRDC-RDDC-2014-R148 (Toronto: Defence Research and Development Canada, 2014); Gill and Thompson, "Trust and Information Sharing in Multinational-multiagency Teams," in *Information Sharing in Military Operations*, Advanced Sciences and Technologies for Security Applications, eds. Irina Goldenberg, Joseph Soeters and Waylon H. Dean (Cham, Switzerland: Springer, 2017), 81–99.

3. F. David Schoorman, Roger C. Mayer, and James H. Davis, "Organizational Trust: Philosophical Perspectives and Conceptual Definitions," *Academy of Management Review* 21.2 (April 1996): 337–340.

4. Roy J. Lewicki, Daniel J. McAllister, and Robert J. Bies, "Trust and Distrust: New Relationships and Realities," *Academy of Management Review* 23.3 (July 1998): 439.

5. Trudy Govier, "Is it a Jungle Out There? Trust, Distrust and the Construction of Social Reality," *Dialogue: Canadian Philosophical Review/Revue canadienne de philosophie* 33.2 (Spring 1994): 240.

6. Roger Fisher and Scott Brown, *Getting Together: Building Relationships as We Negotiate* (London: Penguin, 1988), 107.

7. T. K. Das and Bing-Sheng Teng, "Between Trust and Control: Developing Confidence in Partner Cooperation in Alliances," *Academy of Management Review* 23.3 (July 1998): 491–512; Daniel F. Jennings, Kendall Artz, L. Murray Gillin and Christodoulos Christodouloy, "Determinants of Trust in Global Strategic Alliances: AMRAD and the Australian Biomedical Industry," *Competitiveness Review* 10.1 (2000): 25–44; Rekha Krishnan, Xavier Martin and Niels G. Noorderhaven, "When Does Trust Matter to Alliance Performance?," *Academy of Management Journal* 49.5 (October 2006): 894–917.

8. Lewicki, McAllister and Bies, 439.

9. Lewicki and Edward C. Tomlinson, "Trust and Trust Building," in *Beyond Intractability*, eds. Guy Burgess and Heidi Burgess (Boulder: University of Colorado, Conflict Information Consortium, 2003); Angelika Dimoka, "What Does the Brain Tell Us about Trust and Distrust? Evidence from a Functional Neuroimaging Study," *MIS Quarterly* 34.2 (June 2010): 373–396; Roderick M. Kramer, "The Sinister Attribution Error: Paranoid Cognition and Collective Distrust in Organizations," *Motivation and Emotion* 18.2 (June 1994): 199–230; Kramer, "Divergent Realities and Convergent Disappointments in the Hierarchic Relation: Trust and the Intuitive Auditor at Work," in *Trust in Organizations: Frontiers of Theory and Research*, eds. Kramer and Tom R. Tyler (Thousand Oaks, CA: Sage, 1996), 216–245; Sim B. Sitkin and Nancy L. Roth, "Explaining the Limited Effectiveness of Legalistic 'Remedies' for Trust/Distrust," *Organizational Science* 4.3 (August 1993): 367–392.

10. Katinka Bijlsma-Frankema, Sim B. Sitkin and Antoinette Weibel, "Distrust in the Balance: The Emergence and Development of Intergroup Distrust in a Court of Law," *Organization Science* 26.4 (July-August 2015): 1018–1039.

11. Dimoka.

12. Ronald S. Burt and Marc Knez, "Trust and Third-party Gossip," in Kramer and Tyler, 68-89.

13. Lewicki, McAllister and Bies; see also Kramer, "Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions," *Annual Review of Psychology* 50 (1999): 569–598.

14. Bijlsma-Frankema, Sitkin and Weibel.

15. Jinsook Cho, "The Mechanism of Trust and Distrust Formation and their Relational Outcomes," *Journal of Retailing* 82.1 (2006): 25.

16. From Lewicki, "Understanding and managing distrust in intractable disputes," presented at the 11th Workshop on Distrust and Conflict Escalation in Organizations and Societies, Gronigen, The Netherlands, January 2016.

17. Lewicki, and Carolyn Wiethoff, "Trust, Trust Development, and Trust Repair," in *The Handbook of Conflict Resolution: Theory and Practice*, eds. Morton Deutsch and Peter T. Coleman (San Francisco: Jossey-Bass, 2000), 86–107.

18. Bijlsma-Frankema, Sitkin and Weibel, 1034.

19. Kramer and Karen S. Cook, eds., *Trust and Distrust in Organizations: Dilemmas and Approaches*, Russell Sage Foundation Series on Trust vol. 7 (New York: Russell Sage, 2004), 16.

20. Yaacov Schul, Ruth Mayo and Eugene Bernstein, "The Value of Distrust," *Journal of Experimental Social Psychology* 44.5 (September 2008): 1300.

21. Ibid., 1301.

22. Lewicki and Tomlinson.

23. Bijlsma-Frankema, Sitkin and Weibel, 1022.

24. Lewicki, and Wiethoff.

25. Kramer, "Trust and Distrust,"585.

26. Ibid.

27. Ibid., 588.

28. Bijlsma-Frankema, Sitkin and Weibel.

29. Ibid., 1034.

30. Lewicki.

31. Bijlsma-Frankema, Sitkin and Weibel.

32. Burgess and Burgess, "What Are Intractable Conflicts?" in *Beyond Intractability*, eds. Burgess and Burgess.

33. Susan L. Carpenter and W. D. J. Kennedy, "Developing an Effective Program of Conflict Management: Ten Principles," in *Managing Public Disputes: A Practical Guide for Professionals in Government, Business, and Citizen's Groups*, eds. Carpenter and Kennedy (San Francisco: Jossey-Bass, 2001), 52–65.

34. https://www.colorado.edu/conflict/peace/example/carp7506.htm ?

35. Susan L. Carpenter and W. D. J. Kennedy, "Developing an Effective Program of Conflict Management: Ten Principles," in *Managing Public Disputes: A Practical Guide for Professionals in Government, Business, and Citizen's Groups*, eds. Carpenter and Kennedy (San Francisco: Jossey-Bass, 2001), 59.

36. Ibid.; Louis Kriesberg and Bruce W. Dayton, *Constructive Conflicts: From Escalation to Resolution*, 5th ed. (New York: Rowman and Littlefield, 2012).

37. Ibid.

38. Lewicki, and Wiethoff.

39. Ibid.

40. Ibid., 98–99.

41. Kriesberg, *Constructive Conflicts: From Escalation to Resolution*, 1st ed. (Lanham, MD: Rowman and Littlefield, 1998).

42. Ibid.

43. Robert Axelrod, *The Evolution of Cooperation*, rev. ed. (New York: Basic Books, 2006).

44. Svenn Lindskold, "Trust Development, the GRIT Proposal and the Effects of Conciliatory Acts on Conflict and Cooperation," *Psychological Bulletin* 85.4 (July 1978): 772–793. The concept originates with the American psychologist Charles E. Osgood in "Reciprocal Initiative," in *The Liberal Papers* (New York: Doubleday/Anchor, 1962).

45. Kriesberg and Dayton.

46. Leon Festinger, *A Theory of Cognitive Dissonance* (Stanford: Stanford University Press, 1957); Eddie Harmon-Jones and Judson Mills, *Cognitive Dissonance: Perspectives on a Pivotal Theory in Social Psychology* (Washington, DC: American Psychological Association, 1999).

47. E.g. see Andrew J. Elliot and Patricia G. Devine, "On the Motivational Nature of Cognitive Dissonance: Dissonance as Psychological Discomfort," *Journal of Personality and Social Psychology* 67.3 (September 1994): 382-394.

48. Kriesberg and Dayton.

49. Ibid.

50. Lewicki and Tomlinson.

51. David I. Bertocci, *Leadership in Organizations: There Is a Difference between Leaders and Managers* (Lanham, MD: University Press of America, 2009), 74–85.

52. Thompson and Gill.

53. Graham M. Longhurst, "The Evolution of Canadian Civil-military Cooperation (CIMIC)," *Canadian Military Journal* 7.4 (Winter 2006–2007): 55-64.

54. Ibid.

55. CIMIC Centre of Excellence (CCOE), *CIMIC Field Handbook*, 4th ed. (The Hague: NATO CCOE, 2016); NATO MC 411/2, *NATO Military Policy on Civil-military Cooperation (CIMIC) and Civil-military Interaction (CMI)* (Brussels: North Atlantic Military Committee, May 2014).

56. Canadian Forces, *Policy on Civil Military Cooperation* (Ottawa: Department of National Defence, 2007), 3; Longhurst.

57. Faye Williams, "The Security Dilemma and Securitized Aid in Afghanistan," *The Undercurrent Journal: The Canadian Undergraduate Journal of Development Studies* 10.3 (Spring-Summer 2014): 20–28.

58. Longhurst.

59. NATO, 7.

60. Myriame T. I. B. Bollen, "Refugees in Albania: A Case of Civil-military Cooperation," in *Managing Civil-military Cooperation: A 24/7 Joint Effort for Stability*, eds. Sebastian J. H. Rietjens and Bollen (Burlington, VT: Ashgate, 2013), 51–66.

Lieutenant-General The Honourable Roméo Dallaire in the audience during the 2019 Veteran Trainers to Eradicate the Use of Child Soldiers (VTECS) graduation.

Source: Danny Abriel

CHILD SOLDIERS AS A COMPLEX SECURITY CHALLENGE: EDUCATING FOR STRATEGIC COMPLEMENTARITY

Lieutenant-Colonel Michael A. Rostek, CD, Ph.D., APF and Dr. Shelly Whitman, Executive Director, The Romeo Dallaire Child Soldiers Initiative

INTRODUCTION

The world remains a dangerous place. According to the latest security analysis, not only does the world remain uncertain and unpredictable, but also highly challenging in terms of both traditional and unconventional security concerns. Recent terrorist attacks in France, Belgium and Canada; military action in Ukraine, Syria and Iran, and political turbulence in Turkey, the United Kingdom and the United States, among other countries, exemplify that complexity and uncertainty remain dominant characteristics of the global security environment. Indeed, the acronym that perhaps best describes today's security environment is VUCA—volatile, uncertain, complex and ambiguous.[1] In this respect, globalization continues to be a key distinguishing phenomenon with important consequences for the international system— a geopolitical situation that will remain fluid and difficult to discern well into the future.[2] It is argued that a renewed ideological competition has emerged, a 21st century form of authoritarianism in Russia, China and other countries.[3] Alongside regional security challenges, including Iran and North Korea, and countering transnational terrorist organizations, such as the Islamic State and Boko Haram, weak and/or fragile states, also regarded as ungoverned spaces,[4] continue to pose a significant challenge to the international community.

Weak or fragile states are faced with a range of problems, including loss of physical control over territory, loss of the monopoly on the legitimate use of force, erosion of legitimate authority to make collective decisions, an inability to provide reasonable public services and an inability to interact with other states.[5] Such states are a concern, as they harbour and give rise to violent non-state actors[6] and are often the sites of bitter communal conflict, violent ethnic nationalism, militarism and at times endemic regional conflict. Canada continues to view weak or fragile states as a key security concern, noting that if left unaddressed, they pose a great risk. Indeed, Global Affairs Canada has adopted a leadership position in the stabilization and fragile states policy arena.[7] Furthermore, the Department of National Defence recognizes the threat ungoverned spaces may pose in the emerging security environment: "Canada must address the threat stemming from terrorism and the actions of violent extremist organizations, including in ungoverned spaces."[8]

A recent lesson learned from Canada's diplomacy, defence and development engagement in weak or fragile states is that no one organization or department has the capacity to deal with the entire scope and complexity of international security challenges alone. In recognition of this dilemma, the Canadian Armed Forces developed the comprehensive approach as a framework designed to competently deal with this complexity and uncertainty.

The comprehensive approach is a framework within which diverse situationally aware actors resolve complex issues through the purposeful coordination and deconfliction of their information, actions and effects.[9]

Today, the comprehensive approach also underpins the North Atlantic Treaty Organization's (NATO) operational approach to crises:

Lessons learned from NATO operations show that addressing crisis situations calls for a comprehensive approach combining political, civilian and military instruments. . . . The effective implementation of a comprehensive approach to crisis situations requires nations, international organisations and non-governmental organisations to contribute in a concerted effort.[10]

The examples above highlight both domestic and international security sector players' recognition for greater collaborative and cooperative measures in resolving complex security challenges today. It is clear that many security challenges will continue to require a wider range of personnel, skill-sets and resources than ever before. This not only stems from the often multidimensional nature of the challenges themselves, but also the wide range of players that could well be involved in such challenges as they unfold. Adversaries, both state and non-state, populations of varying religion and ethnicity, as well as a range of government, non-governmental and international organizations and institutions, allied, adversarial and neutral, may all come into play during the course of an operation, whether it is international or domestic in nature.

Accordingly, a capacity to effectively navigate through such diversity and ensure that interactions among a wide array of institutions and organizations are effective will be important to success. In particular, the capacity to harness a range of human assets in a coherent, collaborative and efficient manner will be ever more crucial to achieving lasting solutions to the challenges encountered in the years ahead.[11] One such challenge is the continued use of child soldiers, "any person below 18 years of age who is or has been recruited or used by an armed force or armed group in any capacity, including but not limited to children, boys and girls, used as fighters, cooks, porters, messengers, spies or for sexual purposes. It does not only refer to a child who is taking, or has taken part in hostilities."[12]

The exact number of child soldiers deployed worldwide today, by both state and non-state actors, is unknown but estimated to be in the hundreds of thousands.[13] Additionally, child soldiers are estimated to be in use by 7 state armies, 56 armed groups, in 14 states.[14] While there is an impressive legal framework in place to deal with this scourge,[15] there is a continued lack of progress internationally preventing their continued use. This lack of progress is recognized by the international community and is described as the inability to work across sectors in order to achieve headway in ending the use of child soldiers.[16] In response to this dilemma, an approach similar to the comprehensive approach, called strategic complementarity, has emerged.

Strategic Complementarity is the exchange of information, sharing of resources, coordination of strategic objectives and co-implementation of programs amongst governmental actors, security sector actors, non-governmental actors and civilian actors with a view to establishing collaboration to fully integrate their efforts to implement a specific program.[17]

The similarities between the two definitions is evident in that they both highlight the requirement to move beyond security sector actors using "legal, political, economic, social, medical, human rights, humanitarian, development and other domains and will require actors from all of these domains."[18] Furthermore, in relation to the child soldier case, it is acknowledge that "[f]or too long, disciplines have been operating in silos, rarely crossing the proverbial bridge to collaborate with 'the other.'"[19] As a result, the question remains: how does one approach strategic complementarity in the case of child soldiers? Who leads, what processes are used and which players should be involved? We argue that the answer to these questions must begin by building an educational foundation for strategic complementarity. In this paper, we will propose a new course which teaches, in broad terms, how to approach strategic complementarity and, more specifically, how it is applied to understanding how to address the prevention of the recruitment and use of child soldiers. We will begin with proposed learning objectives followed by a list of topics identifying their aim and scope. An important step in the delivery of any educational course is the reading list. However, for reasons of brevity, the reading list for each of the lectures will not be presented.

TEACHING STRATEGIC COMPLEMENTARITY

Learning outcomes are statements that indicate what learners will know or be able to do at the completion of a learning experience.[20] This course is designed to permit greater understanding with the following: the capabilities and constraints of public and private organizations; organizational and process knowledge needed to better develop strategic complementarity capabilities; technologies used and bridges between organizations to enable interoperability; and the importance of organizational culture in terms of the ability to develop competencies and capabilities for a strategic complementarity. The proposed learning outcomes for this course are

- analyze complexity within the contemporary security environment through the use of contemporary analytical frameworks such as STEEP/PESTLE/VUCA (analyzing);

- analyze the issue of child soldiers, including key definitions and concepts, actors, international legal framework, recruitment, moral and ethical dilemmas, standard operating procedures and rules of engagement;

- define strategic complementarity and summarize the lessons learned from historical and contemporary case studies (understanding);

- define horizontal management and evaluate the importance of trust—swift trust, trust-building, trust failure and repair as they relate to strategic complementarity (remembering/evaluating);

- discuss the importance and type of leadership required for successful employment of strategic complementarity (creating); and

- apply strategic complementarity to a complex security operation through the use of tools, techniques and methods designed for the tactical leader (applying).

The following is a list of courses designed to meet the learning outcomes listed above. The goal is to have learners more deeply understand the issues that underpin strategic complementarity and relate them directly to the case of child soldiers.

THE INTERNATIONAL SECURITY ENVIRONMENT

The aim of this lecture is to familiarize students with the key drivers and trends at work in the evolving international security environment, and the threats, challenges and opportunities they pose. It will situate the case of the use of child soldiers within this environment.

Recent decades have been witness to the development of an international environment marked by considerable uncertainty, volatility and increasingly rapid change. Old familiar rules of the road have faded, new ones are beginning to emerge, and events are unfolding at a speed and pace often exceeding the ability of decision makers to effectively react. Threats of regional conflict, dangers posed by insurgency and trans-national terrorism not only endure but, in some cases, are growing stronger. Problems of state failure and international organized crime persist. Natural disasters and the impacts of climate change increasingly mark the global landscape, and the use of child soldiers within this context continues unabated. Whether the present environment represents an anomaly or is in fact the shape of things to come is unclear. Still, attempts to understand and if possible anticipate future challenges are essential to effectively plan for the eradication of the use of child soldiers. This activity provides a basic introduction to the international security environment. The fundamental assumption behind this lecture is that a basic knowledge of this environment, its characteristics, and the trends and drivers at work within it, are essential not only for a solid understanding of the child soldier challenges which decision makers are likely to confront, but also for an appreciation of the opportunities and constraints surrounding the development of effective responses to such complex challenges in the years ahead.

SECURITY AND CHILD SOLDIERS

The aim of this lecture is to provide students with an understanding of the recruitment and use of child soldiers as a key security concern that must be addressed in the larger conflict resolution process.

Source: Laura Mulkerne

Lieutenant-General Dallaire speaking at the Vancouver Principles Workshop in Kigali in November 2019

Policy makers today are confronted with security challenges in a more complex and multifaceted security environment exemplified by the broadening (wider range of potential threats such as child soldiers) and deepening (moving from a state-centric focus down to the individual) of the concept of security. One of the security challenges represented by this broadening and deepening of security is the emergence of what Mary Kaldor labels as "new wars, conflicts that arise in the context of an eroding concept of territorially based authority of the states, in particular, of eroding state monopoly, legitimate violence and state sovereignty."[21] "Many of the new wars continue as a result of the availability of children as combatants."[22] It must be recognized that for new wars to come to an end, children must be seen and treated as positive agents and engaged in conflict resolution efforts.[23] Understanding the global reach of local actions today, an inability to effectively deal with how to prevent the recruitment and use of child soldiers may eventually impact longer term global security. Consequently, this lecture is intended to cover the use of child soldiers from a security perspective by highlighting the importance and reach of this issue and the international legal framework aimed at preventing the recruitment and use of child soldiers, debunking myths, and understanding where child soldiers are being recruited and used globally. The lecture will also explore security sector reform and disarming, demobilizing and reintegration programmes as they pertain to child soldiers.

FUNDAMENTALS OF STRATEGIC COMPLEMENTARITY

The aim of this lecture is to enable students to become familiar with the emergence and theoretical foundations of strategic complementarity.

In recent years, there has been a growing acknowledgement of the need to practice a more coordinated and holistic approach to complex security challenges. To this end, the Government of Canada and its various departments have been investigating the employment of new forms of collective action called the comprehensive approach, which is identical to strategic complementarity as noted above. Such approaches call for the inclusion of actors and agencies beyond the agencies and institutions of government in meeting complex security challenges—for example, non-governmental organizations, private military companies, publics, international organizations, and so on. Strategic complementarity recognizes that bounds of collective action often need to be extended beyond core stakeholders. This activity is a basic introduction to the concept of strategic complementarity. The fundamental assumption behind this lecture is that a basic knowledge of strategic complementarity, its antecedents and lessons learned will provide the vocabulary and conceptual foundation to enhance the understanding of this approach to collective decision making. This activity will also allow the student to gain a better appreciation of the complexities operating within both domestic and international operating environments. Further, it will provide tools for use during the tabletop exercise later in the course.

WICKED PROBLEMS

The aim of this lecture is to provide students with an overview of the challenges linked to modern policy making and decision making, often described as wicked problems, and how such challenges can be addressed.

Decision makers today are well aware of the challenges presented by the complex and uncertain international security environment. Globalization, the Internet and increasing global disparities underlie this new environment. This new normal presents emergent forms of disorder, massive uncertainties and volatility, unpredictable consequences and severe disruption with global impact. How do governments and organizations address these very complex international security discontinuities with far-reaching impact? These international security challenges are often best described as wicked problems. Wicked problems cannot be tackled in a linear way, nor can they be defined in isolation. Their effects are very often difficult to predict and require broad consensus to be addressed. Wicked problems are those problems that defy solution by traditional means. A wicked problem has innumerable causes, is tough to describe, and does not have a right answer. Environmental degradation, terrorism and poverty are examples of wicked problems. They are the opposite of hard, but ordinary, problems which people can solve in a finite time period by applying standard techniques. Not only do conventional processes fail to tackle wicked problems, but they may also exacerbate situations by generating undesirable consequences.[24] Naturally, many contemporary complex security challenges, including child soldiers, fall within the definition of wicked problems. This discussion gives students the opportunity to explore how wicked problems cross organizational and disciplinary boundaries and present themselves in today's international security environment.

LEADERSHIP AND STRATEGIC COMPLEMENTARITY

The aim of this lecture is to enable students to understand methods to operationalize strategic complementarity and the requirements to lead in its application.

In today's complex security environment, leaders at all levels need to understand the intricacies of working in this operational context. These new types of security operations often defy the dominance of single entity leadership (i.e. military or development) but rather require the employment of strategic complementarity. Here, a wide spectrum of players, stakeholders and resources are involved in resolving complex security operations which often take the form of wicked problems. The players and stakeholders involved in wicked problems often extend well beyond federal institutions and will include government agencies, military allies, non-governmental organizations and local communities, among others. To effectively lead in such diverse environments, modern leaders cannot rely solely on their technical skills. Rather, they need to develop the necessary *soft skills*, such as building trust, collaboration, conflict resolution, communication, flexibility, cultural awareness and interpersonal skills in order implement strategic complementarity effectively. Lastly, the leadership role of the Department of National Defence,[25] the Canadian Armed Forces,[26] and the Romeo Dallaire Child Soldiers Initiative,[27] will be addressed highlighting the successful integration of policy, doctrine and non-governmental organization effort and commitment in addressing the recruitment and use of child soldiers.

BUILDING INTERAGENCY TRUST

The aim of this lecture is to enable students to further develop their understanding of the theoretical foundations of trust and its importance to strategic complementarity.

As organizations become more culturally diverse and personnel are increasingly involved in complex multinational operations, the ability to work efficiently and effectively in temporary teams has become a critical issue. One of the major challenges for temporary teams is that real or perceived differences among teammates could impede the development and maintenance of trust, conceptualized in terms of the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.[28] Swift trust is a recently popularized construct and is defined as trust developed quickly even without direct and personal experience with another person. Swift trust has been increasingly posited in the literature as one way in which members of temporary teams can quickly form trust,[29] thereby enhancing the efficient and effective operation of the team. However, research suggests that a number of challenges may hinder collaboration among various actors in an international security operation who do not typically work with one another and come from very distinct organizational cultures. It has been reported that several differences in organizational factors (such as organizational strategies, systems, structure and staffing) contribute to a lack of inter-organizational trust, and there are instances where trust had been violated (e.g. perceptions of a lack of competence

and/or goodwill and concerns regarding the partners' interests in the mission). The importance of trust underpinning effective collaboration cannot be overstated, as more international security operations are expected to be conducted in a comprehensive manner. Besides building and maintaining trust at the personal and inter-organizational levels, trust violation and repair mechanisms are equally important, demanding further understanding as they relate to the efficient and effective operation of organizations in an international security environment.

OPERATIONALIZING STRATEGIC COMPLEMENTARITY

The aim of this lecture is to enable students to understand the methods for operationalizing and requirements for leading in the application of strategic complementarity.

Strategic complementarity is not an end in itself but a means to an end. In operationalizing the concept, the aim is not solely to build new structures and hierarchies, but also to achieve better outcomes and to resolve a crisis in a sustainable way. Therefore, it is important to develop adaptive and flexible mechanisms, tools and processes for comprehensive crisis management, have the competencies of institutions and agencies clearly delineated, and be able to ally a systematic and robust programme of exercising and training of both civilian and military professionals. The term *operationalize* is used here in its public policy meaning (put theory into practice or implement a policy) and in its organizational meaning (to convert strategy into tactical actions). To *operationalize* also means vertical and horizontal integration. Furthermore, leaders will require an understanding of systems thinking as it relates to child soldiers. You can only understand a system by contemplating the whole—how the individual pieces being studied interact with the other components of the system.[30] Therefore, systems thinking may result in strikingly different conclusions than traditional forms of analysis, especially when studying dynamically complex issues such as child soldiers.

COMPLEX DECISION MAKING AND STRATEGIC COMPLEMENTARITY

The aim of this lecture is to enable students to develop their understanding of the theoretical and applied foundations of decision making within complex security challenges.

Decision making is defined as the cognitive process of making a choice from a number of alternatives or courses of action to achieve a desired result.[31] Decision making is also fundamentally a people process which is executed individually, collectively or in some combination.[32] This session will explore decision making theory followed by a review and discussion of the traditional decision making models (i.e. rational decision making). However, it is argued that all decision making includes some degree of uncertainty, and the emergence of a more complex and uncertain security environment has exacerbated the difficulties associated with both individual and collective decision making in this environment. Organizations have become more culturally diverse and personnel are increasingly involved in complex multinational operations designed to tackle complex security challenges. "Making better and wiser decisions about future directions and strategy today is a fundamental aim of strategic foresight."[33] Increasing the depth of knowledge available to underpin decision

making about strategy options by analyzing a combination of past, present and future information can strengthen foundational capability for quick reaction, resilience, robustness and adaptability within an organization.[34] Foresight-infused strategy, comprehensive by nature, is a strategy developed using foresight approaches with people and collaboration at its core.[35] Decision making and use of strategic foresight to support strategic complementarity in our increasingly complex and uncertain world will be explored during this lesson.

ORGANIZATIONAL CAPABILITIES

The aim of this lecture is to enable students to understand the nature and characteristics of the government, security, non-governmental and civilian actors involved in making strategic complementarity work.

This lecture focuses on the characteristics, such as the functions and fundamentals, of the key government, security, non-governmental and civilian actors that are involved in complex security challenges (e.g. eradication of the use of child soldiers). Each security challenge will differ from the next, as will the level and number of organizations involved. The case of child soldiers is not excluded from this reality. Organizations from security, peace, stability and relief backgrounds have different cultures, values, codes of conduct and methods of operation. Their mandates and missions are often unique, as are their lexicon and acronyms. Cooperation among this mosaic remains largely personality based, which in and of itself presents a range of challenges. So, this lecture is designed to establish a foundation from which one may further understand the nature and number of organizations involved in a complex security challenge, namely, the elimination of the recruitment and use of child soldiers. The end state is to promote greater cooperation, which is often the determining factor in the success or failure of such complex challenges.

CONCEPT IN ACTION

This session is designed to provide the student with a first-hand view of strategic complementarity and related issues from a practitioner's view point.

"Strategic Complementarity is the exchange of information, sharing of resources, coordination of strategic objectives and co-implementation of programs amongst governmental actors, security sector actors, non-governmental actors and civilian actors with a view to establishing collaboration to fully integrate their efforts to implement a specific program."[36] An experienced guest speaker representing one of the actors listed above will be invited to discuss their experiences with strategic complementarity. The guest speaker will have domestic and/or international experience with strategic complementarity. This session will allow the students to explore experiences and lessons learned in employing strategic complementarity.

EMPLOYING STRATEGIC COMPLEMENTARITY

This tabletop exercise session is designed to provide the students with a first-hand experience in applying strategic complementarity as a member of a planning team.

Source: Danny Abriel

2019 VTECS graduates with Lieutenant-General Dallaire and Dr. Shelly Whitman

Source: Greg Kessler

Lieutenant-General Dallaire, Dr. Shelly Whitman and Ishmael Beah at the New York City Intact Financial offices for an event

Strategic complementarity postulates that the complexity and uncertainty of today's security environment demands that diplomatic, security, development and commercial resources, aligned with those of numerous other agencies, be coordinated through an integrated plan and then applied in areas of operations as needed. Planners must think clearly and deeply about the situation, the problem and the options for solutions, especially in light of the nature of today's security environment. The operational planning process, defined as "a coordinated process to determine the best method of accomplishing assigned tasks and to plan possible future tasks,"[37] provides the planning team with a relatively simple and systematic approach to planning for today's security challenges. The case study is based on the use of child soldiers in the Syrian war.[38]

CONCLUSION

The international security environment continues to be volatile, uncertain, complex and ambiguous, presenting a range of security challenges. From a resurgence of global ideological competition, to regional security threats, to countering terror, we continue to live in a dangerous world. In addition, fragile and weak states—ungoverned spaces—continue to harbour and give rise to violent non-state actors and are often the sites of bitter communal conflict, violent ethnic nationalism, militarism and at times endemic regional conflict. From within this security environment we are witness to the persistent recruitment and use of child soldiers and the lack of progress internationally in preventing this ongoing practice. This lack of progress is recognized by the international community and is described as the inability to work across many sectors in order to achieve headway in ending the recruitment and use of child soldiers. This acknowledgement of the need to practice a more coordinated

and holistic approach to the complex security issue of understanding how children are used as soldiers is defined as strategic complementarity—collaboration across government, security, non-governmental and civilian actors in order to implement lasting solutions for ending the recruitment and use of child soldiers.

But how does one approach strategic complementarity in the prevention of recruitment and use of child soldiers? Who leads, what processes are used and which players should be involved? The answer to these questions lies in part with first building an educational foundation for strategic complementarity. Gaining a broader and deeper understanding of the issues underpinning strategic complementarity, for example understanding wicked problems, systems thinking, interagency trust building, failure and repair, complex decision making and leadership within complex security missions, will facilitate the understanding and process to achieve a more integrated framework, thus allowing all sector actors to work horizontally, beyond their hierarchical silos. The course proposed above covers theoretical and practical application of processes promoting strategic complementarity as they relate to the case of child soldiers. The creation and delivery of this foundational course will allow for greater focus on creating the environment that values and seeks exchange of information, sharing of resources, coordination of strategic objectives and co-implementation of programmes across government, security, non-governmental and civilian actors in the pursuit of eradicating the use of child soldiers. The course is designed to challenge organizational cultures to achieve greater levels of coordination and collaboration, thereby integrating as a whole, with a view to generating lasting solutions to combat the complex security challenge of using children in armed conflict today and tomorrow.[39]

ABOUT THE AUTHORS...

Dr. Shelly Whitman is the Executive Director of the Roméo Dallaire Child Soldiers Initiative and has been instrumental in creating a number of international agreements and policies on the protection of children. As the Intact Insurance Senior Fellow and a recognized subject-matter expert, she is regularly called upon to speak to global forums and provide media commentary on issues involving children, peace and security. In 2019, she was named to Public Safety Canada's National Expert Committee on Countering Radicalization to Violence. In 2017 she was also called upon by the Government of Canada to assist in co-creating the Vancouver Principles on Peacekeeping and the Prevention of the Recruitment and Use of Child Soldiers. Previously, Shelly worked on the Inter-Congolese Dialogue and the OAU Rwanda Genocide Report, and she enjoyed an academic career in Canada and Botswana.

Lieutenant-Colonel Michael A. Rostek, CD, Ph.D., APF, is a 40-year veteran of the Canadian Armed Forces. He retired from the Regular Force in 2011 and continues to serve as a Reservist in the capacity of Editor-in-Chief of the *Canadian Army Journal*. He has held a number of academic and research leadership positions, primarily in the defence and security fields of study. He teaches and advises on the theory and practice of strategic foresight and has extensive experience teaching online. He is currently an Adjunct Professor at Ontario Tech University and maintains sessional faculty status at the Royal Military College of Canada and St. Lawrence College.
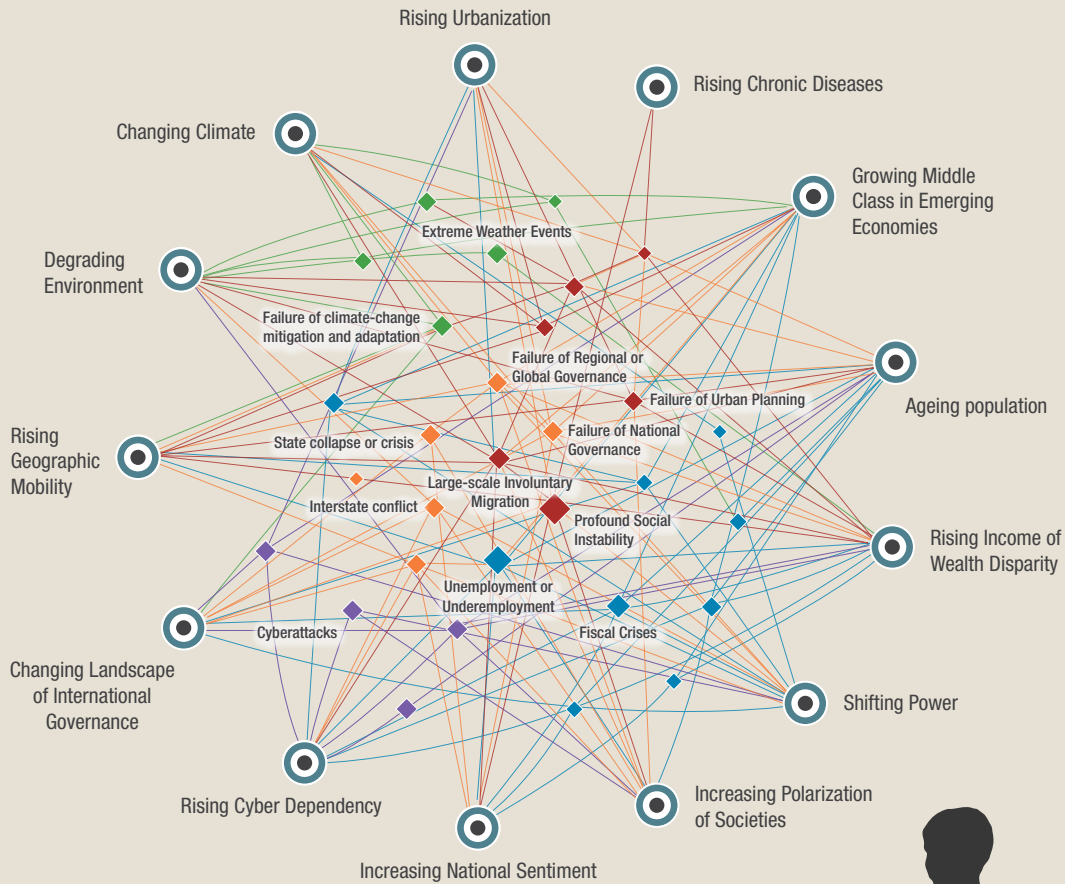
ENDNOTES

1. Lieutenant Colonel Brian C. Scott, *Broadening Army Leaders for the Volatile, Uncertain, Complex and Ambiguous Environment* (Carlisle: United States Army War College, 2012), http://handle.dtic.mil/100.2/ADA561511.

2. Canadian Forces, *The Future Security Environment 2013-2040* (Ottawa: Chief of Force Development, 2014), 2.

3. Ronald O'Rourke, "A Shift in the International Security Environment: Potential Implications for Defense—Issues for Congress," in *Russia's Resurgence,* ed. Douglas C. Lovelace, Jr., Terrorism: Commentary on Security Documents 146 (New York: Oxford University Press, 2017), 13.

4. "Ungoverned spaces therefore exist where territorial state control has been voluntarily or involuntarily ceded in whole or part to the actors other than the relevant legally recognized sovereign authorities." Anne L. Clunan and Harold A. Trinkunas, *Ungoverned Spaces: Alternatives to State Authority in an Era of Softened Sovereignty* (Stanford: Stanford University Press, 2010), 17.

5. J.J. Messner, ed., *Fragile States Index 2016* (Washington: Fund for Peace, 2016), http://fundforpeace.org/fsi/2016/06/27/fragile-states-index-2016-annual-report/.

6. O'Rourke, 13.

7. "The Peace and Stabilization Operations Program," Global Affairs Canada, accessed 21 August 2018, http://international.gc.ca/world-monde/issues_development-enjeux_developpement/response_conflict-reponse_conflits/psop.aspx?lang=eng.

8. Minister of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa: Department of National Defence, 2017), 57.

9. Canadian Forces, *The Comprehensive Approach Concept* (Ottawa: Chief of Force Development, 2010), 1.

10. "A 'Comprehensive Approach' to Crises," North Atlantic Treaty Organization, accessed 22 August 2018, http://www.nato.int/cps/nl/natohq/topics_51633.htm.

11. Stewart Patrick and Kaysie Brown, *Greater than the Sum of Its Parts? Assessing 'Whole of Government' Approaches to Fragile States* (Boulder: Lynne Rienner, 2007), 58.

12. UNICEF, "The Paris Principles: Principles and Guidelines on Children Associated with Armed Forces or Armed Groups," https://www.unicef.org/emerg/files/ParisPrinciples310107English.pdf.

13. Franklyn Bai Kargbo, "International Peacekeeping and Child Soldiers: Problems of Security and Rebuilding," *Cornell International Law Journal 37.3 (2004):* 487.

14. Virginia Gamba, Special Representative of the Secretary-General for Children and Armed Conflict, *Children and Armed Conflict: Report of the Secretary General, A/72/865–S/2018/465 (New York: United Nations, May 2018).*

15. Office of the Special Representative of the Secretary-General for Children and Armed Conflict, *The Six Grave Violations against Children During Armed Conflict: The Legal Foundation* (New York: United Nations, November 2013).

16. Shelly Whitman, "Police Leadership Course, Unit 2: Understanding the Security Dimension to Preventing the Use of Children by Armed Groups, Forces and Gangs" (Halifax: The Roméo Dallaire Child Soldiers Initiative, 2017), slides 60-69.

17. Ibid., slide 64.

18. Ibid.

19. Shelly Whitman, Tanya Zayed and Carl Conradi, *Child Soldiers: A Handbook for Security Sector Actors* (Halifax: The Roméo Dallaire Child Soldiers Initiative, 2014), 35.

20. Council of Ontario Universities, *A Guide to Learning Outcomes, Degree Level Expectations and the Quality Assurance Process in Ontario: Ensuring the Value of University Degrees in Ontario* (Toronto: Council of Ontario Universities, 1 November 2011), 10.

21. Mary Kaldor, *New and Old Wars: Organized Violence in a Global Era* (Stanford: Stanford University Press, 1999), 4.

22. Peter W. Singer, *Children at War* (New York: Vintage Books, 2006).

23. Charlotte Wagnsson, Maria Hellman and Arita Holmberg, "The Centrality of Non-traditional Groups for Security in the Globalized Era: The Case of Children," International Political Sociology 4.1 (1 March 2010): 4.

24. John C. Camillus, "Strategy as a Wicked Problem," *Harvard Business Review* (May 2008).

25. Government of Canada, *Vancouver Principles on Peacekeeping and The Prevention Of The Recruitment and Use Of Child Soldiers* (Vancouver, 2017); *Strong, Secure, Engaged.*

26. Minister of National Defence, *Canadian Forces Joint Doctrine Note: 2017-01 Child Soldiers* (Ottawa: Department of National Defence, 2017).

27. See The Romeo Dallaire Child Soldiers Initiative, https://www.childsoldiers.org/.

28. Roger C. Mayer, James H. Davis and F. David Schoorman, "An Integrative Model of Organizational Trust," *The Academy of Management Review* 20.3 (1995): 709–734.

29. Debra Meyerson, Karl E. Weick and Roderick M. Kramer. "Swift Trust and Temporary Groups," in *Trust in Organizations: Frontiers of Theory and Research,* ed. Rodrick M. Kramer and Tom Tyler (Thousand Oaks: Sage Publications, 1996).

30. Peter Senge, *The Fifth Discipline,* (New York: Doubleday, 2006), 6.

31. Fred C. Lunenburg, "The Decision Making Process," *National Forum of Educational Administration and Supervision Journal* 27.4 (2010): 2.

32. Ibid., 1.

33. Maree Conway, "Strategic Planning Revisited: A Futures Perspective," World Futures Society Annual Conference 2005, https://static1.squarespace.com/static/580c492820099e7e75b9c3b4/t/586c3efacd0f683a8aea545b/1483489024685/Strategic+Planning+Revisited.pdf, accessed 22 August 2018, 18.

34. Ibid.

35. Conway, *Foresight Infused Strategy Development,* (Melbourne: Thinking Futures, 2016), 101.

36. Whitman, slide 64.

37. Canadian Forces, *Canadian Forces Joint Publication 5.0: The Canadian Forces Operational Planning Process,* (Ottawa: Canadian Forces Experimentation Centre, 2008), 3–1.

38. United Nations Security Council, *Report of the Secretary-General on Children and Armed Conflict in the Syrian Arab Republic* (New York: United Nations, 2014).

39. A very successful prototype of this course was delivered at Saint Paul University (Conflict Studies) in the winter term, 2017.

C2I Approach to Ending the Use of Child Soldiers:
Coordinate. Collaborate. Integrate.

LIEUTENANT-COLONEL MICHAEL A. ROSTEK, CD, PH.D., APF

NGO/Government

Police/Prison

Military

Medical

STRATEGIC COMPLEMENTARITY

The Construct

> The exchange of information, sharing of resources, coordination of strategic objectives and co-implementation of programs amongst actors.

> View to establishing collaboration to **fully integrate** their efforts to implement a specific program.

> **Horizontal** rather than vertical management of child soldier issue.

> Understand the "other" (values, interests, culture, restrictions, methods) through dialogue and mutual understanding.

> Understand that the issue of child soldiers is **not just a security or military problem** requiring a purely military/security solution.[6]

"So, the whole construct of what we do is train military and police forces, firstly to work together, secondly to work with the NGO world, which we call strategic complementarity. . . ."

— *Romeo Dallaire, New African, 2017*

Diagram labels

Rising Urbanization

Rising Chronic Diseases

Changing Climate

Growing Middle Class in Emerging Economies

Extreme Weather Events

Degrading Environment

Failure of climate-change mitigation and adaptation

Failure of Regional or Global Governance

Failure of Urban Planning

Ageing population

Rising Geographic Mobility

State collapse or crisis

Failure of National Governance

Large-scale Involuntary Migration

Interstate conflict

Profound Social Instability

Rising Income of Wealth Disparity

Unemployment or Underemployment

Changing Landscape of International Governance

Cyberattacks

Fiscal Crises

Shifting Power

Rising Cyber Dependency

Increasing Polarization of Societies

Increasing National Sentiment

The Environment[1]

> World remains **complex, uncertain and interconnected.**

> Security concerns are both traditional and unconventional.

> Described as VUCA—volatile, uncertain, complex and ambiguous.[2]

> Globalization continues to be a key distinguishing phenomenon.

> Violent extremism is a global scourge undermining civil society and destabilizes entire regions.[3]

> Weak or fragile states give rise to violent non-state actors and pose great risk.[4]

> No one organization or department can deal with the **scope and complexity** of international security challenges, including child soldiers (used by 7 state armies, 50 armed groups, in 14 countries).[5]

References:

1. World Economic Forum, 2016, The Global Risks Report 2016, 11th Edition, World Economic Forum: Geneva, Figure 4: The Risks-Trends Interconnections Map 2016.
2. Lieutenant Colonel Brian C. Scott, 2012, "Broadening Army Leaders for The Volatile, Uncertain, Complex and Ambiguous Environment", Carlisle: United States Army War College.
3. Minister of National Defence, 2017, *Strong, Secure, Engaged: Canada's Defence Policy*, Ottawa: Department of National Defence.
4. Ronald O'Rourke. 2016. A Shift in the International Security Environment: Potential Implications for Defense—Issues for Congress. Washington, Congressional Research Service.
5. Office of the Special Representative of the Secretary General for Children and Armed Conflict. 2015, 2015 Annual Report of the Secretary-General on Children and Armed Conflict- Summary, retrieved July10, 2017 http://www.un.org/ga/search/view_doc.asp?symbol=A/70/836&Lang=E&Area=UN
6. Shelly Whitman, 2017. "Police Leadership Course". Unit 2: Understanding the Security Dimension to Preventing the Use of Children by Armed Groups, Forces and Gangs. Slides 60-69. Halifax: The Roméo Dallaire Child Soldiers Initiative.

FACT SHEET: STRATEGIC COMPLEMENTARITY AND CHILD SOLDIERS

The Actors

> Require **actors from all domains**, working in **collaboration**, to end the use of child soldiers.

> **Government:** Host Nation Governments; Foreign Governments (Canada); Regional Actors (ECOWAS); Continental (AU); International (UN).

> **Security Sector:** Domestic and Foreign security sectors (Armed Forces, Police, Corrections); Regional (Continental (AU, PKO forces); International: UN/Coalition Armed Forces)

> **Non-Governmental:** Host Nation NGOs (local churches, unions, protection groups); Regional, Continental, International NGOs (War Child, Africa Watch); Humanitarian and Development (ICRC, UNICEF)

> **Civilian:** Community Groups, MNC, Philanthropy).[7]

> Civilian Actors
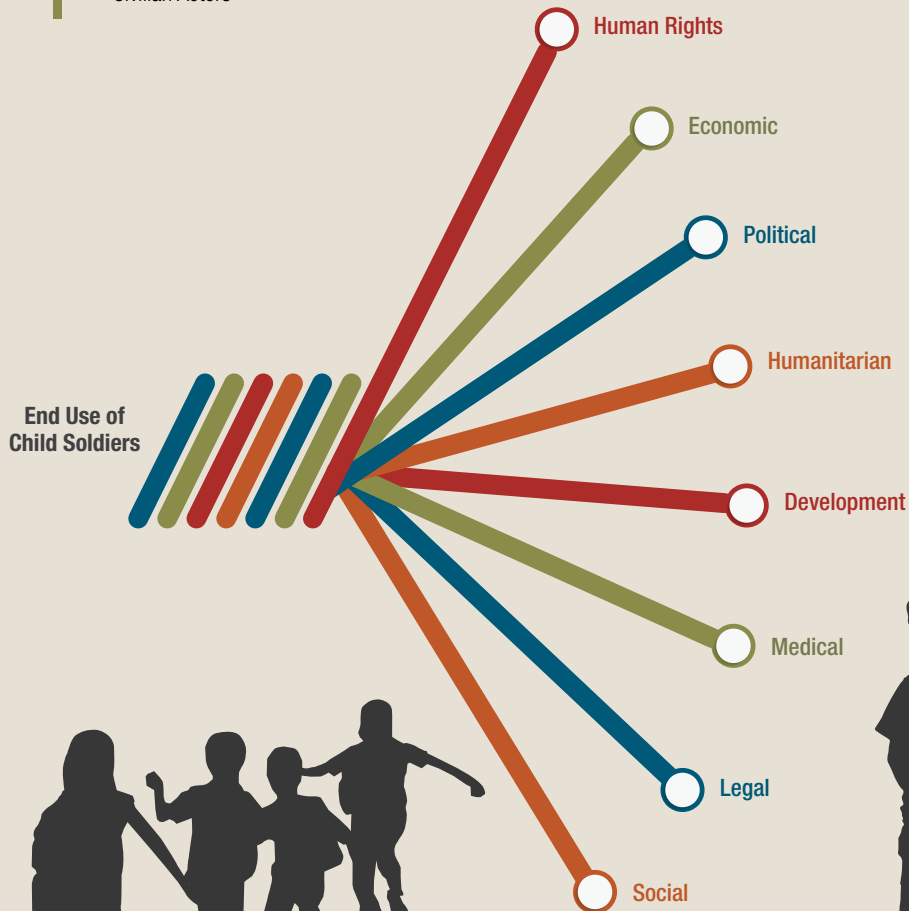
End Use of Child Soldiers

- Human Rights
- Economic
- Political
- Humanitarian
- Development
- Medical
- Legal
- Social

"Strategic complementarity is the exchange of information, sharing of resources, coordination of strategic objectives and co-implementation of programs amongst a range of actors, from child protection agencies to multilateral organizations, local and national social service providers, legal bodies, police, military and security sectors, with a view to establishing more effective collaboration to prevent the recruitment and use of children as soldiers."

— *The Roméo Dallaire Child Soldiers Initiative*

LIAISE → **COORDINATE** → **COOPERATE** → **INTEGRATE**

The Tools

> Develop relationships and build integrated plans and programs at **strategic, operational and tactical levels.**

> Be a good partner and ensure you fulfill your part of agreements, actions.

> Never make a promise you cannot keep and insist on same from others.

> **Liaise, coordinate, cooperate and then integrate** all actions relating to child soldiers.

> Let perceived neutral organizations like the UN take the lead.

> Sustained community engagement necessary.[8]

> Requires transformational leadership, teambuilding and soft skills.[9]

> **Educate for strategic complementarity:** understand wicked problems, use systems thinking, build interagency trust.

References:

7. Ibid
8. Ibid
9. Bill Bently and Gracia Scoppio, 2011, *Leadership in Comprehensive Operations*, Kingston: CDA Press.

The Commander of the Canadian Army visits a command post during Exercise UNIFIED RESOLVE 20 to receive an overview and progress report on the exercise in the Garrison Petawawa training area.

Source: Combat Camera

A LEARNING ARMY: ABILITY GROUPING MOVING FROM TRAINING TO EDUCATION IN THE CANADIAN ARMY

Darryl G. Cathcart and Lieutenant-Colonel John Joseph (Joe) Parkinson

INTRODUCTION

The Canadian Army trains soldiers and officers extremely well. The Army Individual Training System has been quite successful for a long time, and some basic training concepts and educational philosophies have remained unchanged for decades. Nevertheless, there is an institutional tendency to link training and education together as if they were interchangeable synonyms, which is a disservice to the efforts of those who instruct Canadian Army soldiers and officers in a myriad of schools across Canada. This exploratory article aims to highlight how incorporating a different approach to professional military education may increase student motivation, better enable learning outcomes and provide greater organizational flexibility.

B-GL-300-008/FP-001, *Training for Land Operations*,[1] describes education as conveying general bodies of knowledge and the development of habits of mind applicable to a broad spectrum of endeavours. Education as an endeavour of professional military education can be defined through cognition and fosters breadth of view, diverse perspectives, critical analysis, abstract reasoning, comfort with ambiguity and uncertainty and innovative thinking, particularly with respect to complex, non-linear problems.[2] Training, on the other hand, provides the technical and procedural knowledge and skills required to perform assigned duties. From a military perspective, training begins as the development of a predictable response to a predictable situation and, where relevant, seeks to help people develop the mental agility and initiative to react effectively to the unexpected.[3] In summary, for the military, education provides a base of knowledge and intellectual skills by which information may be interpreted and sound judgement exercised. It enhances the ability to formulate a reasoned response to a broad spectrum of challenges and situations. That contrasts with training, which, for the military, focuses largely on the instruction of personnel to enhance their capacity to perform specific functions and tasks.[4]

For the purpose of this article, training is defined as "the action of teaching a person a particular skill or type of behaviour,"[5] whereas education is defined as the "process of receiving or giving systematic instruction, especially at a school or university."[6] The distinction between training and education is often clouded through the lens of the leadership within the army institution delivering the assigned curriculum. In other words, constraints such as time, financial allocations, student population, assigned tasks and instructor qualifications have a direct impact on how Canadian Army soldiers and officers approach learning, as there is a tendency to treat all program content as a skill. Further, learning style is defined as the general tendencies to "prefer to process information in different ways,"[7] as students have different ways of acquiring new information.

BACKGROUND

Training for Land Operations includes a training philosophy; eleven principles of training; a chapter on Canadian Army professional development that addresses education, training, experience and self-development; a chapter on the Canadian Army Training System and a chapter on Canadian Army individual training and professional military education. All of these elements address the topics of training and education and, perhaps more importantly, how to train and educate in the broad sense; however, they do not address how to learn. While that publication discusses learning, it does so only in the sense of "learning environment," "learning method," "learning organization" and "lessons learned." It does not address how soldiers learn and thereby how best to train and educate them. Nevertheless, it does provide some guidance on fostering a learning environment.

> **Foster a Learning Environment.** Soldiers learn best by doing and reflecting upon what has been done. Once provided with the necessary basic skills and job aids, training should encourage creative and innovative solutions. Mistakes should be allowed, as at least as much can be learned from them as the rare case of a near perfect solution. All soldiers, but especially all commanders, must be developed to accept professional criticism. To maximize the learning value of training, discovery by doing, followed by self-assessment, feedback and exposure to multiple solutions are all necessary.[8]

This is found in the first chapter under the train to adapt training principle. The problem is that it still does not inform us as to how soldiers learn. It does, however, provide a clue to how learning happens: "Soldiers learn best by doing and reflecting upon what has been done."[9]

To get more military guidance on how soldiers or people learn, we have to look at the *Manual of Individual Training and Education*, which consists of 14 volumes that provide guidance on the implementation of the Canadian Forces Individual Training and Education System.[10] As with *Training for Land Operations*, the scope tends to be broad and, unfortunately, somewhat shallow. Volume 4 provides the most guidance regarding learning by giving four examples of learning characteristics in order to select instructional strategies:

a. when learners have varied levels of subject matter competence, self-paced learning may be preferable to group-paced instruction;

b. computer skills training should be considered if computer-based training is to be used with learners who have no ability in this area;

c. instructor-led approaches are generally preferable to technology-based training when the target population is small; and

d. if the target group is geographically dispersed, distributed learning should be considered as a means of eliminating travel costs.[11]

Like in most professions, Canadian Army officers develop and refine their professional abilities based on a structured learning pathway that extends from introductory knowledge to advanced education. Canadian Army officers transition through distinct phases of the Canadian Forces Professional Development System to further develop their intellectual skills and personal knowledge base.[12] The Canadian Forces Professional Development System spans five distinct periods, increasing in complexity from developmental period (DP) 1 to 5, and provides the framework to enable the timely instruction of knowledge required throughout an officer's career. A key component in army professional development occurs during the second phase, DP 2, where officers who successfully complete this step begin the trajectory to more complex employment opportunities. In terms of an individual learning strategy, this crucial stage also sees officers transition from training to education.

The first learning characteristic identified above is of particular interest to the Army, especially with respect to army officer DP 2 training and education. For DP 1 officer training and education, all learners have generally the same level of subject matter competence because the material is generally new to all learners in the case of the Basic Military Officer Qualification and the Basic Military Officer Qualification – Army, or because the focus is relatively narrow for all the DP 1 occupational training and education aspects. As a result, the first characteristic is not really applicable.[13]

This changes for DP 2—although for certain corps and branches there may be occupational training and education—when Canadian Army common training and education, which most if not all officers have to take, needs to teach learners varied levels of subject matter competence. Although the *Manual of Individual Training and Education*, Volume 4 indicates that "when learners have varied levels of subject matter competence, self-paced learning may be preferable to group-paced instruction"[14] as a learning characteristic, the manual does not provide any strategies to actualize this in practical terms.

SCOPE

This article will discuss a non-traditional approach to adult education in the Canadian Army—ability grouping. Ability grouping is defined as the placement of students in similarly assessed knowledge groups based on initial screening. Previous research has identified types of ability groupings such as streaming, banding, mixed ability and within-class[15] (or between class, cross-grade and special grouping[16] to simply heterogeneous and homogenous groupings[17]). The exploration of ability grouping in military education has not been fully explored, and given the increasing complexities of contemporary operations, there may be an interest in examining how officers are receiving systematic instruction. This article posits that the initial gateway for ability grouping officers during education is at the DP 2 level—which in the Canadian Army translates to instruction on the Army Operations Course (AOC)—by showing how the elements of expectancy-value theory[18] contribute to an adult education methodology, by discussing the implications of instructional leadership within professional military education institutions, and by demonstrating how ability grouping has

a positive impact on student learning. This persuasive essay is set within the context of instruction of the Primary Reserve serial of AOC at the Canadian Army Command and Staff College (CACSC).

MOTIVATION TO LEARN

Motivation in education emanates from a number of different areas where the application of relevant theories in a military learning environment becomes shrouded in an ordered fog. While soldier scholars such as Colonel Bernd Horn argue that "education arms the warrior to deal with the ability and complexity"[19] in a contemporary environment, there is often resistance from those charged with developing and implementing curriculum in Canadian Army schools to adopt alternate learning strategies. A central friction point is the hierarchical nature of teaching and learning within the Canadian Army, whereby the inclusion of more applicable adult education theories places some instructors in unfamiliar settings. The duality of teaching and learning within an army structure distorts the role of the student, moving from a consumer of education to one who is both intrinsically and extrinsically rewarded for completion of courses. Expectancy-value theory, as presented by Allan Wigfield and Jacquelynne Eccles, argues that the individual learner's choice, persistence level and overall performance is a great indicator of how they will perform academically and how the outcome will be valued by the student. On AOC, there is little opportunity for students to choose how to learn during exercises or demonstrations; specialist positions and staff roles are thrust upon them. The backdrop of AOC provides an opportunity to explore matching the elements of expectancy-value theory with the principles of ability grouping. The intersection of training and education with DP 2 objectives as presented on AOC may provide instructors with the opportunity to pursue a more adaptable adult education methodology to achieve the desired learning outcomes, given that the majority of AOC content can be considered education.

Education is not a static activity. The relationship between the learner, curriculum and instructor must be nurtured and continually evaluated. This regular evaluation provides CACSC instructional staff with an opportunity to refine the adult education approach, learning from previous AOC courses with a view to enhancing the next. A central element of this review is investigating the individual challenges and successes of the student body. Expectancy-value theory provides the theory whereby the student approach can be measured. At the heart of expectancy-value theory is the role of the individual learner and their perception of ability, whether a negative or positive understanding, coupled with the expectancy of outcome as it intersects with learning.[20] The concept of including a review of the learner's style during a curriculum revision provides a mechanism to maintain content relevancy and operational currency. In part, the outcome of this review is an assessment of the learning cost, defined as "what an individual has to give up to do a task, as well as the anticipated effort one will need to put into task completion."[21] The implication is that course objectives can be better matched to student outcomes. In other words, a more complete understanding of the student's motivation will provide evidence for relevant and impactful changes to curriculum and instructional approach, while simultaneously recognizing the unique challenges of career progression in the Primary Reserve.

ABILITY GROUPING

One strategy to address such a learning characteristic and allow a more self-paced learning approach is ability grouping. Much of the literature on ability grouping focuses on primary and secondary education, and with limited post-secondary focus. The reason for this is unclear, but one possible reason could be the self-selective nature of post-secondary education. Learners who do not have an aptitude for a course or program are unlikely to attend, and those who struggle may self-select the best path for themselves. Regardless, the existing literature does provide a frame of reference for further exploration.

The definition of ability grouping is generally similar throughout the literature. Additional definitions of ability grouping generally refer to the formation of small, homogeneous groups within elementary school classrooms.[22] This is grouping students by ability within the same classroom. A similar practice is tracking, but in this case, students are placed into different classes based on ability. Tracking is a practice in which high schools tested students, typically with both achievement and intelligence quotient (IQ) tests, and used these scores to place students into separate curricular tracks or "streams," as they are called in Europe.[23] Another type of ability grouping is setting, which is also referred to as regrouping. Setting is the (re)grouping of pupils according to their ability in a particular subject and can be imposed on a whole-year group or on a particular band in time.[24]

The literature is mixed on the effects of ability grouping in its broadest sense. Some studies claim it works, while others believe the negatives outweigh the positives. The literature is generally supportive of the positive benefits of being grouped for those with higher ability. For pupils identified as gifted and talented, full-time specialist programs and constructing separate groups within a mixed class taught by someone specifically trained are effective in terms of academic gains for these pupils, but the effects on the other pupils in the class and school remain unknown.[25] There is literature that addresses the performance of weaker students when they are grouped, but none regarding the students in the middle, those who are neither strong performers nor low achievers. It has been found that low-ability students can perform very poorly due to factors including low self-esteem, lack of motivation to learn and missed dialogue with higher-ability students who had a better understanding of the material.[26] Consequently, the research, which is promising with respect to higher performers, suggests there is no real impact to middling performers, but there may be a risk to those with lower ability.

The exploration of ability grouping on AOC provides CACSC leadership with an opportunity to best match learning styles with desired outcomes. No one single definition of ability grouping neatly fits the AOC learning delivery model; rather, the model changes throughout, taking and applying different definitions of ability grouping. AOC is broken down into three distinct parts, referred to as tutorials. During Tutorials One and Two, mixed ability teaching or heterogeneous grouping is used. The application of ability grouping conducted on AOC 2017 organized syndicates or groups in Tutorial Three based on student *performance* primarily from Tutorial Two. This is similar to the practice of ability grouping or within-class

grouping. Where it differs, however, is that each syndicate has two dedicated instructors, making it more like streaming or tracking, in that students are not put into a completely different class based on ability or performance but, rather, they receive additional attention from the second instructor addressing their specific learning needs. Finally, since all the students in each syndicate take all the same classes together, it is more like banding, setting or regrouping. To further complicate things, partway through Tutorial Three, six of the seven syndicates are merged together, while the syndicate with the strongest performers is spread out among all of the other syndicates.

It is therefore proposed that this blended model be called "hybrid grouping," with groupings changing throughout all or a portion of course-based student learning requirements. The focus of the definition is on the learner and their orientation towards education. Moreover, the use of orientation can be interpreted in a variety of ways to include professional occupations or previous academic results, or be stretched to encompass beliefs and behaviours. By expanding the definition of ability grouping, greater flexibility is afforded to the instructional cadre that delivers the educational aspects of DP2, allowing adjustments to be incorporated and without impacting the learning objectives found in the course Qualification Standard and Training Plan. Further, a revised ability grouping definition will further acknowledge the ever-changing demographics of the student body.

DISCUSSION

The presented definition of ability grouping leads neatly into the tenets of expectancy-value theory, where a more lasting learning impact may be experienced on the individual level. More precisely, successful completion of AOC may lead to a multi-dimensional reward for the student, both intrinsically and extrinsically. In other words, grouping students in like-oriented groups where learning styles can be matched may lead to increased academic success. While more traditional homogenous and heterogeneous groupings can be explored for learning, matching similarly motivated students together may also produce positive learning outcomes. Grouping students on AOC who display similar social behaviours or perceptions towards education may be an alternative form of classroom arrangement that results in similar student outcomes.

For Tutorial Three of AOC 2017, the CACSC decided to organize syndicates based on perceived student learning outcomes in the previous two tutorials. Those with the highest marks were put together and those with the lowest marks were put together. The hypothesis was that those with higher marks, if they were the higher performers, would be able to go further with their learning and not be held back by the others, while those with lower marks would be put into a more flexible learning environment where their learning needs could be better accommodated. One exception was the students in the French-speaking syndicate. For obvious reasons, language was the main driver for student inclusion in this syndicate, and there was only one syndicate due to the lower number of French-speaking students. The main area of concern was related to the group with lower marks and the fact that they might struggle with the material. This was based on the argument made by Lynzee Heltemes

above, regarding "missed dialogue with higher-ability students who had a better understanding of the material." The risk was deemed acceptable, as they would be isolated in their syndicates for only part of Tutorial 3 before being mixed with another syndicate, and they would have a number of opportunities to use and, thereby, learn the operational planning process.

RESULTS

The results exceeded expectations. Not surprisingly, the French syndicate performed as normal, as it conformed to the traditional model. Almost equally unsurprising were the results of those with high marks, who, when challenged, rose to the occasion and completed their initial planning cycle early, but to a very high standard, such that they were given a new second planning cycle to start that would challenge their new learning. Any concerns regarding those who came in with lower marks quickly evaporated. They quite rapidly *formed-stormed-normed*. The instructors deliberately matched their instructional pace to accommodate different learning and communication styles; they were able to successfully achieve their grouping goal. In this manner, it was possible to notice student improvement each day. It was also found that by rehearsing for each and every briefing, the learners' presentation skills improved by leaps and bounds. Toward the end of the course, some of these students who had come into the tutorial with lower marks were actually receiving high marks while in key positions. This was a positive result, worthy of further exploration.

Another surprising observation was that the other syndicates, those without higher or lower mark students, *formed-stormed-normed* much quicker than normal. The hypothesis derived from these phenomena indicates that, like the group with low marks, there were no high mark students to dominate the group, pushing the others into the background; rather, they were able to come to the fore, replacing the more dominant students. Later in the tutorial, all the students were blended together with no noticeable negative effects to learning, while they were able to share their learning with new groups of peers. Based on the positive learning environment created by initially adapting more to learner needs, this will be repeated for AOC 2018, with a view to continuing to foster a learner-centric course.

THE CASE FOR HYBRID GROUPING

Noticeably, and purposefully, absent from the discussion on ability grouping is the military occupational structure identification (MOS ID) code of the learners. While there are clear benefits to grouping students in a manner that is influenced by their MOS ID, the position taken here is that any such occupational grouping be done for very specific purposes, such as role playing during an exercise or seeking specialist counsel on a certain matter. Herein lies the distinction that further informs the student-centric definition of hybrid grouping and how education is approached in an army environment.

Understanding how learners approach the AOC curriculum, coupled with an appreciation of how hybrid grouping can enhance outcomes, provides CACSC instructional staff with an enhanced educational approach that may consistently enable institutional objectives.

While AOC represents a significant portion of the "systemic curriculum"[27] in Canadian Army education, the principles of this methodology are not compromised when hybrid grouping, informed by student motivation as articulated through expectancy-value theory, is incorporated. It is recommended so that CACSC staff better understand the individual candidate approach to learning. The inclusion of hybrid grouping does not disrupt the essential elements of the Canadian Forces Professional Development System. In addition, the organizational requirement for a consistent curricular approach is not affected. Rather, hybrid grouping is a deliberate expansion of established methods of organizing students, informed through a pre-course questionnaire surrounding expectations, student strengths and background, thereby providing a start state for tutorial classroom organization. Subsequently, during AOC post-course review, surveys can be distributed to successful graduates with a view to determining whether individual levels of effort matched time spent on curriculum objectives.

The cumulative effect of accepting student input, informed through personal motivation levels, concurrent with a course content review, provides CACSC with a more robust foundation for implementing changes. Furthermore, the forecast impact on the diverse nature of the Primary Reserve student body may better align civilian employment, education and experience for enhanced learning, vice relying solely on their assigned military speciality. While the professional military education provided through AOC is arguably used to control and regulate promotion, both an intrinsic and extrinsic reward that can be linked to successful completion, the outcome is a student body that can effectively operate in command and staff positions at the junior and field grade officer levels. The content of AOC remains under the influence of the Canadian Army and Canadian Army Doctrine and Training Centre, ensuring officers are armed to complete the expected tasks. Meanwhile, the method of instruction must be optimized by CACSC.

CONCLUSION

Hybrid grouping in a professional military educational setting can be approached with a tactical mindset. In other words, hybrid grouping shares a similar approach to a grouping and task matrix presented in tactical orders. While this comparison may appear rather pedestrian, the concept of organizing people to best accomplish the outcome remains the central concept. The types of missions and tasks assigned to the Canadian Armed Forces, and by extension the Canadian Army, will continue to be somewhat predictable; however, the application of resources to achieve a desirable outcome will challenge leaders in an ever-evolving manner. A key enabler in the maintenance of a warfighting spirit is the relevant and applicable learning environment established in Canadian Army schools. Hybrid grouping is a student-centric approach that is intended to enhance the individual learning experience while simultaneously capitalizing on the limited time spent on education in the Army. The continued exploration of ability grouping where similarly oriented learners are grouped may better arm officers to deal with the increasing complexity of contemporary operations. ✤

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ENDNOTES

1. Department of National Defence, B-GL-300-008/FP-001, *Training for Land Operations* (Ottawa: DND Canada, 2014).

2. Ibid., 3-3-1.

3. Ibid., 3-4-1f.

4. Ibid., 3-3-1.

5. Oxford University Press, *Online dictionary, English* (Oxford, 2018), https://en.oxforddictionaries.com/definition/training.

6. Oxford University Press, *Online dictionary, English* (Oxford, 2018), https://en.oxforddictionaries.com/definition/education.

7. Malcolm S. Knowles, Elwood F. Holton III, and Richard A. Swanson, *The Adult Learner, The Definitive Classic in Adult Education and Human Resource Development*, 8th Ed. (London: Routledge, 2015).

8. *Training for Land Operations*, 1-6-8.

9. Ibid.

10. Department of National Defence, A-P9-050-000/PT-001, *CFITES Manual of Individual Training and Education* (Ottawa: post 1997), 3.

11. Department of National Defence, A-P9-050-000/PT-004, *Manual of Individual Training and Education*, Volume 4 (Ottawa, 1999), 18.

12. Department of National Defence. *DAOD 5031-8, Canadian Forces Professional Development* (2015), http://www.forces.gc.ca/en/about-policies-standards-defence-admin-orders-directives-5000/5031-8.page.

13. Department of National Defence, B-GL-300-008/FP-001, *Training for Land Operations* (Ottawa: DND Canada, 2014), 3-9-1 – 3-9-2.

14. *Manual of Individual Training and Education*, Volume 4 (Ottawa, 1999), 18.

15. Judith Ireson and Susan Hallam, "Ability grouping in education," *British Journal of Educational Psychology* 75 (2005): 297–311.

16. Saiying Steenbergen-Hu, Matthew Makel, and Paula Olszewski-Kubilius, "What one hundred years of research says about the effects of ability grouping and acceleration on K-12 students' academic achievement: Findings of two second-order meta-analyses," *Review of Educational Research* 86 (2016): 849–899.

17. Mohammad Saleh, Ard Lazonder, and Ton De Jong, "Effects of within-class ability grouping on social interaction, achievement, and motivation," *Instructional Science* 33 (2005): 105–119.

18. Allan Wigfield and Jacquelynne Eccles, "Expectancy-Value Theory of Achievement Motivation," *Contemporary Educational Psychology* 25.1 (January 2000): 68–81.

19. Bernd Horn, "Warrior/Scholar: A Critical Union in the Contemporary Operating Environment," in *The Defence Learning, Education and Training Handbook. Educating the Leader and Leading the Educated,* ed. Colonel Bernd Horn and Lieutenant-Colonel Jess Stouffer (Kingston: Canadian Defence Academy Press, 2012), 1–18.

20. Wigfield and Eccles, 72.

21. Jessica Kay Flake, Kenneth E. Barron, Christopher Hulleman, and Betsy D. McCoach, "Measuring cost: The forgotten component of expectancy-value theory," *Contemporary Educational Psychology* 41 (April 2015): 232–244.

22. Tom Loveless, *Making Sense of the Tracking and Ability Grouping Debate* (Washington D.C.: Thomas B. Fordham Institute, 1998), 2.

23. Ibid.

24. Laura Sukhnandan and Barbara Lee, *Streaming, Setting and Grouping by Ability, A Review of the Literature* (Slough, Berkshire: National Foundation for Educational Research, 1998), 2.

25. Peter Kutnick, Judy Sebba, Peter Blatchford, Maurice Galton and Jo Thorp, *The Effects of Pupil Grouping: Literature Review* (Brighton: Department for Education and Skills, 2005), 4.

26. Lynzee Heltemes, "Social and Academic Advantages and Disadvantages of Within-class Heterogeneous and Homogeneous Ability Grouping" (Master's Thesis, St. John Fisher College, 2009), 46.

27. John D. McNeil, *Contemporary Curriculum in Thought and Action*, 6th ed. (Hoboken, NJ: Wiley & Sons, 2006), 44.

Source: Library and Archives Canada

NOT OBLIQUE ENOUGH: THE FALL OF SIR ISAAC BROCK

Guy St-Denis

Along a quiet side street in the charming little village of Queenston, Ontario, there stands a rather strange-looking monument, and one that has long piqued the curiosity of wandering tourists. Constructed of cut stone in the form of a squat obelisk and surrounded by a heavy chain with cannonball accents, it claims to mark the site where Major-General Sir Isaac Brock was killed during the Battle of Queenston Heights on the 13th of October 1812. Like most people who visit this classic ground, I had no reason to doubt the inscription or the carefully chosen words "NEAR THIS SPOT…." But my complacency would prove to be short-lived once I embarked on a major new study of the famous general's life in 2001. It was in the fifth year of this bold venture that I began to have serious doubts about the accuracy of the inscription, and several attempts at clarification gradually morphed into a long-drawn-out affair. My perseverance, however, was ultimately rewarded with a better understanding of Brock's fall, as well as a rare glimpse into his leadership on that fateful day.

Source: Niagara Historical Society/Author's Collection

Obelisk postcard, obverse

In June of 2006, I went on a walking tour of the Queenston Heights battlefield conducted by the late War of 1812 historian Robert Malcomson. During this outing, Malcomson expressed his belief that Brock was killed close to the redan battery and therefore nowhere near the obelisk.[1] I could see his point. Perched high up on the Niagara escarpment, the gun emplacement Brock died trying to regain was quite a ways off (some 325 metres, as I later calculated).

Memorial Stone placed by King Edward VII. when Prince of Wales, 1860, Queenston, Canada

Source: Niagara Historical Society/Author's Collection

Obelisk postcard, reverse

Unable to reconcile this considerable distance with the old story about an American sharpshooter taking aim at Brock from fairly close quarters, I tended to agree that the obelisk was more than likely in the wrong place.[2] But in setting myself the task of trying to narrow down the site of Brock's fall, I also found myself at a loss.

Not quite knowing where to begin, I concluded that the best approach was to investigate the history of the obelisk itself. This course of action was influenced by a series of letters, which the Niagara Historical Society had featured in one of its early publications.[3] Spanning a period of only a few months in 1860, this correspondence nevertheless contained valuable information about the obelisk's placement and it soon became obvious to me how this ancillary monument to Brock came about–it had everything to do with Queen Victoria's decision to send her son on a goodwill mission to Canada.[4]

In April of 1860, several months after confirmation had been received that Prince Edward Albert would represent his mother on this royal tour, a correspondent to the Toronto *Leader* alerted its editor to the reception planned at one of the stops in Canada East (Quebec). "It is proposed to assemble the Militia of Lower Canada on the battlefield of Chateauguay, and to invite [His Royal Highness] to lay the first stone of a monument which it is designed to erect in commemoration of that glorious feat of arms."[5] But as the *Leader's* correspondent pointed out, the people of Canada West (Ontario) had a military heritage just as glorious and no less worthy of royal recognition:

The fame of Brock is ever green in the hearts of Upper Canadians, and the victory of [Queenston] Heights is one of which the Empire may well be proud. It is well known that the battle ground is adorned by one of the finest columns in the world, and that the remains of the heroic Brock rest beneath; but nothing has as yet been done to indicate the precise spot on which the hero fell. It is proposed we are glad to learn, to place a commemorative stone on the spot. Would it not be well that H.R.H. the Prince of Wales should be requested to preside at the ceremonial, and the Militia of Upper Canada be invited to meet him, and witness it?[6]

It was also hinted, rather broadly, that surplus funds from Brock's second monument could be used to defray the costs associated with this "commemorative stone."

The gentlemen of the Brock Monument Committee were agreeable, perhaps because there was already a plan afoot to have the prince visit Queenston Heights and to receive an address from the surviving Upper Canadian militiamen who had participated in the War of 1812.[7] While a climb to the top of the 56-metre-high column was sure to entertain His Royal Highness, there was nothing much else for him to do. Brock's Monument had already been inaugurated the year before and so the idea of having him commemorate the nearby site where the hero was killed must have seemed a good and timely one. A small limestone obelisk could be easily constructed well in advance of the prince's arrival and with relatively little expense. It was just a matter of knowing where to have the blocks delivered.

Heading this effort was Sir Allan Napier MacNab, a prominent businessman and politician from Hamilton, Ontario, who was also chairman of the committee for rebuilding Brock's Monument.[8] In this additional capacity, MacNab set out to gather conclusive evidence regarding the place where Brock was killed; but his letter-writing campaign quickly became an exercise in futility. None of the old veterans who responded to MacNab's request could agree, except in the most general of terms. One of them was Robert Stanton, a public servant who had participated in the Battle of Queenston Heights and was therefore considered a credible witness to history. Stanton, however, did not see Brock fall.[9] Still, he sent MacNab a rough sketch purporting to show the site where it occurred, which was at the base of the slope below the redan battery.[10] But MacNab, not satisfied with Stanton's offering, expressed his frustration by complaining to an associate that "we find the greatest difficulty in ascertaining the exact spot."[11]

At the beginning of August, the Toronto architect who was responsible for overseeing the obelisk's construction reported that the stone was "all [] out [and] being worked...."[12] But until a site was decided upon, an increasingly concerned William Thomas could do nothing but wait and worry. Time was of the essence as the prince was scheduled to arrive in Queenston sometime the following month.[13] Yet, MacNab was no closer to making a decision and, since he was heading out of town, Thomas was left in charge. Just over a week later,

Source: Niagara Historical Society

Stanton's sketch

Thomas made a trip to Queenston in order to interview several longstanding residents who supposedly had information relating to the place of Brock's death. He went home with three different locations, although the divergence must have been slight, as all of them appear to have been within the confines of one property.[14] Still, Thomas was less than enthusiastic

with the outcome. Not only was the property in question privately owned, there were reports of it being "in chancery" (meaning there was a legal dispute regarding its title, or ownership).[15] Thomas favoured another site altogether, as indicated by Edward Wright. This old militiaman from Toronto claimed to have seen Brock fall near the main road, or Queen Street (today's Queenston Street), not far to the south of a Mr. Hamilton's fence.[16] Curiously, while this site was in "the public road," Thomas believed it to be a much better place to build a monument. He was also convinced that there would be no objection from the residents of Queenston.[17] But MacNab could not be brought on side. Instead, he dealt with the less than unanimous results by advising of a meeting "of all who can furnish information worth having…."[18]

> MacNab's goal was a consensus, and in the end a compromise was reached—but at Wright's expense. The obelisk would be constructed where there was the most support for it. But regardless of the meeting's outward appearance of unanimity, there was still dissension and even jealousy. As the American historian Benson J. Lossing noted a short time after work on the obelisk had begun, some of Queenston's longstanding residents declared that Brock was killed "at least twenty paces from the spot selected"[19]. More concerning was the suspicion raised by the *Niagara Mail's* editor, that militia veterans in Hamilton and Toronto were conspiring to have the address presented to the prince in their own respective municipalities.[20] Queenston, however, remained the preferred venue.

On the 18th of September, the Prince of Wales arrived at Brock's Monument. After a short visit there, he proceeded to the obelisk and ceremoniously laid the capstone.[21] Everything went to plan, and the questionable process by which the obelisk came to be installed at the base of Queenston Heights might have been permanently forgotten had it not been for the letters published by the Niagara Historical Society. Many of them deal with the obelisk, and one in particular would have a profoundly negative impact on future historians.

Miss Janet Carnochan, of Niagara-on-the-Lake, Ontario, was the first such historian to raise doubts about the way in which the obelisk's location was decided:

> The steps taken to ascertain the exact spot where Brock fell confirm to us the statements often repeated, that a mistake was made and the carelessness and indifference shown in the phrase in one of the letters, 'we will all swear to it,' makes us still more doubtful as to the selection made.[22]

The phrase that caused so much offence to Miss Carnochan had much the same effect on me. It was MacNab's admonition to his fellow committee member Colonel Daniel MacDougal: "I think you had better call a meeting of all who can furnish information worth having—and determine on the spot—if you cannot hit the Bull's Eye—come as near as possible and we will all *swear that's* the identical spot."[23] The flippancy of this self-incriminating remark certainly did nothing to instil confidence in the obelisk's location. But in all fairness to MacNab, he was under a great deal of pressure to make a decision. After all, the Prince was well on his way.

Unlike Miss Carnochan, who simply dismissed the whole affair, I wanted to know if there was anything to be learned by looking more carefully at the three gentlemen whose opinions held such sway. Starting off with Adam Brown, an aged farmer living out his retirement in Queenston, I found that he served as a lieutenant in the 1st Regiment of Lincoln Militia during the Battle of Queenston Heights. By his own admission, however, he was at Fort George (some ten kilometres downriver from Queenston) when Brock was killed.[24] Then there was Joseph Wynn and Chester Wadsworth, both of whom were hotel keepers in Queenston. Like Brown, neither of them had any personal knowledge of Brock's death. Wynn was a mere boy in 1812, and Wadsworth—while old enough to fight—was off living in the United States when his countrymen invaded Upper Canada.[25] Obviously, whatever information Brown, Wynn, and Wadsworth possessed was of a secondary nature, but the close proximity of the sites they pointed out gave them considerable influence over the final decision as to where the obelisk should be constructed.[26] It was three against one, and Wright was the odd man out. But since it appeared that Wright had actually seen Brock fall, I decided to take a closer look at his claim.

Edward Wright, who famously began life as the first white child born in Toronto, was a private in Captain Duncan Cameron's 3rd Regiment of York Militia at the time of the Battle of Queenston Heights.[27] As Thomas informed MacNab, Wright was "near the Gen[eral] when he fell [and] heard *his last groan….*"[28] Stanton was in the same regiment and concurred that "Ned" Wright "was near the Hero when he was struck."[29] Most accounts of the battle, however, suggest that Cameron's company only arrived at Queenston after Brock was killed.[30] For this reason, it was difficult for me to see how Wright could have witnessed Brock's fall. Whatever the case, Thomas accepted Wright as a reliable source and so I decided to do the same, at least until such time as I might have reason to conclude otherwise. However, I was not nearly so accepting of a diagram drawn by Thomas and based on information supplied by Wright.

The most salient feature of this crude little drawing is "The Spot," by which Thomas meant the site of Brock's fall. But the key to finding it was Mr. Hamilton's fence. As Wright calculated, it was approximately a rod (5 metres) to the south of this fence. A nearby thorn tree would serve to confirm the location. Wright was so sure of himself that he was willing to "verify his assertion on Oath…."[31] But Hamilton's fence turned out to be more of a red herring than a vital clue.

In 2012, a retired geography professor from Brock University in St. Catharines, Ontario, made an admirable attempt to trace the co-ordinates provided by Wright. Utilizing the will of Robert Hamilton and a fair degree of name association, Alun Hughes became convinced that Hamilton's fence "ran midway between Partition and Dumfries Streets."[32] This meant that the spot marked X was in front of today's Laura Secord Homestead Museum. But Hughes was so fixated on this phantom fence, which was remembered "as it then stood" in 1812, that he overlooked one very important consideration.[33] As Thomas reckoned, "The Spot" Wright described was in "the public road" and "about four yards in" from another road.[34] After examining the diagram made by Thomas, I concluded that this latter road was in fact Queen[ston] Street and so "The Spot," or proposed site for the obelisk, was in the unopened road allowance of Kent Street (approximately four yards or 3.7 metres west of Queen[ston] Street).
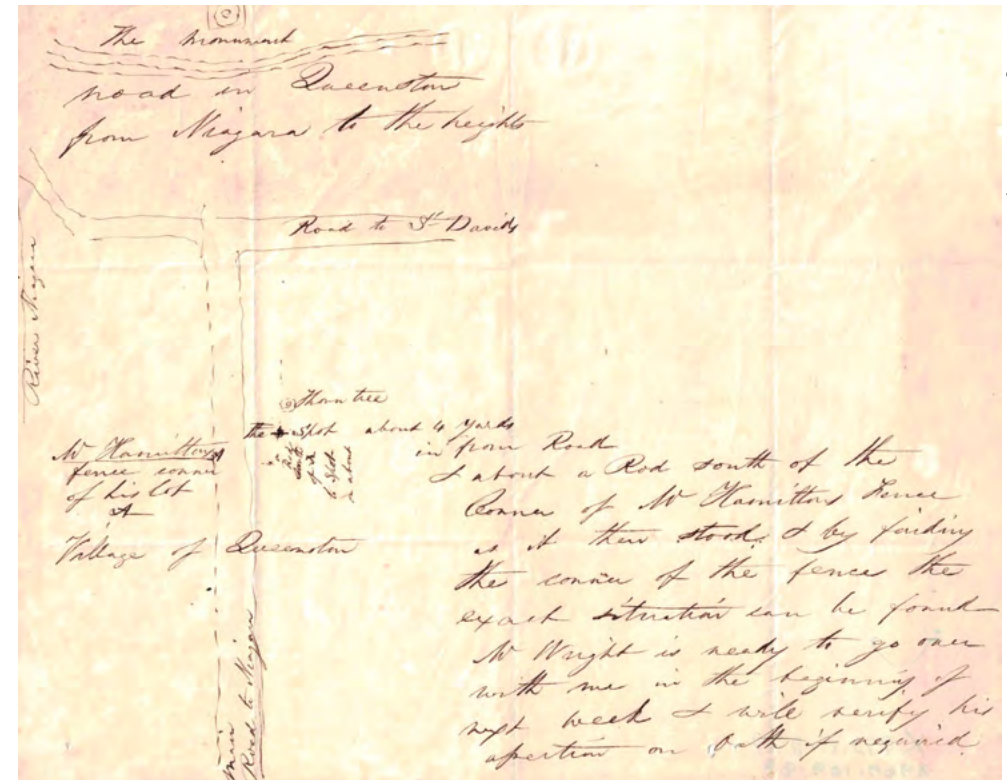
Sketch of Wright's site

Significantly, the Kent Street location was closely matched in a remarkable old plan by George Keefer, a civil engineer from nearby Thorold, Canada West (Ontario).[35] As Keefer explained to William Hamilton Merritt of Welland Canal fame, the plan was made some eight or ten years earlier for Colonel James FitzGibbon (the hero of Beaver Dams), and was "intended I think to lay before the building Committee of the New [Brock] Monument."[36] While Keefer was not exactly sure what purpose the plan was meant to serve, his assignment was clear: "to ascertain the exact spot where Brock Fell."[37] As such, his plan might have carried considerable weight had he offered it up earlier than the day before the Prince of Wales arrived.[38]

While there was some minor disagreement between Keefer's plan and the diagram by Thomas, most notably with regard to the site of Brock's fall, which is shown on the north side of Kent Street (on private property as opposed to the public roadway), I was impressed by the overall similarity between the two sources. It helped to strengthen Wright's claim, but then I came across a certain Royal Engineer's plan.
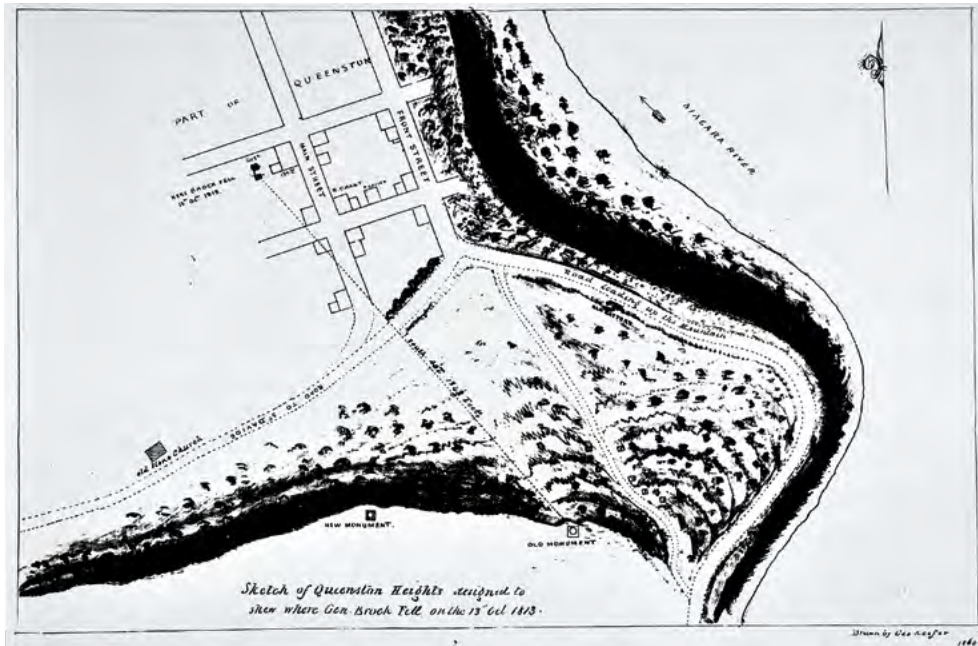
Keefer's plan

Among the cartographic holdings of Library and Archives Canada is "A Plan of the Position of Queenston," by Lieutenant John C. Alexander.[39] This incredibly detailed representation takes in much of the surrounding countryside, showing the natural and urban environments as they existed in 1818 (only six years after Brock's death). As for Queenston proper, the plan includes streets, houses, yards—in short, everything the British Army in Canada might need to know about a place that had only recently proved to be of strategic importance. Less vital, however, is the simple cross mark superimposed over one of the fields to the west of the village, which bears the following inscription: "here Sir Isaac Brock fell."

Despite the high level of draftsmanship that went into the making of the Royal Engineer's plan, I had misgivings about any mapmaker's ability to plot something so intangible as the place of Brock's death. A verification was therefore necessary, and the narrative of George Jarvis gave me the idea for a test. Jarvis, a youthful gentleman volunteer in the 49th Regiment, saw Brock fall and later recalled the events that preceded the horrific scene.

> General Brock dismounted[] and, waving his sword, climbed over a high stone wall, followed by the troops; placing himself at the head of the light company of the 49th, he led the way up [towards] the mountain [Queenston Heights] at double quick time, in the very teeth of a sharp fire from the enemy's riflemen—and ere [before] long, he was singled out by one of them....[40]

Royal Engineer's Plan

If the Royal Engineer's plan actually marked the site where Brock fell, I reasoned, there should be some evidence of a nearby stone wall.[41] Frustratingly, while both fields and yards are clearly outlined, there is no indication as to the means by which they were enclosed. But since a watercolour view of Queenston dating to *circa* 1816 depicts split-rail fences in the fields to the west of the village, it seemed likely that there was the same type of fencing in the vicinity of the Brock's death as signified by the Royal Engineer's plan.[42] It was impossible to know for sure, as the area in question was hidden from the watercolourist's view, but I had other reasons to be dismissive of the Royal Engineer's plan.

Based on the Jarvis account, which places Brock's fall near Queen[ston] Street, the site marked on the Royal Engineer's plan was approximately 115 metres to the west of the street and about 41 metres beyond the obelisk.[43] I thought it rather a long detour for someone intent on charging the redan battery. I was also mindful of the tree that was said to stand near the place of Brock's fall. In reading through early travellers's accounts, I found that a number of them frequently mention such a natural landmark. Yet, the Royal Engineer's plan does not delineate any trees near the site of Brock's death. It was a noticeable omission, especially as one or more trees were used as a reference point from an early date.[44] But then I realized that trees or no trees, I still lacked the hard evidence necessary to make a determination as to where Brock fell. Fortunately, the records of a dispute involving a heroine of the War of 1812 gave me the best proof I could ever hope to find.

Irvine's view of Queenston

My admiration for Laura Secord was never very great, even if she did trek some 30 kilometres to warn the British about an impending American attack at Beaver Dams in June of 1813.[45] However, my indifference towards the lady was completely reversed once I learned of her connection with Brock's first monument. In 1831, she took exception with the news that the widow of former militia officer Robert Nichol had been appointed the monument's keeper, a position which included a house, garden and "the gratuity of persons visiting the monument."[46] Although Nichol's services as quartermaster general were widely recognized as having been essential for the war effort, especially his organization of the expedition to Detroit, which Brock captured in August of 1812, Mrs. Secord saw no reason why her wartime services should be any less worthy of reward. More to the point, she believed she had a right to the emolument.

In 1827, after the monument had been all but completed, Mrs. Secord was promised its superintendence by the then lieutenant-governor of Upper Canada, Sir Peregrine Maitland.[47] This indulgence was effectively nullified, however, when Maitland departed the province in 1828. Three years later, having finally accepted that the key to the monument would not be forthcoming, Mrs. Secord petitioned the new governor, Sir John Colborne, accusing one of the monument's commissioners of having improperly withheld the key. Colonel Thomas Clark could only plead that the monument was not entirely finished. But Mrs. Secord suspected that Clark was stalling for time so that he could bestow the lucrative appointment upon Mrs. Nichol.[48]

Clark made no secret of his partiality towards Mrs. Nichol, whose husband was one of his fellow monument commissioners. And in responding to Mrs. Secord's accusation, Clark furnished the new lieutenant-governor with a brief history of the monument's inception. He also included the following crucial observation: "By the Statue of 1815, the monument was to be erected near where General Brock fell, which was on the Private property of the late Mr. Thomas Dickson (one of the Commissioners for building it)…."[49] Suddenly, I had a solid

lead to follow up. All I had to do was find the location of Dickson's property, and the site of Brock's fall would be revealed to me. But much to my chagrin, the exercise became quite a bit more involved.

While I knew that Dickson was a merchant and that many Upper Canadian merchants were also land speculators, I had no idea that his real estate holdings in Queenston alone would amount to some two dozen lots.[50] In the hopes of clarifying the situation, I decided to use the land records to lay out his properties on a map of the village. In doing so, I discovered that Dickson had several on the west side of Queen[ston] Street, beyond or to the south of Kent Street. This was a problem, as these lots were aligned in much the same direction as Brock's charge, and so it was beginning to look as though Brock could have fallen on any one of them.

Before I had time to fret very long over this unwelcome complication, my title search revealed that several of the lots in question were sold by Dickson in 1816 and 1819.[51] The timing was very peculiar. As one of the commissioners for the construction of Brock's first monument, Dickson would have been fully aware of the government's intention to build the column where Brock fell.[52] It was inconceivable, therefore, that Dickson might have sold a lot that had come to be associated with Brock's death, and so I felt fairly confident in turning my attention to his other properties on Queen[ston] Street. There were two lots, one numbered 54 and the other 56.[53] My interest soon focused on the latter property, located at the southwest corner of Queen[ston] and Kent streets, because it encompassed the site of Brock's death according to Wright and Keefer.[54] It was a promising development, but almost immediately another problem became apparent.

Photograph of 17 Queenston Street

Of the two (now amalgamated) stone buildings at 17 Queen[ston] Street, one was formerly used as a barn. This old structure was long thought to be the house where Brock's body was hidden, but in 2008 I revealed the truth behind this fallacy.[55] The barn did not appear on the Royal Engineer's plan of 1818; therefore, it had not yet been built when Brock was killed in 1812. Nor was it something Lieutenant Alexander was likely to have overlooked, given the degree of detail evident in his plan. But when confronted with rumours that the barn might have been omitted for some unspecified reason, I decided to conduct an exhaustive additional search for the origins of this highly regarded outbuilding and the stone house in front of it.

I went back to the land records for Queenston, seeking out all the instruments pertaining to lot 56. There was no indication that it was sold prior to 1825, the year of Dickson's death.[56] The search continued, and eventually produced an 1836 bargain and sale between Dickson's daughter, Mary Theresa Dickson, and Edward Bowland, a merchant of Queenston.[57] Bowland's ownership of lot 56 was intriguing, as a merchant was just the type of person to build a stone house like the one at 17 Queen[ston] Street and the stone barn, which was beginning to look more like a warehouse.

These stone buildings certainly seemed consistent with Bowland's purchase of the lot in 1836, especially as they both appear on a plan of Queenston surveyed in November of 1838.[58] Considering that Miss Dickson had been living in Scotland for some time when she sold the property, and since her father (who was the previous owner) made his residence elsewhere in the village, there can be no doubt that lot 56 was vacant land in 1812. It was still part of a large and open field six years later, when Lieutenant Alexander of the Royal Engineers began work on his plan.

During one of my many attempts to find visual evidence of the stone house and barn (or rather warehouse) at 17 Queenston Street, I happened upon a magnificent old photograph in the collections of the Niagara Historical Society. Dated 1888 and taken from an elevated position on the slopes below the escarpment, it offers a clear view of the battlefield where Brock was killed.[59] The house of Edward Bowland is easily recognizable, as is his warehouse. To the left of these buildings is the obelisk, and in the near right background a corner of Patrick McCabe's stone house (where Brock's body was hidden). These familiar sights were just what I expected to see, but then I spied something unusual in a small field across the street from the McCabe house. It looked to be a stone wall.

It occurred to me that I might be looking at the stone wall that Brock was supposed to have climbed over just before he was fatally wounded. The location was feasible enough, paralleling the long end of Dickson's lot 56 (the same lot where Brock was said to have been killed). But since I could hardly believe my eyes, I decided to enlist the expert advice of a modern-day "waller." John Shaw-Rimmington agreed with me, acknowledging that it was "most likely an old dry stone wall, with what looks like vertical coping."[60] The response was encouraging, and there was also some valuable insight to be had from the writings of a long-dead Canadian military historian.

Source: Niagara Historical Society

Photograph of Queenston, 1888

In his study of the Battle of Queenston Heights, Captain Ernest Cruikshank came up with a viable theory regarding the stone wall. To him, it was a launching point for Brock's charge: "Seizing the favourable moment, Brock sprang over the stone wall behind which he had directed his men to take shelter...."[61] Although it seemed to me that Cruikshank presumed to know more than the historical record allowed, the idea that Brock might have used the stone wall as a shield against the enemy's fire was compelling and helped to explain why Brock led his troops up to the stone wall, instead of around it.

The stone wall pictured in the 1888 panoramic view of Queenston was comparable with the one described by Jarvis, except in terms of its height. Although Jarvis remembered that Brock "climbed over a high stone wall," the one in the photograph did not look to be more than four feet (1.2 metre) in height. Perhaps Jarvis considered it a high stone wall relative to others he had seen. In any case, it is difficult to imagine Brock clambering over a stone wall that was any higher. I thought this business about the stone wall was sufficiently clarified, but then came another complication.

During the course of my research, I became aware of Dr. Joseph Hamilton and the long stone wall he built in the latter 1830s to reinforce his claim to disputed lands on Queenston Heights.[62] A watercolour of Brock's first monument dating to 1840 includes a section of this stone wall, which looks very similar to that captured on film in 1888. Wondering if Dr. Hamilton had anything to do with the stone wall down in the village, thus making it too late for Brock, I went back to the land records for Queenston and quickly established that none of the properties on either side of the stone wall in the village were ever owned by Hamilton. Then, after finding a line on the Royal Engineer's plan of 1818 in the same location as the stone wall pictured in 1888, which suggested an early date of construction, I concluded that any resemblance to Hamilton's later enclosure on Queenston Heights was merely a coincidence and one resulting from traditional methods of dry stone walling.[63]

Bainbrigge's watercolour of Brock's Monument

My chance discovery of a stone wall in advance of Dickson's lot worked in Wright's favour, as it seemed to confirm what Jarvis had to say about Brock's death: "ere long he was singled out by one of [the enemy's riflemen]...."[64] By "ere long," Jarvis meant soon after Brock climbed over the stone wall and led his men "at double quick time" towards Queenston Heights. Reassuringly, the site indicated by Wright was only a short distance beyond the stone wall (approximately 70 metres). Jarvis also noted that Brock launched his charge into "the very teeth of a sharp fire," which gave me reason to believe that this gunfire might help to confirm where Brock fell.

According to Jarvis, the American riflemen began firing almost as soon as Brock set out from the stone wall. By determining the location and effective range of their fire, I hoped to determine if any of the three sites where Brock supposedly fell corresponded with the American gunfire. It was a fool's errand. Although I had Lieutenant Colonel Winfield Scott's estimate that Brock was killed "at the distance of a hundred paces from the American line," pinpointing this line was nothing short of impossible.[65] But knowing that Captain John E. Wool ordered a detachment forward to oppose the impending British attack, it seemed reasonable that they would have positioned themselves along the base of the slope just below York Street. I decided to persist in the endeavour and, by making some rough calculations, I discovered that the distance to the site indicated by Wright would have been something like 110 yards (100 metres); 190 yards (174 metres) to that plotted on the Royal Engineer's plan, and just 26 yards (24 metres) to the obelisk.[66]

While each of these distances was within killing range of the Americans, the shorter of the three eliminated the obelisk site. A musket shot fired from only 26 yards, more or less, very likely would have gone straight through Brock. But there is good evidence to suggest that this was not the case.[67] As the editor of the *Bee* newspaper informed his readers, "General Brock received his mortal wound, supposed to have been a musquet shot fired from near the [redan] battery, and which entered below his breast and lodged near his back bone."[68] Actually, the projectile appears to have become embedded under Brock's right shoulder. As Captain John B. Glegg, Brock's aide-de-camp, noted: "the ball entered his [left] breast and passed *nearly* thro' his [right] side...."[69] Furthermore, the coatee Brock wore when he was killed shows no sign of an exit wound, which might be expected of a shot fired at point blank range—meaning anything 75 yards (69 metres) or less.[70] It would seem that Brock was farther back from his killer when the fatal shot slammed into his chest, but not so far back as the Royal Engineer's plan would have us believe.

The distance from the site of Brock's fall, as plotted by Lieutenant Alexander, to the slope where Wool's picquets were likely stationed, was something in the order of 190 yards (174 metres). But as Colonel George Hanger, an oft-quoted expert on early nineteenth century ballistics, expounded on the accuracy of musket fire:

> A soldier's musket, if not exceeding ill bored and very crooked, as many are, will strike the figure of a man at 80 yards; it may even at a hundred; but a soldier *must be very unfortunate indeed* who shall be wounded by a *common musket* at 150 yards, PROVIDED HIS ANTAGONIST AIMS AT HIM....[71]

As for trying to hit a man at anything approaching 200 yards, "you may just as well fire at the moon...."[72] Presuming that Hanger knew what he was talking about, the site of Brock's death as per the Royal Engineer's plan (190 yards) was something along the lines of very unlikely to nearly impossible. At approximately 110 yards, the site on lot 56 seemed to fare little better. But then I recalled the bullet hole in Brock's coatee and its location near the middle of his chest. There was no mistaking the impression of a deliberately aimed shot, and from this realization came the idea that it might also have been rifled.[73]

Rifling was a technique in which spiral grooves were cut into the inner barrel or bore of a musket. The resulting spin of the lead ball produced a more accurate shot over a greater distance and was vastly superior to smooth bore muskets. But just as I was warming to the idea that Brock was perhaps killed by a rifled shot, an old Loyalist very nearly tripped me up. Isaac Swayze was captain of the Provincial Royal Artillery Drivers, or the Car Brigade as it was otherwise known, a militia unit assigned to transport field guns and ammunition. After the Battle of Queenston Heights, however, it was his sad duty to convey Brock's body to Niagara-on-the-Lake. Nearly a decade later, Swayze described the injury Brock sustained. "It was no rifle shot, said the aged captain with earnestness; it was a wound as regular as any I ever saw."[74] By "regular," Swayze must have meant something typical of other musket wounds he had seen. Yet, despite his earnestness, I still had reason to believe that the shot was fired by a rifleman.

Soon after Wool and his troops captured the redan battery, the wary young captain ordered a detachment forward to oppose the British counter attack forming in the village below him.[75] Although Wool made no mention of riflemen, Jarvis remembered their "sharp fire" when describing Brock's death. It made sense, as the primary goal of riflemen was to disrupt the enemy's advance, and a favourite tactic was sniping at officers like Brock. As Jarvis related, one of their number came "forward, took deliberate aim, and fired…."[76] There was no doubt in the young lad's mind: Brock's killer was a rifleman. But I required a bit more convincing, especially as Miss Carnochan believed it was a random shot—and not necessarily a rifled one—that felled Brock.[77] A further complication was Wool's vague description, which forced me to question whether the Americans actually had any riflemen at their disposal. Eventually, I did manage to find evidence that riflemen were among the first wave of Americans to land on the Upper Canada shore below Queenston and that they belonged to Captain Charles B. Bristol's Onondaga Rifle Company—the same militia unit that John McCarthy joined in June of 1812.[78]

I first became familiar with McCarthy during my research into an extraordinary claim he made, namely, that it was he who killed Brock. This assertion was all the more remarkable, given that he immigrated to Upper Canada, took up farming and occasionally recounted the part he played in Brock's downfall.[79] But unlike other claimants for the same dubious honour, McCarthy could at least place himself opposite Brock at the Battle of Queenston Heights, so his story seemed to confirm the possibility that Brock ran afoul of the enemy's riflemen, just as Jarvis recalled.[80] And since riflemen were known to have used slightly smaller balls, the rather diminutive hole in Brock's coatee suddenly became a source of great interest.[81]

The likelihood that Brock was killed by an American rifleman convinced me that he could have been singled out for death from a distance of 110 yards (100 metres), in accordance with the site on lot 56, and without the ball exiting his body. While this might also have been possible with the site plotted on the Royal Engineer's plan, that location had already been ruled out during an unsuccessful search for the stone wall. As for the obelisk site, it was too close for the ball to have remained lodged in Brock's body. This despite the fact that Brock was killed by a shot fired from somewhere to his left, increasing the potential for obstruction by bone and muscle.[82] It was at this juncture that another factor came into play: the distance between Brock's fall and his temporary mortuary.

Located approximately 119 yards (109 metres) down and across Queen[ston] Street, Patrick McCabe's house was relatively close to the site on lot 56 indicated by Wright.[83] And since I had already established that Brock's body was in fact hidden in this house, it served as one more indicator that Brock could have fallen on lot 56 (also known as 17 Queenston Street). There was just one last problem. The site indicated by Wright on lot 56 was estimated to be only four yards or 12 feet (3.7 metres) in from Queen[ston] Street.[84] Keefer, however, placed it at 60 feet (18 metres).[85] While there was no explanation for the 48-foot variance, both sites were within the limits of lot 56. And whether 12 feet or 60, the Wright and Keefer sites were still closer to Queen[ston] Street than either of those marked by the obelisk and the Royal Engineer's plan.[86]

Aerial photograph of Queenston

When all is said and done, the best evidence for the site of Brock's fall is Thomas Clark's statement in which he identifies it as being on the lot owned by Thomas Dickson. This was probably lot 56, which Wright indicated and Keefer confirmed. Clark must have had good reason to favour this property for Brock's first monument, even if he did not care to elaborate upon the subject. But once the column was constructed on Queenston Heights, the site in the village became confused as local inhabitants inexplicably came to associate it with a thorn tree. However, it was not until 1860 and the news of the Prince of Wales's visit, that the precise spot became an issue. Unfortunately, the rushed nature of the obelisk's construction resulted in its being misplaced. And while Alun Hughes raised a valid point when he observed that the obelisk was no doubt in "a plausible location," my research has shown that the site preferred by Clark, Wright, and Keefer is by far the *most plausible*.[87]

Just as I had come to believe, Brock was nowhere near the redan battery when he was killed. Moreover, he was on fairly level ground and not running up a steep incline as generations of Canadians have been led to believe. These findings may seem pedantic, but by narrowing down the place of Brock's fall, a better understanding of his strategy at the Battle of Queenston Heights is gained. My discoveries challenge the long-held view of an impetuous commander rashly leading a frontal attack against a strong enemy position. Rather, Brock appears to have given due consideration to his objective and how he would achieve it. The result was a flanking manoeuvre, by which he probably intended to lead his troops onto the gentle slopes west of the redan battery. In the military nomenclature of the day, this was known as an oblique movement. Sadly, it was not oblique enough.[88] 🍁

ABOUT THE AUTHOR...

Guy St-Denis is perhaps best known for *Tecumseh's Bones*, which was first published by McGill-Queen's University Press in 2005. Since then, he has devoted himself to a detailed study of Sir Isaac Brock and his untimely death at the Battle of Queenston Heights.

ILLUSTRATIONS

Obelisk postcard, obverse
Obelisk postcard, reverse
These early twentieth century postcards feature the obverse side of the obelisk (top), with its carefully worded inscription, and the reverse side (bottom) commemorating the Prince of Wales's visit in 1860. The lower view is especially interesting, as it shows the nearby stone house and warehouse/barn at 17 Queen[ston] Street—the most plausible location of Brock's fall. Source: Niagara Historical Society/Author's Collection.

Stanton's sketch
This sketch was made by Robert Stanton, who participated in the Battle of Queenston Heights with the rank of a lieutenant in the 3rd York Militia. Stanton had no personal knowledge of Brock's fall, as he arrived too late to witness it. He claimed, however, to have seen Brock's body in a stone tavern nearby, on the site of what is now the Mackenzie Printery and Newspaper Museum at the south end of the village. Unfortunately for Stanton, he was quite mistaken and his error only served to perpetuate the myth that Brock had been killed much closer to the redan battery than was actually the case. Source: Niagara Historical Society.

Sketch of Wright's site
According to Edward Wright, an old militiaman from Toronto, the key to finding the site where Brock fell was Mr. Hamilton's fence—as shown in the above diagram by the Toronto architect William Thomas. However, pursuing this clue was easier said than done. Source: Niagara Historical Society.

Keefer's plan
As George Keefer recalled in 1860, he made this plan in either 1850 or 1852. It was intended for the use of the building committee tasked with the construction of the Brock's second monument and was meant to determine the exact spot where Brock fell. Source: Archives of Ontario.

Royal Engineer's plan
Surveyed in 1818 by Lieutenant John C. Alexander, better known for his commanding officer Captain Henry Vavasour, this plan is a very accurate cartographic representation of Queenston, except where it indicates Brock's fall. If plotted on a modern map, the cross mark shown in the above detail would lie near the centre of the block bounded by: (A) Kent Street to the south; (B) the Niagara Parkway to the west; (C) Queenston Street to the east; and (D) Partition Street to the north. Source: Library and Archives Canada.

Irvine's view of Queenston, c. 1816
This detail is taken from Robert Irvine's view of Queenston, which dates to circa 1816. Executed with a high degree of precision, this watercolour offers a remarkable visual record of the village as it appeared several years after Brock's death. While the area where Brock was killed is obscured by the heights, the stone house in which his body was hidden is partially visible (A), as are the fields to the westward and the split-rail fences enclosing them. Source: Royal Ontario Museum

Photograph of 17 Queenston Street
The southwest corner of Queenston and Kent streets was part of an open field in 1812, and it was still vacant land three years later when it was deemed an appropriate site for the construction of Brock's first monument. However, with the concurrence of Lieutenant-Governor Sir Peregrine Maitland, the hero's column was subsequently raised on Queenston Heights instead. Source: David Sharron.

Photograph of Queenston, 1888
In this detail from a panoramic view of Queenston dating to 1888, the area of Brock's charge is shown in vivid detail. Included are: (A) the general area of Brock's death according to the Royal Engineer's plan; (B) the obelisk erected for the Prince of Wales's visit in 1860; (C) the stone warehouse/barn; (D) the approximate location of Brock's death as indicated by Edward Wright and George Keefer; (E) the stone wall Brock presumably climbed over; (F) the house at 17 Queen[ston] Street; and (G) the house at 20 Queen[ston] Street where Brock's body was hidden. Additionally, the ruined house in the right foreground was restored in the late 1930s and is now the Mackenzie Printery and Newspaper Museum. Source: Niagara Historical Society.

Bainbrigge's watercolour of Brock's Monument, 1840
Painted in 1840 by the British military artist Philip John Bainbrigge, this watercolour view of Brock's first monument includes a section of Dr. Joseph Hamilton's stone wall. Source: Library and Archives Canada.

Aerial photograph of Queenston
This aerial view looks south towards Queenston Heights in the same direction as Brock's charge, and includes the following points of interest: (A) the house where Brock's body was hidden—what is now 20 Queenston Street; (B) the location of the stone wall Brock presumably climbed over; (C) the location of Brock's death at the amalgamated stone house and barn/warehouse, otherwise known as 17 Queenston Street; (D) the site of the stone tavern remembered by Robert Stanton at today's Mackenzie Printery and Newspaper Museum; (E) the base of the slope below York Street; (F) the obelisk erected in 1860 for the Prince of Wales's visit; and (G) the general area of Brock's death, based on the Royal Engineer's plan. Source: Skyview Arts.

ENDNOTES

I wish to acknowledge the advice and assistance of Jim Armstrong, Queenston, Ontario; Michael Barbieri, Wallingford, Vermont; René Bertschi, Niagara-on-the-Lake, Ontario; Rebecca Blackburn, Library and Archive, Royal Engineers Museum; Victor DesRosiers, Manuscripts and Special Collections, New York State Library; Jonathan Ferguson, Curator of Firearms, Royal Armouries; Jon Jouppien, Niagara Falls, Ontario; Stephen Otto, Toronto, Ontario; David Sharron, Archives and Special Collections, Brock University; and John Shaw-Rimmington, Port Hope, Ontario.

1. This tour was part of a fundraising programme organized by the Friends of Fort George, a non-profit co-operating association which supports interpretative activities. The redan battery was lost to the Americans early in the battle.

2. Malcomson thought that local land owners might have objected to having the obelisk erected on private property and that their opposition likely dictated the site eventually decided upon. Unfortunately for Malcomson's theory, the obelisk was in fact constructed on private property. It was not until 1896 that a small plot of ground surrounding the obelisk was purchased by the Niagara Parks Commission. See: Ronald L. Way, *Ontario's Niagara Parks: A History* (Niagara Falls, ON: Niagara Parks Commission, 1946), 83.

3. Janet Carnochan, "Col. Daniel MacDougal and Valuable Documents," Niagara Historical Society [*Publications*] 23 ([1912]): 26–41. The Niagara Historical Society holds the original documents.

4. Ian Radforth, *Royal Spectacle* (Toronto, ON: University of Toronto Press, c2004), 20.

5. *Leader* (Toronto, CW), 21 Apr. 1860, p. 2, c 4. The defeat of the Americans at the Battle of Chateaugay in October of 1813 foiled an invasion of Lower Canada (Quebec).

6. Ibid.

7. Ibid.

8. In addition to his other duties, MacNab chaired the committee responsible for drafting and presenting the militia address to the Prince of Wales. See: Archives of Ontario (hereafter AO), John Beverley Robinson Family Papers (F 44), Calendared Papers, 1857–1905, form letter addressed to clerks of the peace, 10 Jul. 1860

9. Stanton, however, claimed to have seen Brock's body in a nearby stone tavern. See: Niagara Historical Society (hereafter NHS), Letter from Stanton to MacNab, 28 Jul. 1860, acc. 992.5.296. By 1861, Stanton was clerk of process at Osgoode Hall in Toronto—the seat of provincial superior courts and the headquarters of the Law Society of Upper Canada and its law school.

10. NHS, Sketch showing the spot where Brock fell, by Robert Stanton, undated, acc. 989.5.33. This is the sketch Stanton mentions in his letter to MacNab, dated 28 Jul. 1860.

11. Ibid., Letter from MacNab to MacDougal, 30 Jul. 1860, acc. 989.5.29.

12. Ibid., Letter from Thomas to MacNab, 1 Aug. 1860, acc. 989.5.31.

13. The date of the visit was not finalized for some time, and it remained uncertain until at least the end of August. See: *St. Catharines Journal* (St. Catharines, CW), 6 Sep. 1860, p. 1, c. 3.

14. NHS, Letter from Thomas to MacNab, 9 Aug. 1860, acc. 989.5.30. Although Thomas plotted these sites in a sketch for MacNab, which must have helped to clarify their positions, this all-important enclosure is missing.

15. Ibid.

16. Ibid., Letter from Thomas to MacNab, 4 Aug. 1860, acc. 989.5.32.

17. Ibid., 9 Aug. 1860, acc. 989.5.30. Thomas thought the local residents would prefer to see the obelisk erected in a "public road," as opposed to having it "cornered up on private property."

18. Ibid., Letter from MacNab to MacDougal, 10 Aug. 1860, acc. 992.5.297.

19. Benson J. Lossing, *The Pictorial Field-Book of the War of 1812* (New York, NY: Harper and Brothers, 1868), 416. Two of these longstanding residents were James Cooper and Henry Stone, neither of whom could claim direct knowledge of Brock's death. Cooper was said to have been within six feet (1.8 metre) of Brock when he fell. Presumably, this was Captain James Cooper of the 2nd Regiment of Lincoln Militia, who participated in the Battle of Queenston Heights but not until well after Brock was killed. Therefore, he could not have had any personal knowledge of the incident. See: L. Homfray Irving, *Officers of the British Forces in Canada during the War of 1812–15* (Welland, ON: Welland Tribune Print, 1908), 77; Janet Carnochan, *History of Niagara*

(Toronto, ON: William Briggs, 1914), 187, 252; Wesley B. Turner, *The Astonishing General: The Life and Legacy of Sir Isaac Brock* (Toronto, ON: Dundurn Press, c2011), 166, 196. Furthermore, Lossing could not have gotten his information directly from Cooper, as he died about five months before Lossing arrived in Queenston in August of 1860. See: Lossing, *Pictorial Field-Book of the War of 1812*, 416. Henry Stone, who claimed to have seen Brock's blood on some rocks beyond the site chosen for the obelisk, most certainly did not see it spilt there himself, as he was born only a year or two after the tragedy unfolded. See: Library and Archives Canada (hereafter LAC), 1861 Census (RG 31, C1), Canada West, Welland County, Humberstone Township, dis. 1, p. 15, no. 25; AO, Office of the Registrar General for Ontario, Registrations of Deaths, 1869–1897 (RG 80-8), vol. J, death registration of Henry Stone, 1 Feb. 1897, no. 25818.

20. *Leader*, 25 Aug. 1860, p. 2, c. 6. These rumours, however, proved to be unfounded.

21. *St. Catharines Journal*, 20 Sep. 1860, p. 2, c. 1.

22. Carnochan, "Col. Daniel MacDougal and Valuable Documents," 28.

23. NHS, Letter from MacNab to MacDougal, 10 Aug. 1860, acc. 992.5.297.

24. Lossing, *Pictorial Field-Book of the War of 1812*, 416. According to Thomas, Brown claimed to have been in the battle, by which he might have meant his service at Fort George. See: NHS, Letter from Thomas to MacNab, 1 Aug. 1860, acc. 989.5.31.

25. Wynn, who was also the postmaster in Queenston, was aged 61 when the 1861 census was enumerated. Wadsworth was 68, but he did not arrive in Upper Canada until 1815. See: LAC, 1861 Census (RG 31, C1), Canada West, Lincoln County, Niagara Township, dis. 2, p. 18, no. 4; ibid., Welland County, Stamford Township, dis. 1, p. 2, no. 28; Lossing, *Pictorial Field-Book of the War of 1812*, 415; LAC, Upper Canada Executive Council, Land Petitions (RG 1, L3), W15 (1827–1829), vol. 530a, petition of Chester Wadsworth, Nov. 1828, no. 54.

26. The report of a stake marking the place where Brock fell possibly lent a greater degree of credibility to the site chosen. As Thomas reported: "I find by Wadsworth of Queenston that a stake was in for years shewing the spot which he could identify pretty nearly & perhaps by going over again I could get at it as near as possible at this distance of time[.]" There are similar stories. In 1817, a British officer named Richard Langslow noted "a tall pole like a flagstaff erected on the spot where Gen'l Brock fell…." But since this spot was located on Queenston Heights, Langslow was mistaken as to its purpose. In 1831, Thomas Fowler, another British tourist, described the place of Brock's fall as being "marked by a small pole and white board descriptive of the event." In 1943, a young Al Clifford found and removed an iron bar in the field behind his family's house at 17 Queen[ston] Street. His mother later expressed her displeasure over its disposal, as she understood it marked the site where Brock had fallen. Interesting though these last two claims are, neither can be verified. See: NHS, Letter from Thomas to MacNab, 1 Aug. 1860, acc. 989.5.31; Frank H. Severance, ed., "A Niagara Falls Tourist of the Year 1817," *Publications of the Buffalo Historical Society* V (1902): 121; Thomas Fowler, *The Journal of a Tour through British America* (Aberdeen, UK: Lewis Smith, 1832), 211; conversation with T. Alan Clifford, 30 Apr. 2011.

27. LAC, Adjutant General's Office, Upper Canada, Nominal Rolls and Paylists, 1812-1815 (RG 9, IB7), vol. 1, p. 102, no. 53. This entry lists Wright's first name as Simcoe. His full name was Edward Graves Simcoe Wright, having been named in honour of Upper Canada's first lieutenant governor, John Graves Simcoe. Despite a lifetime spent in Toronto, Wright died in East Troy, Wisconsin, in 1882. See: *Globe* (Toronto, ON), 10 Mar. 1882, p. 7, c. 1.

28. NHS, Letter from Thomas to MacNab, 4 Aug. 1860, acc. 989.5.32

29. Ibid., Letter from Stanton to MacDougal, 16 Aug. 1860, acc. 992.5.300.

30. John Beverley Robinson and Archibald McLean both served as lieutenants in the 3rd Regiment of York Militia, and their accounts of the battle suggest that they arrived at Queenston only after Brock was killed. The 3rd York was at Brown's Point, four kilometres north of Queenston, and was on the march to the village when Brock rode past urging them on. See: AO, John Beverley Robinson Family Papers (F 44), J.B. Robinson Memoranda, 1812–1854, letter, Robinson to Strachan (?), 14 Oct. 1812, 986–997; Carnochan, "Col. Daniel MacDougal and Valuable Documents," 35–37.

31. NHS, Diagram showing the spot where Brock fell by William Thomas and according to Edward Wright, undated, acc. 992.5.299. It appears that this diagram has become separated from the letter in which it was enclosed.

32. Alun Hughes, "Where Did Brock Fall?," Historical Society of St. Catharines *Newsletter* (Jun. 2012): 4; AO, Upper Canada Court of Probate, Estate Files, 1793-1859 (RG 22-155), will of Robert Hamilton, 14 Jan. 1809.

33. NHS, Diagram showing the spot where Brock fell by William Thomas and according to Edward Wright, undated, acc. 992.5.299. Hughes also seems to have been oblivious to the fact that the fence described in Robert Hamilton's bequest to his son, Alexander, was located on the west side of Queen[ston] Street, whereas Wright placed Hamilton's fence on the east side. See: AO, Upper Canada Court of Probate, Estate Files, 1793-1859 (RG 22-155), will of Robert Hamilton, 14 Jan. 1809.

34. NHS, Letter to Thomas to MacNab, 9 Aug. 1860, acc. 989.5.30; ibid., Diagram showing the spot where Brock fell by William Thomas and according to Edward Wright, undated, acc. 992.5.299.

35. AO, William Hamilton Merritt Family Papers (F 662), pkg. 8, Brock's Monument, "Sketch of Queenston Heights designed to shew where Gen. Brock Fell on the 13th Oct. [1812], by George Keefer, 1860. Keefer's plan appears to place the site of Brock's fall near the boundary with lot 55, between the house at 17 Queens[ton] Street and the warehouse/barn behind it. Although Keefer's plan does not outline the latter structure, another plan indicates that it was there from at least November of 1838. See: LAC, "Military Reserve at Queenston, Township of Niagara," by William Hawkins, Deputy Surveyor, Nov. 1838, NMC 40965. George Keefer died in Thorold, Ontario, in 1885 and should not be confused with his father who bore the same name.

36. Ibid., letter, Keefer to Merritt, 17 Sep. 1860. Fought in June of 1813, the Battle of Beaver Dams was a victory for the British and their native allies.

37. Ibid. It would appear that a "commemorative stone" was contemplated for the site of Brock's death during an earlier campaign to mark the various battlefields of the War of 1812. However, there was little incentive to do anything about it until Queenston Heights became a stop on the royal tour. See: *Leader*, 21 Apr. 1860, p. 2, c 4. For the campaign mentioned above, see: *St. Catharines Journal*, 4 Aug. 1853, p. 3, c. 1; ibid., 24 Aug. 1853, p. 3, c. 1; *St. Catharines Constitutional* (St. Catharines, CW), 5 Sep. 1855, p. 3, c. 1.

38. AO, William Hamilton Merritt Family Papers (F 662), pkg. 8, Brock's Monument, letter, Keefer to Merritt, 17 Sep. 1860. Interestingly, Keefer relied on the testimony of several longstanding residents in Queenston for his co-ordinates, but presumably not those who influenced the obelisk meeting in 1860.

39. LAC, "A Plan of the Position of Queenston," surveyed and signed by Lieutenant John C. Alexander, countersigned by Captain Henry Vavasour, Royal Engineers, 1818, H2/440, NMC 22750.

40. G[ilbert] Auchinleck, *A History of the War between Great Britain and the United States of America* (Toronto, CW: Maclear and Company, 1855), 104–105. Alun Hughes could not help but wonder "how well Jarvis recalled what happened 40 years earlier and also to what extent he might have embellished his account to make it more readable." As Brock's death probably left a profound and long-lasting impression on Jarvis, the skepticism expressed by Hughes is unwarranted. See: Hughes, "Where did Brock Fall?," 9.

41. While an 1854 plan of Queenston includes a stone wall in the fields west of the village parallel to Queen[ston] Street, which also corresponds with a boundary line in the Royal Engineers plan of 1818, it does not appear in Irvine's *circa* 1816 view. Therefore, this particular stone wall was probably constructed sometime after Brock's death. As well, the location of this stone wall was beyond the site of Brock's death according to the Royal Engineer's plan, and so it could not have been the same one that Brock climbed over. See: LAC, "Queenston," by William Hawkins, Provincial Land Surveyor, Dec. 1853-Feb. 1854, NMC 11434; Royal Ontario Museum, (hereafter ROM), Canadian Collection, Department of World Cultures, "Queenston from the Heights," by Robert Irvine, *c.* 1816, acc. 977.290; LAC, "A Plan of the Position of Queenston," surveyed and signed by Lieutenant John C. Alexander, countersigned by Captain Henry Vavasour, Royal Engineers, 1818, H2/440, NMC 22750.

42. ROM, Canadian Collection, Department of World Cultures, "Queenston from the Heights," by Robert Irvine, *c.* 1816, acc. 977.290.

43. Auchinleck, *A History of the War between Great Britain and the United States of America*, 104, p. 104–105. Jarvis refers to the Niagara Road, today's Queenston Street.

44. It appears that a solitary thorn tree stood near the site of Brock's death, although there were variations on the number and species. See, for example: John M. Duncan, *Travels through part of the United States and Canada in 1818 and 1819* (Glasgow, UK: Hurst, Robinson and Company, 1823), 57; John Goldie, *Diary of a Journey through Upper Canada and some of the New England States, 1819* (Toronto, ON: William Tyrrell and Company, 1897), 23; John Howison, *Sketches of Upper Canada* (Edinburgh, UK: Oliver and Boyd, 1821), 76; E.T. Coke, *A Subaltern's Furlough* (London, UK: Saunders and Otley, 1833), 311; Adam Fergusson, *Practical Notes made during a Tour in Canada, and a Portion of the United States in [1831]* (Edinburgh, UK: William Blackwood, 1833), 101; Sir Richard H. Bonnycastle, *The Canadas in 1841*, 2 vols. (London, UK: Henry Colburn, 1841) I, 217; J.W. Orr, *Pictorial Guide to the Falls of Niagara* (Buffalo, NY: Press of Salisbury and Clapp, 1842), 183; AO, William Hamilton Merritt Family Papers (F 662), pkg. 8, Brock's Monument, "Sketch of Queenston Heights designed to shew where Gen. Brock Fell on the 13th Oct. [1812]," by George Keefer, 1860.

45. For Laura Secord's account of her exploits, see: LAC, Office of the Governor General of Canada Papers, Records Relating to Royal Visits and Vice-Regal Tours, Visit of the Prince of Wales (RG7, G23) vol. 1, file 2, Laura Secord's address to the Prince of Wales, 1860.

46. LAC, Civil Secretary's Correspondence, Upper Canada Sundries (RG 5, A1), vol. 108, letter, Clark to McMahon, 30 Jul. 1831, 61,563.

47. Although Mrs. Secord recalled that Maitland made his promise in 1828, a note she penned reminding him about it dates to mid-November of 1827. See: Ibid., letter, Secord to Colborne, 17 Jul. 1831, 61,567; ibid., vol. 86, letter, Secord to Hillier, 14 Nov. 1827, 47,152.

48. As a local newspaper reported early in January of 1827: "*Brock's Monument*, which has been for some time past erecting on Queenston Heights, is at length completed." But as Clark insisted, the monument still needed to be surmounted with a statue of Brock and an iron railing placed around its base. See: *Farmer's Journal* (St. Catharines, UC), 3 Jan. 1827, p. 3, c. 2; LAC, Civil Secretary's Correspondence, Upper Canada Sundries (RG 5, A1), vol. 108, letter, Clark to McMahon, 30 Jul. 1831, 61,564.

49. LAC, Civil Secretary's Correspondence, Upper Canada Sundries (RG 5, A1), vol. 108, letter, Clark to McMahon, 30 Jul. 1831, 61,565.

50. This determination was made by consulting the abstracts to land registration in Queenston. See: Niagara North Land Registry Office (hereafter NNLRO), Abstract Books, Queenston, Niagara Township, 1799–1835, 206–208.

51. Ibid., 207. For lots 26, 27, 28, see: ibid., bargain and sale, Dickson to Biggars, 20 Sep. 1819, inst. 5674. For lot 53, see: ibid., bargain and sale, Dickson to Vrooman, 29 Aug. 1816, inst. 7873.

52. The original intention appears to have been a monument on Queenston Heights, "near to the spot where he fell…." Brock, of course, was not killed on the heights, which perhaps led to a clarification "for the constructing and erecting [of the monument] at Queenston, near where he fell, or such spot as may be agreed upon by the commissioners…." Subsequently, and with the concurrence of Lieutenant-Governor Sir Peregrine Maitland, the commissioners shifted the future site of Brock's first monument to Queenston Heights. See: Ontario Bureau of Archives, *Ninth Report of the Bureau of Archives for the Province of Ontario*, "Journal of the House of Assembly of Upper Canada" 3 (1912), 14 Mar. 1814: 159; Statutes of Upper Canada, "An Act to provide for the erection of a monument to the memory of the late president Major General Sir Isaac Brock," 55 Geo. III (1815), c. 15; LAC, Civil Secretary's Correspondence, Upper Canada Sundries (RG 5, A1), vol. 108, letter, Clark to McMahon, 30 Jul. 1831, 61,565.

53. Dickson purchased these lots in 1805, and his daughter still owned them in 1836. See: NNLRO, Abstract Books, Queenston, Niagara Township, 1799–1835, 208; AO, Lincoln County/Niagara North Land Registry (RG 61-30), Lincoln County Deeds, vol. B, lease and release, Dickson and Lyon to Dickson, et al., 8-9 Nov. 1836, inst. 591.

54. By 1931, this property was renumbered as lot 48.

55. Guy St-Denis, "The House where General Brock Died?," *Journal of the Society for Army Historical Research* 86, no. 346 (summer 2008): 109–119. The fact that the stone barn was built on the same lot as that associated with Brock's death might account, to some degree, for the mistaken belief that it was the house in which Brock's body was hidden.

56. Thomas Dickson died at Queenston on 22 January 1825. See: *Gleaner* (Niagara, UC), 29 Jan. 1825, p. 3, c. 4.

57. AO, Lincoln County/Niagara North Land Registry Office (RG 61-30), Lincoln and Haldimand Counties Deeds, vol. S, bargain and sale, Dickson to Bowland, 3 Nov. 1836, inst. 11731.

58. LAC, "Military Reserve at Queenston, Township of Niagara," by William Hawkins, Deputy Surveyor, Nov. 1838, NMC40965. In 2010, a heritage assessment of the house at 17 Queenston Street determined that it was typical of the Greek Revival style from the 1830s and 1840s. The same date range was assigned to the warehouse/barn. I am grateful to Heritage Resource Consultant Jon Jouppien for sharing his old house expertise.

59. NHS, Photograph of "Queenston and Niagara River," photographer unknown, 1888, acc. 991.169.

60. Shaw-Rimmington is president of Dry Stone Walling Across Canada, and I am grateful for his assistance.

61. Ernest Cruikshank, *Queenston Heights*, 2nd ed. (Niagara Falls, ON: Lundy's Lane Historical Society, 1891), 31. The Mohawk chief John Norton also mentioned a wall (presumably one built of stone) when describing Brock's death. Although not a first-hand account, Norton seems to confirm Cruikshank's idea that the stone wall sheltered Brock's attack position. According to Norton, General Brock was killed while "attempting to rally [his troops] under cover of a Wall at the bottom of the hill…." It would appear that Cruikshank was unaware of Norton's reference to the stone wall. See: Alnwick Castle, Collections and Archives Department, Manuscripts of the Duke of Northumberland, "Journal of a Voyage, of a thousand miles, down the Ohio," by Major John Norton, 1816 (vols. 716–717), 804.

62. Dr. Joseph Hamilton was a son of Robert Hamilton, the prominent Queenston merchant. Dr. Hamilton died in 1847. See: William Canniff, *The Medical Profession in Upper Canada, 1783–1850* (Toronto, ON: William Briggs, 1894), 412–415; *Globe* (Toronto, CW), 20 Nov. 1847, p. 3, c. 4. For some interesting correspondence regarding the disputed land and Dr. Hamilton's stone wall, see: LAC, State Submissions to the Executive Council of Upper Canada, Upper Canada State Papers (RG 1, E3), vol. 36, letter, Mackenzie to Macaulay, 14 Aug. 1838, 236–237; ibid., letter, Mackenzie to Halkett, 1 Sep. 1838, 240–242.

63. LAC, "A Plan of the Position of Queenston," surveyed and signed by Lieutenant John C. Alexander, countersigned by Captain Henry Vavasour, Royal Engineers, 1818, H2/440, NMC22750. According to this plan, there was also a long line of fence running in a westerly direction from Queen[ston] Street. Presumably, it was a split-rail fence like others in the vicinity. But since there is no mention of a fence in any of the accounts describing Brock's charge, it may not have been there in 1812. Or, perhaps it was not sufficiently worthy of note. Wool, for example, made no mention of the fisherman's path or the Portage Road—both of which he must have encountered on his way to the redan battery. If there was such a fence on the day of battle, its rails could have been easily thrown down to make way for Brock and his troops.

64. Auchinleck, *A History of the War between Great Britain and the United States of America*, 105.

65. "Biographical Sketch of Major General Winfield Scott," *Analectic Magazine* n.s. IV (Dec. 1814): 470. A distance of 100 paces, or 83 yards, equals 76 metres. Although Scott had no direct knowledge of Brock's death, he presumably got his information from an eye-witness and possibly one of the other American officers taken prisoner that day.

66. The Queenston Street extension, which parallels York Street, was used as an arbitrary baseline because it runs along the bottom of the slope, more or less.

67. Jonathan Ferguson, Curator of Firearms at the Royal Armouries in Leeds, England, provided much useful advice, but the conclusion is mine.

68. *Bee* (Niagara, UC), 24 Oct. 1812, p. 2, c. 1. The *Bee's* editor was James Durand, who participated in the Battle of Queenston Heights as a captain with the 5th Regiment of Lincoln Militia. Durand's reference to the ball having lodged near Brock's backbone echoes that of Adjutant John Smith at Fort George. See: National Archives and Records Administration (hereafter NARA), Papers of the Secretary of State (RG 59), War of 1812 Papers, Miscellaneous Intercepted Correspondence, British Military Correspondence, 1812–1813, letter, Smith to Procter, 18 Oct. 1812. Another description of Brock's wound contradicts Durand and Smith. However, Major Thomas Evans, the brigade major at Fort George, appears to have been mistaken when he wrote of the ball "passing out by the right shoulder." See: LAC, Thomas Evans Collection (MG 24, F70), "Queenston Heights Report," 15 Oct. 1812.

69. LAC, William Dummer Powell and Family Collection (MG 23, HI4), Correspondence, 1774–1832, 101–104. The italics are added. Also, it should be noted that Glegg described the wound from his perspective and not that of the victim, which necessitated the bracketed alterations to his quote. See: Guy St-Denis, "Sir Isaac Brock's Magic Bullet," *Canadian Military Journal* 17, no. 2 (spring 2017): 58–59.

70. Berkeley R. Lewis, *Small Arms and Ammunition in the United States Service*, Smithsonian Miscellaneous Collections, vol. 129 (Washington, DC: Smithsonian Institution, 1956), 90. Ludwig Kosche, a former librarian of the Canadian War Museum, concluded that the ball had sufficient velocity to exit Brock's body, but not enough to pass through the back of his coatee. This theory, however, is contradicted by the evidence presented here. See: Ludwig Kosche, "Relics of Brock: An Investigation," *Archivaria* 9 (Winter 1979–1980): 50, 52.

71. George Hanger, *To All Sportsmen, Farmers, and Gamekeepers*, new ed. (London, UK: J.J. Stockdale, [1814]), 205.

72. Ibid.

73. This is exactly what Jarvis remembered. See: Auchinleck, *A History of the War between Great Britain and the United States of America*, 105.

74. P[hilip] Stansbury, *A Pedestrian Tour of Two Thousand and Three Hundred Miles, in North America* (New York, NY: J.D. Meyers and W. Smith, 1822), 131.

75. Wool mentions this detachment in letters written soon after the battle. See: New York State Library, Manuscript and Special Collections, John Ellis Wool Papers (SC 15361), box 1, file 1, letter, Wool to his wife, 17 Oct. 1812; ibid., letter, Wool to Solomon Van Rensselaer, 23 Oct. 1812.

76. Auchinleck, *A History of the War between Great Britain and the United States of America*, 105.

77. *Sarnia Observer* (Sarnia, ON), 1 Dec. 1913, p. 6, c. 5.

78. Robert Malcomson, *A Very Brilliant Affair: The Battle of Queenston Heights, 1812* (Toronto, ON: Robin Brass Studio, c2003), 150.

79. *Globe*, 1 Sep. 1900, p. 4, c. 2.

80. This confirmation came in the form of McCarthy's parole certificate. See: NARA, Records of the Veterans Administration (RG 15), War of 1812 Pension and Bounty Land Applications, application of John McCarthy, no. SC-21581.

81. Historian Michael Barbieri thinks that the hole in Brock's coatee is rather too small for a standard issue musket ball. He further believes it might have been fired from a rifle instead. I am also grateful to Jonathan Ferguson, Curator of Firearms at the Royal Armouries in Leeds, England, for his additional advice. Ludwig Kosche attributed the small hole to the "elasticity of fabrics." According to him, it was not an uncommon phenomenon for larger balls to create smaller holes. However, he failed to consider the possibility that a smaller ball—such as those fired from rifles—might have caused a smaller hole. See: Kosche, "Relics of Brock," 53.

82. It appears that Brock was caught in a crossfire from the direction of the redan battery, which was off to his left. See: *Bee* (Niagara, UC), 24 Oct. 1812, p. 2, c. 1; NARA, Papers of the Secretary of State (RG 59), War of 1812 Papers, Miscellaneous Intercepted Correspondence, British Military Correspondence, 1812–1813, letter, Smith to Procter, 18 Oct. 1812.

83. McCabe's house served as a British military hospital, albeit one that was not utilized during the battle. Even so, this association might have made it a logical choice for the deposit of a dead body. See: LAC, War of 1812 Losses Claims (RG 19, E 5a), affidavit of Thomas Dickson, 26 Jul. 1823, in claim of Patrick McCabe, vol. 3743, file 2, no. 233.

84. Ibid., Diagram showing the spot where Brock fell by William Thomas and according to Edward Wright, undated, acc. 992.5.299.

85. AO, William Hamilton Merritt Family Papers (F 662), pkg. 8, Brock's Monument, "Sketch of Queenston Heights designed to shew where Gen. Brock Fell on the 13th Oct. [1812]," by George Keefer, 1860; ibid., letter, Keefer to MacNab, 17 Sep. 1860.

86. Most accounts describe Brock's fall as having occurred near Queen[ston] Street. In 1821, for example, a Scottish doctor by the name of John Howison asserted that "General Brock was killed close to the road that leads though Queenston…." A description of Brock's death, written only a short time afterwards, supports Howison's belief that Brock was killed near the road running along the west side of the village—meaning Queen[ston] Street. In a letter to one of Brock's brothers, Glegg wrote: "I can almost fancy I see and hear your brave brother's cheering voice when our small band of 49th heroes were a third time charging the enemy in the streets of Queenston…." See: Howison, *Sketches of Upper Canada*, 76; AO, Ferdinand Brock Tupper Papers (F 1081), letter, Glegg to William Brock, 25 Oct. 1812. An old painting of the Battle of Queenston Heights in the RiverBrink Art Museum, Queenston, Ontario, depicts Brock lying wounded by a road on the outskirts of the village. Although attributed to Major-General Sir James Dennis, who served as a captain in the battle, his depiction of the incident hardly constitutes evidence.

87. Hughes, "Where did Brock Fall?," *Bulletin de la Historical Society of St. Catharines*, June 2012, no. 4, p.10.

88. Brock's successor, Major-General Roger Hale Sheaffe, went on to win the Battle of Queenston Heights by taking a wider circuit.

John Richardson during the 2017 Aquino Day event at the Ontario Regiment Museum.

Source: Jill Hamilton

THE ONTARIO REGIMENT REMEMBERS CAPTAIN JOHN RICHARDSON: THE LAST SURVIVING REGIMENTAL OFFICER FROM THE SECOND WORLD WAR

Rod Henderson

At the outbreak of the Second World War, twenty-year-old John Richardson was living in Weston, Ontario, where he was working in a stove factory. Within a few days, John decided to get in on the action and went to the Toronto recruiting centre, intending to join the Toronto Scottish Regiment. "I don't think I could have looked myself in the face had I missed it," he said in a 2013 *Toronto Star* interview.[1]

Richardson was among a group of fifty or so eager young men who found themselves without a unit to join, as all the Toronto regiments were full. The potential recruits were told that recruiters from the Ontario Regiment would be there the following day, as it was not up to full strength.

The Ontario Regiment (RCAC) was formed in 1866 as the 34th Ontario Battalion of Infantry. It was one of the first six militia regiments to be converted to tank battalions in 1936 and was renamed the Ontario Regiment (Tank) at that time. The Ontarios were mobilized on 1 September 1939 for active service but as of mid-September stood at only 245 members, far fewer than their war establishment of approximately 600.[2] The regiment was authorized to recruit in Toronto as of 18 September.

John and several of the others returned as instructed and signed up on the spot. They were told to go home, get their affairs in order and wait to be contacted. John recalled that the entire group had the same opinion: "To hell with that nonsense; if you want us, take us now."[3] A large group of them took the train to Oshawa that evening.

In early September the Ontario Regiment had obtained the former Williams Piano Works factory to use as barracks.[4] The facilities were still quite spartan when John and the early recruits arrived, and one of their first tasks was to fill old potato sacks with straw to use as mattresses. In October the barracks was reconfigured and bunks with real mattresses arrived.[5]

Training facilities and equipment were even more basic. The pre-war stock of uniforms was quickly depleted and later recruits were issued an armband. John's initial uniform was of First World War vintage. The seat of the pants had worn through by November, and he was told that a replacement was two months away. Fortunately for John, he had recently met a young woman, Eleanor Warne, whose father was a veteran of the 116th Battalion, Canadian Expeditionary Force. He had held on to his old uniform, which Eleanor's mother used to patch the seat of John's pants. This repair was sufficient until new uniforms were issued in early 1940.[6] Miss Warne would go on to play an important role in John's life.

A steady stream of soldiers left Oshawa to take courses at the Canadian Armoured Fighting Vehicles Centre (CAFVC) at Camp Borden over the winter of 1939–1940. John was one of them, attending a wireless course in early February 1940. It was the first of many encounters John would have with wireless operations during his military career.

By the spring of 1940 the training was moving along at a faster pace, and the Ontarios received orders that they were being sent to Camp Borden for the next phase. They arrived there on 28 May and settled into camp life among three other tank regiments. Three of the CAFVC's sixteen Vickers Mark VIB light tanks were assigned to the Ontario Regiment.

The tank training was interrupted in the summer of 1940: the Ontario Regiment was ordered to send two detachments to northern Ontario to guard German prisoners of war in new camps at Espanola and Monteith. The boredom of camp routine was shattered in mid-July at Espanola when a group of Germans attempted an escape. John reminisced about the incident many years later:

> I can still hear Jack Lowry [one of the corporals] trying to get me out of bed and threatening me with dire consequences if I didn't respond. Well, he nagged me so much I finally succumbed. He was really mean. The amusing part of this episode was the squadron SQMS issuing five rounds of ammo per man for which we had to sign, when in the meantime all hell was supposed to be breaking loose.[7]

The Germans were ultimately unsuccessful in their escape attempt.

The guard detail ended in late July and early August when the Veterans' Home Guard (later called the Veterans' Guard of Canada) arrived to assume the guard duties at the camps. By mid-August the Ontarios were back at Camp Borden, ready to resume their armoured training. The 1st Canadian Armoured Brigade was formed from the regiments at Borden in August. In early 1941, the brigade was reformed as the 1st Canadian Army Tank Brigade.

Another boost to the training came in October 1940 with the arrival of 236 American-built M1917 light tanks. The M1917 was essentially a copy of the French Renault FT-17, built in 1919. The tanks were totally obsolete by 1940, but they were useful in the short term for training soldiers in the basics of tank warfare, including maintenance of an armoured vehicle, elementary tank tactics, gunnery and crew commanding. They broke down frequently and the soldiers became experts at keeping them running.

Finally, in the late spring of 1941, it was time for the 1st Canadian Army Tank Brigade to move to the U.K. for more advanced training. The Ontario Regiment sailed from Halifax aboard the French liner *Pasteur* on 21 June and disembarked at Greenock, Scotland, on 1 July. On the following day, they arrived at Lavington camp on the edge of Salisbury Plain.

Food shortages, caused by an administrative error, plagued the Ontarios for their first few weeks at Lavington. To supplement their daily rations, the men hunted the rabbits that swarmed across Salisbury Plain. The practice of riding in Universal Carriers and shooting at the rabbits came to an end when the Ontarios nearly shot the Brigade Major.[8]

Less than a week after the regiment settled into Lavington, the first Churchill Mark II tanks, fresh off the Vauxhall Motors assembly line and armed with a two-pounder main gun, arrived at the camp. The Ontarios found themselves learning about their first modern tank while also serving as a test bed for Vauxhall. A representative from Vauxhall was assigned to the brigade and collected feedback from the Ontarios on the performance of the Churchill.

John wasn't particularly impressed with the Churchill tank. He referred to the two-pounder as a "pop gun"[9] but acknowledged that it had heavier armour than anything the regiment had used in the past. Much of the vehicle maintenance was done in the field; John recalled that the engines were removed by way of block and tackle secured from trees. Throughout the summer and autumn of 1941 there were gunnery, wireless, and driving and maintenance courses.

The 1st Canadian Army Tank Brigade received a new tasking in December 1942: the defence of Sussex on England's south coast. The brigade was intended to be a counter-attack force in the event of a German invasion. The Ontarios were headquartered in Brighton. John sarcastically remarked, "With our two-pounders we were going to take on their Panther tanks."[10]

Several field exercises were conducted in the spring and summer of 1942, each building on the previous one with ever-increasing size and complexity. The exercises saw the tank regiments work with the infantry and artillery in various scenarios that required repelling a German invasion of the south coast. In May the original Churchill tanks began to be replaced with the Churchill Mark III, which had an improved six-pounder main gun. The Churchill tanks broke down with annoying frequency during the exercises. Various tanks would straggle back into camp days after the end of an exercise, having been repaired in the field or towed back.

The Calgary Regiment was pulled from the brigade training for a special assignment in mid-1942. The Ontarios were disappointed not to be given the mystery tasking but, as John noted, that view was tempered when news of the Dieppe raid arrived.

John's army career took several steps forward in 1942. Early in the year, he was promoted to corporal; by mid-year he was a sergeant and assigned to the wireless training wing. On 9 November 1942 John was struck off strength of the Ontario Regiment and assigned to Number 2 Canadian Armoured Corps Reinforcement Unit (2 CACRU) for six weeks of officer candidate training.[11] He successfully completed the training and was accepted for an officer training course at Royal Military College Sandhurst. His group included two senior NCOs from each of the Ontario Regiment, Calgary Regiment and Three Rivers Regiment. One of the British candidates was from the Gilbey family, owners of the W&A Gilbey distillery.

Officer Cadet Gilbey ensured that his course mates were well stocked with gin and whisky throughout the training. John graduated from Sandhurst on 29 August 1943 and was commissioned as a lieutenant.[12]

John's next posting was 2 CACRU in Aldershot, England, where he served as Officer Commanding, Wireless Training Wing. He wanted to get back to the Ontario Regiment, which had gone through a number of changes while he was gone. In late March 1943 the regiment swapped its Churchill tanks for Canadian-built Ram tanks. Those vehicles were turned in only a few weeks later as the Ontarios transitioned to the M4A4 Sherman tank in May. It was with the Shermans that the Ontarios landed in Sicily in July 1943 and then on the Italian mainland in September. Over the succeeding months, the Ontarios fought their way north, supporting numerous infantry units in battles at Colle d'Anchise, the Moro River, Casa Berardi, Ortona and Point 59. In August 1943, the 1st Canadian Army Tank Brigade was renamed the 1st Canadian Armoured Brigade.

John recalled that it was "a hell of a job to get out of there."[13] However, he finally succeeded in leaving 2 CACRU and rejoined the Ontarios on 19 April 1944 as a special increment.[14] The regiment had just moved from the Ortona area to south of Cassino, near the village of Presenzano. Again, John was assigned to establish a wireless wing for the regiment. The reader may notice a pattern here: John had developed a skill for wireless beginning on his first course in 1940 and, he said, it "followed me wherever I went."[15]

The fighting in Italy was still in a winter lull, and the Ontarios used the time to conduct training. John set up the wireless wing in an abandoned school that lacked electricity. Assigned the seemingly impossible task of finding a diesel generator for the building, he set off for the nearest town in a truck and, as luck would have it, met up with an American unit. Somehow, he was able to talk them into giving up a diesel generator. (As John remembered it, alcohol was involved in some way.) The Americans loaded the generator onto his truck and he returned to the regiment, successfully completing his mission. The electricians wired it up, and the wireless training wing had electricity.[16]

With warmer and drier spring weather, the operational activity increased. John was officially taken on strength on 16 May 1944 and assigned to "A" Squadron as a troop leader. His troop consisted of three M4A4 Sherman tanks, each armed with a 75 mm main gun. The next major objective for the Allies was the capture of Rome, but between that city and the Allies stood two German defensive lines in the Liri Valley. The first was the Gustav Line, which incorporated the Gari and Garigliano rivers. Beyond that lay the unfinished Hitler Line.

The Gustav Line was broken in mid-May and the Ontarios crossed the Gari River after four days of heavy fighting. The next obstacle was the Hitler Line. Reconnaissance reports indicated that the Hitler Line was lightly held, "which was bullshit,"[17] as John found out. There were reports of a breakthrough at Aquino, and the 5th Battalion, the Buffs, was assigned to exploit it,

An Ontario Regiment Sherman tank overlooks the Arno River valley during the advance to Florence.

supported by "B" Squadron of the Ontario Regiment. "A" Squadron, including John's troop, was to provide support from the north end of the Aquino airport.

The tanks rolled off on 19 May at 05:15 in fog so thick that, John said, "I couldn't see the tank ahead of me, and I was practically touching it."[18]

As the squadron reached the Aquino airport, the fog was still heavy but had lifted enough that John could see fellow troop leader Lieutenant Murray "Poke" Maidlow. John waved at Maidlow and motioned that they should move their troops forward. Maidlow responded by thumbing his nose and mouthing an obscenity suggesting that John was free to go ahead on his own.

John explained, "We went straight across the airport, not knowing what they had sitting there waiting for us. Then, of course, all hell broke loose."[19] They were coming under fire from several *panzerturm*, a Panther tank turret mounted on a concrete pillbox and positioned to create interlocking fields of fire. As the Ontarios crossed the airport, the fog suddenly lifted and the tanks found themselves in full view of the *panzerturm*, only 200 or 300 yards away.

"That was a rude awakening, because of course we didn't even know they were there,"[20] John said. He described how the situation unfolded: "So we played a game of ducks that day, and we were the ducks and the Germans had fun being the hunters."[21]

Source: Library and Archives Canada

An Ontario Regiment Sherman tank speeds down a road near Sant'Angelo in May 1944.

John managed to get his troop across the airfield intact and positioned his tanks in a depression. He parked his tank on the edge in a turret-down position, close to one particular *panzerturm*. "I spent all day long with that son of a bitch shooting at me," John recounted. The rounds from the *panzerturm's* 75 mm long-barrel gun passed directly over John's head. He said it felt like receiving a mild concussion each time and he "had a bloody headache for three days afterwards."[22]

Smoke rounds were employed to hide the Ontarios' positions. Some smoke came from artillery; when that supply ran low, members of the Ontarios raced around the airport in turretless M3 Stuart tanks, throwing smoke grenades. Finally, as darkness was falling there was one large smoke bombardment and the Ontarios were able to withdraw from the airport. The final count showed thirteen tanks destroyed. Almost all the regiment's tanks had suffered some kind of damage.

Rome fell to the Allies on 4 June 1944. Like many Canadian veterans of the Italian campaign, John felt slighted at being denied the honour of parading through Rome. "We went through Rome at three o'clock in the morning. We just whistled through there and said 'Hello Rome' and 'Goodbye Rome.'"[23]

On 21 June, John's troop was leading his squadron toward the town of Sanfatucchio with the intention of meeting up with the 6th Royal Inniskilling Fusiliers. At one point John pulled the tanks off the route to wait for the infantry. He dismounted from his tank to speak with Acting Captain Arthur "Bud" Hawkins. Within minutes the infantry arrived, and John returned to his tank and rolled off with his troop. Before Hawkins had returned to his tank, German shells began landing in the area. Hawkins dove for cover in a ditch but was killed by a shell. The author interviewed John seventy years after the event, and John was still emotional when he talked about it. He felt the loss of Hawkins more deeply than some of the other deaths, not only because the two men were close friends but because "I put him right in the spot [where] he was killed…. That one broke my heart because he was such a fine person."[24]

The Ontarios continued to push north and entered Florence in mid-August, broke the Gothic Line in mid-September and continued driving north until mid-October, when the war moved into one of its static phases. In early November 1944, the Ontarios were tasked with sending soldiers to relieve the crews of American Sherman tanks and M18 tank destroyers near Monte Grande.

John described the hand-over from the Americans: "The American officer there said, 'Come on, guys.' Away they went; never said 'hello,' 'good-bye,' 'go to hell'; just vanished into the night. You never take over one unit from another without talking about where things are. 'Watch this, watch that.' This bastard just took off. He couldn't care less."[25]

The tanks were in poor shape. "Their three tanks couldn't start up. Their batteries were flat. The guns were full of water. No kidding, water in the guns, water in the tanks. So, the things were useless. I thought we should clear the guns and get some ammunition in case the Germans attacked." The rest of the tanks were in similar condition. In John's words, they "were no good at all, just scrap metal."

Due to the exposed position of the tanks, the crews remained inside during the day. All reliefs had to be conducted at night and in complete silence. Any movement in the daytime or noise at night immediately brought down artillery, mortar and machine gun fire. The crews were also subject to random harassing fire at any time. John called it a "bloody miserable situation."[26]

On 14 November 1944, John received his only wound of the war. He was moving outside his tank that night when he tripped over a pile of scrap metal, causing a loud crash that broke the silence. Within seconds, shells began landing in the area and John received wounds to an arm. He was given medical attention and evacuated.

John returned to the Ontarios on 1 January 1945 after recovering from his wounds. He was carried as a supernumerary officer in Headquarters Squadron and then "A" Squadron for the next few months.

Operation GOLDFLAKE saw the 1st Canadian Armoured Brigade and 1 Canadian Corps move from the Italian theatre to North-West Europe in March 1945. Not long after their arrival in North-West Europe, Lieutenant Jack Sheriff (MC) suffered from illness and was evacuated. John took over command of Sheriff's troop in "B" Squadron for the remainder of the war.

Operation DESTROYER was the first engagement in the Netherlands for the Ontario Regiment, taking place in early April. The goal of DESTROYER was to force the Germans from the area at the confluence of the Waal and Nederrijin rivers, north-east of Nijmegen.

An alarming incident took place during the operation. "The Colonel and I were chatting at the back of my tank. Some British Typhoons flew over, two of them turned around and then there were four smoke trails coming at me. They missed my tanks—I don't know how. They would have blown the tanks all to hell. They make a good job of a tank, those bloody rockets."[27] Although the rockets missed the tanks, they did hit the infantry nearby.

Later that afternoon John was ordered to take the next day's objective. His troop was approaching a village and slowed after seeing warning signs about mines. John recounted what happened next: "Just about the time I would have got into that village, down come our artillery, smashed in the place … our artillery. So I said, 'That's it, boys. Pee on it. This is as far as we are going.'"[28]

The Ontarios pushed on, took part in the liberation of Arnhem, and continued beyond. The war ended on 8 May and the Ontarios spent the following weeks guarding German prisoners, equipment dumps and vehicle compounds. The tanks were turned in to Ordnance on 18 June, freeing up the soldiers from their regular maintenance. An educational program was organized and there were numerous sports events to keep the Ontarios busy until it was their turn to sail to Canada.

John had a shorter wait than the main body of the regiment. He left in early July to appear as a witness at a court martial taking place at Camp Borden. The Ontarios arrived home in Oshawa on 29 November 1945, and John was among the thousands of residents lining the streets to greet his comrades.

"What a way to end it,"[29] he declared.

Reflecting on serving with the Ontario Regiment, John stated, "I wouldn't want to be with anybody else."[30]

The soldiers of the 1st Canadian Armoured Brigade had a unique war experience, different from that of most of the Canadians in the Italian campaign. The brigade was independent— it was not permanently part of a division and therefore was deployed to work with whatever

John Richardson as a recently commissioned Lieutenant.

formation needed tank support. From January 1944 onward, the brigade mostly supported British and Indian infantry, including the 8th Indian Division. "They considered our tanks their tanks," John said. The division included Gurkha battalions. John noted that the Ontarios "liked working with them the best" and that the Ontarios had "great respect" for the Gurkhas: "I was glad they were on our side." He also told a story about a time when he was returning to the regimental harbour from an errand in town. He had to pass a Gurkha sentry but didn't have the password. The Gurkha soldier let him through because he could see that John was Canadian by the way he laced his boots.[31]

After returning to Canada, John immediately contacted Eleanor and they picked up their relationship where it had left off. They were married in 1946, settled in Oshawa and had three children. John rejoined the Ontario Regiment in 1947 and retired as a captain for the final time in 1953 due to the commitments of his civilian job. John remained a member of the Officers' Mess and stayed closely connected to the regiment for the remainder of his life.

John began working for General Motors in 1949, rising to Canadian Sales Office Manager before retiring in 1980. In recent years he was in demand for newspaper interviews, but his most prominent appearance was on the television documentary series *Greatest Tank Battles*, where he discussed his experiences during the Italian campaign.

John Richardson passed away on 7 February 2020 at the age of 100. His funeral was held at the Colonel R. S. McLaughlin Armoury in Oshawa, the headquarters of the Ontario Regiment (RCAC). He is believed to have been the last surviving Ontario Regiment officer from the Second World War.

ABOUT THE AUTHOR...

Rod Henderson is a former Sergeant in the Ontario Regiment. He is the regiment's historian and the author of the official regimental history, "Fidelis et Paratus: A History of The Ontario Regiment (RCAC), 1866–2016." Rod lives with his wife in Toronto, where he works as the manager of a project office for a major telecommunications company.

ENDNOTES

1. Joel Eastwood, "Veteran, 94, remembers the Italian campaign: 'It was worth the price,'" *Toronto Star*, 11 November 2003.

2. The Ontario Regiment (Tank) war diary, 18 September 1939.

3. John Richardson, interview with the author, 30 May 2014.

4. "Oshawa Swings into War Activities," *Oshawa Daily Times*, 5 September 1939.

5. "Ontario Regiment Barracks Are Rapidly Being Turned Into Comfortable Quarters," *Oshawa Daily Times*, 27 October 1939.

6. John Richardson, interview with the author, 30 May 2014.

7. John Richardson, speech to the annual regimental reunion, 2003.

8. Ibid.

9. John Richardson, interview with the author, 30 May 2014.

10. Ibid.

11. The Ontario Regiment (Tank) war diary, 9 November 1942.

12. John Richardson, interview with the author, 30 May 2014.

13. Ibid.

14. The Ontario Regiment (Tank) war diary, 19 April 1944.

15. John Richardson, interview with the author, 30 May 2014.

16. Ibid.

17. Ibid.

18. Ibid.

19. *Greatest Tank Battles*, season 2, episode 10, "Tank Battles of Italy," directed by Daniel Sekulich, History Television, 21 March 2011.

20. Ibid.

21. Ibid.

22. John Richardson, interview with the author, 30 May 2014.

23. *Greatest Tank Battles*, season 2, episode 10, "Tank Battles of Italy," directed by Daniel Sekulich, History Television, 21 March 2011.

24. John Richardson, interview with the author, 30 May 2014.

25. Ibid.

26. Ibid.

27. Ibid.

28. Ibid.

29. Ibid.

30. Ibid.

31. Ibid.

Source: Combat Camera

RETURNING TO NORMAL

Sergeant Andrew J. Lowry, CD

I'd like to relate my experience with retirement from the Canadian Army. I took my retirement on 3 November 2007 after 32 years as an infanteer. In no way is mine a typical story of retirement, but I believe it has some useful lessons and may find a number of people who can relate and find this account helpful.

I retired from the Army after I had received an employment offer in the oil and gas industry as a temporary foreign worker (TFW) programme coordinator. My responsibilities included supervision and administration of some 350 TFWs in the Edmonton area. I needed a change in my life, but in no way did I dislike being a soldier: in fact I still love it. But the job was firm, and with the price of oil around $145 a barrel, the company had hired on additional workers, and all I saw was growth and potential.

But the company knew more than I did, and when the markets collapsed in 2008, so too did the need for the extra workers. The TFW programme was scrapped in February of that year and the workers were shipped home, all this happening within 21 days. On the 22nd day, I was laid off for the first time in my life.

You never really understand how isolated you are until you have lost the ability to pay your monthly bills and look after your family. Payments are still coming due and food needs to be bought, but how? Luckily, I had placed myself on the Supplementary Reserve list when I retired. I decided to head down to the local infantry reserve unit and apply for possible employment.

After four weeks, I learned I had been accepted and would soon be parading on a number of weeknights and weekends. My position was with the local battle school, teaching courses until mid-August. Once that employment ended for the summer, I planned to work part time doing landscaping in the fall and snow removal in the winter until the next spring/summer session at the battle school began.

Money was tight and my hours were horrible, with no benefits offered at all. I had put off getting my teeth done because of the huge expenses involved, but a broken tooth finally forced me to see the dentist to have it fixed. While my pension plan picked up most of the expense, I didn't have an Alberta health care card so ended up being responsible for the rest of the costs, again behind the eight ball for medical coverage. And glasses? Yet another expense I couldn't afford.

All these things I took for granted when I was in the Regular Force Army, knowing nothing about how the outside world operated. On top of that, the world markets had slipped into a global recession and employment was nowhere to be found. Oil by this time had collapsed to $33 a barrel.

I lived in this cycle for the next two years, barely able to pay bills with part-time employment, keeping my family afloat and fed. The cycle ended with a Class B full-time position becoming available on the local base as a unit operations/training non-commissioned officer (NCO). It became my way back into a life I had grown up within, provided a constant paycheck for the next three years and turned me into a serving member again. It felt great, but it too was about to end on a sour note.

I had been employed in the operations/training NCO position for almost three years, during which time rumours of plans to end so-called double-dipping (drawing pension while on full-time Class B) were swirling. My pension was based on 20 years of full-time service which had helped me survive during the pre-Class B service: it had been a great security blanket for my family. But the rumours turned to truth, and my Class B position was cancelled along with most of those on the base. Once again, I was unemployed. While this was bad for me personally, I also felt that, in one fell swoop, the CAF had lost years of corporate knowledge that was desperately needed at a time when the gap was widening between those with experience and those trying to learn from those with experience.

I did manage to hook up with a former serving member, while attending a local school's Remembrance Day ceremony, who helped me find employment, once again in the oil and gas sector as a transportation coordinator. My job was to schedule the movement of units to build camps and deliver people and groceries for the camps.

While oil prices steadied for a while, they came crashing down again in 2015. The company's stock plummeted and it began cutting staff to save money. I was able to stay for the first year, but was let go unceremoniously in the second. This company had an interesting way of laying off an employee. Layoffs happened on one of three occasions: either at the end of the month, on a Friday before a long weekend, or while a special staff meeting was underway. The process was the same regardless of when it happened: you were first called into your supervisor's office, and then you were escorted out by two people to ensure you didn't steal or wander off on your way out. Very ruthless and quite cold, something I had never seen or experienced in the Army.

I grew up on dedication and loyalty, but this wasn't what I found in the civilian sector when employment was being terminated and jobs were lost. It quickly turned into a dog eat dog world: cubicle politics came into play (my cubicle, my space) and, best of all, supervisors became more concerned with their own welfare and job survival than that of their team members. I could not and would not associate with what I saw as a 'me first' attitude. I was definitely an outcast in this world and once again, I was lost.

This is when I decided to swallow my pride and went back down to the recruiting centre to see if I could sign back up in the Regular Force Army. I was now 52 years old and looking to re-enlist. After almost a year of waiting and doing the tests as a new recruit (the recruiting system does not differentiate between former soldiers and new recruits: we all go through the same recruitment process including testing and forms), I was finally offered the position that I currently hold here at 3rd Canadian Division Headquarters in Edmonton. I should note that throughout my wait for re-enlistment, I continued to hold various part-time jobs, all with no benefits included, to pay my bills and keep the family afloat.

My intent in writing this article was to show a number of lessons I learned once I separated from the Army. First and probably most importantly, I had not prepared for my transition into civilian life. I had grown up within the military system and knew nothing of life outside it. If I was sick, I went to the medical inspection room for treatment. A toothache meant a trip to the base dentist. Similarly, medication meant a trip to the pharmacy on base. I had never applied for a provincial health care card because I had military coverage and Blue Cross. I never worried about finances or paying bills because I received my pay regularly every two weeks. Vacation? Twenty-five days a year, and every holiday and Christmas off with summer leave. I remember my first thought when my civilian boss told me I needed to come in for half a day on Christmas Day just so I could get Boxing Day off.

My story is not common and I realize that. Before I retired, I had never worked in the civilian sector. I joined the military at 17 and retired at 44. I found the Second Career Assistance Network (SCAN) seminar I attended was not as helpful to me as it might have been to others. When I retired, the programme "Helmets to Hardhats' was just being conceived and was not available: I believe it would have been very helpful to me in my situation.

I learned very quickly my civilian employers didn`t actually care about my military background or accomplishments, including that I had led men on very demanding operations. They were only interested in ensuring I did what I was told. The companies I worked for didn't thank veterans on Remembrance Day because they worried it would cause "stress in the workplace."

Ambition and drive were seen as a negative and caused many confrontational situations with co-workers. Raising your voice in a cubicle was viewed as harassment and usually resulted in a complaint being logged. In the end, you didn't feel your manager/supervisor cared about you as a person; rather their concern was solely about their job and adding to the company's bottom line.

Members from 1st Battalion, Princess Patricia's Canadian Light Infantry, and tanks from Lord Strathcona's Horse (Royal Canadians) conduct a platoon attack for their level 3 live fire training scenario during Exercise ORNERY RAM at the 3rd Canadian Division Support Base Garrison training area in Wainwright, Alberta, on 9 April 2019.

As an employee, you became a number occupying a cubicle and were expected to be quiet and thankful you had a job. This corporate culture was alien to my military way of thinking and the life I had enjoyed in the Army. I felt lost in the civilian job sector and was clearly not going to last.

I know I am lucky to be in the Army again and understand better how the world works outside the military. While I acknowledge that others may see my being in the Army again as a bit of a failure, particularly among the younger soldiers, I am glad to be back in the Army fold and hope that my story will help others better prepare for life after the military. I want to pass on my story to those interested in the hopes that they can learn from it about what can happen in the world beyond the base. I managed to time everything in the last eight years to coincide with the worst possible scenarios playing out! Who could have predicted such catastrophic events and changes in the world?

This time, I'm looking to educate myself and prepare for my second crack at life after the military, so I'm not so lost. More importantly, I'm planning to enjoy my time back in the Army, doing what I like and knowing that I'm making a difference, two things I never felt during my last eight years in the civilian sector! Now I'm back to normal!

ABOUT THE AUTHOR…

Sergeant Andrew J. Lowry, CD joined the Reserves in 1982, enlisting in Montreal. He transferred to the Regular Force in 1988 and was posted to the Princess Patricia's Canadian Light Infantry (PPCLI) in Calgary, Alberta. He has served on multiple deployments including Cyprus (1991), Bosnia (1994 and 2000), and the United Arab Emirates (2003) as well as several domestic operations, including the 1997 and 2009 floods in Winnipeg and the 1998 Quebec ice storm. Sergeant Lowry has served in all three PPCLI battalions and held every position available to an NCO within a rifle battalion. He is married with one child and currently resides in Edmonton, Alberta.

Source: Combat Camera

COMMANDER'S INTENT – A REBUTTAL

Major Jonathan Cox

Major (then Captain) Rolls contributed an interesting article entitled "Commander's Intent."[1] to a previous edition of the *Canadian Army Journal.* While his thesis accurately identifies current issues about how intent statements are drafted, I believe that his characterization of the problem and proposed solutions will limit flexibility and mission command, potentially adding to confusion. Major Rolls' grasp of the issue relies heavily on the identification of a broader context and on subordinate purposes in an attempt to achieve unity of effort. In practice, by including redundant information, this may have a greater impact in terms of limiting flexibility and increasing the size and detail of operation orders. Major Rolls' proposed solution is a step in the right direction, but it is only a symptomatic treatment of the real issues. When examined more closely, his solutions will not support the needed changes to improve how intent statements are drafted, which depend more on a commander's ability to communicate effectively rather than on following a structured formula.

I agree, in terms of tradition and culture, that the way in which a commander's intent is currently being drafted is often less than ideal, but I believe the solution is not more rigidity in the structure, but in the methods of communication. I argue that a commander's intent must remain flexible enough to allow commanders to effectively express their vision in all circumstances, while avoiding redundancy and potential confusion. I structure my counter-argument around two of Major Rolls' major points: the need to repeat or emphasize the purpose, and the proposed structure of the commander's intent and the language used to express it. I conclude by briefly stating that the current problems are due to communication skills rather than to structure and language.

The first shortcoming is the likening of the main effort paragraph with the commander's intent. If both accomplish the synchronization of forces, then one is redundant and therefore not required. The commander's intent should not state the same information (or part thereof) or serve the same purpose as the main effort. The main effort provides a synchronizing, supportive function so that limited resources, such as sustainment and fires, can be properly aligned with the commander's focus. This synchronization is further enhanced by the scheme of manoeuvre and paragraphs setting out coordinating instructions for arranging subordinate units and effects in time and space in order to achieve the commander's intent, and specifying *how* combat power is applied.[2]

This synchronization is guided by commander's intent, not replaced by it. The commander's intent provides an opportunity for the commander to influence his/her subordinates, and to state how he or she sees the upcoming operation unfolding more in terms of providing a broad outline of concepts and priorities. It allows the Commander to select or weigh various aspects or concepts in order to outline and enhance his/her vision, while avoiding redundancy throughout an operation order, and thus truly enabling mission command. The content of the commander's intent is reinforced by having a flexible structure.

The second shortcoming is the proposed structure of the intent paragraph. Creating a rigid, minimum structure for the commander's intent, such as *Intent = Purpose + End State*, is not as effective as previously stated.[3] B-GL-300-003/FP-001, *Command in Land Operations*, a keystone doctrinal manual, discusses the components and goals of the commander's intent paragraph. In this paragraph, the commander describes how he or she visualizes the battle from the current state to the end state, including the commander's desired achievements, acceptable risks, and success criteria. It includes the key tasks to be carried out or conditions to be met for the entire organization. This manual also states that it is not mandatory to state the overall purpose of the operation in the commander's intent, because the purpose is included in the mission statement.[4] This reinforces the need for the commander's intent to provide a *broad outline of how* the operation will be carried out.

Given that the commander's intent is an opportunity for the commander to state the overarching aspects guiding an operation, it is stated in the first person. This is where the commander provides a "unifying focus", rather than a summary, to enable decisions in circumstances where a plan no longer directly applies.[5] The statement of this unifying purpose reflects the commander's personal style and ability to communicate, and therefore should be unrestricted in terms of language. Furthermore, repetition of the purpose may lead to conflicting or unclear guidance if the same language is not used in both cases. If the same language is used, then it is redundant and should only appear in one place in the operation order.

Intent expresses personal desires and should be clear and memorable to enable "decentralized decision-making, freedom and speed of action and initiative."[6] Language should not be a hindrance. Through the limited use of adjectives, the intent is reduced to scientific, plain language setting out direct action. It is agreed that the overuse of adjectives and flowery language can detract from the meaning, but when properly used, they can emphasize what a commander deems important, and thus guide future actions. The commander's intent must be descriptive, not prescriptive. Concise statements that use language effectively and say what the commander means allow subordinates to obtain greater meaning and infer more information, such as comparison criteria or situations where risks may be acceptable in order to speed up or slow down operations, resulting in more options. A simple explanation of the purpose and the end-state conditions will not provide the same latitude or enduring meaning to others.

The identified shortcomings are therefore not purely due to structure; they are due to poor communication skills. This means that the solution to the problem depends on the writer's writing skills, not on the structure used. Moving forward, we must focus on making operation orders more concise, intuitive and flexible. This depends on the commander being able to write what is needed in the intent paragraph in order to provide a clear vision of the future and a general path for getting there. This means avoiding superfluous language and redundant paragraphs containing the same information. 🍁

ABOUT THE AUTHOR...

Major Jonathan Cox is a Canadian infantry officer in The Royal Canadian Regiment (RCR), and currently a student in the Advanced Military Studies Program at the U.S. Army School of Advances Military Studies. Major Cox has a Bachelor of Arts (Honours) degree in Philosophy from Queen's University, as well as a Master of Arts degree in War Studies from the Royal Military College of Canada and a Master's degree in Military Arts and Science from the U.S. Army Command and General Staff College. His operational experience includes both expeditionary and domestic deployments, first as a Platoon Commander with 3 RCR in Kandahar, Afghanistan in 2008–09, later as Senior Duty Officer for the G8 Summit in Huntsville, Ontario in 2010, and most recently as Task Force Commander for Operation PROVISION in Beirut, Lebanon in 2016. Major Cox is married to his wife Alexandra, and they have a ten-year-old son, Graeme, and a six-year-old daughter, Ellie.

ENDNOTES

1. Matt Rolls, "Commander's Intent," *The Canadian Army Journal* 17.1 (2016): 115–119.

2. Government of Canada, B-GL-300-000/FP-001, *Command in Land Operations*, 2007, 2–8.

3. Rolls, 115.

4. Command in Land Ops, 2–7.

5. Ibid

6. Ibid, 2–4.

United States troops returning home aboard the USS General Harry Taylor in August 1945

DEMOBILIZATION PLANNING: A CASE STUDY OF ALLIED LOGISTICAL CHALLENGES AT THE END OF THE SECOND WORLD WAR

Sergeant Simon D. H. Wells

The extraordinary scale of World War II resulted in an unprecedented scale of resources left in multiple theatres at the end of the war. Allied demobilization is a valuable case study for logisticians seeking best practices and points for improvement for strategic planning. The allies struggled with planning variables that harmed their future capabilities. The systems employed to affect demobilization plans lacked flexibility or coordination and suffered from planning deficiencies. Finally, human resource challenges caused significant problems in forces that remained static overseas.

PLANNING VARIABLES: TIMING AND CONSEQUENCES

Logistical planning for demobilization of the vast human and technical resources in the European theatre at the end of the Second World War was somewhat short-sighted. American planners predicted the European war would end in late 1944 and the Pacific war would end as late as 1947, thus necessitating an exodus of forces from Europe into the Pacific.[1] They would be surprised by the sudden need to repatriate their joint forces after a sudden victory over Japan. Canada, on the other hand, began demobilization planning in December 1939 because of the incredible size of forces being deployed; however, the range and scale of planning assumptions meant that no operational plan could be developed until the outcome of the war was clearer.[2] Finding the appropriate window to begin demobilization planning is clearly challenging; when planning starts too late or is reactionary, personnel problems set in, but if started too early, there is no realistic assessment of the end state available. Canadian demobilization planning also seemed to ignore battle damage and non-serviceable transports, which would constrain redeployment at the end of the war.[3] Additional or reserve capacity must therefore be prepared ahead of demobilization.

Even the most skilled logisticians and planners may not have been able to foresee the challenges of remediating surplus real property and equipment. At the end of the war, the United States was responsible for over 30,000 installations on 2,000 sites across the globe.[4] The scale of the logistical task at hand was previously unimaginable. The United States alone was responsible for redeployment of 1.2 million personnel and 5 million tons of material.[5] There were long-term effects on the strategic capabilities and readiness of allied forces caused by demobilization. The Royal Canadian Navy's (RCN) 278 hulls[6] needed to be repatriated, repaired and repurposed for the new vision of the RCN, a formidable task for a battle-weary service that was a leader at sea at the time. The United States Armed Forces' financial and human resource demobilization reduced itself to a size that was below its needs for maintaining an effective force and planning for future engagements.[7] This quickly became evident as the Cold War emerged and the allies recognized a pronounced need for major force generation in continental Europe opposite the newly expanded Soviet Union.[8] Demobilization planning must begin when a likely end state is identified and resources are available to ensure continuity of operations and robust execution of the consolidation phase.

RIGID AND UNILATERAL SYSTEMS

The systems used to affect demobilization after the World War were characteristically bureaucratic. They variously attempted to consolidate quickly or in an orderly fashion. Canadian personnel demobilization was complicated by their aversion to a points system because of the dominance of volunteers over draftees in their forces.[9] The Canadian approach may have been the most comparatively efficient: the RCN reported at the end of fiscal year 1945–1946 that 76,905 all ranks had been discharged; the Royal Canadian Air Force released 147,263 members; and the Canadian Army had released 342,361 (33,265 were engaged in compulsory service).[10] British demobilization after the war was impressive—3,000 releases occurred per day in the first two months, accelerating after the atomic bombs were dropped on Japan, signaling that mass forces were no longer needed to invade.[11] Despite their extraordinary success in returning volumes of service members home, the urgency of demobilization left a crucial personnel gap. Historically, units had been deactivated as a whole, whereas this effort was individual-based, leaving disengaged draftee replacements to take the places of hardened, experienced veterans *en masse*.[12] A longer planning timeline may have necessitated more innovative repatriation systems that could have prevented such a serious gap in institutional knowledge.

Systems, by nature, are constantly expanding and interconnected, and accordingly, cannot be expected to be perfect. In Canada's case, transportation capacity issues impacted the speed with which service members returned. The final plan for Canadian personnel demobilization was withdrawal through checkpoints across continental Europe. The 1st Canadian Army disbanded, followed by its divisions and their residual forces, and moved through Nijmegen, Netherlands to England for a final return trip to Canada.[13] This approach intended to use existing infrastructure "to simplify planning by reversing the reinforcement flow and retaining the logistical, administrative, and command staff already in place," increasing

logistical capacity by over 60% to over 50,000 personnel in holding facilities at any time.[14] Unfortunately, long-term Canadian planning had apparently overestimated transportation capacity. While much of the withdrawal had worked effectively for it, Canada had to bid for "tonnage" through the Combined Chiefs of Staff's Allied Shipping Pool to execute the final leg of the trip home, so Canadians were prioritized below the millions of Americans overseas, prisoners of war, and interned civilian nationals.[15]

HUMAN RESOURCE MANAGEMENT CHALLENGES

As colloquial knowledge states, the backbone of a military is its personnel. Effective management is still necessary in periods of low operational tempo. In the case of World War II, morale rapidly deteriorated among deployed soldiers. Over six months after victory over Japan, British deployed personnel's morale and discipline had deteriorated so badly that a noticeable increase in service offences was observed.[16] When the Bevin plan (the British point system for repatriation and discharge) was amended, delaying and confusing returns for many, over 50,000 Royal Air Force personnel took the extraordinary step of striking between 1945 and 1946.[17] Were it not for the scale of the strikes, one could reasonably assume mutiny charges would be in order. Their frustration after the bloodiest conflict in history was understandable; the average British soldier did not return home until 1946 and total redeployment was not complete until 1947.[18]

Morale was somewhat better for Canadians, though not drastically. Minister of Veteran's Affairs Ian MacKenzie visited several bases in the Netherlands in 1945 to find split opinion on the unit system of demobilization versus the point system, with "a sense of grievance among the troops here that the government is not carrying out its promise to soldiers that the policy of "first in, first out" would be followed."[19] While few would be shocked to hear pessimism from service members, it was undeserved in this case. Minister MacKenzie had actually attempted to support reintegrating veterans for some time, starting a veteran's division in the Department of Pensions and National Health in December 1940.[20] He recognized the immediate outcomes and long-term impacts of educating veterans[21] and implemented an education reimbursement programme that realized a student population comprised of 42–49% veterans between 1947 and 1949 at the University of Toronto alone.[22] MacKenzie's was perhaps the most forward-thinking and successful approach recited in this article, recognizing needs and taking action before problems arose in order to implement human resource management policies and programmes immediately when required.

OBSERVATIONS

Criticizing demobilization from the largest conflict in history is easy to do because there are so many variables and challenges that they could never be perfectly managed. The scale and scope of the Second World War makes it a useful case study for logisticians because its consequences are so pronounced.

Source: Library and Archives Canada

The 5th and 7th Batteries, Canadian Field Artillery, arriving in Montreal, QC, for demobilization in 1919

One would do well to include demobilization planning considerations in their consciousness from the very outset of any mission or task. Naturally, we do this by identifying our desired end state, but the methodology of achieving that end state should always be prominent, as should the potential for future unforeseen consequences. The example of allied forces experiencing skill fade, needing to rapidly force generate to defend against the Soviet Union, and failing to seamlessly transport soldiers home, are examples of consequences.

Coordination with friendly actors and innovation are also useful characteristics. In the case of Canadians waiting for spots on transport ships to be purchased, a more coordinated approach might have negated that problem but may also have further delayed Canadian repatriation. It is worth considering alternative solutions such as, for example, bonuses for those who wish to release immediately and make their own way home. Surely such a practice would have alleviated responsibility for a fair number of Canadians. It may have also prevented the serious human resources concerns of striking service members and plummeting morale.

Logistics—the broad business of coordinating details, staff, equipment and vehicles—should clearly be well-planned and coordinated. The post-World War II allied demobilization provides ample opportunity for reflection on our current practices and areas for improvement, and illustrates the constant challenges of the logistician's art. 🍁

ABOUT THE AUTHOR...

Sergeant Simon D. H. Wells is a member of 4th Canadian Division Headquarters, a graduate of The Royal Military College of Canada's Bachelor in Military Arts & Science program, and a graduate student in Royal Roads University's Human Security and Peacebuilding programme. He has served in several roles in the Headquarters and other units as a human resources supervisor and spent approximately two years in the federal public service, serving as an operations, planning and logistics officer in emergency management.

ENDNOTES

1. Theodore A. Wilson, "Götterdämerung: War's End in Europe, 1945," in Col M. Moten, ed., *Between War and Peace: How America Ends Its Wars* (New York: Free Press, 2011), 213–214.

2. Canadian Military Headquarters, Directorate of History, *Report No. 177: The Repatriation of the Canadian Military Forces Overseas 1945–1947* (Ottawa: National Defence Headquarters, 1947), 1.

3. Alan Allport, *Demobbed: Coming Home after the Second World War* (New Haven: Yale University Press, 2009), 40–41.

4. Wilson, 217.

5. John K. Ohl, *Supplying the Troops: General Somvervell and American Logistics in WWII* (DeKalb: North Illinois University Press, 1994), 249.

6. Rob Stuart, "Was the RCN ever the Third Largest Navy?" *Canadian Naval Review* 5.3 (Fall 2009): 5.

7. Hal M. Friedman, "Reactions and Non-reactions: Lessons of the Korean War and the Public Debate over Containment and American National Military Strategy, 1950–55," *U.S. Military History Review* 1.1 (December 2014): 7–8.

8. Donald Kagan, "The End of Wars as the Basis for Lasting Peace: A Look at the Great Wars of the Twentieth Century," *Naval War College Review* 53.4 (Autumn 2000): 14.

9. Canadian Military Headquarters, 3.

10. C.P. Stacey, *Arms, Men, and Governments: The War Policies of Canada, 1939–1945* (Ottawa: National Defence, 1970), 63.

11. Allport, 26–7.

12. Bernard Rostker, *Providing for the Casualties of War: The American Experience Through World War II* (Pittsburgh: RAND Corporation, 2013), 224.

13. Peter Neary and Jack L. Granatstein, eds., *The Veteran's Charter and Post-World War II Canada* (Montreal & Kingston: McGill-Queen's University Press, 1998), 51.

14. Canadian Military Headquarters, 39.

15. Ibid., 35.

16. Kaushik Roy, "Discipline and Morale of the African, British and Indian Army Units in Burma and India During World War II: July 1943 to August 1945," *Modern Asian Studies* 44.6 (November 2010): 1268.

17. Canadian Military Headquarters, 42–43.

18. Peter Doyle, *The British Soldier of the Second World War* (Oxford: Shire Books, 2009), 55.

19. Neary and Granatstein, 51.

20. Peter Neary, "'A Great Stride Forward': The Post-Discharge Reestablishment Order (PC 7633) of 1 October 1941," *The British Journal of Canadian Studies* 23.2 (September 2010): 217.

21. Neary and Granatstein, 116.

22. Ibid., 122.
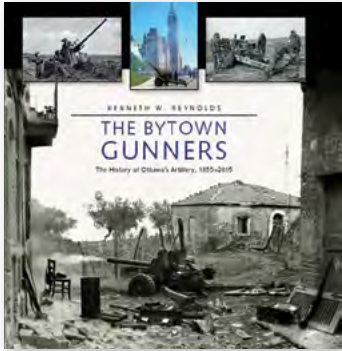
THE BYTOWN GUNNERS:

The History of Ottawa's Artillery, 1855–2015

BIBLIOGRAPHICAL INFORMATION:
REYNOLDS, Kenneth W., Ottawa: Chiko Nanji in association with
The Bytown Gunners Order, 2017, 320 pages. ISBN: 9780995806900

*Reviewed by Roger Sarty, Professor, Canadian Naval and Military History,
Wilfrid Laurier University*

My first thought on reading this splendid new history of Ottawa's artillery units was "Who'd have thought Ottawa was such an artillery town?" Major-General E. W. B. Morrison, hero of the South African war and commander of the Canadian Corps artillery in 1916–1919, was a long-time member of the city's 2nd Field Battery. So too was Brigadier-General G. E. "Ted" Beament, who was a brigadier-general in the staff of the First Canadian Army in 1944–1945. The poet John McCrae served with Ottawa's 1st Brigade, Canadian Field Artillery, in the First World War, and George Blackburn's renowned three-volume memoir, one of the finest personal gunner accounts, recorded his service in the 2nd Field Battery in 1941–1945.

These are unusually powerful associations with Canada's larger military and cultural history. On reflection, however, Ottawa's artillery heritage is common to many Canadian cities: Halifax, Québec City, Montréal, Kingston, Toronto, Vancouver and Victoria, to name only some obvious ones. As G. W. L. Nicholson demonstrated in *The Gunners of Canada* (2 vols., 1967 and 1972), from the time of the earliest European settlements through to the *rapprochement* with the United States in the early 1900s, Canadians depended on artillery as the equalizer for defence against more numerous adversaries. Then, in the world wars of the twentieth century, British Empire/Commonwealth armies made large, well-coordinated artillery forces their main striking arm. Democracies with relatively small populations do like to expend shells instead of the lives of citizen soldiers.

Reynolds explores the beginnings of artillery organization in Ottawa in 1855 with the first establishment of the permanently organized volunteer militia units in the province of Canada to augment the diminishing number of British regular troops in the North American colonies. This was the birth of the modern Canadian Armed Forces, and Reynolds uses detailed records from Library and Archives Canada to show how many of the commitments and routines that continue 160 years later—training in often cramped and inadequate drill space, annual firing practice and frequent ceremonial salutes—were well established early on. In the main body of the book he traces the substantial contribution of Ottawa's gunners to Canada's emergence on the world stage, first in the dispatch of troops to the war in South Africa, 1899–1902,

and then the creation of formidable overseas forces in the world wars, through to the present day, when the 30th Field Regiment raises personnel to augment the Regular Force on international missions, most recently in Afghanistan.

Reynolds succeeds in meeting the considerable challenges of a modern regimental history. Ideally it should be a book of remembrance for current and previous members, a narrative that tells a good story while elucidating the mysteries of military organization and technology for a wider readership, and also—at the upper end of achievement—that clearly relates the unit's history to the broader development of the country and its place in international events. Canadian regimental, and especially artillery, histories must clarify particular complexities. The volunteer units created in the 1850s and 1860s, and still extant today, did not themselves go overseas, but rather served as recruiting and initial training centres for legally distinct contingents: the Special Service units that went to South Africa in 1899–1902, the Canadian Expeditionary Force (CEF) of 1914–1919, and the Canadian Active Service Force of 1939–1945, for example. The Royal Regiment of Canadian Artillery, moreover, although comprising many distinct regiments and batteries, is a single entity and has had to be very flexible in raising additional units, often of new types, to meet the changing demands of technology.

Source: Library and Archives Canada

Training on an 18 pounder field gun (1914–1919)

At the outbreak of the First World War, Ottawa's militia 8th Brigade, Canadian Artillery (which still included the original 2nd Field Battery) played a large part in raising the 1st Brigade, Canadian Field Artillery, CEF, which soon went overseas as part of the 1st Canadian Infantry Division, and saw action in all of the great Canadian battles of the Western Front, starting with the defence of Ypres in April 1915, in which the artillery was prominent in plugging gaps in the Allied lines opened by German gas attacks. Later the 8th Brigade raised the 25th Battery, which went overseas in 1915 and served with the 2nd Division, and then in 1916 the 51st Battery, equipped with howitzers, which went to the front in August 1917 as part of the 5th Divisional Artillery. Reynolds traces all three units in clearly titled sub-sections of the main chapters.

Source: Library and Archives Canada

Personnel of the 2nd Medium Regiment, Royal Canadian Artillery, loading a 5.5 inch gun on 2 April 1945.

Source: Combat Camera

1st Regiment, Royal Canadian Horse Artillery, Troop 1 prepares and test-fires the 155 mm M777 howitzer in Afghanistan.

During the Second World War, Ottawa's contribution, like that of most artillery towns in the country, was yet more diverse and wide ranging. The 51st Battery, mobilized in September 1939, converted to anti-tank artillery, went overseas with the 1st Canadian Infantry Division, and fought through Sicily and Italy in 1943–March 1945, joining the First Canadian Army in the liberation of the Netherlands during the last weeks of the war. The 2nd Battery, also mobilized in September 1939, went overseas as part of the 4th Field Brigade in the 2nd Division in 1940. In 1941 the regiment mobilized the 1st Light Anti-Aircraft (LAA) Battery, part of the 6th LAA Regiment, which went to England in late 1942 as corps troops for the newly formed II Canadian Corps. Both the 2nd Field Battery and 1st LAA Battery went to France in July 1944 as part of the build-up of the First Canadian Army in Normandy and saw continuous action in France, Belgium, the Netherlands and Germany through to the end of hostilities in Europe. In 1942, the Ottawa gunners also raised the 25th LAA Battery, a home defence unit that served in Pacific Command. Meanwhile the 1st Brigade recruited and trained reserve personnel for home defence duties, raising the 33rd (Reserve) Field Regiment, and the 51st (Reserve) AA Battery. In the post-war revival of the militia (the unit had become a skeleton by 1945 with the drain of manpower for active service), the regiment received its current designation as the 30th Field Regiment.

In the wake of the uncertainties created by the prospects of nuclear war after 1945, the upheavals of integration and unification of the three armed services in the 1960s, and with the ever present grind of budget trimming and chopping, militia units have returned to their traditional role as generators of personnel for immediate active service with the rise of the *total force* concept since 1989. This is the subject of the last two chapters that particularly note the regiment's large contribution to operations in Afghanistan, some "four dozen" gunners in 2010, for example (page 254).

Reynolds, a historian at the Directorate of History and Heritage at National Defence Headquarters, has produced not just a good story, but a work of scholarship. The design and illustrative material are standouts, a credit to that notable team of Donald and Dianne Graves, Robin Brass Studio, and illustrator Karl Gagnon. Of course such an ambitious project can only succeed as a truly regimental enterprise. In this case the extended regimental family who pitched in has enjoyed the extraordinary commitment of Chiko Nanji, Honorary Colonel. 🍁
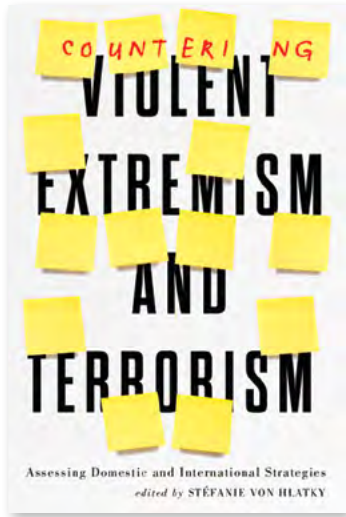
COUNTERING VIOLENT EXTREMISM AND TERRORISM:

Assessing Domestic and International Strategies

BIBLIOGRAPHICAL INFORMATION:
VON HLATKY, Stéfanie, editor. Montreal and Kingston: McGill-Queen's University Press, 2019, 224 pages. ISBN: 9780773559363

Reviewed by: Lieutenant-Colonel James McKay, CD, Ph.D., Deputy Commander 33 Canadian Brigade Group

This anthology, written largely but not exclusively by Canadian authors, delves into the challenging realm of violent extremism and terrorism. The product of a series of workshops on the subject, the work offers a collection of articles examining approaches and strategies to deal with extremism, radicalization and terror. Notably, its aim is to identify the issues surrounding the challenges associated with countering violent extremism (henceforth CVE) and countering terrorism (CT). Another goal is to bridge a perceived gap between academics and practitioners; that is, making academic research relevant to practitioners and having practices inform research.

The range of contributions is remarkable and a useful reminder that CVE and CT are inherently multidisciplinary. The contributors form an accomplished yet eclectic group of scholars and practitioners: an ambassador, a historian, a researcher, a strategic planner, a sociologist, several political scientists, a public health professional, some psychologists, a psychiatrist and a computer scientist. Yet each offers an important piece of a broader puzzle to assemble a more coherent understanding of CVE and CT.

The contributors examine a range of national approaches, including those of Canada, the United Kingdom, Norway, and Denmark. The authors' frank assessments of those aspects of national programs that succeeded and those that failed are striking. One important point that readers may draw from the work is that context matters and that there is no one solution to the challenges which extremism and terrorism pose. This is hardly surprising. One of the early contributions points out just how difficult CVE and CT are to conduct, and recommends that governments address the two parallel efforts of the global jihadist meta-narrative and the active terrorists separately.

On 28 June, Her Majesty's Canadian Ship TORONTO successfully intercepted 239 kilograms of hashish and 10 kilograms of heroin in the Red Sea as part of ongoing counter-terrorism operations in the Middle East. The narcotics were confiscated without incident and will be destroyed.

Another work attempts to treat these threats much like a public health issue. While this may seem unusual, the idea has merit. Public health is largely about encouraging means of prevention by seeking to influence human behaviour. This may be a sound foundation for future CVE and CT policies.

Despite the book's many strengths, there is one weakness. In the case of some contributions, authors rely on precise terms from international relations theory. Consequently, those lacking that background may struggle with such technical language or misconstrue important points that the authors are trying to make.

This anthology would be of interest to those examining CVE or CT policies or studying public policy problems. Those expecting advocacy of particular forms of CT, such as treating the phenomena as a military or legal problem, may be disappointed as a result. Yet they would also be missing the point of the work, which was to bridge a gap, a task the authors and editor did very well.
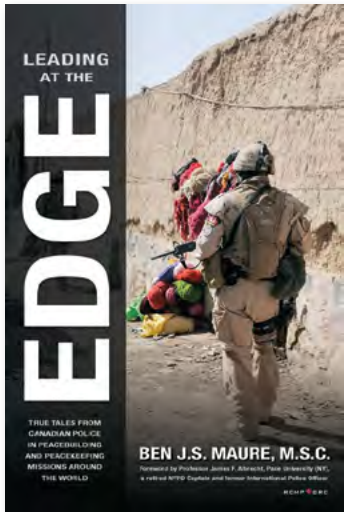
LEADING AT THE EDGE:

True Tales from Canadian Police in Peacebuilding and Peacekeeping Missions Around the World

BIBLIOGRAPHICAL INFORMATION:

MAURE, Ben J.S., M.S.C., editor. Vancouver: Kindle Edition, 2020, 349 pages. ISBN: 978.0-9950343-1-0

Reviewed by Lieutenant-Colonel Michael A. Rostek, CD, Ph.D., APF, Editor Canadian Army Journal

There has been an ongoing acknowledgement of the need to practise a more coordinated and holistic approach to complex security challenges. To this end, a new form of collective action calls for the inclusion of a variety of actors and agencies through greater levels of coordination, collaboration and integration, with a view to generating lasting solutions to the complex security challenges which confront us today. Police forces are key components in this process. Their mission somewhat differs from that of traditional defence forces but is of no less importance in achieving lasting solutions to the complex security challenges we face.

Ben Maure's book, *Leading at the Edge*, offers insight into the complexities and challenges faced by police officers who constitute this vitally important component of the inter-agency team. The ten case studies presented from operations around the world both broaden and deepen our understanding of international policing complexities and challenges. In addition, the Appendices offer further insight into the policing selection processes as well as very useful observations on Peacebuilding, Peacekeeping and Peacemaking.

From Afghanistan, to Bosnia, to Guatemala, Maure presents each case in an easy-to-read and consistent format which covers the history of the conflict, pre-deployment issues, and individual stories offering lessons learned and advice from those who have experienced "leading at the edge." Maure highlights the unique nature of each of the operations, emphasizing that pre-deployment training, while useful to a certain extent, seems to insufficiently prepare police officers for the uncertain and complex environments they are about to face. The use of aircraft with rather questionable serviceability records including emergency exits welded shut, the devastation created by an earthquake in Haiti or being thrust into the middle of a "war zone" in Afghanistan highlight the unique and uncertain environments thrust upon the police officers unaccustomed to such environments.

Source: Combat Camera

Members from three coalition forces work together in Dand District. For the first time, members of the Afghan National Police, Apache Company, 1st Battalion, 23rd Infantry Regiment of 1-2 Stryker Combat Team of the United States Army, along with Canadian Forces Operational Mentor and Liaison Team members, Police Operational Mentor and Liaison Team members, and CIMIC teams worked together during Operation MUTAY in Dand District. The operation consisted of activities ranging from securing strategic areas from insurgent activity and searching for weapons caches to providing opportunities for members from three coalition forces to synchronize their operations and work more closely together.

As such, a common theme running through each of the cases involves examining the motivations of the police officers who must first apply for international policing operations and a leave of absence from their domestic policing duties before being selected. Highlighting flexibility of mind, optimism and an adventurous spirit, Maure admits international policing operations are certainly not for all police officers. Those who have answered the call to serve and protect beyond the borders of Canada have distinguished themselves well in their conduct and contribution to operations, be it in intelligence, crime scene operations, training, or (re)building police forces in countries devastated by conflict or natural disasters. Apt to be useful for students and practitioners in the fields of security studies, politics, and international relations, the book should prove an equally interesting and compelling read for the casual observer of global affairs. 🍁
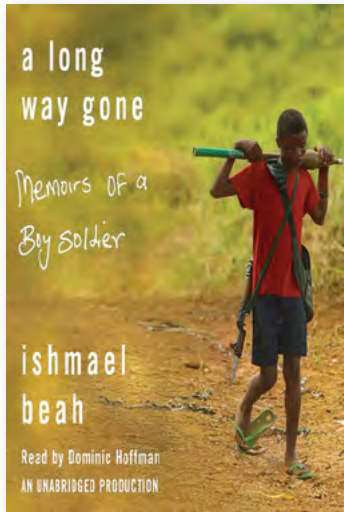
A LONG WAY GONE:
Memoirs of a Boy Soldier

BIBLIOGRAPHICAL INFORMATION:
ISHMAEL BEAH, New York: Sarah Critchton Books, 2007, 229 pages.
ISBN: 978-0-374-53126-3

*Reviewed by Lieutenant-Colonel Michael A. Rostek, CD, Ph.D., APF,
Editor Canadian Army Journal*

The manner in which child soldiers are recruited and then used in conflict is one of the most disturbing trends on the rise today. It is estimated that there are over 300,000 child soldiers deployed worldwide by both state and non-state actors.[1] Today, child soldiers are used by 7 state forces and 56 armed groups in 14 states.[2] Progress to end the recruitment and use of child soldiers has been slow; as this scourge continues to grow, so too does our understanding of the complexities and nature of this phenomenon through advocacy groups, learning programs and personal narratives. One such narrative stands above the rest for its disheartening and brutally graphic articulation of a childhood lost amid a civil war.

Ishmael Beah chronicles his time as a child soldier in his acclaimed memoir, *A Long Way Gone: Memoirs of a Boy Soldier*. From his recruitment at age twelve into the Sierra Leone Armed Forces through to his reintegration into society four years later, Beah provides a compelling and brutally frank account of his recruitment, survival, rescue and rehabilitation from an existence marked by uncertainty, drug use, exploitation and wanton killing. The memoir provides a first-hand account of Beah's life as a child soldier and aptly contributes to the foundation of knowledge and subsequent understanding of this important topic.

Beah commences his story with his peaceful existence in his village of Mattru Jong, Sierra Leone. His love for hip-hop music and entertaining separates him from his family on the fateful night when his village is attacked and destroyed by rebels. From this point, Beah begins his journey of survival amid a civil war stricken country and chronicals his perilous journey through the forests and villages of Sierra Leone in search of his family, food, safety and companionship. At one point, having been captured, suspected as a mercenary and about to be put to death, he comes to fully realize the desperation of his situation and recognizes he is in fact "a long way gone," a long way from his peaceful childhood existence in Mattru Jong. Subsequently, upon being set free, he reflects on the unexpected physical, mental and emotional roller coaster his life has become, not knowing when it would end.

This is one of many situations in the book that so aptly presents the reader with the realities of a child surviving amid a civil war. Parents and siblings murdered, Beah's story is common to thousands of other child soldiers who were less fortunate than him. His very survival and the writing of this book provide a story that needs to be shared worldwide.

Beah's personal reflection is remarkable. He never steps back from accepting full responsibility for the great brutalities he committed. This denotes a high level of objectivity and perhaps explains why he was able to emerge from such chaos and give an eloquent lesson in childhood resilience and courage. Indeed, when challenged on the accuracy and voracity of Beah's story, the editors stood fast and refused to include a disclaimer in the book, one that would suggest that the stories and timelines are anything but true. This forceful yet easy-to-read story is well suited to both serious students of war and conflict and the layman interested in learning more on the subject itself. Child soldiers represents a particularly complex and heartbreaking outcome of war and conflict. Beah's contribution provides background and insight into this scourge, thereby allowing readers to better understand its meaning and the boundaries that need to be established to protect children from the ravages of war worldwide.

ENDNOTES

1. Franklyn Bai Kargbo, "International Peacekeeping and Child Soldiers: Problems of Security and Rebuilding," *Cornell International Law Journal* 37.3 (2004): 487.

2. Virginia Gamba, Special Representative of the Secretary-General for Children and Armed Conflict, *Children and Armed Conflict: Report of the Secretary General*, A/72/865–S/2018/465 (New York: United Nations, May 2018).
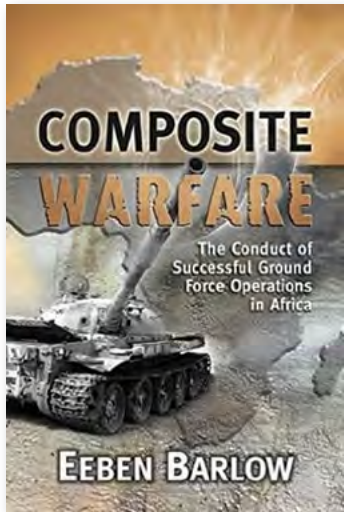
COMPOSITE WARFARE:
The Conduct of Successful Ground Force Operations in Africa

BIBLIOGRAPHICAL INFORMATION:
BARLOW, Eeben, Pinetown, South Africa: 30 Degrees South, 2016, 534 pages. ISBN: 978-1-92821-176-1

Reviewed by Major Chris Buckham, CD, MA, employed within Canadian Joint Operations Command (CJOC).

In many respects, Africa is a little understood continent. This is especially true when it comes to armed conflicts, the causes thereof and the methodology of effectively combatting them. Without having experienced life in the Dark Continent and its nuances, it is difficult to appreciate its myriad of operations-related challenges. Notwithstanding this, Barlow has produced a book that goes a long way towards providing the reader with a comprehensive analysis of not only the unique facets of operating in Africa, but also the nature of the political, economic and military interface that colours African engagement. Having operated as a member of the SADF (South African Defence Force) in command and special operations capacities, as well as being a founding member and commander of Executive Outcome and advisor to many African governments on doctrine and policy, the author is uniquely qualified to discuss the African operating environment.

This is not a book to read once and put away; indeed, such is the breadth of knowledge that there are lessons to be gleaned with each successive engagement. The author combines a straightforward analytical style with a deep bibliography and first-hand examples that round out his narrative and give credence to his hypothesis. For the Western professional operative, there will be elements of the book that are well known, but many aspects of the book will be very useful for understanding the driving motivators of African leadership and soldiery (either symmetric or asymmetric).

In order to fully appreciate the value of Barlow's work, it must be remembered who the intended audience is. This will primarily be African government forces and perhaps those para and non-traditional elements operating on the African continent. For this reason, the book entails a broad cross-section of vertical and horizontal instruction. There is something for everyone here; it is easy for a Western power to dismiss some of the information provided as too basic and, as a result, discount the entire work. It must be remembered, however, that the African theatre of operations is dramatically different North to South and East to West and Barlow's work undertakes an analysis of the unique aspects of operations reflective of the different environments.

Soldiers of the Sudan People's Liberation Army (SPLA). The SPLA, now known as the South Sudan People's Defence Forces, is the army of the Republic of South Sudan. It was founded as a guerrilla movement against the government of Sudan in 1983 and was a key participant in the Second Sudanese Civil War.

One of the more consistent and challenging aspects of African conflicts is the prevalence of asymmetric conflicts that may run independent of or concurrent with more traditional operations. The author dedicates a significant amount of the book to discussing the unique nature of African asymmetric conflict, its underlying causes, the variety of both the physical and societal environment, and the tools and training critical to be effective. The information that he presents is insightful and very relevant; especially when discussing the nature of inter-service and international joint operations. It is worth noting, however, that support elements are not discussed in any real depth in the book. This is disappointing, as logistics represents a key element of success and Africa is a particularly hostile environment for support.

This is not an easy read as it presents very much like doctrine; it does come across as dry and academic. Nevertheless, it is replete with useful information gleaned from the author's decades of operational experience on the African continent. As a reference book, it is strongly recommended for anyone undertaking operations in Africa for the first time.

Soldiers participate in a Combat Team Commander Course, Exercise Common Ground, a tactical exercise without troops, in Fredericton, New Brunswick, on 14 November 2018.

Source: Combat Camera

BEYOND THE HASTY ATTACK: EDUCATION AND LEADERSHIP ON THE COMBAT TEAM COMMANDERS' COURSE

Captain Stephen Keeble, BA, MA, CD

> *Leadership and learning are indispensable to each other.*
> —John Kennedy

The Combat Team Commander's Course (CTCC) is conducted annually to train the next generation of sub-unit commanders for the Canadian Army. Every year, senior combat arms captains and majors take part in a month-long course to teach the fundamentals of commanding a combat team effectively on operations. Normally the focus of this course is about the combat team on the offensive, primarily the hasty attack, hence its often-touted nickname, the "hasty attack course." The course typically opens with two weeks of in-class presentations and computer-simulated attacks using the virtual battle simulator—and Joint Conflict and Tactical Simulation—emphasizing hasty attacks planned by students serving in key command positions. The course would then culminate in a field exercise where candidates could command a square combat team and practice their new skills through a series of continuous dry hasty attacks in the field, leading a mechanized force provided by the hosting base at either Gagetown or Wainwright. However, the CTCC is undergoing an evolution. In 2017–18, under the mentorship and guidance of a British exchange officer, Major Charlie Chuter, the course evolved to include an increased emphasis on the training-education nexus. In the new formula candidates are given even more opportunities to develop their critical thinking, command and control, and leadership skills.

Major Chuter, of the Royal Tank Regiment, oversaw the design and conduct of the course. He introduced a wide range of educational seminar discussions about command and leadership into the course programme to expand the candidates' minds and to encourage critical thinking through real world examples and experiences. This approach was supported by adding specialist guest lecturers, both military and civilian, to engage the course on a variety of topics pertinent to the profession of arms. These ranged from leadership, to strategy and tactics, and even to the nature of warfare. Guest lectures then drove discussions around relevant historical examples and vignettes to examine the practical application of theory on the battlefield at all levels of warfare. Major Chuter's main objective for the course was to

> Present a rare—almost certainly singular—opportunity for soon-to-be sub-unit commanders to take a step back from the busy day job and reflect on what kind of commander, leader and manager they will be, and to define the culture they would wish to engender and foster in their team. The allocation of time and resources on CTCC 1701 to the study of command at different levels in the Army connects directly to this: looking at self, looking at the team, looking at the higher level context, and then reconciling and harmonizing them.

The candidates' already compressed schedule was packed with educational opportunities that exposed them to new ways of thinking about problems and to potential challenges they never before imagined. The end result was candidates that were better prepared and open-minded to the challenges facing sub-unit commanders today.

These latest changes to the CTCC come at a critical juncture in the development of the infantry, armour, artillery and engineer officer corps. Over the past several years and several iterations, the course itself has evolved into something much more which has become quite beneficial to the Army in the professional development of its leadership training for sub-unit commanders. Also, although it may appear to be a cliché, modern warfare continues to rapidly evolve strategically, operationally, tactically, culturally and technologically, making it more complex than any previous era. Current and future combat team commanders must be exposed to this reality throughout their professional development and must be continually educated on a variety of factors that will affect their ability to command and control their subordinates and resources while on operations. The candidates on the 2017 CTCC fully embraced the educational approach to training and leader development and are as ready as they can be to face the new and emerging threats of current and future conflicts.

A major component of Major Chuter's vision of improving the educational aspect of the course was to invite guest speakers, both military and civilian, to introduce relevant topics that provided insight and context on the core course content. A significant addition to the course was the invitation to Dr. Lee Windsor, a war studies professor from the University of New Brunswick Gregg Centre. Windsor delivered a powerful and insightful case study on the Canadian participation in the Battle for Sicily during the Second World War. That case study was first introduced as half- or full-day presentations and discussions in earlier courses. This year it was trialed for the first time as a more expanded seminar discussion rolled out over three days where Dr. Windsor masterfully delivered presentations on the case study split into a three parts, each focusing on different elements of combat power: offensive, defensive and enabling operations. It was refreshing to be given historical examples of the greater impact that tactical actions can have in a larger campaign. Dr. Windsor described the importance of this kind of educational training in a post-course interview.

Dr. Lee Windsor, Lee Windsor is Deputy Director at The Gregg Centre for the Study of War and Society at the University of New Brunswick and holds the Eaton Chair in Canadian Army.

Historical examples of modern armies carrying out core functions in the heat and pressure of combat, governed by real-world political, strategic, economic, and cultural constraints, offer Canadian Armed Forces leaders the opportunity to test how theory unfolds in practice. In the hot fire of combat, history students can see examples of exploitation actions that became hasty attacks, advances to contact that turned into defensive battles, or stability tasks that were shaping operations for deliberate massed coalition action.

He further explained the necessity for using well-documented historical case studies as training tools for teaching candidates by stating that

Historical case studies add an essential ingredient that current and immediate past experience cannot—a full appreciation of the enemy point of view. Without the enemy's voice and experience included in the discussion it is virtually impossible to fully measure the effect and impact of any action.

Dr. Windsor's use of historical case studies demonstrated the value of understanding the actions of all sides, enabling the candidates to better comprehend the results of actions taken because the research and information is available to a very detailed level that we cannot achieve with our current conflicts today. Detailed accounts from the enemy's viewpoint, supported by actual interviews and other primary sources obtained from German combatants are not yet easily accessible from more recent modern operations against Taliban and Daesh fighters, thus we are unable to deliver the same level of detail for modern case studies that some may argue are more relevant to the course's training. Dr. Windsor's selection of this particular case study was excellent since many of those actions and fundamentals displayed in Sicily are still practised by the Canadian Army today in modern operations, including fighting dispersed, and mobile operations in complex terrain inhabited by a substantial civilian population caught in the midst of their government's collapse.

Dr. Windsor also provided tactical problems drawn from the case for which the candidates working in groups had to provide a solution. What made the exercise more fascinating was the diverse ways the groups tackled the problem of going on the offensive in the rugged terrain of Italy in 1943, drawing on past and present knowledge, and personal experiences. This resulted in excellent discussion of tactics and doctrine that challenged the students to critically think about the problem and opened them to new considerations, solutions and battlefield innovation. Dr. Windsor would then reveal what the Canadian force chose to do and the results of those actions, reinforcing what some groups proposed and making all pause to reflect on some or all of their decisions. Overall it was a worthwhile endeavor introduced by Major Chuter and Dr. Windsor to the course that should and will be repeated. The two are already planning to try new case studies with built-in comparisons to more recent conflicts.

Source: CADTC

Demonstration of a combat team attack for CTCC in Wainwright training area conducted by A Combat Team 1PPCLI including a breach of a complex obstacle during Exercise COMMON RAM.

Another key presenter was Major (Retired) Duncan McSporran with his presentation on full-spectrum operations as Officer Commanding Zulu Company, 1st Fusiliers, during the invasion of Iraq in 2003. Major McSporran provided an in-depth presentation about the challenges and successes he encountered while commanding a sub-unit in a large scale ground offensive. The vignettes he presented on critical topics such as leadership, especially his interactions with his junior officers and senior non-commissioned officers, demonstrated both the challenges and rewards of command. Again, the candidates were exposed to a conflict in which Canada did not participate and for which there is no real experience within the Canadian Army of conducting modern operations at that scale. Major McSporran also described fascinating stories about sustainment in combat operations in high tempo and extremely dangerous situations, particularly the vast expenditure of ammunition and the strenuous efforts to remain resupplied throughout the fight through southern Iraq with his mechanized company.

Continuing on the topic of full-spectrum operations, throughout the course the candidates received additional presentations that would further educate them on the realities they are likely to face as sub-unit commanders. At the start of the course, the candidates received a contemporary operating environment case study titled, "The Russian Hinterland," an incredibly in-depth analysis of the present Russian military structure, size and capabilities that was both informative and somewhat alarming considering Russia's aggression in Eastern Europe and the Middle East. This presentation was a necessary component to complement current doctrine studies that enhanced the candidates' understanding of the threat faced without having the experience of fighting a near-peer adversary. The presentation enabled the candidates to appreciate the enemy force they were facing on the Computer Aided System (CAX) exercises and the real threat those REDFOR units made of pixels could pose to their forces. Additional sessions on the subject of information operations, stability operations and influence activities further rounded out the candidates' exposure to the realities of 21st century conflict.
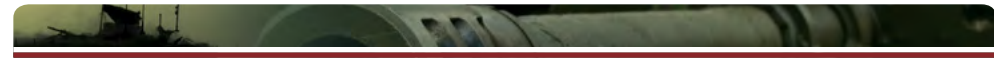
Another interesting topic that Major Chuter covered was the relationship between sub-unit commanders and unit commanding officers, a dynamic that most of the candidates had for the most part experienced as observers. Presentations by the commanding officers of the Lord Strathcona Horse, Lieutenant-Colonel Mark Lubinecki, and 1 Service Battalion, Lieutenant-Colonel Heather Morrison, both with their respective regimental sergeants major, provided great insight on their views of sub-unit command in the combat arms and combat service support arms, and how sub-unit commanders develop and interact with them as commanding officers. These presentations increased the overall understanding of the sub-unit commander's role within the unit hierarchy and its importance to the success of a unit both in garrison and in operations.

The professional development delivered on CTCC was exceptional in improving the candidates' understanding of sub-unit command by elevating the course from merely thinking at the tactical level—what they thought would be the focus of the course prior to arriving. The importance placed on education pertaining to sub-unit command by Major Chuter and his staff propelled the candidates to truly think beyond tactical problems and opened their eyes to the much larger picture in which sub-unit command has a very large impact. The educational approach had a profound effect on candidates, such as Major Jordan Beatty, who had this to say about the professional development opportunities that were provided during this course:

> The command professional development allowed us to absorb professional knowledge on sub-unit command from a variety of experienced officers, including multinational backgrounds. This allowed us to understand the different expectations of the sub-unit commander at unit, brigade, and divisional level in garrison and deployed on operations.

In such a compressed timetable, the amount of information that was delivered armed the candidates with a wealth of knowledge to consider, resulting in a greater understanding of sub-unit command. This was reflected in the tasks the candidates completed while on the course. Student-led hasty attacks, both using CAX and in the field, were taken a step further with the candidates whereby they considered enabling and stabilizing tasks throughout the attack and employed tactically sound improvisation. Candidates also utilized their enablers far better since they understood their roles in the greater scheme of the manoeuvre, where elements were not only employed properly but given the flexibility to enable very diverse attacks from the simple left frontal and right flanking manoeuvres. What transpired throughout the course was an amazing learning opportunity where candidates experimented with their responsibilities, learned from each other and their mistakes, and carried out imaginative, original and, at times, debatable manoeuvres and actions that were extremely beneficial to the learning environment that Major Chuter had envisioned for the course.

Source: CADTC

CTCC 1701 Course photo in Wainwright after the culmination of the field portion of the course, with Major Charlie Chuter in the centre.

From my perspective as a course participant, Major Chuter's emphasis on education concurrent with leadership development will create better sub-unit commanders for the Army. If the goal was to create more well-rounded and educated sub-unit commanders capable of thinking agilely while facing the unexpected, then this course was a success in achieving that objective. Candidates were more innovative and willing to experiment in their employment of the combat teams, utilized enablers more effectively, and applied overall what they had learned from the weeks of education about command to understand where the sub-unit fits into the greater operational and strategic framework and, most importantly, understood what they could offer as leaders.

ABOUT THE AUTHOR...

Captain Stephen Keeble enrolled in the Canadian Forces in 2004 as a Regular Officer Training Plan candidate and student of the Royal Military College (RMC) of Canada in Kingston. He obtained a bachelor's degree in Military and Strategic Studies and was commissioned as an infantry officer in 2008. He deployed with the 1st Battalion Royal Canadian Regiment (1 RCR) to Afghanistan in 2010 as a platoon commander in Kandahar province. He continued his educational career at RMC obtaining a master's degree in War Studies in 2015. Captain Keeble returned to Petawawa where he completed another tour with 1 RCR. He now works at the Canadian Special Operations Regiment as the Regimental Training Officer. He lives in Pembroke with his wife and two daughters.

CRISIS IN BALTIKA

SUPPORTING CLOSE ENGAGEMENT:
LAND POWER IN AN AGE OF UNCERTAINTY

Produced by: Canadian Army Land Warfare Centre
An Original Story by: Robert Engen

GRAPHIC NOVEL PROJECT

PHASE 1 DELIVERABLE

This story deliverable will be used to generate a graphic novel, set generally in the near future world of *Materialism Gone Mad* – one of the four "worlds" developed as part of the Future Land Operating Environment underpinning the Army Operating Concept, *Close Engagement: Land Power in an Age of Uncertainty*. The story is intended to emphasize the results of exploiting the capabilities inherent within the key tenets of the Close Engagement concept: Connectivity, Agility, Adaptability, Integration and Robustness.

Three main characters are central to the story: Major Rosalie Lecorre (Officer Commanding A Company, 2R22^{e}R), Master Corporal Edouard Bastien (B Company Forward Cyber Specialist) and Billie Singh (the spouse of Corporal Samandar "Sam" Singh). The graphic novel will follow the point of view character, Major Rosalie Lecorre.

NATO's enhanced Forward Presence in the Balkans serves as the basis of the story, with the NATO Alliance member *Baltik*a experiencing massive internal strife seemingly caused by its aggressive neighbour, the Federation, which is seeking a pretext to annex parts of *Baltika*, including the city of *Valonia*.

The action opens at the scene of an apparent gas-leak explosion in a local restaurant, whose cause is quickly found to be a directed drone strike. The attack is one of many launched to destabilize an upcoming ceremony for the decommissioning of a controversial monument. Upon conclusion of the ceremony, a series of events unfold that implicate the Canadians in an unprovoked attack on a *Federation* diplomatic motorcade, sparking a shooting war. We see kinetic and non-kinetic actions being taken in the battlespace, including back home in Canada. The speed and lethality of actions are on full display. Together, the characters operate in a degraded network environment where hostility lurks around every corner.