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The stately Officers Mess at the Canadian Forces College Toronto.

IN THE WAKE OF A PARADIGM SHIFT: THE CANADIAN FORCES COLLEGE AND THE OPERATIONAL LEVEL OF WAR (1987-1995)¹

by Howard G. Coombs

The inclusion of the operational level of war as an underpinning of professional military education has been accepted by the US Army, the German Army and the Soviet Army. It is believed that this concept also has a place in the CF and particularly, in the CFCSC [Canadian Forces Command and Staff College] curriculum.²

~ Colonel E.R. (Ted) Nurse

Introduction

These seemingly innocuous words written by the Director of Land Studies at the Canadian Forces College³ in 1987 heralded one of the most significant paradigm shifts to take place in Canadian military thought since the Second World War. The operational level was a notable departure from the traditional way the Canadian Forces (CF) understood and conducted war. Nurse's statement acknowledged that the complexity of modern warfare had increased to such an extent that new ideas from other armies were overtly displacing older concepts, and it was necessary that Canada follow suit, even if it meant incorporating another nation's ideas in the CFC curriculum. Its

rapid acceptance and institutionalization from primarily American, German, and Soviet sources demonstrates that the Canadian military identified itself as part of a larger group of practitioners who shared fundamental beliefs and values.⁴ But that wider community was not as inclusive as Nurse's initial proposal would imply. Analysis reveals that this paradigm shift was determined by the military relationships of the Cold War. For Canada, this meant that the introduction and implementation of the operational level of war was determined in large part by ideas advocated by the United States Army.

The American Inspiration

The associated paradigm shift within the United States occurred as hypothesized in the idealized model of theo-

Colonel Howard G. Coombs is an Assistant Professor at the Royal Military College of Canada, currently serving with the Directorate of Learning and Innovation at the Canadian Defence Academy. He is also a part-time reservist who has been Commanding Officer of the Princess of Wales' Own Regiment, an infantry unit based in Kingston, and he is now the Director of the Joint Command and Staff Programme (Distance Learning) at the Canadian Forces College.

rist Thomas S. Kuhn. Kuhn emphasized the importance of the social factors to the creation and migration of knowledge. He utilized the concept of the paradigm to include communities of scientific practitioners who share common beliefs, as well as to describe the shared belief or theory. His conception of paradigm shift describes the process by which the practitioners change their belief systems or paradigms. Kuhn suggested that anomalies gradually appear to challenge the extant paradigm through “normal” science, thereby prompting new research and eventual reconstruction of the field in a manner predicated upon amplifying the previously

unexplainable anomaly.⁵ Kuhn proposed that paradigms are necessary to focus research, and he argued that the true sign of a mature science is a continuous transformation from one paradigm to another through successive shifts produced by revolutions.⁶ He also believed that as the new paradigms, or schools of thought, gain credence and attract practitioners, the older paradigms and communities of practice disappear. Specialized journals, groups of practitioners, and demands for specialized curriculum are all associated with the implementation of these new paradigms.⁷

Appealing to Kuhn’s idealized model, one can discern all facets of a paradigm shift in the events surrounding the formulation and institutionalization of the operational level of war by the United States Army. Failure in Vietnam provided the US Army with the impetus to create and adopt new doctrine in order to address perceived deficiencies in the method by which strategy was connected with military activities. The creation of this new explanatory paradigm, the operational level of war, included all constituencies and involved professional and public debate. While all the hallmarks of Kuhnian theory regarding intellectual shifts are present in this process, no conscious effort was made to ensure success of the conceptual shift using this theoretical approach. Instead, the process was designed to create consensus and acceptance.⁸ Surprisingly, while Brigadier General (ret’d) Huba Wass de Czege, United States Army, a member of the team that formulated the 1982 field manual *FM 100-5 Operations*, wrote that the team did not consciously utilize Kuhn’s theories, even though he “...had read Kuhn’s book as a graduate student at Harvard some years earlier.”⁹ Even so, while the shift demonstrated by this change process did not deliberately mirror Kuhn’s theory, it demonstrates the validity of the model, and it provides a useful tool to examine the manner in which this analytical transformation took place in the Canadian context.



An American GI in action in Vietnam, circa 1968.

VA050786, American Division Veterans Association Collection, The Vietnam Archive, Texas Tech University

Canada Comes on Board

However, these thoughts could not have taken root if not approved by the Officer Professional Development Council (OPDC). This board was created as an advisory body to the Assistant Deputy Minister (Personnel) (ADM(Per)), a general officer, as a result of reforms put forward by the 1969 *Rowley Report*. The Council provided recommendations with respect to selected facets of the Officer Professional Development (OPD) system, such as, curriculum matters, course objectives, recommendations with respect to the career aspects of professional development policy, integration of doctrine, and organizational development. OPDC’s authority extended to matters pertaining to professional education and officer development, and its membership included the commandants of the CFC and the Canadian Land Forces Command and Staff College (CLFCSC). It met at least annually and forwarded the results of these conferences to the ADM (Per) for approval and disposal.¹⁰

Accordingly, the proposal that was forwarded by the CFC to the OPDC for its general meeting at the National Defence Headquarters (NDHQ) on 22 April 1987 was designed by Land Studies instructors to permit the CFC a great amount of flexibility in the adoption of this new idea of the operational level of war, and it was constructed to allow the further propagation of this concept throughout the Canadian military. CFC recommended to OPDC, “...[that] the concept of the operational level of war be officially recognized,” and that the College lead the way in developing and implementing the concept in Canada.¹¹

“Failure in Vietnam provided the US Army with the impetus to create and adopt new doctrine...”

The 14-page briefing entitled *The Operational Level of War* that accompanied this proposal identified the call for the operational level of war as arising from the changing nature of contemporary conflict, and postulated that strategic victory was

determined by the successful conduct of military operations over extended periods of time and distributed over various regions.¹² Implicit in this paradigm was the methodical orchestration of all military activities to support a national goal. The discussion was framed using mostly American sources, along with a limited British perspective.¹³

Noteworthy was the opening sentence of that brief: “During the past four years the Army staff at the CFCSC have become increasingly aware of a new dimension in Western military thinking, that is the concept of the operational level of war.”¹⁴ This coincided with the promulgation of the 1982 version of *FM 100-5*, which clearly articulated to American officers that warfare was a “national undertaking,” and “...[it] must be coordinated from the highest levels of policy making to the basic levels of execution.” It then laid out the “Levels of War,” and, for the first time, clearly delineated the operational level of war as a separate conceptual realm rather than a portion of tactics or strategy.¹⁵

While these concepts were not entirely unknown and had been utilized intuitively, and, to an extent formally, since the Napoleonic Wars, the adoption of the operational level of war in United States Army doctrine systemically delineated the realm that existed between the politics of strategy and the violence of tactics, and it had various gradients, ranging from the lowest level of tactics through operations to the highest level of strategy.¹⁶ The importance of this concept was that it formalized the conversion of strategic objectives into aims that could be understood and attained at the tactical level of military activity.

The movement in the United States toward a new paradigm of conducting warfare was the result of the catastrophic effect that the Vietnam War had on the United States Army. Critical failures in its intellectual approach, methodology, and force structure have been well documented in numerous stud-

ies of that period. One of the greatest faults was perceived to be weaknesses of national strategy formulation and concomitant military implementation.¹⁸ This was precisely the conceptual region that the 1982 edition of *FM 100-5* addressed. However, the most important impact that this tragic conflict had was on the collective psyche of the United States military. The generations of officers who continued to serve in the post-Vietnam period were determined that its lessons would not be lost, and they took action to revolutionize the American way of war to ensure that the military, particularly the army, would be equipped, trained, and structured to meet the challenges of the modern battlefield.¹⁹

As a result, these emergent ideas were not confined to the desks of a few doctrine writers but engendered an open discourse among those senior officers providing the writing guidance, the larger community of American military practitioners, and, surprisingly, civilian officials and academics.²⁰ The numerous activities that surrounded the introduction of the 1982 edition of *FM 100-5* made certain that the United States Army addressed any critical observations and ensured acceptance of the paradigm change among a wide professional community.²¹

There existed a receptive northern audience for these ideas. Canadians were attuned to the actions of their closest allies, and were aware of the conceptual changes that were taking place. Colonel Nurse, in drafting the initial OPDC documentation pertaining to the adoption of the operational level of war in Canada, outlined the measures taken by the United States Army to institute operational doctrine and thought, including amendments to their staff college curricula. He pointed out the related “cerebral outburst of thinking” that had taken place in United States professional military journals.²²

These ideas also migrated from American military practitioners to their Canadian colleagues via military-to-military

contact in exchange postings to the United States services, and attendance at American professional military education institutions. For example, Nurse was a 1980 graduate of the United States Armed Forces Staff College. In his 1987 briefing, he not only alluded to these American influences, but also provided context to the relevant issues. He argued that Canada needed to educate officers about the intricacies of the operational level of war to remain relevant within the environment of alliance and modern conflict.²³

This recommendation was accepted by the OPDC with little recorded discussion or debate. The minutes note laconically “... [that] the Council accepted the concept of an intermediate, theatre-level of war strategy, between tactics and grand strategy.” One wonders if the Council really understood the model to which it had

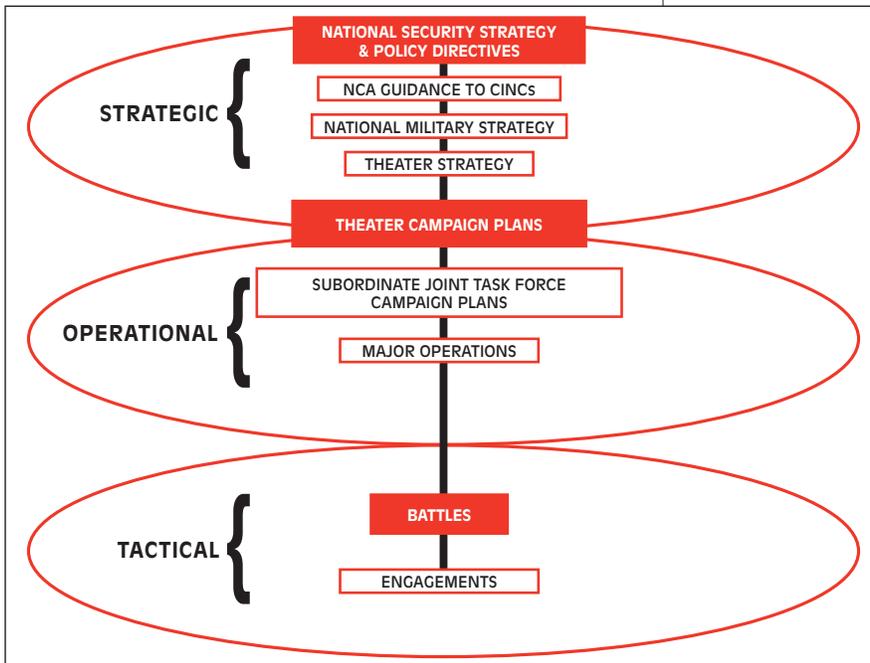


Figure 1 - Levels of war and guidance hierarchy¹⁷

agreed. This instance of not understanding was evidenced by the decision to direct the CFLCSC to teach this doctrinal concept at the tactical level of division and below at the same time as the CFC would instruct at the corps and echelons above corps level. While it is possible to instruct tactical audiences on operational thought and activities, the utility of the concept, as it was first articulated in 1982, is limited when dealing with military activities below theatre-level.²⁴

recommended that the CLFCSC should focus primarily at the tactical level of war. The necessary coordination between the two Colleges to prevent discontinuities in curriculum would be addressed by the two commandants.²⁷ Accordingly, the minutes of the OPDC stated “that when the ‘Operational Level of War’ is accepted as Canadian doctrine it will be included in the joint curriculum of CFCSC.”²⁸

Yet, even though the initial impetus behind the proposed change had lost momentum, the CFC continued to explore the operational level of war. On 12 July 1990, it forwarded a proposal for a major curriculum change to the Chief of Personnel Development (CPD), who was the Chairman of the OPDC.²⁹ The recommended amendments were to the Land Command and Staff Programme (LCSP), which was the environment-specific portion of the larger Command and Staff Course delivered to Canadian Army officers attending the multi-service course.³⁰

The proposed changes to the army program noted that “supporting” operational doctrine was being concurrently developed by the Land Forces Combat Development Committee, and that a copy of the package had been sent to the CLFCSC.³¹ In the absence of national joint doctrine, the Canadian

Army had created a service doctrine that would provide guidance to the remainder of the CF.

Following this exchange, early in 1991, the new Director of Land Studies, Colonel Keith T. Eddy, recommended closer examination of American operational level developments.³²



Photo courtesy of the Canadian Forces College

The Canadian Forces College and its environs from an aerial perspective.

Concerns Surface

Reaction to the Council’s decision was swift. A joint Update document from the CFC and the CLFCSC was put forward at a meeting held one year later at NDHQ on 20 April 1988. It noted that two facets of the previous decision had created confusion. First, in accepting the reality of the construct of the operational level of war, the Council had overstepped its bounds by moving from being an educational consultative body to making a doctrinal pronouncement. Without a common operational level doctrine for all three services to permit implementation, no authority existed from the CF to use this idea. Second, the restructuring of staff courses in 1974 at the CFC and the CLFCSC had led to dissimilar levels of education and curriculum content.²⁵ These differences had been ignored by the OPDC in its original direction the previous year, which had created confusion at these staff colleges.²⁶

Two recommendations fell out of this debate. Most importantly, the various doctrinal development agencies of the CF (joint, navy, army, and air force) needed to adopt this concept and incorporate it into doctrine. Only then could the operational level of war be incorporated into the CFC syllabus. In addition, it was



Defense Imagery Mill photo DN-ST-91-11690 by Staff Sergeant Masters

An M60A-1 main battle tank equipped with reactive armour and mine clearing rollers leads a column of Marine AAVP-7A1 amphibious assault vehicles into Kuwait at the commencement of Operation Desert Storm.

This proposal was likely prompted by the recent overwhelming American coalition victory in Kuwait against the Iraqi Army. That military success had utilized the latest operational doctrine – the same doctrine that was being debated and discussed in Canada.³³

Despite the outward support for implementation of the operational level of war at the CFC, internal correspondence, originated by the Commandant, Brigadier-General J.A.R (Ray) Desloges, to the Director of Land Studies, indicates some doubts concerning the direction that had been taken within the land program. Desloges suggested that, with its emphasis upon high-intensity general combat, these changes to the LCSP were not in keeping with developments that seemed to be taking place in Canadian defence plans and force structures.³⁴

Eddy responded that he concurred with the need for the College programs to remain timely and pertinent, but, in order to do that, it was necessary to focus beyond the norm of Canadian military operations, and, among other things, to take note of alliance shifts in doctrine and concepts. For that reason, amending the LCSP “...to reflect on current CF capabilities would be doing a disservice [to the students and the CF].” Desloges concurred.³⁵ Consequently, by 1991, the LCSP changes were set in motion and the first course to include the operational level of war commenced.³⁶

In the absence of uniquely Canadian doctrine, the LCSP took the American perspective of the operational level of war. While other countries’ operational level experiences and doctrines were touched upon, those of the United States became



CFJC Photo ISCB9-2165 by Warrant Officer Vic Johnson

General John De Chastelain as Chief of the Defence Staff, 1989.

pre-eminent within the material that was taught. For instance, a key lecture entitled *The Operational Level of War* was taught by an American officer from the Doctrine Division of the Center for [United States] Army Tactics, Fort Leavenworth.³⁷

At the same time, the OPDC initiated debate with regard to instituting the conceptual model of the operational level of war within the context of advanced military education.³⁸ Brigadier-General R.A. (Romeo) Dallaire briefed the Council based upon his experiences as a student at the British Higher Command and Staff Course.³⁹ Dallaire’s presentation was well received and the Council decided to hold a ‘brainstorming’ session for its membership to examine the feasibility of developing a Canadian equivalent to the Higher Command and Staff Course. However, this session never occurred, due to personnel postings and higher priority projects.⁴⁰

During this period of discussion and debate, the OPDC directed that the CFC organize and conduct a weekend seminar for selected general and senior officers to discuss the development of a Canadian Higher Command and Staff Course.⁴¹ The seminar took place at the National Defence College in Kingston, Ontario during January 1992. It did not result in the development of a separate educational activity, but rather, a directive was issued to the CFC from the Chief of the Defence Staff (CDS), General John De Chastelain, to create a seminar for senior military practitioners “...[on] the state of the art in joint and combined warfare.”⁴² The timing was propitious. Providing these discussions impetus within the same period, the Auditor General’s report noted that the CF needed to examine its requirements for professional education to ensure that both career management and development reflected the requirements of the modern era.⁴³



The Canadian Press/Ryan Remiorz

Major-General Roméo Dallaire

Meanwhile the CFC continued to push ahead with amendments to the Command and Staff Course. In addition to changes within the LCSP, the other environmental programs, the Naval Command and Staff Programme (NCSP) and Air Command and Staff Programme (ACSP), as well as the inclusive Joint Command and Staff Programme (JCSP), were also changed to include the operational level of war. The JCSP was modified to reflect United States joint operational doctrine because Canadian material was non-existent on this topic.⁴⁴

Following these curriculum changes, the CFC returned to the OPDC with proposals for a “General and Senior Officers’ Seminar on Joint and Combined Operational Level Concepts.”⁴⁵ These seminars were conducted between 1993 and 1995.⁴⁶

Despite the efforts being made to inculcate the operational level of war through changes to professional education and senior officer symposia, considerable challenges remained to achievement of this paradigm shift. Desloges wrote to the Chief Personnel Careers and Development (CPCD – formerly CPD and the chair of the OPDC) a few days prior to the first seminar in January 1993 and outlined the difficulties that would be encountered in creating a general acceptance of the operational level of war. He suggested that while the army would accept such concepts, as it had a long formalized process for planning activities at what could be considered the operational level, the navy had only in recent years started to adopt such a process, and no such process existed within the air force. General Desloges did note that a naval planning process had been devised at the staff college, and a similar effort was being made on behalf of the air force. He thought that these efforts were akin to the important work being done to propagate the operational level of war, and he highlighted the CFC as being a valuable agent of conceptual change. Furthermore, he emphasized that the CF, as a whole, lacked general operational level procedures and specific joint doctrine at the level of multi-service military activities. In the absence of Canadian initiatives in these areas, Desloges wished to ensure that the CPCD understood that the staff college had adopted American publications to address these topics. He noted that American manuals were most suitable because they were “after comparative evaluation against that of other countries and NATO ...found to be the best developed, most sophisticated, most clearly articulated, and the most proven.”⁴⁷

Desloges also expressed concerns about the state of Canadian military education. He argued that a rigorous approach to education was necessary to reaffirm the operational level model.⁴⁸ Along with academic structure was the necessity of providing a continuous stream of articles about emergent warfare concepts and doctrinal innovation aimed at senior officers. This literature would assist with the education of the senior leadership at large.⁴⁹

Desloges recommended that a more structured approach to formal military education was needed if Canada was to ensure the ability of its officers to command at the operational level of war. He noted that the American military provided an integrated and progressive educational experience for senior officers throughout their careers. Desloges urged discussion

at the highest military levels to address the lack of coherently programmed professional military education in Canada.⁵⁰

Notwithstanding these apparently pessimistic pronouncements, a short time later more than 80 representatives of the senior leadership from all elements of the CF attended the 1993 discussion group. The attendees included the Vice-Chief of the Defence Staff and the three environmental commanders, with the majority of the invited guest presenters for the landmark 1993 session originating from the United States.⁵¹

The three Canadian environmental commanders gave their views with respect to operational art. All three heads of services were generally supportive of the concept of the operational level of war and the progress in implementing it to date, but, not surprisingly, their viewpoints reflected their separate environmental cultures.⁵² It was also acknowledged in the notes from the symposium that a draft was in development of a Canadian doctrine regarding the operational level of war “... compatible with those of our major allies.” After conducting a retrospective analysis of the 1993 symposium, Desloges felt that it had made a positive impact upon the senior officers that had attended.⁵³



Photo courtesy of the Canadian Forces College

Brigadier-General Ray Desloges.

Regardless of the apparent achievements of the presentations, the debate continued with respect to the appropriate methodology to institutionalize these concepts.⁵⁴ By March 1993, Rear-Admiral H.T. Porter, then Chair of the OPDC, had signed correspondence on behalf of the CDS directing that the CFC continue with future initiatives of this type, and that the body guiding future seminars would be the OPDC.⁵⁵

In the meantime, discussion continued regarding the manner in which Canadian officers could become skilled in these

operational concepts. The army was particularly vociferous in advocating its point of view. The Deputy Commander Land Force Command, Major-General J.M.R. Goudreau, on behalf of the army, corresponded with others who had participated in the original seminar. In particular, Goudreau emphasized the requirement for senior and general officers to receive comprehensive and progressive military education at the higher levels of war in order to compensate for what he perceived as shortcomings in professional formation. The four areas highlighted were: the lack of continuous education throughout military careers, the deleterious impact of the limited experience of CFC instructors, ongoing budget challenges in the acquisition of 'cutting edge' military technology, and, lastly, the negative effects of CF downsizing in Europe.⁵⁶

While Goudreau's observations did not result in specific changes, this discourse was symptomatic of ongoing professional interaction, and it was linked with the general acceptance and institutionalization of the operational level of war. During 1995, joint doctrine for the operational level was promulgated, and Land Force doctrine rapidly followed in 1996.⁵⁷ Both publications defined the operational level of war as "... the level of war at which campaigns and major operations are planned, conducted and sustained to accomplish strategic objectives within theatres or areas of operations."⁵⁸ These Canadian doctrinal definitions were clearly of American provenance, as they were taken verbatim from the 1995 edition of the United States Joint Chiefs of Staff *Joint Publication 3-0 Doctrine for Joint Operations*.⁵⁹

Incongruously, despite some higher level discussion engendered by the seminars, there was little written from a Canadian point of view concerning this doctrinal transition. *Canadian Defence Quarterly (CDQ)*, then the professional journal of the CF, published only two articles about the operational level of war during this entire period.⁶⁰ The only other indication of professional debate with respect to these theoretical concepts and their place in the Canadian military was a compilation of essays from the Twenty-First Annual Military History Symposium held at the Royal Military College of Canada in 1995. The symposium proceedings, published as *The Operational Art: Developments in the Theories of War*, had a primarily American focus. However, one essay was noteworthy – the distinguished Canadian historian Dr. Bill McAndrew's *Operational Art and the Canadian Army's Way of War*.⁶¹ In this essay, McAndrew put forward the idea that adoption of this American construct was problematic and risky. He explained that the search for answers by the United States Army during the post-Vietnam period resulted in the adoption of the operational level of war. A similar pattern of crisis and response had not taken place in Canada and consequently the acceptance of such ideas without introspection was problematic: "Trying to absorb foreign doctrines second-hand will be as fruitless as transplanting tropical plants in the tundra."⁶²

Despite McAndrew's strongly-worded caution, there was little debate in any venue. One could argue that this inattention was due to a lack of introspection by Canadian military professionals. However, that argument would not be supported by activities undertaken by Nurse, Eddy, and others at the CFC to capture these ideas in the curriculum, and to promulgate the

concepts to a wider audience in the CF. The explanation of this lack of professional and public discourse likely revolves around the self-image of the profession of arms, particularly that of the army, in Canada. Due to affiliation and interaction with the American military in the modern era, CF personnel viewed themselves as members of a transnational profession that encompassed North America. They were, in effect, a sub-group of that larger community of practice.

In Canada, the change process underlying the adoption of the operational level of war seems to align, at least superficially, with McAndrew's observations. It was bureaucratically directed initially by the OPDC, then later the CDS, and it should have had no permanence because, unlike the United States, no great intellectual introspection had greeted this new idea in Canada. As a consequence, the doctrine had no firm intellectual underpinnings, and this shift ought to have failed. Nevertheless, the change process succeeded in Canada. The operational level of war was adopted by the CF, and it continues to be studied and used in military operations today.

More understanding of this seeming anomaly can be gained from the theories of the Polish scientist and philosopher Ludwik Fleck, utilized by Thomas Kuhn in the formulation of his hypothesis. Fleck advocated the concept of thought collectives, which he defined as participants in a definable and collective structure of thought generated by an esoteric circle of authorities, or experts. The group communicates knowledge within a circle of laypeople that provides feedback on these views. Knowledge passes from the inner to outer circles and back again so that this cycle is strengthened and collectivized. This complex, open system of exchange can create a weakening of existing systems of beliefs, and encourage new discoveries and ideas.⁶³ This writer believes that this process is analogous to that which transpired within what can be termed the 'North American military thought collective.' One must situate the paradigm shift within the context of a single group of military professionals defined by a common purpose rather than locating it in two distinct groups separated by nationality.

The experts within the larger collective were the doctrine writers and then the practitioners of the United States Army. The collection of experts within the Canadian sub-group of the collective resided in the CFC, where they absorbed, imitated, and promulgated these new ideas in the manner described by Fleck. None of the hallmarks of the paradigm shift that Kuhn would have attributed to professional discourse took place in Canada because *it had already occurred in the United States*; the Canadian military implicitly viewed itself as part of a single community of practice that extended across the continent and followed the paradigm shift that had taken place.⁶⁴ This *was* and *is* evidenced by the verbatim adoption by Canadians of American examples, practices, and doctrine. This interpretation explains the lack of indices of Kuhn's model during the acceptance of the operational level of war in Canada. McAndrew was correct in his observations concerning the transplanting of foreign ideas: if the CF, specifically the army, had not viewed itself as an extension of a community of practice originating in the United States, this initiative would have failed.



In the mountains of Paktia Province east of Gardez, Afghanistan, members of an anti-tank team from 3rd Battalion Princess Patricia's Canadian Light Infantry, take a much-needed rest on the trail.

through professional education and their military assignments. As a result, the learning, dialogue, and scant debate that this paradigm shift engendered within the CF demonstrated not only the influence of the CFC in the realm of military professional knowledge during the post-unification era, but also the unquestioning acceptance of American ideas by the Canadian Army and the larger CF.

More importantly, it showed how quickly the leadership of the Canadian military, as like-minded professionals, was prepared to adopt a primarily American vision of organizing war, one that attributed its provenance to the historical experience of the United States Army. This perspective has had a cor-

responding and continuing impact not only on the professional education of the Canadian military, but, more importantly, on the intellectual approaches utilized by its senior leaders and commanders when planning military activities in response to national direction, and, in effect, in determining the Canadian Way of War in the post-modern era.



Conclusion

Both Ludwik Fleck and Thomas Kuhn emphasized the role of concurring practitioners in the spread of knowledge. The adoption of the operational level of war by the CF was part of a single intellectual change that had originated in the United States Army and was promulgated in Canada through officers, primarily those of the Canadian Army, serving at the CFC. These officers were immersed in American concepts

NOTES

- 1 I would like to thank Doctors Allan English, Jackie Duffin, Jane Errington and Colonel Randy Wakelam, PhD, for their assistance in putting the theoretical perspectives and historical research involved with this article in a coherent and understandable form. I also owe a debt of gratitude to Major Sean Wyatt for his help in editing this piece to manageable proportions.
- 2 This statement formed the core of a proposed agenda item for Canada, Department of National Defence (DND), Canadian Forces College (CFC) Archives, Papers Relating to Meetings of the Officer Professional Development Council 1980-1997 (henceforth *OPDC Papers*), Officer Professional Development Council (OPDC) General Meeting in 1987, 5570-1(Comdt), dated 3 March 1987, "Officer Professional Development Council 1987 General Meeting Agenda," p. B-1.
- 3 In the late 1980s, the title Canadian Forces College (CFC) subsumed the name Canadian Forces Command and Staff College (CFCSC). E-mail from Colonel Randall Wakelam, (5 April 2009).
- 4 Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd Edition. (Chicago: University of Chicago Press, 1996), p. 175.
- 5 *Ibid.*, pp. 84-85.
- 6 *Ibid.*, pp. 12-15 and pp. 89-90.
- 7 *Ibid.*, pp. 18-19.
- 8 For earlier doctrinal controversy see Huba Wass de Czege, "Lessons from the Past: Making the Army's Doctrine 'Right Enough' Today," *Landpower Essay*, No. 06-2 (September 2006), p. 4.
- 9 E-mail from Brigadier (ret'd) Huba Wass de Czege, United States Army (13 February 2007).
- 10 See Lieutenant-Colonel Randy Wakelam, "Senior Professional Military Education for the Twenty-First Century" in *Canadian Defence Quarterly* 27, No. 1 (Autumn 1997), pp. 14-15; Canada, DND, CFC Archives, *OPDC Papers*, 5570-23 (DPED 3-2), dated 14 June 1987, "Minutes of the Eleventh General Meeting of the Officer Professional Development Council, Held at NDHQ [National Defence Headquarters], 0830-1700 hrs Wed 22 April 1987," Annex A to 5570-23 (CPD) dated 26 November 1987, "Terms of Reference for the Officer Professional Development Council," pp. A-1 to A-2.
- 11 Canada, DND, CFC Archives, *OPDC Papers*, 5570-1(Comdt), dated 3 March 1987, "Officer Professional Development Council 1987 General Meeting Agenda," p. B-1.
- 12 *Ibid.*, "The Operational Level of War," pp. 1-2.
- 13 *Ibid.*, pp. 3-4 and pp. 10-11.
- 14 Emphasis added. *Ibid.*, p. 1.
- 15 United States, Department of the Army, *FM 100-5 Operations* (Washington: Headquarters Department of the Army, 20 August 1982), pp. 2-3.
- 16 See John English, "The Operational Art: Developments in the Theories of War," in *The Operational Art: Developments in the Theories of War*, B.J.C. McKercher and Michael A. Hennessy (eds.) (Westport, CT: Praeger Publishers, 1996), pp. 7-28.
- 17 This diagram is taken from a later field manual subordinate in the doctrine hierarchy to the *FM 100-5* series. The figure captures nicely the development of activities and direction within the conceptual spectrum of strategic through operational to tactical. NCA (National Command Authority) meant the President (as "the" Commander-in-Chief) and the Secretary of Defense, while a CINC (Commander-in-Chief) was a commander of one of the United States Unified Commands, like Central Command (CENTCOM). Today the term CINC is used by the United States military solely to represent the President. United States, Department of the Army, *FM 9-6 Munitions Support in the Theater of Operations* (Washington: Headquarters Department of the Army, 20 March 1998), no page [publication on-line], available at <<http://www.globalsecurity.org/military/library/policy/army/fm/9-6/9-6CHAP1.HTML>>, accessed 6 October 2009.
- 18 See United States, Department of the Army, Colonel Harry G. Summers, Jr., Colonel of Infantry, *On Strategy: The Vietnam War in Context* (Carlisle, PA: United States Army War College, Strategic Studies Institute, April 1981).
- 19 For a firsthand account of the post-Vietnam generation of United States Army officers and discussion of the impact of the Vietnam experience, see Colin Powell with Joseph E. Persico, *My American Journey* (New York: Random House, 1995).
- 20 United States, Department of the Army, Army Heritage and Education Center (AHEC), The

- Donn A. Starry Papers (henceforth *Starry Papers*), Box 33, *FM 100-5* File.
- 21 *Ibid.*, p. 66.
- 22 Canada, DND, CFC Archives, *OPDC Papers*, "The Operational Level of War," p. 13.
- 23 For Nurse's biography see Canada, DND, CFC Archives, 1986-1987 *Directory Canadian Forces Command & Staff College*, no page. Canada, DND, CFC Archives, *OPDC Papers*, "The Operational Level of War," pp. 12-14.
- 24 *Ibid.*, pp. 13-14.
- 25 This had been a result of the staff college integration arising from unification.
- 26 Canada, DND, CFC Archives, *OPDC Papers*, 5570-23 (DPED), dated 19 May 1988, "Minutes of the Twelfth General Meeting of the Officer Professional Development (OPD) Council, Held at NDHQ, 20 April 1988," p. 3 and Annex B; Canada, DND, CFC Archives, *OPDC Papers*, "OPD Council Twelfth Annual General Meeting CFC Position Paper The Operational Level of War Agenda Item 1," in "Minutes of the Twelfth General Meeting of the Officer Professional Development (OPD) Council," pp. 1-2; and see also the enclosed two-page bibliography from the Canadian Forces College Library, entitled "Operational Level of War."
- 27 *Ibid.*, pp. 2-3.
- 28 Canada, DND, CFC Archives, *OPDC Papers*, "Minutes of the Twelfth General Meeting of the Officer Professional Development (OPD) Council," p. 3.
- 29 See Canada, Department of National Defence, CFC Archives, Miscellaneous Documentation Pertaining to Curriculum Development (henceforth *Curriculum Documents*) 4955-4 (Comdt), dated 12 July 1990 "Revision to Operational Level - Land Command and Staff Programme (LCSP)."
- 30 This separate environmental component was mirrored within the overarching framework of the CFCSC by the other two services, through maritime and air studies.
- 31 *Ibid.*, p. 1.
- 32 Canada, DND, CFC Archives, *Curriculum Documents*, 1775-1 (DLS), dated 7 March 1991, "Visit to Fort Leavenworth 4-5 Mar 91," p. 2.
- 33 General Robert H. Scales, *Certain Victory: The US Army in the Gulf War* (Washington, D.C.: Office of the Chief of Staff United States Army, 1993; reprint, (Leavenworth, KS: U.S. Army Command and General Staff College Press, 1994), 12-15; and Canada, DND, CFC Archives, 1990-1991 *Directory Canadian Forces Command & Staff College*.
- 34 *Ibid.*; and "Enclosure" to Canada, DND, CFC Archives, *Curriculum Documents*, 4500-1 (DLS) dated 12 August 1991, "LCSP," pp. 1-2. Quotes from Page 2.
- 35 *Ibid.*
- 36 Canada, DND, CFC Archives, Command and Staff Course Papers (henceforth *CSC Papers*), "91-92 Syllabus Canadian Forces Command and Staff College Command and Staff Course 18," pp. 1-8.
- 37 See Canada, DND, CFC Archives, *CSC Papers*, *Land Command and Staff Programme Force Preparation Series* (1990-1991); and Canada, DND, CFC Archives, *CSC Papers*, *Land Command and Staff Programme Force Preparation Series*, "L/PREP/L-3 Canadian Forces Command and Staff College Command and Staff Course 18 - 1991/92 - Land Command and Staff Programme Force Preparation Series Lecture - The Operational Level of War," p. 1/3.
- 38 Canada, DND, CFC Archives, *OPDC Papers*, 5570-23 (CP Per) dated 3 July 1991, "Minutes of the Fifteenth General Meeting of the Officer Professional Development (OPD) Council, Held at NDHQ, 0830hrs 29 April 1991," p. 5.
- 39 "Higher Command and Staff Course Briefing to the Officer Professional Development Board By Brigadier-General R.A. Dallaire, Commandant CMR St-Jean," enclosed in Canada, DND, CFC Archives, *OPDC Papers*, 5570-23 (CP Per), dated 3 July 1991, "Minutes of the Fifteenth General Meeting of the Officer Professional Development (OPD) Council, Held at NDHQ, 0830hrs 29 April 1991"; and see "What is Happening at the Higher Levels of Field Command and How are the Senior Operational Commanders Being Prepared?" enclosed as Annex C to Canada, DND, CFC Archives, *Curriculum Documents*, Pers 221 862 469, dated 8 April 1991, "End-Of-Course Report British Higher Command And Staff Course 4."
- 40 For discussion see Canada, DND, CFC Archives, *Curriculum Documents*, "Higher Command and Staff Course," undated briefing note.
- 41 Canada, DND, CFC Archives, *OPDC Papers*, "Minutes of the Fifteenth General Meeting of the Officer Professional Development (OPD) Council," p. 5.
- 42 "OPD Council Sixteenth General Meeting Canadian Forces College Brief General And Senior Officers' Seminar On Joint and Combined Operational Level Concepts," p. 1, enclosed in Canada, DND, CFC Archives, *Curriculum Documents*, 4640-1 (Cmnd), dated 11 February 1993 "General And Senior Officers' Professional Development Seminar 15-17 Jan 1993."
- 43 Canada, DND, CFC Archives, *Curriculum Documents*, "Higher Command and Staff Course," undated briefing note; and the review of Officer Professional Development was the subject of an extraordinary meeting of the OPDC in October 1992 and entailed considerable effort as it included an examination of all components of the Officer development system. See "Final Draft - Officer Professional Development" enclosed with Canada, DND, CFC Archives, *OPDC Papers*, "Agenda Extraordinary Meeting OPD Council To Be Held In Room 1614, Export Canada Building At 0800 Hrs, 8 October 1992," (October 1992).
- 44 Canada, DND, CFC Archives, *Curriculum Documents*, 1180-3 (Comdt), dated 8 January 1992 "CFCSC Curriculum Amendments Revision to the Operational Level of War," pp. 2-3.
- 45 Canada, DND, CFC Archives, *Curriculum Documents*, "OPD Council Sixteenth General Meeting Canadian Forces College Brief Senior Officers' Seminar On Joint And Combined Operational Level Warfare Concepts," no date, pp. 1-6. Quote from Page 1.
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- 47 Canada, DND, CFC Archives, *Curriculum Documents*, 4640-1 (Cmnd), dated 11 January 1993, "GSOPD Seminar - Operational Art," pp. 1-2. Quote from Page 1.
- 48 *Ibid.*, p. 2.
- 49 *Ibid.*
- 50 *Ibid.*
- 51 CFC 4640-1 (Cmnd) ,dated 4 February 1993, "General And Senior Officers' Professional Development Seminar 15-17 Jan 1993," p. 1, enclosed in Canada, DND, CFC Archives, *Curriculum Documents*, 4640-1 (Cmnd), dated 11 February 1993 "General And Senior Officers' Professional Development Seminar 15-17 Jan 1993"; "General & Senior Officer's Professional Development Seminar Operational Art: Evolution and Development Nominal Roll 15-17 Jan 93," p. 3, enclosed in Canada, DND, CFC Archives, *Curriculum Documents*, 4640-1 (Cmnd), dated 11 February 1993, "General And Senior Officers' Professional Development Seminar 15-17 Jan 1993."
- 52 Canada, DND, CFC Archives, *Curriculum Documents*, 4640-1 (Cmnd), dated 4 February 1993, "General and Senior Officers' Professional Development Seminar 15-17 Jan 1993," pp. 2-3.
- 53 *Ibid.*, p. 4.
- 54 Canada, DND, CFC Archives, *Curriculum Documents*, 4640-1 (Cmnd), dated 11 February 1993, "General and Senior Officers' Professional Development Seminar 15-17 Jan 1993," p. 1.
- 55 Canada, DND, CFC Archives, *Curriculum Documents*, 4690-1 (CPCD), dated 09 March 1993, "General And Senior Officers' Professional Development (GSOPD)," p. 1.
- 56 Canada, DND, CFC Archives, *Curriculum Documents*, 4640-2027 (DComd), dated 8 July 1994, "Senior and General Officer Training At The Operational Level Of War," pp. 1-3.; and Canada, DND, CFC Archives, *Curriculum Documents*, 4640-2027 (DComd), dated 8 July 1994, "Senior and General Officer Training At The Operational Level Of War," see Canada, DND, CFC Archives, *Curriculum Documents*, "Senior Officer Training," undated briefing note.
- 57 See *Joint and Combined Operations* (Ottawa: National Defence Headquarters, 1995-04-06, Ch 1 - 1995-09-05); and Canada, Department of National Defence, *B-GL-300-001/FP-000 Land Force - Conduct of Land Operations - Operational Level Doctrine For The Canadian Army Volume 1* (Director of Army Doctrine, 1996-09-15).
- 58 Canada, Department of National Defence, *B-GG-005-004/AF-00 Joint Doctrine For Canadian Forces Joint and Combined Operations* (Ottawa: National Defence Headquarters, 1995-04-06, Ch 1 - 1995-09-05), 1-9; and Canada, Department of National Defence, *B-GL-300-001/FP-000 Land Force - Conduct of Land Operations - Operational Level Doctrine For The Canadian Army Volume 1*(Director of Army Doctrine, 1996-09-15), p. G-9
- 59 Department of Defense, Joint Chiefs of Staff, *Joint Publication 3-0 Doctrine for Joint Operations* (1 February 1995), pp. GL-10-GL-11.
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- 63 Ludwik Fleck, *Genesis and Development of a Scientific Fact*, with a foreword by Thomas S. Kuhn, Thaddeus J. Trenn and Robert K. Merton (eds.), translated by Fred Bradley and Thaddeus J. Trenn. (Chicago: University of Chicago Press, 1979; reprint 1981. Original edition Basel, Switzerland: Benno Schwabe & Co., 1935), pp. 98-111.
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