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OPERATIONAL DESIGN DOCTRINE: HAMSTRUNG OR FOOTLOOSE IN THE CONTEMPORARY OPERATING ENVIRONMENT?

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TABLE OF CONTENTS

LIST OF FIGURES

List of Figures

ABSTRACT

Operational Design is the foundation of Operational Art. Its pursuit informs the commander of the Operational problem and sets the theoretical underpinning and framework from which a Campaign Plan is created and conducted. The process of Operational Design has at its core, the aim of understanding the nature and form of an Operational problem such that a commander may best determine the critical path or way to achieving end state.

The end of the Cold War brought with it a new world order in which intrastate and terrorist violence created a more volatile environment for expeditionary operations. These post-Cold War problems, set in fragmented and failing states, share one commonality; they are extremely complex. Predominantly based on failed relationships between peoples, these 'new' human problems are culturally diverse and socially complex. Humans, as dynamic open-loop systems, are highly adaptable and complex organisms which form the crux of these 'wickedly' complex problems. These 'wicked' problems defy simple and short-term solutions and have challenged the perception of the effectiveness of current Operational Design doctrine in this post-Cold War contemporary operating environment (COE).

Colonel James K. Greer, as the director of the School of Advanced Military Studies in Fort Leavenworth, Kansas, postulated in a Military Review article in Autumn 2002, that U.S. Forces were not well equipped with Operational Design theory and methodologies to address these fundamentally complex security problems in the COE. Colonel Greer recommended the investigation of extant doctrine and emerging concepts and methodologies with a view to finding a more relevant Operational Design methodology for the COE. This paper will conduct such an investigation, including the underpinning theories related to Colonel Greer's five recommendations. The investigation will be conducted with a view to evaluating their relevance and potential efficacy for military operations within a whole of government approach to expeditionary operations in the COE. An overview of Operational level theory and Operational Art, as well as the Canadian post-Cold War experience with the same will serve to introduce and frame the discussion on Operational Design.

Despite the concept of logical, in the place of physical, lines of operations in the 2001 version of FM 3-0, planners of the ongoing counterterrorism campaign face the same challenge as planners of peace-support operations in the Balkans. Today's doctrinal concepts for operational design hamstring planners' and commanders' abilities to design and conduct effective, coherent campaigns for operations across the spectrum of conflict in today's security environment.[1]
Colonel James K. Greer

INTRODUCTION

The end of the Cold War was eagerly anticipated by the West. Its people hoped for world peace and with it a reduction in military spending with the demise of the arms race between the world's two superpowers; the Union of Soviet Socialist Republics (U.S.S.R.) and the United States of America (U.S.A.). Unfortunately for all, the dramatic change in the global security environment and the resultant extraction of Soviet and American interests from Third World countries and their associated proxy wars precipitated a more volatile security environment, in which intrastate conflict blossomed. Crises in the Former Republic of Yugoslavia, Kosovo, Rwanda, and Somalia are but examples of such problems. To this environment was added the burgeoning threat of intrastate actors or terrorists, often harboured within such failed and failing states. Recent Al Qaeda actions in New York City, Madrid and London are illustrative. This admixture of security threats created a considerably complex security environment where often, military solutions have not proven conclusive.

Western militaries forayed into this post-Cold War contemporary operating environment (COE) which was, and remains, fraught with social, cultural and ideological complexity, armed with predominantly kinetic solutions based on Clausewitz's and Jomini's war fighting theory and a template of Cold War experience. One might argue that failure to appreciate the environment's

[1] Colonel James K. Greer, "Operational Art for the Objective Force," *Military Review* (September-October 2002): 22, http://usacac.Army.mil/CAC/milreview/English/SepOct02/SepOct02/greer.pdf; Internet; accessed 28 March 2007.

complexity and failure to take a holistic or whole of government and long term approach to conflict resulted in less than optimal results in the COE. Recent Western experiences in Somalia, Afghanistan and Iraq are demonstrative of a lack of appreciation for the social, cultural and ideological aspects of conflict; what Clausewitz so aptly coined the moral aspect of war. Colonel James K Greer, as Director of the School of Advanced Military Studies at Fort Leavenworth, Kansas opines that the current Western Operational Design construct is often incapable of providing commanders and planners the requisite fidelity in addressing problems within the full spectrum of conflict, short of war fighting.[2] Colonel Greer postulates five alternatives as potential solutions worth investigating to improve the current Operational Design construct. He offers as solution, current doctrine, a systems approach, an effects based approach, a destroy-dislocate-disintegrate approach as well as a centre of gravity to critical vulnerabilities approach.[3] While some are extant doctrine, others are emerging concepts and methodologies. Both current doctrine and the centre of gravity to critical vulnerabilities represent relatively mature and extant doctrine for conducting Operational Design for Western militaries, based on Clausewitzian and Jominian military theory.

This paper shall conduct an investigation into these five recommendations, from both a theoretical approach and practical application perspective as they relate to the COE. From this investigation, observations will be made as to whether these five options represent improvements to Operational Design in the COE. To frame the discussion, an historical overview of both Operational Art, the Operational level of war or conflict, as well as Operational Design will be conducted from a Western, but in particular, a Canadian perspective. To situate the discussion, a synthesis of what

[2] Greer, "Operational Art for the Objective Force,"…23.

constitutes the COE and how much it is a departure from the Cold War security environment will provide the necessary context to appreciate the relative merits of the five methodologies. It is the contention of this paper that all five methodologies, extant or emergent, are highly relevant to the COE and as an Operational Design palette, they represent the full spectrum of colour that may be applied to the full spectrum of conflict in the COE.

[3] Greer, "Operational Art for the Objective Force,"…26.

The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish by that test the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature. This is the first of all strategic questions and the most comprehensive.[4]

Carl von Clausewitz

CHAPTER ONE – OPERATIONAL ART

What is Operational Art? Current CF doctrine defines Operational Art as "…the skilful employment of military forces to attain strategic objectives in a theatre of war or theatre of operations through the design, organization and conduct of campaigns and major operations."[5] It is evident that while science plays a part, it is the skilful or imaginative piece that puts the art in the definition. Operational Art as we view it today, was not simply created as such, but evolved over a significant period with concomitant lapses in its development and application brought on by the ebb and flow of major conflict in the last century. Before reviewing the Canadian experience at the Operational Level of conflict, it is important to briefly explore the genealogy of operational art in historical context.[6]

Russian Operational Art

[4] Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret, (Princeton: Princeton University Press, 1984), 88-89.

[5] Department of National Defence, B-GJ-005-300/FP-000 *Canadian Forces Operations* (Ottawa: DND Canada, 2005), GL-7.

[6] Canadian doctrine uses the term "Levels of Conflict," NATO doctrine uses the term "Levels of Operation" and the U.S. uses the term "Levels of War." Canada and NATO have opted for terms other than "War," presumably to highlight the fact that the "Levels" apply throughout the full spectrum of conflict. The U.S. has delineated in their doctrine, that while the term "War" shall be kept, it is meant to also include Military Operations Other Than War (MOOTW). For the purposes of this paper the term "Levels of Conflict" shall be used as the common term with the understanding that it applies to the full spectrum of conflict. NATO Allied Command Operations, 1100/SHOPJ/0400-101321, *Guidelines for Operational Planning (GOP) Rev 1 Coordinated Draft* (NATO: 11 June 2004); Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning Process*, (Ottawa: DND Canada, 2002), 3-9; Department of the Army, FM 3-0, *Full Spectrum Operations*, (Washington, DC: DOD, 21 June 2006 (Initial Draft)), 1-6.

It was the Soviets, during the inter-war years, whom first drew the disparate lines of thought together to envision Operational Art as we would recognize it today.[7] A Russian General and military theorist, Svechin reinforced Clauswitz's axiomatic view "…that war is simply a continuation of political intercourse, with the addition of other means…"[8] by making the link between politics, strategy, operations and tactics:

> Strategy is the art of combining preparation for war and a grouping of operations to achieve the [political] aim put forth by the war for the armed forces. Strategy resolves issues associated with the use of both the use of armed forces and all of a country's resources to achieve the ultimate military aim.[9]

Svechin pointed out that "…tactics take the steps from which an operational leap is formed; strategy points out the path.'[10] In this regard, though significant military theorists and philosophers such as Sun Tzu, Clausewitz and Jomini preceded Svechin, it is Svechin whom can first be attributed to describing the basic precept of the Operational Level of conflict as we know it today. A contemporary of his, Tukhachevsky, built on this operational concept, espousing a war of annihilation over Svechin's preferred war of attrition. The strategy of annihilation according to esteemed military historian Hans Delbrück, had as its sole aim the decisive battle, while the strategy of attrition was a two pole strategy of battle an manoeuvre, allowing the General to decide whether a battle is advisable or not.[11] Tukhachevsky believed in the industrialization of Soviet industry to support the peacetime mechanization of its military to increase Operational mass, mobility and lethality. This "…mechanization of the mass Army as a

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[7] David M. Glantz, "The Intellectual Dimension of Soviet (Russian) Operational Art," in *The Operational Art: Developments in the Theories of War*, edited by B.J.C. McKercher and Michael A. Hennessy, (Westport, CT: Praeger Publishers, 1996), 128-129.

[8] Clausewitz, *On War*…, 605.

[9] A.A. Svechin, "Strategy and Operational Art (1927)," in *The Evolution of Soviet Operational Art 1927-1991, The Documentary Basis, Volume 1 Operational Art, 1927-1964*, translated by Harold S. Orenstein, forward and introduction by Col. David M. Glantz, (London: Frank Cass & Co. Ltd, 1995), 6.

[10] Svechin, "Strategy and Operational Art…," 23.

means to conduct decisive operations in total war..."[12] resulted in the key Operational doctrine of Deep Operations. Massed independent tank and mechanized forces were to strike deep beyond second echelon objectives and create the Operational shock necessary for the capitulation of an enemy front. Of note, British Tank Corps Chief of Staff, J.F.C. Fuller envisioned a similar concept, shortly after the Battle in Cambrai in 1917, as an alternative to ending the First World War should it continue into 1919. Fuller's 'Plan 1919' called for the integrated use of massed tanks, infantry, artillery and aircraft along a 145km front. Without the use of artillery so as to achieve surprise, almost 2,600 tanks were to break the German front lines with an exploitation force of over 1,200 tanks supported by aircraft bombing key targets in depth.[13] Fuller's original diagrammatic for 'Plan 1919' may be seen in Figure 1.

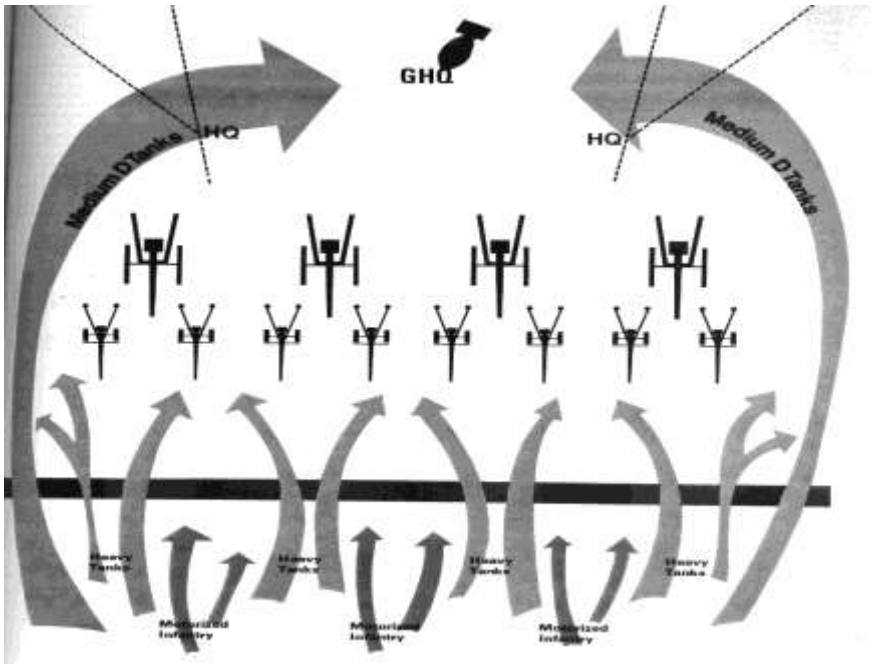

Figure 1. J.F.C. Fuller's Plan 1919.

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[11] Gordon A. Craig, "Delbrück: The Military Historian," in *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, edited by Peter Paret (Princeton, New Jersey: Princeton University Press, 1986), 341-342.

[12] Jacob Kipp, "Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932," in *The Operational Art: Developments in the Theories of War*, edited by B.J.C. McKercher and Michael A. Hennessy, (Westport, CT: Praeger Publishers, 1996), 79.

Tukhachevsky's doctrine, surprisingly similar, outlined a new facet of Operational Level warfare. The doctrine distinguished Operational Level objectives and the manoeuvre of massed forces in a deep battle to create Operational shock. With this doctrine, Tukhachevsky sought to achieve a short war through a decisive engagement of annihilation. Stalin adopted Deep Operations theory and pursued the mechanization of his forces. Unfortunately, Svechin and Tukhachevsky did not live through Stalin's purges. Their deaths impeded further development and practice of Operational Art in the inter-war years. This resulted in a steeper learning curve for the Soviets at the commencement of the Second World War. Both during Operation Bagration (June 1944) and the Vistula-Oder operation (January-February 1945), the Soviets achieved penetration of the German lines to 600km. The German perception of being attacked throughout their depth resulted in disorder, confusion, and shock, disrupting German physical and moral cohesion on a large scale. The result was the defeat of 28 and 35 German divisions respectively. Both operations were the product of highly refined Operational Art and not simply brute force.[14]

German Operational Art

Unlike the Soviets, the Germans had tremendous success at the outset of the Second World War with what was later labelled *Blitzkrieg*. The term *Blitzkrieg* is controversial on several levels. First, its origins are unconfirmed; attributions to the Führer of the Third Reich, Adolf Hitler, British military theorists B.H. Liddel Hart and J.F.C Fuller, German Panzer Leader Heinz Guderian, German Field Marshal and military strategist von Schlieffen and even German

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[13] Howard Coombs, "Land Strategy: Warfare Theory and History," (Canadian Forces College, Command and Staff Course 30 Presentation, 22 October 2003).

[14] John English, "The Operational Art: Development and Theories of War," in *The Operational Art: Developments in the Theories of War*, edited by B.J.C. McKercher and Michael A. Hennessy, (Westport, CT: Praeger Publishers, 1996), 14.

General and tactical doctrine writer, Ludwig Beck are claimed.[15] Second, its rapid successes during the first two years of war provided it near mythic status, the legend of which has propagated through Western military culture to this day. Finally, and most importantly to the study of Operational Art, *Blitzkrieg* has been attributed to German Operational Level theory and doctrine.[16] Military theorists Geyer and Naveh both oppose this latter view. While in appearance *Blitzkrieg* exhibited the trappings of Tukhachevsky's concepts of Deep Operations its underpinnings were not based in Operational theory. The German Army fought the Second World War based on its published tactical doctrine of 1933 (*Die Truppenführung*), which contained no mention of *Blitzkrieg*.[17] Geyer attributes the German achievement of *Blitzkrieg* to a combination of Operational opportunism and chaotic command decisions in pursuit of reinforcing tactical successes, which is the antithesis of doctrine.[18] Perhaps a better explanation of success is to be found in the German terms *auftragstaktik* and *schwerpunkt*.[19] Military theorist, Franz Uhle-Wettler postulates that *auftragstaktik* evolved from a Prussian military cultural phenomena of the mid 19th century. This phenomenon was perpetuated in military

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[15] Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory*, (Portland, Oregan: Frank Cass Publishers, 1997), 106-107.

[16] Michael Geyer, "German Strategy in the Age of Machine Warfare, 1914-1945," in *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, edited by Peter Paret, (Princeton, New Jersey: Princeton University Press, 1986), 586.

[17] Major Ian Hope, "Misunderstanding Mars and Minerva: The Canadian Army's Failure to Define an Operational Doctrine" (Fort Leavenworth, Kansas: United States Army Command and General Staff College, School of Advanced Military Studies Course Paper, 2000), 26.

[18] Geyer, "German Strategy in the Age of Machine Warfare …", 585.

[19] The origins of the term a*uftragstaktik* postdates the Second World War and its origins are diffuse. A*uftragstaktik* represents a way of commanding and involves the issue of mission orders with emphasis placed on a commander's intent and not on the mission. Subordinates are left to their own devices on how to achieve a specific mission. Subordinates are expected to have the confidence and initiative to disobey their mission if the situation changed, and to design a new mission in line with the commander's intent. This requires extremely competent and confident leaders to carry out *auftragstaktik* and a strong bond of mutual trust and respect in the subordinate-superior relationship is required. *Schwerpunkt* may be defined as the weight or focus of effort. The concept advocated the massing of forces and resources in a location to achieve a decisive result against an opponent. Normally, the later width (*abschnitt*) of such a mass was reduced to achieve concentration and this was always applied against a perceived weakness in an opponent's defence. Franz Uhle-Wettler, "*Auftragstaktik*: Mission Orders and the German Experience," *Maneuver Warfare: An Anthology*, edited by Richard D. Hooker, Jr., forward by General John R. Galvin, U.S.A (Ret.), (Novato, CA: Persidio Press, 1993), 240-2.

organizations of the time, through to the German Third Reich. This consisted of devotion to duty, professional competence, self-confidence and leadership by example which resulted in a strong professional culture of mutual trust and respect within the subordinate-superior relationship. This relationship fostered independent thought and an obligation for officers to disobey their mission if there was any doubt that mission was not suitable to a *changed* battlefield situation that the original mission did not cater to.[20] Mission orders placed emphasis on higher commander's intent, as opposed to adherence to an assigned mission, in order to facilitate a subordinate's freedom of thought and action on the battlefield. Concomitant with *auftragstaktik*, the German interpretation of Clausewitz' *schwerpunkt* (weight (or focus) of effort) advocated the massing of German strength against an opponent's weakness. Focus or concentration of effort was achieved through minimizing the lateral width (*abschnitt*) of the *schwerpunkt*. This is best exemplified by the German invasion of France in May 1940 (Operation Yellow), when von Rundstedt's Army Group A (4th, 12th and 16th Armies, as well as Panzer Group von Kleist) was concentrated for attack through a three kilometre *abshnitt* near Gaulier.[21] As history can attest, the results were spectacular, but what is more astounding is that this operational success was not achieved through a published doctrine underpinned by a sound operational theory, but by a combination of tactical theory (*schwerpunkt*), military command culture (*auftragstaktik*) and Geyer's concept of Operational opportunism.

Allied Operational Art

British and American command of operational art in the Second World War was similarly impressive in terms of manoeuvre of armies and Army groups, though theoretical

[20] Uhle-Wettler, "*Auftragstaktik…,"*242.

[21] Milan Vego Ph.D., "Clausewitz's *Schwerpunkt*: Mistranslated from German – Misunderstood in English," *Military Review* (January-February 2007): 104-105.

underpinnings were less developed than their Russian or German counterparts.[22] U.S. military General George S. Patton was considered by many to be the most proficient practitioner of Operational Art.[23] His *coup d'oeil* [24] during the Ardennes campaign of 1944-45 was a classic example of this. Having anticipated a German offensive against flanking U.S. General Middleton's VIII Corps, he directed his Third Army staff to develop options to counter the potential German salient. The result was a ninety-degree turning movement and three division strike north centred on Bastogne within three days, with three follow-on divisions in another three days. This remarkable feat of Operational dexterity served to unhinge the German salient and set the conditions for restoring Allied initiative in the area.[25] As may be expected, the victorious close of the Second World War brought with it a rapid demobilization and repatriation of forces. Unfortunately for the Western military forces, little thought was put to capturing the essence of hard-earned Allied Operational Art. This could be in part because the Allies did not recognize it as such at the time. It could be said that "…a defeated Army reforms itself because failure on the battlefield is far more painful than reform in peacetime."[26] The opposite is also true; there was little development in Western Operational Art and theory in the wake of Allied victory.

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[22] English, "The Operational Art…", 15.

[23] General Patton was the most feared Operational commander by the Germans in the Second World War. "Old blood and guts" Patton was audacious, continually pressing the fight to the Germans and always refused to give ground. He believed in maintaining constant contact with his opponent so that he could better sense his condition and intent. Author.

[24] The English translation of *coup d'oeil* is 'glance.' As it relates to military strategy or command, Clausewitz was best able to capture its essence. "If the mind is to emerge unscathed from this relentless struggle with the unforeseen, two qualities are indispensable: … *coup d'oeil*; the second is *determination*. …[T]he concept [of coup d'oeil] merely refers to the quick recognition of a truth that the mind would ordinarily miss or would perceive only after long study and reflection." Clausewitz, *On War*…, 102.

[25] Russell F. Weigley, *Eisenhower's Lieutenants: The Campaign of France and Germany 1944-1945*, (Bloomington: Indiana University Press, 1981), 499-501.

[26] Dennis Stewart Driggers, *The United States Army's Long March From Saigon to Baghdad: The Development of War-fighting Doctrine in the Post-Vietnam Era*, (Ann Arbor, Michigan: UMI Dissertation Services, 1995), 187.

Similarly, the Cold War did not precipitate any further debate on the nature and theory of Operational Art. The focus on nuclear conflict and deterrence caused a decline in conventional military concepts. The nuclear dynamic represented what Clausewitz may have called absolute warfare, or warfare in its purest sense, whereby the strategic is linked directly to the tactical. With no requirement for an Operational level to translate strategic policy (ends) into tactical action (means), advances in Operational Art were not achieved despite the published interests of notable Western academics such as British military theorists Liddell Hart and J.F.C Fuller.[27] Consequently, the resurgence in Western Operational Art did not transpire until after the debacle of the American conflict in Vietnam. Contrary to popular belief amongst academics, the American defeat in Vietnam did not precipitate a military renaissance of Operational Art from within. It was imposed from without. It was the shattered credibility of the military which convinced Congress in 1974 to enact the Budget and Impoundment Control Act which shifted the balance of military policy making to the U.S. Congress.[28] Resultantly the senior leadership of the Army had to design a more persuasive doctrine to ensure its future procurement plans in this hostile legislative environment.[29] This precipitated a series of successive improvements to Army war-fighting doctrine through successive iterations of FM 100-5 Operations; Active Defense (1976), Airland Battle (1982), Airland Battle (1986) and Airland Operations (1993).[30]

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[27] Liddell Hart had published several informative works (1960-1971) on the conduct of war; *Why Don't We Learn From History* (1971), *Strategy: The Indirect Approach* (1967), and *Deterrent or Defense: A Fresh Look at the West's Military Position* (1960). J.F.C. Fuller produced *Armored Warfare:An Annotated Series of Lectures on Operations Between Mechanized Forces* (1956) and *Warfare Today: How Modern Battles are Planned and Fought on Land, Sea and in the Air* (1944).

[28] Driggers, *The United States Army's* …, 193-194.

[29] Ibid …, 195-196.

[30] Active Defense Doctrine (1976) espoused attrition over manoeuvre, defense over offense, was focused on firepower and technology, was prescriptive on how to fight, placed particular emphasis on terrain and the need to win the first battle. Airland Battle Doctrine (1982) rejected Active Defense Doctrine, espoused manoeuvre warfare over attrition, manoeuvre over firepower, the indirect approach, historical example, extensive use of military theorists and philosophers (Clausewitz & Sun Tzu), emphasis on momentum, initiative, the offense over defense, deep attack, introduced the non-linear battlefield, introduced the operational level of war and took the focus of

Though Vietnam had precipitated the need for a doctrinal renaissance, it was the Yom Kipper War of 1973, not Vietnam[31], which provided the U.S. Army with the necessary lessons and impetus to develop its 1976 doctrine. The U.S. Army doctrinal developments of 1986 proved seminal in the refinement of the Operational Level of conflict, including Operational Art and Operational Design as we know it today. The British followed suit, with a publication on the Operational Level of conflict in 1989.

Canadian Operational Art

Now let us turn to the Canadian operational experience from both a historical and doctrinal perspective. The Canadian experience with operational art was less definitive. Inhibited by its Commonwealth status in both World Wars Canada was largely relegated to tactical level actions. Few opportunities presented themselves to influence the Operational Level, though the Canadians often felt the effects of Allied Operational Art. Canadians in the First World War achieved great success at the tactical level as a Canadian Corps. Military historian Shane Schreiber argues that it was only in the last one hundred days of the First World War that Canada achieved its greatest war-fighting proficiency at Amiens, Drocourt-Queant, Canal du Nord, Cambrai and Mt Huoy. Due to these Canadian successes, Currie cultivated a

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operations away from Europe and expanded it globally. Airland Battle Doctrine (1986) was a refinement to the 1986 doctrine, applying moderation to new concepts in 1982. It emphasized and more thoroughly defined the operational level of war including operational design, emphasized doctrine over firepower, restored the balance between attrition and manoeuvre, used fluid to replace non-linear, replaced deep battle with deep operations and delineated the Air and Army doctrinal roles more carefully, de-emphasized the use of nuclear weapons and placed greater emphasis on the use of light and heavy forces combined. Airland Operations (1993) incorporated lessons learned from the First Gulf War. Its focus is power projection operations at the operational-strategic level where military campaigns achieve national strategic objectives, it espouses mission-type orders and command, organizations based on three sub-elements vice four or five, full-spectrum joint operations, and importance of logistics. Ibid …, 47, 65, 98, and 123.

[31] The U.S. Army, arguably did not recognize Vietnam as a "military defeat." Vietnam was, in a word, an anomaly for the Army – a nearly fatal one, to be sure, in terms of fighting spirit, morale and esprit-de-corps. Even today "old-guard" officers who served in Vietnam still argue that the Army was not beaten "militarily' and point out it won every major battle (larger than a company) in the field. They attribute failure in Vietnam, instead to American and Vietnamese sociopolitical factors beyond the purview of the Army. Ibid …, 188-189.

favoured position with Field-Marshal Haig, which allowed him influence beyond his position.[32] Currie was able to convince Haig, through his chain-of-command, that the gains of the battle of Amiens should be consolidated and that the Allies should pursue a surprise attack to the north in the area of Monchy as an alternative offensive:

> Currie's role in defining and recommending an alternate operation to Rawlinson and Haig [than continuing the Amiens offensive] had an effect on the operations of the entire Western Front, and was out of all proportion to what other Corps commanders could achieve.[33]

Currie, in effect dictated the location and tempo of operations on the Western Front by virtue of his tactical competence in war-fighting. Haig concurred with Currie's recommendation and the resultant Canadian successes at Drocourt-Queant near Arras "…unhinged Ludendorff's plan for a last stand on the Hindenberg line."[34] Success at Drocourt-Queant allowed for the subsequent capture of Cambrai; a vital German hub and railway centre for the Hindenburg line which was the last line of defence before the German homeland.[35]

As the Operational Level of conflict was not conceived by Western militaries in the First World War, there was little consideration for an Operational doctrine during the inter-war period. Additionally, with the absence of a clear national security strategy, a greatly reduced Canadian military moulded in the British model, the United States no longer considered a threat to sovereignty, and little opportunity or appetite for expeditionary operations other than alongside the British, there was no need for doctrine, let alone an Operational Level doctrine; it would be provided by the British.[36] With peacetime force levels there was little opportunity to exercise

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[32] Shane B. Schreiber, *Shock Army of the British Empire: The Canadian Corps in the Last 100 Days of the Great War*, (Westport , Connecticut: Praeger Publishers, 1997), 72.

[33] Schreiber, *Shock Army of the British Empire* …, 55.

[34] Ibid…, 83.

[35] Ibid…, 71-73.

[36] William McAndrew, "Operational Art and the Canadian Army's Way of War", in *The Operational Art: Developments in the Theories of War*, edited by B.J.C. McKercher and Michael A. Hennessy, (Westport, CT: Praeger Publishers, 1996), 89.

large formations in the field and straightforward minded Canadian commanders "…did not gravitate naturally to the intuitive insight which informs operational art."[37]

Canada's exposure to what we now consider the Operational Level of conflict in the Second World War was not so much the opportunity to effect Operational Art, but to be affected by Allied Operational Art. For example, the Allied objective for the Italian campaign was to draw and keep as many German forces occupied in Italy so that the Allied landings at Normandy might succeed. To achieve this Operational objective, the Canadians could not be highly successful in its tactical pursuit. A swift and decisive victory in Italy would push the Germans into the continent and mass against Normandy. As a result of this paradox, a campaign of hard attrition was fought from the bottom of Sicily to the top of Italy at great cost.[38] Similarly, Montgomery's preoccupation with Operation Market-Garden led to an operational oversight relating to the key port of Antwerp. Though British troops drove into Antwerp's port on 2 September 1944, they neither secured it, nor did they seize the key bridges necessary to cut-off the withdrawing German 15th Army.[39] This Operational Level blunder resulted in a two-month delay in opening the port, but more importantly for the Canadians, a one month tactical slough through the flooded Scheldt estuary, fighting a withdrawing German 15th Army, with extended Allied lines of communication back to Arromanches and Normandy.[40] However, all Canadian Operational experience was not so grim. Crerar's Operation Veritable (8-22 February 1945); the successful breaking of the Rhineland's Westwall,[41] was the epitome of the Canadian way of war. This was because Canadian commanders were noted for their impeccable planning and cautious

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[37] McAndrew, "Operational Art…", 90.
[38] McAndrew, "Operational Art…", 91.
[39] McAndrew, "Operational Art…", 94.
[40] James R. Arnold, Stephen Badsey, Ken Ford, and Steve J. Zaloga, *Into the Reich: Battles on Germany's Western Frontier 1944-1945*, (Osceola, Wisconsin: Osprey Publishing Ltd., 2002), 14.
[41] Arnold, *Into the Reich*…, 292-318.

execution of operations and Crerar was no exception. Veritable was a meticulously planned 'set-piece' operation on a scale nearing the invasion of Normandy. Centralized responsibility, unnecessary staff layers, adherence to the plan, and the Canadian way of war conspired to hinder what was to be a bold offensive.[42] Though successful in achieving its necessary penetration, Veritable arguably had better effect in its unforeseen draw of German reinforcements north, away from Lieutenant-General Simpson's U.S. 9th Army. Consequently, Simpson's Operation Grenade (23 February 1945) achieve a rapid breakthrough and subsequent highly mobile push to the Rhine.[43] Both Veritable and Grenade were similar in their Operational objectives, however reflected uniquely different cultural aspects (Canadian and U.S.) in the execution of Operational manoeuvre of large forces.

The Cold War period, much as it had done for the Americans, had little effect on Canadian Operational Art. Not even the fiercely contested Korean War (1950-53) provided the venue for Canadian Operational thought. Once again Canada's military commitment (25th Canadian Infantry Brigade) commanded by Canadian Second World War veteran Brigadier-General Rockingham was relegated to a series of tactical actions within an American led United Nations coalition. Later while the U.S. Army was developing its doctrine through a series of evolutionary publications (1976, 1982, 1986, and 1993), based on post-Vietnam Congressional pressure and the 1986 Goldwater-Nichols Act[44] for joint doctrine, the CF was in innovative gridlock. Granted, though the CF watched the transformation of the American military with

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[42] McAndrew, "Operational Art…," 97.

[43] Arnold, *Into the Reich*…, 319-334.

[44] The Goldwater-Nichols Act of 1986 reworked the command structure of U.S. forces. This Act was an attempt to eliminate or mitigate inter-service rivalries which were thought to have been contributers to failure in Vietnam, the attempted Iranian hostage rescue and actions in Grenada. Military advice to the government was centralized under the Chairman of the Joint Chiefs of Staff as opposed to its previous model where service chiefs individually provided that advice. National Defense University Library, "Goldwater Nichols Department of Defense Reorganization Act of 1986," Goldwater Nichols DOD Reorganization Act of 1986; Internet; accessed 28 April 2007.

great interest, it was the demise of the Cold War in 1989 which gave impetus to any significant change within the CF. The post-Cold War 'peace-dividend,' budget reductions, diminished Russian conventional and nuclear threat, Canadian expeditionary participation in the 1990-1991 Gulf War and the 1994 Defence Policy White Paper all played their part in re-focusing Canadian military thought in step with its Allies' direction; namely British and American.[45]

Canadian Operational Doctrine Development

Military theorists Simpkin (British) and Lind (American) both published seminal works in 1985 relating to war fighting concepts. Simpkin's *Race to the Swift: Thoughts on Twenty-First Century Warfare* introduced directive control and the indirect approach.[46] Lind's *Maneuver Warfare Handbook* introduced manoeuvre warfare.[47] The fundamental promise of both 'anti-attrition' concepts was that a smaller, highly trained force could achieve military victory over a much larger force by destroying its moral and physical cohesion. This was achieved by rapidly attacking an opponent's weak points in order to paralyze command systems and shatter cohesion, thereby achieving victory without necessarily engaging the opponent's main force. The promise of victory over a much larger opponent with little cost was highly palatable given the perceived disparity between massive Soviet and moderately sized NATO conventional forces. Because of such promise, both concepts were accepted by British and

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[45] Colonel J.D.A. Hincke, "Joint Doctrine and the Canadian Forces: Ready for the Next Decade?" (Toronto: Canadian Forces College Advanced Military Studies Course Paper, 1999), 14-16.

[46] Richard E. Simpkin cites the indirect approach to war fighting as the essence of manoeuvre theory. Manoeuvre warfare theory is about amplifying the force which a small mass is capable of exerting; i.e. punching above one's weight. The two terms; manoeuvre warfare and the indirect approach, are for Simpkin, synonymous. Richard E. Simpkin, *Race to the Swift: Thoughts on Twenty-First Century Warfare*, (London: Brassey's Defence Publishers Ltd., 1985), 137 & 227.

[47] Lind incorporates Colonel John Boyd's OODA (observe-orient-decide-act) theory in describing manoeuvre warfare. "Maneuver means Boyd Cycling the enemy, being consistently faster through however many OODA loops it takes until the enemy loses his cohesion – until he can no longer fight as an effective, organized force." Manoeuvre warfare requires a decentralized military in order to "Boyd Cycle" more quickly. An acceptance of confusion and disorder on the battlefield as well as the desirable creation of confusion and disorder is espoused.

American forces (British Army and U.S. Marines) and incorporated into doctrine by their respective commanders.

Despite their appeal for smaller forces, the introduction of manoeuvre concepts into the CF did not occur quickly. Canadian reviews of Lind's and Simpkin's concepts were published in CF journals in 1988[48] and 1995[49]. A mix of the two concepts was subsequently incorporated into CF land doctrine in 1995, initially causing some confusion. While incorporated into doctrine, the two concepts lacked sufficient detailed organizational, material and procedural considerations to be considered doctrinal. More importantly, the manoeuvre-attrition dichotomy was not rooted on sound historical or theoretical underpinning and as such, bore little value to the development of doctrine-based operational planning.[50]

The Operational Level of conflict was likewise, slowly implemented into the CF. Though U.S. and British militaries had defined and incorporated this concept by 1986 and 1989 respectively, the CF's first doctrinal publications relating to the Operational Level of conflict and its planning were introduced in 1996.[51] Their instruction within CF institutions, namely the Canadian Forces College (CFC) and the Canadian Land Forces Command and Staff College (CLFCSC) were initially tenuous given the dearth of Canadian Operational Level experience. These publications have since been revised, with the latest edition of CF Operations using the

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Additionally, the avoidance of all patterns, recipes and formulas in war fighting is also encouraged. William S. Lind, *Maneuver Warfare Handbook*, (Boulder, Colorado: Westview Press Inc., 1985), 6-7; quotation, 6.

[48] Major C.S. Oliviero, "Manoeuvre Warfare: Smaller Can be Better," *Canadian Defence Quarterly* (Autumn 1988): 67-72.

[49] Captain Ian Hope, "Changing a Military Culture: Manoeuvre Warfare and a Canadian Operational Doctrine," *Quarterly Review* Vol 5, No. 1/2 (Spring 1995), pp. 1-7.

[50] Hope, "Misunderstanding Mars and Minerva …", 16-17 and 40.

[51] Canada. Department of National Defence. Canadian Forces Publication (CFP) 300-1, *The Conduct of Land Operations – Operational Level Doctrine for the Canadian Army*. Ottawa: Canadian Forces Publications, 1996.

U.S. Joint Publication 1-02 definition of the Operational Level of war.[52] Although a U.S. definition is used, a uniquely Canadian amplification on the subject can be found in the first chapter on concepts and guidance; "…[R]egardless of its size, a military force tasked to achieve a strategic objective, is being employed at the operational level."[53] This amplification is instructive. As a Canadian officer, Lieutenant-Colonel Jon Vance opines:

> Canada, like other 'medium power' nations has a history and preference for being a force provider at the tactical level, vice a force employer at the operational level of war. If history is any indication, Canada has no chance of exercising pure operational level action external to the country.[54]

McAndrew echoes this sentiment, stating "…[A]rguably, Canadian Army commanders have never been in a position either to plan a campaign or to practice operational art."[55] These observations by Vance and McAndrew are correct. For this reason alone, one might wonder why the CF needs to study Operational Art. The answer lies in our CF Strategy 2020. Our need to study Operational Art is based on a stated requirement for interoperability with Allies and in particular the U.S.[56]

Clearly, Operational Art and the Operational level of war were first described by the Soviets and were lost for a period due to Stalin's purges. The Germans, while it appeared that they had discovered the essence of Operational Art with the concept of *blitzkrieg*, they had in fact simply imitated Operational Art through the application of German tactical concepts such as

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[52] "Operational Level of War - 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." Department of National Defence, B-GJ-005-300/FP-000 *Canadian Forces Operations*..., GL-7.

[53] Department of National Defence, B-GJ-005-300/FP-000 *Canadian Forces Operations*..., 1-5.

[54] Colonel J.H. Vance, "Tactics Without Strategy or Why the Canadian Forces Do Not Campaign," in Operational Art: Canadian Perspectives Context and Concepts, edited by Allan English, Daniel Gosselin, Howard Coombs and Laurence M. Hickey, (Kingston: Canadian Defence Academy Press, 2005), 273.

[55] McAndrew, "Operational Art…," 87.

[56] "Interoperability - Strengthen our military relationship with the U.S. military to ensure Canadian and U.S. forces are inter-operable and capable of combined operations in key selected areas." Chief of the Defence Staff, "Part II: Strategy 2020: Canadian Defence into the 21st Century," Chief of the Defence Staff - Part II: Strategy 2020; accessed 18 March 2007.

schwerpunkt and *auftragstaktik* and the adaptation of J.F.C. Fuller's Plan 1919 and B.H. Liddell Hart's theories on mechanized warfare.[57] Western Operational Art during the Second World War was more along the lines of Operational manoeuvre à la von Moltke. Operational Art in the U.S. only achieved its renaissance in the mid 1980s with the rediscovery of Soviet Operational theory. As such, understanding the Operational level of war, the genesis and propagation of Operational Art through Western military thought, serves as a solid foundation and introduction to the topic of Operational Design. First, however, an appreciation of the COE is required to set the context for discussion.

[57] J.F.C. Fuller and B.H. Liddell Hart had been close collaborators since 1920, on the implications of the tank on future warfare. While Fuller espoused pure tank formations achieving tactically deep penetrations (Plan 1919) which would be consolidated by follow on infantry, Liddell Hart envisaged a mechanized formation consisting of tanks and mechanized infantry in combination with supporting air, conducting a strategic penetration. The penetrations was to be analogous to an 'expanding torrent' of water. German Generals such as Heinz Guderian and Werner von Blomberg, from 1932, circulated Liddell Hart's writings on the subject throughout Germany's Armed Forces. B.H. Liddell Hart, *The Memoirs of Captain Liddell Hart: Volume One*, (London: Cassell and Company Ltd., 1965), 46-49, 89-90, 200-201; B.H. Liddell Hart, *The German Generals Talk*, (New York: William Morrow and Co., 1948), 23-24.

You must know something about strategy and tactics and logistics, but also economics and politics and diplomacy and history. You must know everything you can know about military power, and you must also understand the limits of military power. You must understand that few of the important problems of our time have, in the final analysis, been finally solved by military power alone.[58]
John F. Kennedy

CHAPTER TWO - CONTEMPORARY OPERATING ENVIRONMENT (COE)

The security environment has changed tremendously in the past two decades. The fall of the Berlin Wall in November 1989 and the destruction of the World Trade Center in September 2001 are two critical events that transformed the global security environment. While the former event presaged a new world order of potential goodwill between East and West, the latter incited fear in the West at the hands of the East. Ultimately, both events contributed to an increasing uneasiness regarding the global security dynamic.[59] This dynamic has not gone unnoticed by even the world's only superpower, who has been drawn into this security vortex. U.S. forces have undergone a rapid transition from its Cold War fighting paradigm to complex peace making operations as described by the Rand Corporation:

> The past 15 years have seen profound changes in the missions and environments for U.S. military operations, with the potential for equally profound effects on the things that Army leaders must know and do. What we now call the "contemporary operating environment" began to emerge with the collapse of the Soviet Union.[60]

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[58] President John F. Kennedy, speaking to the graduating class of the U.S. Naval Academy on June 7, 1961.

[59] "Although the data on armed conflict presented [in "Armed Conflict 1989-2002"] suggests that there is a decline in the use of armed force, there is an increased feeling of fear and insecurity in many parts of the world because of terrorism incidents." Mikael Eriksson, Peter Wallensteen and Margareta Sollenberg, "Armed Conflict, 1989-2002," *Journal of Peace Research*, vol. 40, no. 5 (2003):593.

[60] Henry A. Leonard, J. Michael Polich, Jeffrey D. Peterson, Ronald E. Sortor, S.Craig Moore, *Something Old Something New – Army Leader Development in a Dynamic Environment,* Report Prepared for the United States Army (Santa Monica: Rand, 2006), 2.

Military leadership in the Western world has had to cope with these complex and demanding problems with little change to doctrine. For the purposes of this paper, the contemporary operating environment (COE) shall be considered as the post-Cold War operating environment.

Post-Cold War Effect on Global Security

The catalyst for change in the COE can largely be attributed to the demise of the Cold War and its support to Soviet and American proxy states.[61] The bi-polar nature of the security environment between the Soviet Union and the United States, despite tensions, had had a stabilizing effect on the world. This was largely due to the nuclear threat of mutually assured destruction, which prevented to a large degree of inter-state conflict between the U.S.S.R. and the U.S. and their proxy states. This security dynamic also institutionalized a stable commitment to the military industrial complexes of both superpowers. By the end of 1989 the U.S. was responsible for military alliances with 50 countries and had over 1.5 million troops posted in 117 countries around the world.[62] The former Soviet Union benefited from similar global relationships with its proxy states. One could argue that despite the perception of a more volatile security environment today, the legacy of the Cold War still continues to determine the course of world affairs today.[63]

The COE is considered to be volatile. The instability caused by the dissolution of the Soviet Union unleashed a series of internal conflicts, especially within its former satellite states. Most notably were those surrounding the former Republic of Yugoslavia (FRY) and Kosovo. Their constituents, fuelled by the rush for national independence in the absence of Soviet

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[61] Sebastian von Einsiedel, "Policy Responses to State Failure," in *Making States Work: State Failure and the Crisis of Governance*, Edited by Simon Chesterman, Michael Ignatieff and Ramesh Thakur, (Tokyo: United Nations University Press, 2005),18.

[62] "Cold War" definition. Craig Calhoun, *Dictionary of the Social Sciences*, Edited by Craig Calhoun (Oxford: Oxford University Press Inc., 2002),

influence in 1991, Serbia, Croatia, Bosnia and Kosovo suffered terribly in the struggle to define their emerging status and boundaries. Of this region, only Slovenia has seemed to achieve its nationhood unscathed.

Cold War interventionism in Third World countries by the Soviets and the U.S. has often had disastrous results, either during or after the intervention.[64] This was most evident when the two superpowers negotiated their disentanglement with the Third World. Through a series of summits around the end of the Cold War, the two superpowers resolved interests in regional disputes, and cut aid to Third World countries allowing disengagement, and established peace accords in regions such as Cambodia, Central America and Africa.[65] Such disengagement did not always prove helpful. With diminished post-Cold War interest and influence in the African continent, internal conflict has emerged in Liberia (1989), Somalia (1991), Angola(1992), Burundi (1993), Central African Republic (1996), and Sierra Leone (1997).[66] There have been some success stories, with Eritrea achieving independence from Ethiopia in 2002, albeit not without its cost. Such turmoil has not been limited to Africa but recently has also erupted in Haiti (2004).

Furthermore, though not directly related to Cold War interventionism, internal conflict within Rwanda (1993) has reached genocide levels while that in the Darfur region of Sudan (2003) has equal potential. Despite the apparent prevalence of intrastate conflict, statistics have shown that though the number of internal wars increased immediately following the end of the

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[63] "Cold War" definition. Fred Halliday, *The Oxford Companion to the Politics of the World, Second Edition*, Edited by Joel Krieger (Oxford: Oxford University Press Inc, 2001.

[64] Odd Arne Westad, *The Global Cold War: Third World Interventions and the Making of Our Times*, (Cambridge: Cambridge University Press Inc., 2005), 404.

[65] Mike Sewall, *Cambridge Perspectives in History: The Cold War*, (Cambridge: Cambridge University Press, 2002), 138-139.

[66] Angola had been in civil war for fifteen years when elections were held in 1992. The MPLA government won the 1992 elections, which UNITA refused to recognize, and this led to the resumption of civil war. United

Cold War, by 1995 their number had diminished from 1989 level highs.[67] This trend likely indicates that, as the tumult of post-Cold War disengagement is recedes, the data on internal conflict reflects more the global norm. Similarly, there has been an even more dramatic decrease in the number of interstate conflicts since 1989, reflecting the trend that future armed conflict is more likely to be intrastate than interstate.[68] These intrastate conflicts are prompted now by a number of factors including resource scarcity or discovery and tribal-led insurgency. In effect, the nature of armed conflict post-Cold War has changed from conventional and symmetric to unconventional and asymmetric.

Canadian International Operations (1990-2001)

In this new security environment the CF has been used to stabilize burgeoning regional intrastate crises. However, Canada's first major post-Cold War deployment was not in reaction to one of these intrastate crises, but in response to Iraqi aggression against Kuwait in 1991. This conflict was prompted by a dispute over the repayment of Iraqi war debt owed Kuwait from the Iran-Iraq war (1980-1988). Canada's deployment (1990-1991), of an Air Task and a Naval Task Group,[69] a field hospital, and a joint task force[70] headquarters (JTFHQ) was the first joint combat deployment since Korea.[71] The nature of the conflict was purely conventional with the Naval Task Group given command of the American Combat Logistics Force, the Air Task Group

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Nations, "United Nations Peace Missions in Africa," United Nations peace missions in Africa; Internet; accessed 25 March 2007.

[67] Eriksson et al, "Armed Conflict…," 594.

[68] Eriksson et al, "Armed Conflict…," 594-595.

[69] "A task group is a flexible naval formation, typically commanded by a senior naval officer, made up of three to four major warships (destroyers, frigates, submarines) accompanied by a supply ship and an appropriate number of ship borne helicopters. Ideally it is also supported from land by maritime patrol aircraft. A task group is self-sufficient and can deploy to the other side of the world." Canada, Department of National Defence, *Operation APOLLO: Canada's Naval Contribution to the Campaign Against Terrorism* (Ottawa: DND Canada, 2004), np.

[70] "Task Force: A temporary grouping of units, under one commander, formed for the purpose of carrying out a specific operation or mission." Department of National Defence, B-GJ-005-300/FP-000 *Canadian Forces Operations*..., GL-10.

conducting combat operations as part of Operations Desert Shield and Desert Storm and the Field Hospital providing combat health services.[72] While Canadian naval and air elements benefited from participation in combat operations, the Army contribution did not, being relegated to defence and security tasks at the fighter base in Doha and the Field Hospital in Al Qaysumah. The CF's first post-Cold War deployment in no way prepared its Army for what the future would bring.

The death in 1980 of President of the Socialist Republic of Yugoslavia, Josip Broz Tito and the fall of the Berlin wall in 1989 proved de-stabilizing for the Republic of Yugoslavia. Without Tito's strong unifying leadership, the demise of the Soviet Socialists proved too much of an opportunity for Yugoslavia's ethnic divisions to separate from the republic. The disintegration of the Republic of Yugoslavia in the early 1990s created an international crisis. The West's post-Cold War indifference led to incremental United Nations (UN) deployments to address the situation.[73] The result was a series of continuing and increasing commitments to the Former Republic of Yugoslavia (FRY) under UN and then North Atlantic Treaty Organization (NATO) auspices; UN Protection Force (UNPROFOR; 1992-1995), NATO Implementation Force (NATO IFOR; 1995-96) and NATO Stabilization Force (NATO SFOR; 1995-2004). The CF deployed from Germany with its familiar Cold War dynamic and with a history of small and stable UN peacekeeping missions. It embarked on a new generation of peace support operations

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[71] Commodore Duncan (Dusty) E. Miller and Sharon Hobson, *The Persian Excursion: The Canadian Navy in the Gulf War* (Clemensport, NS: The Canadian Peacekeeping Press, 1995), vii.

[72] Although the Naval and Air Task Groups were fully engaged throughout the operation in naval logistics escort, maritime interdiction operations, air defensive patrols, air sweep and escort and bombing missions, the field hospital was never used to full potential and was not deployed into Kuwait post-conflict, due to the limited numbers of casualties during the conflict. Major Jean Morin and Lieutenant Commander Richard H. Gimblett, *The Canadian Forces in the Persian Gulf: Operation Friction 1990-1991* (Toronto: Dundern Press, 1997), 160-175, 186-210, and 222-231.

[73] Christopher Cviic, Review Article: "Perceptions of Former Yugoslavia: An Interpretive Reflection," *International Affairs (Royal Institute of International Affairs 1944-)*, Vol. 71, No. 4, Special RIIA 75th Anniversary Issue. (Oct., 1995): 823.

(PSO) in the Balkans. [74] Canada learned hard lessons on UN Chapter VI deployments such as Operations Harmony and Cavalier. These lessons were capitalized in follow on UN Chapter VII operations in the Balkans under NATO. As example, the military task of provision of a secure environment suffered from 'mission creep' as Canadian Forces performed a plethora of non-military tasks to ensure mission success.[75] The complexities of Bosnia with its multiple former warring factions (FWF) and their mutual 'ethnic cleansing' campaigns, the country's ethnic and religious diversity, the demands of supporting other government departments in reconstruction efforts, return of displaced persons and refugees (DPRE) from Europe, bringing persons indicted for war crimes (PIFWC) to justice at the International Criminal Tribunal for Yugoslavia (ICTY), and hostage taking were but a few of the complex issues faced by the Canadian Forces. Based on a combination of UN emphasis on the humanitarian aspect of the mission and UN Chapter VI rules of engagement (ROE), tasks throughout this period were not characterized as 'kinetic.' [76] They were predominantly humanitarian assistance and complex peacekeeping operations.[77] There were only two significant 'kinetic' actions of note. The first was limited to the Medak

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[74] Canada was participating in sixteen UN missions at the time. Foreign Affairs and International Trade Canada, "Peacekeeping Operations over the Years and Canada's Contribution," http://www.international.gc.ca/peacekeeping/missions-en.asp; Internet; accessed 7 February 2007.

[75] While the lessons learned reference is for Operation Palladium, 'mission creep' was typical throughout operations in the FRY and had to be constantly monitored. As example, non-governmental organizations normally did not have the mobility assets to take humanitarian assistance to remote locations. In some cases, Canadian armoured vehicles and trucks were used for their transport. Canada, Department of National Defence, *Operation PALLADIUM: Lessons Learned Staff Action Directive*, 10 July 2002, A-8/9.

[76] UNPROFOR was a UN Chapter VI mission and therefore was not configured nor mandated for peace enforcement. Consequently, the ROE did not allow for UN intervention for the prevention of a crime. However UNPROFOR ROE were considered sufficiently robust for self-defence. Kinetic refers specifically to actions of a combative nature as opposed to a non-combative nature. An example of a kinetic operation would be a 'kill/capture' mission to neutralize the effect of an enemy leader. A non-combative or 'non-kinetic' operation might take the form of an information operation, where various messaging is transmitted to the population through the use of radio, television and pamphlet distribution. Author.

[77] "Complex peacekeeping operations (CPKO) are characterized by their impartial conduct, the low or uncertain level of consent of the parties to the dispute and the [Peacekeeping Force's] PKF's broader authorization to use force. These operations are often initiated after a peace accord has been signed and the parties have consented to the operation. The consent and compliance of the actors may be uneven and inconsistently observed throughout their chain of command." Department of National Defence, B-GJ-005-300/FP-000 *Canadian Forces Operations...*, 10-2.

pocket incident in September 1993; the Croatian response to Canadian and French intervention between Serb and Croat forces. The Croatian forces resisted the Canadian advance into the Croat controlled area which had been ethnically cleansed of Croat Serbs.[78] Similarly, in August of 1995, the Croat Army launched Operation Storm in an attempt to evict occupying Serb forces from Croatia and consolidate the Croatian border. Major-General Alain Forand, a Canadian, was the Commander of Sector South for the UN Confidence Restoration Operation (UNCRO) in the Serb Krajina at the time. His UN forces, including a Canadian infantry battalion, were subject to intense shelling and direct targeting of observation posts, as well as witnessed the results of Croat ethnic cleansing in the sector.[79] Ten years of complex PSO in the FRY provided the CF with a wealth of 'non-kinetic' challenges. These challenges served to build confidence within the CF, well beyond that experienced previously on its perennial Cyprus tours. However, this 'non-kinetic' confidence building experience came with a cost. CF soldiers were returning from their UN tours with post-traumatic stress disorders (PTSD) based on their exposure to the aftermath of 'ethnic cleansing' and their exposure to combat in incidents such as the Medak Pocket and Operation Storm.[80]

Canadian operations in Kosovo were similar to those in Bosnia during the 1990s. Kosovar Albanians, frustrated with oppressive rule from Belgrade, targeted Serbian security forces in autumn 1998, leading to an escalation of attacks against Kosovar Serbs with concomitant Serb security force retaliation. Canada deployed an Air Task Force to Aviano, Italy

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[78] LCol Jim Calvin, the Commanding Officer of the 2nd Battalion, Princess Patricia's Canadian Light Infantry Battle Group, gives an excellent account of the incident and the remarkable courage of the junior leaders involved. Sean M. Maloney and John Llambias, *Chances for Peace: Canadian Soldiers in the Balkans, 1992-1995: An Oral History* (St Catharines: Vanwell Publishing Limited, 2002), 113-131. For a more intimate account see Carol Off's, *The Ghosts of Medak Pocket: The Story of Canada's Secret War*, Toronto: Random House Canada, 2004.

[79] Major-General (Ret'd) A.R. Forand, Unpublished Briefing: "The Fall of the Serbian Republic of Krajina and Observations on the UN Role," 28 May 1996. Briefing provided to the author.

[80] Off, *The Ghosts of Medak Pocket*…, 276.

which contributed significantly to the seventy-eight day NATO bombing campaign during March-June 1999,[81] with a follow-on infantry Battle Group[82] deployed into Kosovo 15 June 1999. Supervising the withdrawal of Serb troops from Kosovo, the Battle Group performed similar UN Chapter VII tasks to those of the previous decade.[83] Despite the similarity of tasks, the security situation in Kosovo was less volatile than the early experiences of Bosnia. The difference in volatility was mainly due to the international community's resolve for an early intervention in Kosovo, unlike the Bosnian experience.

The Canadian deployments throughout these years provided a composite experience of conventional combat and complex peacekeeping operations. Given this dramatic change from predictable peacekeeping operations such as Cyprus, it could be said that the security challenges of the 1990s formed the crucible in which the CF was forged into a more experienced full spectrum force. However, this experiential base was unbalanced, with the Navy and Air Force gaining experience in combat operations, while the Army became experts in a broad range of complex PSO. This imbalance was to be adjusted in the next wave of expeditionary operations.

Canadian International Operations (Post 2001)

The events of September 2001 brought with it greater complexity to the COE. Although Western nations had been affected by terrorism throughout the previous two decades, particularly the U.S. and U.K., the boldness and impact of Al Qaeda's 9/11 attack precipitated a

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[81] Brigadier-General Davies cites the Aviano mission as being the most intensive bombing campaign that Canadians have participated in since the Second World War. Over 700 missions were flown, of which 540 were attack missions against Serbian targets, and 330 were Combat Air Patrol (CAP) missions. Brigadier-General Dwight A. Davies, "Law of Armed Conflict in Air Operations," (Canadian Forces College Junior Defence Studies Program Course Lecture C/DS 521/LAC/SE-1, 28 September 2006).

[82] A Battle Group consists of a combat arms manoeuvre unit (Armour or Infantry) with additional assets attached. These additional assets may come in the form of sub-unit sized (company or squadron) combat arms (Armour, Infantry, Artillery, Combat Engineers), platoon or troop sized combat support (Anti-Armour, Mortars, Reconnaissance, Pioneers, Signals) and platoon or troops sized combat service support (Logistics, Medical, Transportation, Maintenance) elements. Author.

strong American reaction. Canada supported the U.S. led effort under Operation Apollo, and deployed a maritime element, a Special Operations Force (SOF) element, and a Battle Group. While the maritime element conducted surveillance and interdiction operations in the Arabian Sea, SOF elements conducted combat tasks, and the Battle Group conducted combat air assault and sweep operations out of Kandahar, under U.S. control, directed at the Taliban.[84] For the Army and SOF, the change from complex PSO to combat operations in mountainous terrain against guerrilla fighters and terrorists was significant. While the Battle Group was repatriated in July 2002, the naval commitment was maintained in the Arabian Sea over the next two years. The naval commitment reached its zenith in 2003 with the formation of Task Force 151, consisting of up to twelve warships of various nations under Canadian control. Task Force 151 protected commercial shipping and other coalition ships, prevented trade of contraband and conducted maritime interdiction operations.[85]

About the same time, Canada re-invigorated its ground commitment to the war against terrorism, with a deployment of a Battle Group and Brigade headquarters to the NATO led International Security Assistance Force (ISAF) in Kabul. The Battle Group performed a variety of peace support tasks, in addition to some directed cordon and search operations against the Taliban.[86] Despite the threat posed by the Taliban in theatre, the general understanding of the initial deployment was that the mission in Kabul was generally peace support in nature. The true nature of the environment was that of a violent insurgency. Though the Taliban had little effect

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[83] Canada, Department of National Defence, *Operation KINETIC: Lessons Learned Staff Action Directive*, 4 October 2001, A-2/22 – A6/22.

[84] Sean M. Maloney, *Enduring the Freedom: A Rogue Historian in Afghanistan* (Washington, D.C.: Potomac Books Inc., 2005), 58-59.

[85] Canada, Department of National Defence, *Operation APOLLO: Canada's Naval Contribution to the Campaign Against Terrorism* (Ottawa: DND Canada, 2004), np.

[86] Cordon and search operations are conducted with the aim to capture enemy assets. Within the context of ISAF and Kabul in particular, these assets normally took the form of weapons and equipment cachés or enemy leadership. Author.

in Kabul due to sufficient security forces, the violent Taliban campaign in southern Afghanistan was still significant. The Canadians felt the first effects of this campaign, suffering their first casualties to an improvised explosive device (IED) attack. It was now clear that the mission in Kabul was not just complex PSO.[87] In autumn 2005 Canadians moved their operations from Kabul to Kandahar and added a Provincial Reconstruction Team (PRT) to focus on Afghan capacity building in the governance, education, development and commercial sectors.[88] This team was augmented in February 2006 by a Canadian led Multinational Brigade headquarters and an infantry Battle Group. While the suicide bombing of Canadian diplomat Glyn Berry in January 2006 had a significant impact on Foreign Affairs participation in the Canadian 'whole of government' approach in Afghanistan, at the same time it hardened military resolve to succeed in Kandahar.[89] Currently the Canadian infantry Battle Group is occupied with protracted

[87] The author was deployed to Kabul as the Defence and Security Company Commander for the theatre activation of Kabul. From early on, it was quite clear that the environment was not stable and that the threat was unconventional and unidentifiable. Three days after arriving in theatre, India Company, 2nd Battalion, The Royal Canadian Regiment was the target of an IED set up. Fortunately, the three whom had tried to establish the IED next door to the camp failed and the IED detonated, killing all three insurgents. Two weeks later, on 7 June 2003, a bus transporting German troops to the airport for repatriation was subjected to a vehicle borne IED, which killed four Germans and wounded twenty-nine other soldiers. Author.

[88] "The 330-person team utilizes the expertise of diplomats, development experts, the police and military. Its mandate closely mirrors the priorities of the Afghanistan Compact and Afghan National Development Strategy, namely security, governance, and development. The PRT supports key national Afghan programs such as the National Solidarity Program (which Canada helps to fund). The PRT also carries out a broad range of enabling roles such as police training and strengthening all areas of local governance capacity, justice and human needs assistance." Canada, Government of Canada Website, "The Kandahar Provincial Reconstruction Team," Rebuilding Afghanistan :: CANADA'S APPROACH :: The Kandahar Provincial Reconstruction Team; Internet; accessed 23 March 2007.

[89] The Canadian whole of government approach is captured in the acronym 3D+C, meaning integrated diplomacy, development, defence and commerce. Canadian Expeditionary Forces Command (CEFCOM) has led numerous planning groups with elements from both Foreign Affairs and the Canadian International Development Agency (CIDA) for an integrated approach in supporting President Karzai's government in stabilizing and developing his country. Canada, Department of National Defence Website, "Canadian Forces Operations in Afghanistan," DND/CF : Backgrounder : Canadian Forces Operations in Afghanistan; Internet; accessed 23 March 2007.

counterinsurgency (COIN) operations in southern Afghanistan and has suffered significant casualties since its deployment to Kandahar in February 2006.[90]

It is apparent that the Canadian experience in Afghanistan from 2001 onwards has had a considerable effect on the Army. The complex nature of COIN operations and their requirement to balance small unit tactical combat actions with peace support activities has challenged Canada's Army well beyond the complex PSO of Bosnia and Kosovo. Over the past two decades, whether intentional or not, Canada has been pursuing increasingly more complex and demanding operations. From peacekeeping in Cyprus, to peacemaking in Bosnia and Kosovo, to COIN in Afghanistan, Canada has gradually shifted its focus further toward more combat oriented operations in the spectrum of conflict. This trend can be clearly seen in Figure 2.

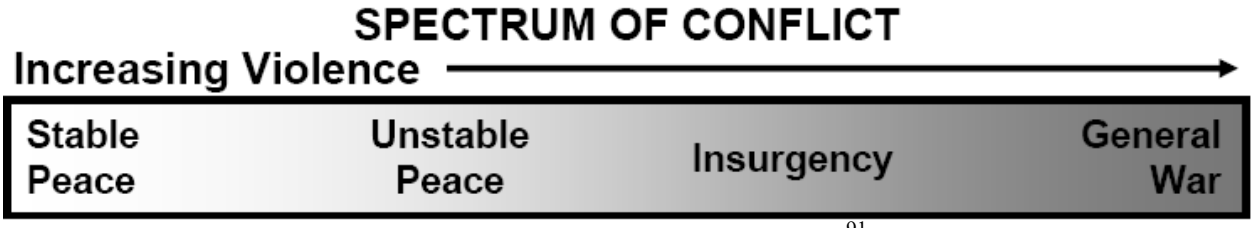

Figure 2. The Spectrum of Conflict[91]

While Canada participated in combat operations in the 1990-1991 Gulf War, as well as in Kosovo, only Naval and Air Force elements were utilized. Undoubtedly, the potential risk of significant ground casualties in these two conflicts was a consideration when determining the level of Army participation. Given the dual nature of COIN operations; winning the 'hearts and minds' of the populace while combating the insurgent, one could argue that the Canadian progression through the spectrum of conflict over the past twenty years has prepared the CF for

[90] CBC News.ca, "In DepthAfghanistan - In the Line of Duty: Canada's Casualties," CBC News, 20 April 2007, CBC News In Depth: Afghanistan; Internet; accessed 29 April 2007.

[91] Department of the Army, FM 3-0, *Full Spectrum Operations*,…, 1-5.

success in Afghanistan. Regardless, the Canadians in Afghanistan are living the 'three block war' metaphor in the COE.[92]

Future Security Trends

Having discussed the origins of the COE and Canadian operations in the COE, it would be of benefit to reflect on any further considerations relevant to the COE. Canadian Defence Scientist Peter Gizewski cites several trends for the future security environment; globalization, rapid technological innovation, demographic shifts, resource degradation and scarcity, continuing state weakness and collapse, the growing significance of non-state actors (terrorists) and identity clashes.[93] It is important to note that several of these trends are already apparent in the COE. Globalization, technological innovation, continuing state weakness and the growing significance of non-state actors are all currently having an impact in Afghanistan and Iraq. Terrorists and insurgents have both exploited these trends to their benefit. By forming training camps in failed or failing states, terrorists exploit weakness to their advantage. Similarly, insurgents and terrorists alike exploit the technological advances of communications to leverage both their regional and international influence and reach. Internet is used by terrorists and insurgents as a propaganda tool and to expand their global support base. Such examples include the release of 'execution' videos to the internet and video messages from Al Qaeda leader Osama bin Laden for all Muslims to conduct 'Jihad' or holy war against the West. Such technological advances have allowed terrorist groups to have a global network that lets them operate in a

[92] "It will be an asymmetrical battlefield. . . .our enemies will not allow us to fight the Son of Desert Storm, but will try to draw us into the stepchild of Chechnya. In one moment in time, our service members will be feeding and clothing displaced refugees, providing humanitarian assistance. In the next moment, they will be holding two warring tribes apart – conducting peacekeeping operations – and finally they will be fighting a highly lethal mid-intensity battle – all on the same day, all within three city blocks. It will be what we call the 'three block war.' In this environment, conventional doctrine and organizations may mean very little. It is an environment born of change." General Charles C. Krulak, "National Press Club Speech 15 December 1997," Vital Speeches of the Day : The most important speeches of our times; Internet; accessed 27 March 2007, 139-141.

global operations area. The effective attacks of September 11th 2001, and subsequent attacks in Madrid, Spain (11 March 2004) and London, England (7 July 2005) are examples of this 'globalization' of the battlefield for an Asian-based terrorist group called Al Qaeda. But Gizewski also speaks to other trends, such as resource degradation and demographic shifts. Demographic trends indicate that 95% of the projected population growth will be in the cities of Third World countries; the same area in which continuing state weakness in prevalent.[94] This combined with the scarcity of water, is highly likely to foment interstate conflict, with its attendant potential for state collapse. Put simply, the future security environment, especially in the Third World does not bode well. For a country, such as Canada, with a history of conducting expeditionary operations in troubled nations, the implications for the COE are significant.

Implications for the CF

Canada's international policy statement is unambiguous about the employment of the Canadian Forces. While it espouses a Canada first policy it recognizes the inter-connected nature of the global security environment and its second and third order effects:

> An increasingly interdependent world has tightened the links between international and domestic security, and developments abroad can affect the safety of Canadians in unprecedented ways. Today's front lines stretch from the streets of Kabul to the rail lines of Madrid to our own Canadian cities. The Government has made a commitment to respond to potential threats to Canadian security before they reach our shores.[95]

Resultantly, the CF can expect to continue its expeditionary operations throughout the full spectrum of conflict. At the low end of the spectrum, the CF has recently reduced its

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[93] Peter Gizewski, "The Future Security Environment: Threats and Risks," in *Towards the Brave New World: Canada's Army in the 21st Century* (Kingston: Directorate of Land Strategic Concepts, 2003), 57-64.

[94] Gizewski, "The Future Security Environment…," 59.

[95] Canada, *Canada's International Policy Statement, A Role of Pride and Influence in the World: Defence* (Ottawa: DND Canada, 2005), 5.

commitment to extant and well established UN Chapter VI missions.[96] In the middle range, Canada can expect to intervene into failed and failing states under the auspices of UN Chapter VII activities, while in extreme cases contribute to coalitions in support of UN sanctioned combat actions against an aggressor state. However, the nature of the adversary and the COE has changed.

In the context of a failed or failing state there are a host of factors that must be taken into consideration. In the case of any failed state, the diplomatic aspect should have a lead role in the 'whole of government' approach consisting of diplomacy, development, defence and commerce (3D+C). Close coordination of all Canadian government agencies would be required for a truly integrated approach to address the needs of the failed state. Although the re-establishment of security would initially be of vital importance, once the situation was stabilized it would diminish against the more vital tasks of capacity building within government, judiciary, correctional, police, military, and economic spheres. As the cultures of most Third World countries are usually aligned with tribal or family groupings there will be considerable challenges in capacity building alone. 'Afghan face equals Afghan pace' is the current mantra in Kandahar, where the Canadian PRT ensures that the Western culture of problem solving over relationship building, which is counter-culture to the Afghan way, does not hamper progress.[97] Compound this situation with a fundamentalist insurgency movement, connected globally to financiers and sympathizers, with a safe haven adjacent to the failed state with porous borders,

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[96] The CF has reduced Op DANACA, Canada's commitment to the United Nations Disengagement Observer Force in March 2006, from over 200 logisticians and specialists, to simply four staff officers. The reduction was ostensibly to repatriate key operational enablers home so that they could be reconstituted for operations in Afghanistan which, since 2006, have taken a more demanding toll on our personnel. Canada, Department of National Defence, "Canadian Forces Past Operations: Op DANACA," Past Operations | National Defence and the Canadian Forces; Internet: accessed 26 March 2007.

[97] Lieutenant-Colonel Simon Hetherington, "Kandahar Provincial Reconstruction Team" Briefing, (Canadian Forces College Junior Command and Staff Program Course Lecture C/DS 532/LCP/LE-9, 18 January 2007).

and one has the beginnings of a truly 'wicked problem.'[98] This level of complexity can be expected throughout mid to high intensity conflict such as COIN operations. One need only look at the French in Indochina, the Americans in Vietnam and Iraq, as well as the Soviets in Afghanistan to see how conventional combat operations evolved into aggressive COIN operations. The continued use of conventional war-fighting doctrine in most of these instances, led to failure against the insurgent. Iraq is the exception with the U.S. attempting to adapt to the war they are fighting. This example clearly relates to Clausewitz's idea of strategic judgement, which is "… to establish …the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature."[99] One might argue that American politicians did not understand the full potential of the Iraqi conflict before engaging in it.[100] Resultantly, an extensive revision of Army COIN doctrine was released in December 2006[101] and its author, General David H. Petraeus recently (10 February 2007) took command of the Multinational Force advocating that the mission in Iraq "…will be hard and there will

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[98] While the term Wicked Problem does not have a definition, it is described by Horst Rittel as having six characteristics; "firstly, you don't understand the problem until you have developed a solution, secondly, wicked problems have no stopping rule, thirdly, solutions to wicked problems are not right or wrong, fourthly, every wicked problem is essentially unique and novel, fifthly, every solution to a wicked problem is a "one-shot operation", and lastly, wicked problems have no given alternative solutions." Jeff Conklin, PhD, "Chapter 1 - Wicked Problems and Social Complexity", in *Dialogue Mapping: Building Shared Understanding of Wicked Problems*, Wiley, October 2006, 5-8. http://cognexus.org/wpf/wickedproblems.pdf; Internet: accessed 26 March 2007.

[99] Clausewitz, *On War*…, 88-89.

[100] The conclusion summary includes the observation, "… Recent American experiences with post-conflict operations have generally featured poor planning, problems with relevant military force structure, and difficulties with a handover from military to civilian responsibility." Conrad C. Crane and W. Andrew Terrill, "Reconstructing Iraq: Insights, Challenges, and Missions for Military Forces in a Post Conflict Scenario, " (Carlisle: Strategic Studies Institute, U.S. Army War College Monograph, February 2003), v, quotation; 1, http://www.strategicstudiesinstitute.Army.mil/pdffiles/00175.pdf; Internet; accessed 28 March 2007.

[101] The revision included an addition of 100 pages to the 20 year old joint Marine Corps and Army COIN Field Manual 3-24. The product is being adopted wholesale by the Marine Corps to replace its 25 year old COIN doctrine. A key addition to the COIN doctrine is a chapter on Designing COIN Campaigns and Operations that was missing from the previous field manual. U.S. Army FMI 3-07.22 Counterinsurgency Operations, 1 October 2004, http://www.fas.org/irp/doddir/Army/fmi3-07-22.pdf; Internet; accessed 28 March 2007 and U.S. Army FM 3-24 Counterinsurgency, 15 December 2006, http://www.fas.org/irp/doddir/Army/fm3-24.pdf; Internet; accessed 28 March 2007.

undoubtedly be many tough days. … However, hard is not hopeless."[102] While the results of the implementation of this revised doctrine in Iraq has yet to be seen, others believe that the difficulties the U.S. has had in achieving military success on operations is due to other deficiencies.

One such person is the Director of the School of Advanced Military Studies, Fort Leavenworth, Colonel James K. Greer. He posits that U.S. ineffectiveness in these operations other than war (OOTW) scenarios is based on the inadequacies of current doctrinal concepts:

> Despite the concept of logical, in place of physical, lines of operation in the 2001 version of FM 3-0, planners of the ongoing counterterrorism campaign face the same challenges as planners of peace-support operations in the Balkans. Today's doctrinal concepts hamstring planners' and commanders' abilities to design and conduct effective, coherent campaigns for operations across the spectrum of conflict in today's security environment.[103]

Greer postulates that U.S. forces need "…a new operational design construct…for the effective planning and execution of future campaigns and major operations." [104] Greer's intuitive postulation of an amended Operational Design construct is informative. In doing so, he indicates that the problem either lies in the execution, planning and design of the campaign, or in a combination of these aspects. Alternatively, Greer believes that the problem can be best corrected through design. Consequently, Greer suggests five Operational Design alternatives; current doctrine or classical operational design (COD), Strange Analysis of Centres of Gravity, Systemic Operational Design (SOD), Effects Based Approach to Operations (EBAO) and Destroy-Dislocate-Disintegrate theory (DDD).[105] Each of these methodologies will be addressed

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[102] Author of the latest version of U.S. COIN doctrine, General Petraeus took command effective 10 February 2007. Josh Partlow, "Path in Iraq Hard But Not Hopeless, U.S. General Says," *Washington Post*, 11 February 2007, Path in Iraq Hard But Not Hopeless, U.S. General Says - washingtonpost.com; Internet; accessed 28 March 2007.

[103] Greer, "Operational Art for the Objective Force…,"23-24.

[104] Greer, "Operational Art for the Objective Force…,"26.

[105] Greer, "Operational Art for the Objective Force…,"26.

against the COE for their viability as Operational Design Alternatives. However, a better understanding of Operational Design as both a process and a product is required to inform the analysis, especially as it relates to the COE.

In preparing for battle I have always found that plans are useless, but planning is indispensable.[106]

Dwight D. Eisenhower

CHAPTER THREE – OPERATIONAL DESIGN

General Eisenhower's observation on planning is insightful. The fact that such an experienced commander placed greater emphasis on the process rather than the product is heartening. What General Eisenhower emphasized is the importance of coming to a deeper understanding of the problem and its context through the process of design (or planning as he knew it) as opposed to emphasizing the importance of the plan over design. The plan is but one attempt at a solution from an infinite number of other possibilities. The futility of plans, as expressed by Eisenhower, is that they rarely survive beyond first contact with an opponent. For this reason, the commander must have a profound understanding of the problem so that he is better prepared to adapt to the fluid nature of battle. Much like Clausewitz's advice on strategic judgement prior to engaging in war, for the commander whom has not put emphasis on understanding the problem in its complexity and environment, he is predisposed to failure should the opponent adapt beyond the boundaries of his plan.

Operational Design Defined

Despite over twenty years of exposure to concepts of the Operational Level of conflict, Operational Art and Operational Design, there is still considerable discord in the West concerning the nature of Operational Design and what it comprises. Given that Canadian Operational doctrine has almost exclusively developed from American and British sources, the study of Operational Design doctrine and emerging methodologies can not be limited exclusively

[106] Richard M. Nixon, *Six Crises* (New York: Doubleday, 1962).

to published Canadian doctrine, but must encompass Allied doctrine as a whole. In fact, to restrict such a study to Canadian doctrine would make for a commendably short chapter on the subject.

We will now turn to the definition of Operational Design and where it fits within Operational Art. CF doctrine does not expressly define Operational Design but describes it in terms of Operational Concepts.[107] Indeed, there are varying interpretations between American,[108] British,[109] and Canadian[110] doctrinal descriptions concerning Operational Design. U.S. Joint Forces Command (JFCOM), as part of their Joint Operations Planning Process (JOPP), defines Operational Design as "…the conception and construction of the framework that underpins a joint operation plan and its subsequent execution.[111] This supports the Canadian understanding of design as the 'conceptual' aspect of planning. British doctrine though similar, articulates Operational Design in a different manner. Operational Design is comprised of the Operational Estimate, the Campaign Planning Concepts and the Campaign Plan. From a Canadian perspective, British Operational Design encompasses nearly the complete CF Operational Planning Process (OPP), less elements of its orientation stage. The British model

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[107] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning Process*, (Ottawa: DND Canada, 2002), 2-2.

[108] "Operational design is underpinned by three activities that define military and non-military action across the operational environment. *Framing the problem* encompasses clarifying the end-state and supporting conditions, and determining the appropriate theme for the operation. *Framing the design* explores the nature of the adversary through detailed analysis of centers of gravity, critical factors, and decisive points, determining the appropriate combination of defeat mechanisms, and formulating lines of operations. *Refining the design* examines how the operation might be conducted, given the nature of the problem and the operational environment." Department of the Army, FM 3-0, *Full Spectrum Operations*, (Washington, DC: DOD, 21 June 2006 (Initial Draft)), 8-3.

[109] "Operational design refines and develops the Operational Ideas and is the way in which the Joint Task Force Commander (JTFC) expresses his vision of how he sees the operation unfolding. Operational Design as the process of expressing Operational Art and remains a synthesis of the Campaign Planning Concepts (CPC), the Operational Estimate and the Campaign Plan." U.K. Ministry of Defence, JWP 5-00, *Joint Operations Planning*, Joint Doctrine & Concepts Centre, (Shrivenham, U.K., 2003), 2-11 & 2-12; and Ministry of Defence, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*, (Shrivenham, U.K., 2006), 2-6.

[110] The CF does not expressly define operational design. Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*…, 2-1.

describes an Operational Art process in which the commander conducts Centre of Gravity (COG) Analysis, determines the Campaign Fulcrum, the Decisive Act and creates Operational Ideas, which are then apparently given to the staff for the further employment of Campaign Planning Concepts to complete the Operational Design as Americans and Canadians understand it.[112] Figure 3 graphically depicts the British model of Campaigning.

Figure 3. British Overview of Campaigning[113]

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[111] "While operational art is the manifestation of informed vision and creativity, operational design is the practical extension of the creative process." JFCOM JP 5-0, *Joint Operation Planning*…, IV-2.

[112] The Campaign fulcrum is "…a stage in every campaign where one side starts winning and the other starts losing." The decisive act is "…linked to the idea of a campaign fulcrum." It is considered to be "…a series of linked events, that will be decisive in the campaign…" Operational Art "…demands creative and innovative thought to find broad solutions to operational problems, solutions that might be described as 'Operational Ideas'." The British definition of Operational Art is more Clausewitzian and hearkens back to earlier American and Canadian definitions. British Operational Art is defined as "…the orchestration of all military activities involved in converting strategic objectives into tactical actions with a view to seeking a decisive result." U.K. Ministry of Defence, JWP 5-00, *Joint Operations Planning*.... 2-8 – 2-12, quotation; 2-5.

[113] U.K. Ministry of Defence, JWP 5-00, *Joint Operations Planning*....,2-12.

Canadian and U.S. doctrine incorporate Operational Design as a subset of their respective planning processes (OPP and JOPP) rather than have the planning process or the Operational Estimate a subset of design as in the British model. This difference is only semantic in nature. For the purposes of this paper, Operational Design will be considered along the Canadian/U.S. model, as being embedded in the OPP/JOPP. The NATO Guidelines for Operational Planning describes Operational Design as follows:

> [Operational design] represents the formulation of an *overarching idea* for the operation, based on a general estimate of the situation and the mission analysis, and embodies the commander's intent. Using operational concepts and tools as well as operational art develops the operational design. It [Operational Design] guides the development of operations and detailed planning documents.[114] [emphasis added]

The NATO definition is more focused on describing the process than defining the term. Despite varying Allied perspectives, Operational Design is more about creativity than process and should be considered as such.

Operational Design vs. Planning

Operational Design logically precedes Operational Planning as part of the problem solving process. As such, it can be said that Operational Design comprises the first two stages of the OPP; initiation and orientation and these stages represent the more abstract and creative part of the OPP. In this fashion they are the Operational Art or Commander's portion of the process, while the latter stages of the planning process; course of action development, plan development and plan review, represent the operational science, or the Staff's piece.[115]

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[114] NATO Allied Command Operations, 1100/SHOPJ/0400-101321, *Guidelines for Operational Planning (GOP) Rev 1 Coordinated Draft* (NATO: 11 June 2004), 3-6. Author's emphasis added.

[115] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…3-1.

Design and planning, though inextricably related, represent two fundamentally different processes. Figure 4 captures the conceptual disparity between the two.[116]

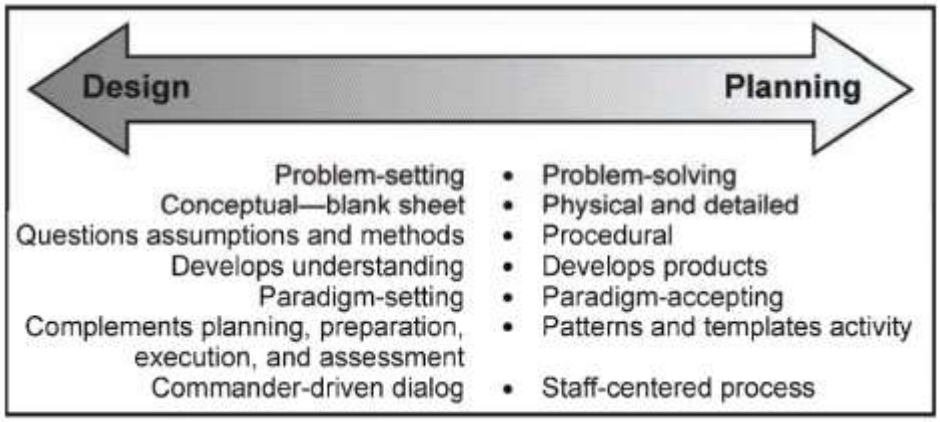

Figure 4. Design and Planning Differences

Design is the conceptual process of working out the form of a problem. Therefore it uses the much underused creative or artistic 'right' side of the brain as opposed to the logical or scientific 'left' side of the brain.[117] Much like the Group of Seven captured landscapes in rough colour form or 'cartoons' in the wilderness before returning to their studios to expand their work to large, refined and detailed panoramas, a commander initially takes the time to understand and form the problem in broad strokes to provide a better foundation for his detailed planning. Major John Schmitt, an American military consultant and writer, further explains design from a systems perspective:

> Design can be thought of as *problem setting* – locating, identifying and formulating the problem, its underlying causes, structure and operative dynamics – in such a way that an approach to solving the problem emerges.[118] [emphasis added]

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[116] Department of the Army, FM 3-24, *Counterinsurgency* (Washington, DC: 15 December 2006), 4-2.

[117] Brian Thwaits, "Lateral Thinking Techniques" (Canadian Forces College Junior Defence Studies Program Course Lecture C/DS 521/CMR/TU-4, 25 August 2006).

[118] John F. Schmitt, "A Systemic Concept for Operational Design," U.S.MC Warfighting Laboratory, http://www.mcwl.usmc.mil/file_download.cfm?filesource=c:%5CMCWL_Files%5CC_P%5CSchmitt_Design_v1_0_with_Bibliography.pdf; Internet; accessed 19 March 2007, 6.

Where planning serves to define and articulate a solution to the problem in terms of matrices and products, design is focused first on understanding as much about the nature of the problem and the greater context in which it is set. Likewise, while planning is considered to be logical, sequential, and detail-based, design is "…more conceptual, even abstract, hypothesizing about underlying causes and dynamics that explain events in the physical world."[119] Selection and maintenance of the aim is a critical principle of war and for this reason alone, correctly selecting and understanding the problem that needs to be solved sets Operational Design as the most crucial element of the planning process. Consequently, if the foundations of the Operational Design are flawed, what flows from it will be predisposed to failure.

Process and Construction

We shall now discuss the process and construction of Operational Design and how it relates to the OPP in order to better understand Greer's various alternative methodologies. The stages which support Operational Design within the CF OPP are the initiation and orientation stages. These stages include key activities such as analysis of the strategic initiating directive (SID), the four steps of joint intelligence preparation of the battle space (JIPB)[120] and a commander's mission analysis (MA).[121] While it is important to receive timely strategic direction, it is equally critical to receive and develop a timely picture of the adversary in order to educate the commander's design process.[122] Without such detailed information, it is difficult to

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[119] Schmitt, "A Systemic Concept…,"7.

[120] JIPB Steps are "…1. Define the battlespace environment, 2. Describe the battlespace effects, 3. Evaluate the adversary and 4. Determine the adversary's courses of action (COA)." United States, Joint Forces Command, *Joint Publication 2-01.3 Joint Tactics, Techniques and Procedures for Joint Intelligence Preparation of the Battlespace* (24 May 2000), II-1.

[121] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…4-1 – 4-7.

[122] LCol Brian Watson (CEFCOM J2) stressed that JIPB must be initiated early, with steps 1-3 being as complete as possible prior to the Commander commencing his mission analysis. LCol Brian Watson, "Joint Intelligence Preparation of the Battlespace" (Canadian Forces College Junior Command and Staff Program Course Lecture C/DS-524/PLN/LE-5, 18 January 2007).

develop a comprehensive understanding of the problem and create a workable Operational Design through the process of mission analysis and commander's estimate.[123]

Operational Design is expressed in the form of a graphic based on operational concepts. Extant Canadian doctrine indicates that elements of Operational Design are used as components to construct the design. [124] These eleven elements include, but are not limited to, end-state, centres of gravity, decisive points, logical lines of operation, sequencing, direct and indirect approach, culmination, manoeuvre, tempo and the operational pause. [125] This Canadian list is not exhaustive, with the U.S. JFCOM listing over seventeen elements of Operational Design, and combined Allied doctrine containing over twenty-four listed design elements.[126] While definitions are provided for all elements in the Canadian OPP, there is little explanation in doctrine on the assembly of these elements to form a cogent Operational Design. One must search elemental definitions to assemble the 'rules' of construction in design.[127] One must

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[123] CF doctrine is a compendium of Allied doctrine. As such, the CF OPP manual uses the term campaign plan vice operational design. Additionally, it does not detail where the Operational Design will be conducted within OPP Stage 2. It does however use the NATO format for mission analysis, which includes Operational Design prior to the formulation of a proposed mission statement. Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…6C-1.

[124] In the case of CF planning doctrine, operational concepts are used to describe campaign design vice elements of operational design. Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…2-2.

[125] This form of manoeuvre is related to William S. Lind's concept of manoeuvre warfare and not a construct of fire and movement. As such it is equally related to Sir Basil Liddel Hart's idea of the indirect approach. Both of these theories will be discussed in Chapter 8. Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…2-5.

[126] The CFC Combined and Joint Staff Officer's Handbook also list, objectives, criteria for success, and flexibility as additional elements of Operational Design. Additionally, the British Joint Operations Planning also list phases, branches and sequels as elements of operational design. Furthermore, the U.S. JFCOM Joint Operational Planning process lists termination, effects, operational reach, simultaneity and depth, timing, force and functions, leverage, balance, anticipation, and synergy as design elements. The NATO GOP also lists critical capabilities and vulnerabilities, as well as operational geometry as design elements. Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…2-2–2-6, U.K. Ministry of Defence, JWP 5-00, *Joint Operations Planning*...., 2-8 – 2-18, and NATO, *Guidelines for Operational Planning (GOP)*…, 3-6 – 3-16..

[127] It is only through review of elemental definitions that one finds the detail necessary for assembly of the design; lines of operation converge on the adversary COG, the requirement to group decisive points on lines of operation and sequence them, however, the method of determining decisive points is absent. Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…2-2 – 2-6.

search Allied doctrine for an express description of this process.[128] The most informative schematic that demonstrates how elements of Operational Design form a simple campaign plan can be found in the British Joint Operations Planning publication and is shown in Figure 5.

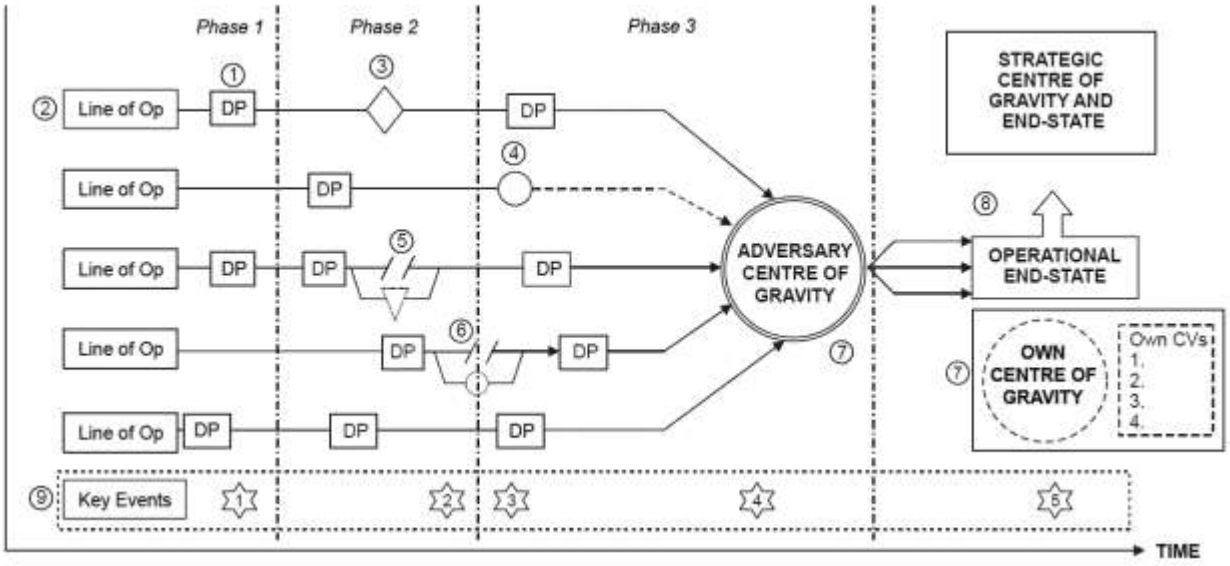

Figure 5. Campaign Plan Schematic[129]

The lack of informative Canadian publications on the subject has led the Canadian Forces College to include a more comprehensive operational planning compendium in its Staff Officer's Handbook. Likewise, the U.S. Army has amalgamated JFCOM and U.S. Army Operational Design concepts into a campaign planner's handbook as the definitive publication on Operational Design.[130] Given that the concept of Operational Design was not published in CF doctrine until

[128] U.S. JFCOM Joint Publication 5-0 Joint Operation Planning is imminently clearer in its description of Operational Design with multiple examples of campaign plans and Operational Designs set within historical context. Despite this, the process of assembling an Operational Design is not expressly described. The British Joint Warfare Publication 5-00 Joint Operation Planning is less demonstrative with historical examples of Operational Design, but is more explanatory of the construction process, offering several schematics with detailed notes (Appendices 2B3 & 2B4). JFCOM, Joint Publication 5-0, *Joint Operation Planning* …, IV-2, and U.K. Ministry of Defence, JWP 5-00, *Joint Operations Planning*...., 2-8 – 2-18.

[129] U.K. Ministry of Defence, JWP 5-00, *Joint Operations Planning*...., 2B3-1.

[130] Dr. Jack D. Kem, *Campaign Planning: Tools of the Trade Second Edition,* Department of Joint and Multinational Operations, U.S. Army Command and General Staff College (Fort Leavenworth: June 2006).

the mid-1990s, it is of interest to investigate this subject from a Canadian experiential base to best understand the development of Operational Design in the COE.

Canadian Operational Design Experience in the COE

The Canadian post-Cold War expeditionary experience as already described was conducted without doctrinal and institutional maturity in joint operations, Operational Art, Operational Design and the Operational Level of conflict. As discussed in the first chapter Canada has historically not conducted operations at the Operational Level of conflict, translating national strategic objectives into tactical actions. As evinced by Vance, Canada has and continues to prosecute 'contribution warfare', whereby any Canadian national interest, express or otherwise, is diluted within a coalition framework, where the U.S. has "…the benefit of being the perennial operational-level 'lead' for campaign design and execution."[131] Resultantly, only major powers, and arguably only the U.S., are capable of pure Operational Art as they pursue national interests through the conduct of tactical actions to achieve Operational objectives towards a strategic end state; Operations Desert Storm, Enduring Freedom and Iraqi Freedom are demonstrative of this pure Operational Art. Canada's adoption of the Operational Level of conflict and Operational Art were not institutionalized until the mid-1990s. Therefore CF culture was only superficially exposed to Operational Art when Canada was projecting significant joint force packages on expeditionary operations. Canada's initial foray into post-Cold War expeditionary operations were characterized by rapid 'come-as-you-are' deployments and ad hoc arrangements.[132] By their very nature, such deployments often did not allow for deliberate, let

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[131] Vance, "Tactics Without Strategy…," 278-279.

[132] "There is, however, a very fine line that divides flexibility from *'ad hocery',* and the CF had become masters of the *ad hoc*. In spite of its own doctrine, there were repeated examples of NDHQ cobbling together contingents on short notice for overseas deployments. This had become such a regular practice that the practice had become routine. It was reminiscent of British officers longing for the end of the Second World War to be able to return to 'real' soldiering. Everyone knew that the practices were wrong. But they worked. With senior leaders

alone an integrated approach to 'whole of government' planning. Such planning had to be conducted en-route to or in theatre as the strategic level deliberated the Operational role. In this particular expeditionary environment the role of the commander in such operations required a considerable understanding or intuition of the Operational Art and a highly adaptable staff to ensure mission success.

Canada's first such deployment was Operation Friction (1990-1991 Gulf War). Canada's contribution and its employment evolved throughout the mission as political indecision on Canada's participation in the war gripped parliament.[133] An ad-hoc Joint Operational HQ was formed under the command of Commodore K.J. Summers, Commander Canadian Forces Command Middle East (CANFORMME).[134] Summers received the U.S. Central Command's (CENTCOM) campaign plan for the Gulf War comprising four phases; firstly, a strategic air campaign, secondly, air supremacy in the Kuwait theatre of operations, thirdly, battlefield preparation and lastly, an offensive ground assault.[135] Great latitude was given Commodore Summers by both the U.S. Theatre Commander and the Canadian Chief of the Defence Staff (CDS) to select and volunteer his joint forces for the most optimal tactical tasks. Discussions with the U.S. Coalition resulted in Canadian command of the U.S. Naval Combat Logistic Force, and participation of the CF-18 *Desert Cats* Squadron in both Operations Desert Shield and

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unwilling to re-write the doctrine to legitimize this *ad hoc* system, staff officers became adept at making do. After all, failure was not an option. Doctrine was not allowed to interfere with reality." Lieutenant-Colonel (Ret'd) Charles S. Oliviero, "Operation "Deliverance": International Success or Domestic Failure?, *Canadian Military Journal* (Summer 2001): 55.

[133] "Mulroney was still trying to obtain a mandate from Parliament when the first attacks were announced on television, just before 1900 [hrs 16 January 1992]…While Canadian naval and Air Forces were operating in their areas of responsibility, the House [of Commons] continued to discuss whether it was appropriate for Canada to become militarily involved." Morin, *The Canadian Forces in the Persian Gulf...*, 160.

[134] A comprehensive review of the ad-hoc Joint HQ may be found in Todd Fitzgerald and Dr. Michael A. Hennessey, "An Expedient Reorganization: the NDHQ J-Staff System in the Gulf War," *Canadian Military Journal* (Spring 2003).

[135] Morin, *The Canadian Forces in the Persian Gulf...*, 137.

Storm.[136] Summers indicates that Operational Design, was unknown at the time and that his flexibility to negotiate with the Coalition Commander in determining what tactical tasks the Canadians could fulfill in order to meet the campaign plan, greatly facilitated effective use of resources.[137] Summers conducted mission analysis continually as new missions were taken on.[138] Given the Coalition Operational Design for the 1990-1991 Gulf War and Canada's limited, though joint role, there was little need for a Canadian Operational Design.

In a similar manner, Canada contributed a joint expeditionary force to the UN sanctioned, U.S. led mission. The Commander Joint Force Somalia (CJFS), Colonel J.S. Labbé was deployed rapidly to theatre with little military strategic direction and a change from a Chapter VI (peacekeeping) to a Chapter VII (peace enforcement) mission. Commander CJFS conducted mission analysis in theatre as his mission changed, and developed an Operational Design with an articulated end state, centre of gravity, decisive points and logical lines of operation and measures of effectiveness (MOE).[139] Having been exposed to Operational Art at the British Army Staff College in Camberley, Colonel Labbé adapted his plan to support the U.S. Coalition Campaign Plan.[140] The only difference in approach between the two Operational Designs was in the execution; the U.S. Commander of the Unified Task Force (UNITAF) Lieutenant-General Johnston, wanted mission success to be achieved more quickly while Commander CFJS took a

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[136] Miller, *The Persian Excursion*…, 155-156 and Morin, *The Canadian Forces in the Persian Gulf*..., 153-175.

[137] Rear-Admiral (Ret'd) K.J. Summers, telephone conversation with author, 10 April 2007.

[138] Vice-Admiral D.E. Miller, "CF Post-Cold War Operational Design (1991-2007),"e-mail questionnaire and response, 5 March 2007. [In possession of the author]

[139] Colonel J.S. Labbé, "Canadian Joint Force Somalia: Joint and Combined Operations in the Littorals," PowerPoint Presentation, 20 September 2006.

[140] "We touched on the op art at Camberley but only superficially - I did a study of von Manstein's campaign in the east. I was fortunate in the 1991-92 timeframe to have some enlightened officers in HQ 1st CA Div, who had either served in Central Army Group plans and/or had done some research on campaign planning/design as part of my desire to convert the Div HQ from a strictly tactical land formation HQ to an operational level, deployable JF/JTF HQ - hence the fledgling approach to our campaign plan for Somalia." Colonel J.S. Labbé, "CF Post-Cold War Operational Design (1991-2007),"e-mail response, 26 April 2007. [In possession of the author]

longer term approach to the security situation. [141] Regardless, Commander UNITAF was extremely complimentary of the Canadian contribution.[142]

The Canadian Operational Design experience in the FRY was situation dependent. First, under UN command, Operations Harmony (Croatia) and Cavalier (Bosnia), initially suffered from little strategic direction and an unresponsive UN Headquarters in New York.[143] Military forces were assigned clear missions to protect non-combatants, to ensure the security and demilitarization of UN protected areas, as well as to deliver humanitarian assistance throughout Bosnia-Herzegovina.[144] With discrete military missions and tasks and an overly bureaucratic and unresponsive UN Headquarters, there was little opportunity for the development of Operational campaign plans.[145] With the signing of the General Framework Agreement for Peace (GFAP) on 14 December 1995, commonly know as the Dayton Accord, the FRY situation was transferred from UN to NATO command. Whether by accident or design, the Dayton Accord provided a relatively holistic strategic campaign plan in terms of its four pillars (logical lines of operation) and its end state, so that Operational commanders in theatre could frame and design their major operations to support the GFAP. The Canadian Commander of Canadian Multinational Brigade (CAMNB), Brigadier-General N.B. Jeffries, indicates that at the time of Operation Cavalier, "…Canadian joint doctrine was poorly evolved and Army doctrine for

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[141] Colonel J.S. Labbé, "CF Post-Cold War Operational Design (1991-2007),"e-mail questionnaire and response, 23 March 2007. [In possession of the author]

[142] Oliviero, "Operation "Deliverance":…," 56.

[143] Lewis MacKenzie, *Peacekeeper: The Road to Sarajevo* (Toronto: Douglas & McIntyre, 1993), 330-331.

[144] Canada, Department of National Defence Website, "Canadian Forces Contribution to Bosnia-Herzegovina," DND/CF : Backgrounder : Canadian Forces Contribution to Bosnia-Herzegovina ; Internet; accessed 10 April 2007.

[145] Major-General A.R. Forand, "CF Post-Cold War Operational Design (1991-2007),"e-mail questionnaire and response, 27 February 2007. [In possession of the author]

[O]perational planning was in evolution."[146] Jefferies indicates that despite this, the Dayton Accord:

> …was viewed within IFOR as "masterful" and its authors were much admired for their insight and pragmatism. The Accord effectively obviated the need for much of the substance of campaign planning. Indeed, it was sufficiently detailed and far-reaching that, once HQ MND SW had launched the operation with a comprehensive division op order, the need for new orders to govern the subsequent phases of Dayton implementation was seriously questioned. The Dayton Accord served as the principal roadmap for the mission.[147]

In fact, the Dayton Accord continued to provide relevant guidance into Operation Palladium, Canada's continued contribution to the Balkans until its closeout in November 2004.

Canada's experience in Kosovo was much different. Operations Echo and Kinetic were two separately based and commanded operations. Operation Echo, operating out of Aviano, Italy, saw up to eighteen CF-18s prosecute air-to-ground combat missions against Serbian targets, while Operation Kinetic saw a Battle Group conducting classical peace enforcement operations within Kosovo, between Kosovar Albanians and Kosovar Serbs.[148] For Operation Kinetic, the Task Force commander maximized the Canadian contribution through close coordination with the U.S. Coalition.[149] Both were in support of the NATO led Operation Allied Force to deter and stop Serbian aggression in Kosovo. As such, the over-arching NATO campaign obviated the need for a Canadian Operational Design, considering there was no in theatre Canadian joint Operational commander.[150]

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[146] Major-General (Ret'd) N.B. Jeffries, "CF Post-Cold War Operational Design (1991-2007),"e-mail questionnaire and response, 14 March 2007: 3. [In possession of the author]

[147] Jeffries, "CF Post-Cold War Operational Design ..," 5.

[148] Canada, Department of National Defence Website, "Canadian Forces Past Operations," Past Operations | National Defence and the Canadian Forces; Internet; accessed 10 April 2007.

[149] Major-General J.I. Fenton, "CF Post-Cold War Operational Design (1991-2007),"e-mail questionnaire and response, 5 March 2007. [In possession of the author]

[150] Brigadier-General D. Davies, "CF Post-Cold War Operational Design (1991-2007),"e-mail questionnaire and response, 28 March 2007. [In possession of the author]

The CF experience in Operational Design was to reach new levels with our commitment to Afghanistan. In 2002 Canada committed a Battle Group, SOF elements and a Naval Task Group on Operation Apollo, the CF contribution to the Global War on Terror (GWOT). Command of this force was exercised from Tampa, Florida, the home of the U.S. Central Command (CENTCOM) and Operation Enduring Freedom's (OEF) Coalition Commander. The Canadian Commander Joint Task Force South West Asia (CJTFSWA) exercised Operational command by setting the conditions with the Commander OEF for the tactical employment of the CF to achieve Canadian strategic objectives. These national and military strategic objectives were clearly articulated in DCDS directives to the CJTFSWA. For several reasons, including the size, nature and scope of the deployed CF there was little need for an articulated Canadian Operational Design though CF tactical tasks were coordinated as part of the OEF Operational Design.[151] The use of Operational Design to articulate an embryonic Canadian campaign plan was achieved with Operation Athena in Kabul in 2004 largely due to the vision of Lieutenant-General R.J. Hillier, Commander ISAF. Building on experiences from Dayton and Allied Force as well as having a better indoctrinated CF culture in joint and Operational doctrine, the ISAF Operational Design allowed for the first time, a 'whole of government' approach for Canada.[152] With the formation of Canadian Expeditionary Forces Command (CEFCOM) in February 2006, a more integrated approach to the 'whole of government' operations in Afghanistan has developed. Regular interagency meetings with Foreign Affairs Canada (FAC), the Canadian International Development Agency (CIDA), as well as a more robust Operational planning team, have facilitated a more mature Canadian Operational Design for Afghanistan.[153] Operations in

[151] Lieutenant-General J.C.M. Gauthier, telephone conversation with author, 25 April 2007.
[152] General R.J. Hillier, "CF Post-Cold War Operational Design (1991-2007),"e-mail questionnaire and response, 22 March 2007. [In possession of the author]
[153] Canada, Department of National Defence, Declassified *CF Campaign Plan – Afghanistan*, 5 May 2006.

Afghanistan are now guided by the Canadian campaign plan which is harmonized with the ISAF campaign plan. CEFCOM manages the Operational effort to achieve strategic outcomes through tactical decisive effects. The CF has moved away from 'blind' contribution warfare as opined by Vance, to strategically guided and Operationally managed 'contribution' warfare.[154] While some Academics may believe that "…[t]he Canadian approach to [O]perational [A]rt has been developed in the crucible of peace support operations over the last five decades…."[155] one could argue that it is our experience *especially on post-Cold War operations*, good or otherwise, which has culturally prepared the CF for the incredibly complex insurgency in Afghanistan.

Operational Design Considerations for the COE

Greer is clear that today's doctrinal constructs limit our ability to design and conduct coherent full spectrum campaigns within the COE. Various Canadian academics, such as William McAndrew and John English share similar views. McAndrew argues that Clausewitzian insights into OOTW may be informative but their relevance may not be obvious and require further study.[156] Building on McAndrew's idea, English argues that Operational Art for countries with small militaries in OOTW may confuse the concept further since it was based on the manoeuvre of large formations in a war fighting role.[157] One might also argue along these lines, that Greer's quest for a better Operational Design methodology for the COE is invalid, as

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[154] Lieutenant-General J.C.M. Gauthier, telephone conversation with author, 25 April 2007.

[155] Howard G. Coombs and General Rick Hillier, "Planning for Success: The Challenge of Applying Operational Art in Post-Conflict Afghanistan," *Canadian Military Journal* (Autumn 2005): 6.

[156] "The relationship of operational art to other-than-war situations also demands study. Clausewitzian insights can surely frame responses to quasi-war events, but just how they may best inform them is less clear. Capriciously applying fashionable operational level of war precepts, as they are now[1996] being promulgated, to peacekeeping and peacemaking scenarios situates this appreciation. They may well be relevant, but in what particular ways is not necessarily self-evident. Other conceptual models may be out there waiting to be discovered or invented. Their essentials will only be revealed through sustained thought and open discussion." McAndrew, "Operational Art…", 98.

[157] "Given that the operational art originally sprang from the maneuver of large formations, it also remains to be seen whether it can be applied by small armies in pursuit of strategic objectives. To attempt to relate the

the COE is replete with intrastate conflict and OOTW, of which Operational Art, regardless of methodology, is potentially ill suited to address. All of these opinions reflect well the logic that Canada can not practice Operational Design. However, even if these speculations are correct, there still is a critical need for the CF to pursue this issue, as articulated by Canada's *International Policy Statement*; "…*interoperability with allied forces*, particularly the United States... [emphasis added]."[158]

Therefore, consideration in determining an Operational Design methodology more suitable for the COE requires further discussion. There are fundamentally two areas in which Operational Design needs revision to accommodate the COE. The first criterion is the need to facilitate interagency coordination and a 'whole of government' approach to problem solving. This is borne through examination of the COE which indicates that the future of Canadian expeditionary operations will be to deploy to failed and failing states where a 'whole of government' approach will be required to address a culturally and socially complex problem. The second criterion is that the Operational Design process must emphasize the need for a profound understanding of the problem on both the physical and moral planes. As the discussion in the previous chapter indicates, the 'wicked' nature of problems in the COE requires a more comprehensive study to understand the cultural and social complexities of the environment. A systemic understanding of all aspects of the battle space and linkages arising out of that battle space is required to allow for the intellectual flexibility to adapt to a highly agile adversary. This intellectual flexibility is achieved through an understanding of one's own actions and their first order effects through the battle space on both the physical and moral planes. In order to achieve both of these improvements to the Operational Design process, a third criterion becomes

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concept to everything from internal security to peacekeeping, drug wars, and more may only invite muddle." English, "The Operational Art…", 20.

apparent; the need for a simple design process based on a clear and concise lexicon. This criteria is crucial to enabling the necessary integration of interagency groups in a 'whole of government' planning process. Communication is the key to coordination and until this critical issue is addressed, the likelihood of facilitating a cogent holistic national approach to an international crisis is circumspect.

While these three considerations seem benign in their simplicity, their implementation is a challenge of Herculean proportions. The very aspect of problem setting in which the West has such difficulty is the same that prevents absorption of emerging doctrine in the military and that aspect is culture. Culture is defined as the "…arts, customs, and institutions of a nation, people or group…," and includes the "…traditional way[s] of behaving or doing something that is specific to a society, place or time…".[159] Just as a nation and a tribe within the same nation will have unique cultures, so shall any organization and the military is no exception. A noted military historian and theorist, Martin van Creveld, offers that although the U.S. Army had adopted manoeuvre warfare and associated theory as doctrine as early as 1982, its prosecution of Desert Storm was far from 'manoeuvrist' in its approach.[160] Schwarzkopf used rigidly controlled phases, and overwhelming firepower to minimize casualties in the broad, highly symmetrical armoured thrust north to Baghdad. Little asymmetry and tactical initiative was allowed and as such, Schwarzkopf was characterized as being risk averse and an 'attritionist' despite the U.S. preference for the 'manoeuvrist' approach. Since it appears that Armies and organizations are more influenced by a culture that is developed through their shared experience, sometimes

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[158] Emphasis in original. DND, *Canada's International Policy Statement*…, 12.

[159] F.G and W.H. Fowler, First Editors, *Pocket Oxford English Dictionary*, Ninth Edition, edited by Catherine Soanes (Oxford: Oxford University Press, 2002), 213, 217.

[160] Martin van Creveld, *Air Power and Maneuver Warfare* (Maxwell Air Force Base: Air Univ. Press, 1994), p. 220 quoted in Paul Johnston, "Doctrine is Not Enough: The Effect of Doctrine on the Behavior of Armies," *Parameters* (Autumn 2000): 35.

doctrine is simply not enough to effect change.[161] While the aspect of cultural influence in doctrine is an important consideration, the task at hand is to critically examine Greer's recommended options for Operational Design methodologies.

[161] Paul Johnston, "Doctrine is Not Enough: The Effect of Doctrine on the Behavior of Armies," *Parameters* (Autumn 2000): 37.

What the theorist has to say here is this: one must keep the dominant characteristics of both belligerents in mind. Out of these characteristics a certain center of gravity develops, the hub of all power and movement, on which everything depends. This is the point against which all our energies should be directed….Not by taking things the easy way…but by constantly seeking out the center of his power, by daring all to win all, will one really defeat the enemy.[162]
Carl von Clausewitz

CHAPTER FOUR – CLASSICAL OPERATIONAL DESIGN

Origin

One need only look at a copy of Carl von Clausewitz's seminal work, *Vom Kriege* (*On War*) and Baron Antoine Henri de Jomini's treatise, *Précis de l'Art de Guerre* (*The Art of War*) to realize that the foundations of modern military theory are grounded in early nineteenth century thought. The preface to the latter work, prepared by the U.S. Military Academy in 1862, is instructional in comprehending the early influence Jomini had on Western military doctrine.[163] Similarly Clausewitz's treatise was translated and available for Western consumption in 1874.[164] Both military theorists provide valuable concepts to contemporary doctrine. Jomini's major contribution is the introduction of such ideas as lines of operations and decisive points, whereas Clausewitz brings his ubiquitous and controversial theory of centres of gravity. From a Western perspective, these military theories have only recently seen a renewal. A renaissance of Clausewitzian theories around 1976, and in particular his COG theory, created a reinvigoration in Army and, eventually, U.S. Joint Doctrine. The U.S. Training and Doctrine Command (TRADOC) conducted extensive liaison with their German Allies to bring home a cogent

[162] Clausewitz, *On War*…, 595-596.
[163] Baron Antoine Henri de Jomini, *The Art of War*, (London: Greenhill Books, Lionel Leventhal Limited, 1996), 7-8.
[164] von Clausewitz, *On War*…, xi.

doctrine incorporating the Operational Level of conflict, Operational Art and Operational Design into FM 100-5 Operations in 1986.[165]

Description

While there are currently over twenty different elements of Operational Design (EOD) in the combined Canadian and Allied doctrines, Classical Operational Design is based on four elements; end-state, centre of gravity, lines of operation, and decisive points. Figure 6 depicts the U.S. JFCOM's elements of Operational Design within the context of Operational Art and the OPP. The use of U.S. doctrine to illustrate aspects of Operational Design is based on the fact that Canadian doctrine is not as comprehensive and descriptive, though it is very similar.

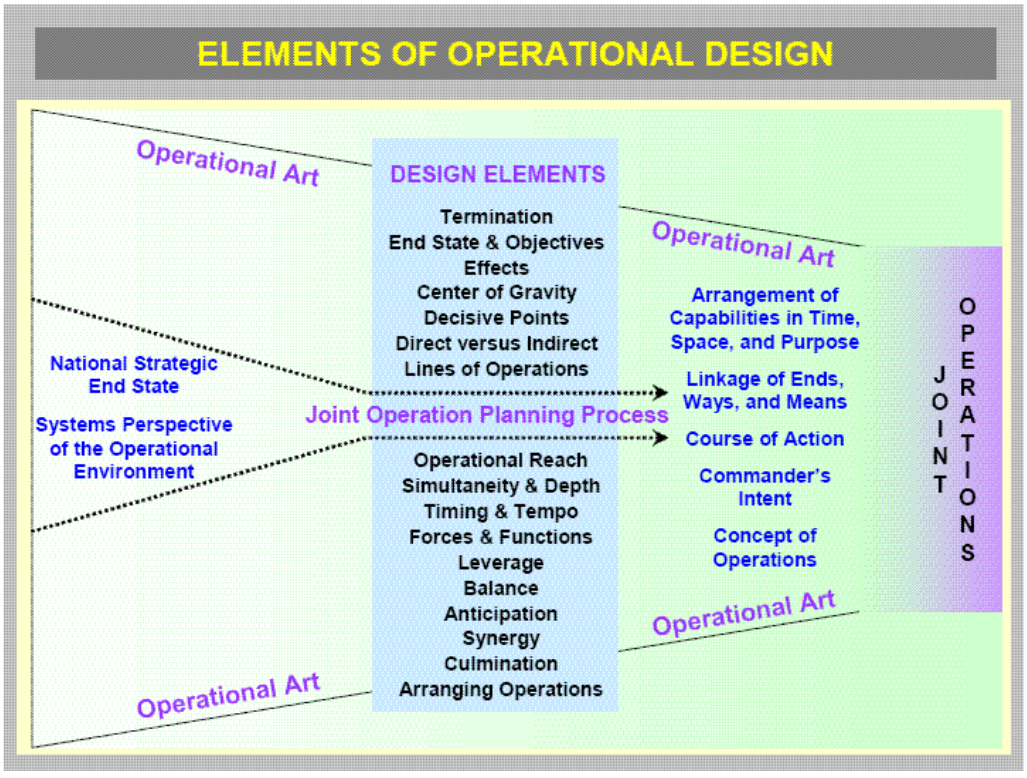

Figure 6. Elements of Operational Design

[165] Driggers, *The United States Army's* …, 30.

An Operational commander receives the strategic initiating directive (SID) thus initiating an OPP. It is during stage 2 of this OPP (Orientation) that the commander conducts Operational Design, through a series of staff-assisted processes. Having completed a mission analysis (MA) a commander's understanding is further developed through strategic analysis received from higher commands, his or her own Operational estimate, and the staff's joint intelligence preparation of the battle space (JIPB). It is in this environment that a commander confirms end state, determines operational COGs, decisive points (DP), lines of operation (LOO) and then sequences these elements to form an Operational campaign plan. Although not expressly stated in doctrine, the product or schematic is considered the Campaign Plan, while the process of creating it is considered Operational Design.[166]

Observations.

For Classical Operational Design, the pre-eminent EOD for the conceptualization of a campaign framework includes the end-state, normally determined by higher command, and determination of friendly and enemy COGs. Of these, the COG serves as a focus of Operational Design and other key EOD (lines of operation and decisive points) relate directly to the idea of the COG. Therefore, the Clausewitzian COG is fundamental to Classical Operational Design. Unfortunately, Clausewitz's COG theory is fraught with interpretational controversy and current doctrine is less than informative on methodology for determining the COG. Furthermore, as military theories of both Jomini and Clausewitz are based on war, as opposed to OOTW, their incorporation into Classical Operational Design emphasizes a 'kinetic' or combative approach to design and minimizes the 'non-kinetic' or moral aspect of the art of war. As well, organizational culture within militaries can perpetuate this combat approach across the full spectrum of conflict

[166] A review of current British, U.S. Joint Forces, U.S. Army, NATO and Canadian planning doctrine

to the detriment of conducting effective OOTW. We shall address the issue of interpretational controversy over the definition of Clausewitz's COG first.

Using Clausewitz's description of the COG as the "…hub of all power and movement, on which everything depends. …,"[167] the U.S. Army's original interpretation of this description was "…that characteristic, capability, or location from which enemy and friendly forces derive their freedom of action, physical strength, or the will to fight."[168] However, classifying the COG as a characteristic, capability, or location causes considerable confusion amongst the services and equal controversy amongst military academics, especially in the U.S. Army and Marine Corps. U.S. Army doctrine interprets the COG as an adversary's source of strength while the Navy and Marine Corps interpretation is as a critical vulnerability. Meanwhile the Air Force advocates multiple COGs as opposed to Clausewitz's preference to distil the analysis to one COG.[169] The disparity of interpretations is between the services is significant. Consequently, in an attempt to bring all services to a common understanding, a U.S. Marine Corps Academic, Dr. J. Strange, published a new interpretation of the Clausewitzian COG as "[P]rimary sources of moral or physical strength, power and resistance. …"[170] and postulated that COGs must exist at all levels of war. Strange gave example of such COGs in his monograph; strategic COG, national leader such as Winston Churchill, Operational COG, Operational commanders and their massed forces and tactical COG, a force defending a key piece of terrain.[171] A U.S. Army Officer, Lieutenant-

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reveals this omission in almost all doctrine. The only usage found in naming Operational Design schematics in doctrine is the use of the term Campaign Plan. Author.

[167] Clausewitz, *On War*…, 595-596.

[168] United States, Department of the Army, *FM100-5 Operations,* Washington, DC: DOD, May 1986, Glossary.

[169] Antulio J. Echeverria II, "Clausewitz's Center of Gravity: Changing our Warfighting Doctrine – Again!," (Carlisle, PA: United States Army War College, Strategic Studies Institute Paper, September 20002), 2.

[170] Dr. Joe Strange, *Perspectives on Warfighting - Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language*, no. 4, 2nd edition (Quantico, VA: Marine Corps University Foundation, 1996), 3.

[171] Strange, *Perspectives on Warfighting*…, 76-81.

Colonel A. Echeverria contested this interpretation by analyzing Clausewitz's original publication, *Vom Kriege*, and found translational errors in the English edition. Echevarria re-interpreted Clausewitz's COG to be "…focal points that serve to hold a combatant's entire system or structure together and that draw power from a variety of sources and provide it with purpose and direction."[172] In response, Echevarria eschewed multiple COGs at different levels of war for one COG which transcends all levels of conflict and offered strategic commanders, their massed forces or ideological movements as examples of that COG; remarkably similar to Dr Strange's examples.[173] Dr Strange's reprisal in 2004 re-defined the COG as "…dynamic and powerful physical and moral agents of action or influence with certain qualities and capabilities that derive their benefit from a given location or terrain."[174] Despite the academic controversy, doctrine is still non-committal, with the latest edition of U.S. Army FM 3-0 offering three definitions; its own, Joint Forces Command's and the original Clausewitzian description. It further posits that:

> [m]odern understanding of the COG has evolved beyond the term's preindustrial roots to include the possibility of multiple COGs existing at the strategic and [O]perational levels." [175]

Current Canadian doctrine as well as U.S. Joint Forces Command retains the U.S. Army's originally contentious definition from 1986.[176] A recent graphical interpretation of a COG from Clausewitzian theory created by U.S. Joint Forces Command is depicted at Figure 7.

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[172] Echeverria, "Clausewitz's Center of Gravity…, 19.
[173] Echeverria, "Clausewitz's Center of Gravity: Changing our Warfighting…," 19.
[174] Joseph Strange and Richard Iron, "Center of Gravity: What Clausewitz Really Meant," *Joint Force Quarterly*, Issue 35 (Autumn 2004): 27.
[175] Department of the Army, FM 3-0, *Full Spectrum Operations*,…, 8-4.
[176] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning Process*…, G-1.

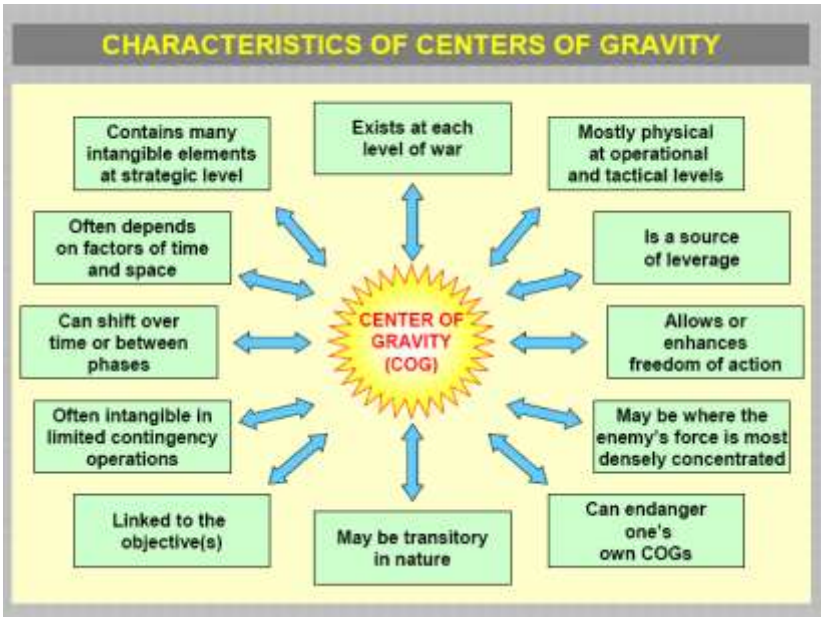

Figure 7. Characteristics of Centres of Gravity.[177]

While debating definitions can often be tedious, the discussion is enlightening. There still appears to be no consensus, with the U.S. military services on the Clausewitz's COG theory after nigh on twenty-five years of use. That Clausewitz is so widely misunderstood can be attributed largely to the fact that *Vom Kriege* was written in a piecemeal fashion over a fifteen year period and other than the first chapter, was never revised or edited. Resultantly, Clausewitz's writing more resembles an inner monologue than a concise treatise on a topic.[178] This incoherence, combined with the fact that Clausewitz's concept of warfare in the early nineteenth century does not resemble the COE, puts in doubt the applicability of his 'immutable' theory. Certainly, COG theory needs adaptation to the COE, and if here today, Clausewitz would no doubt see the utility in this. To some extent current doctrine has taken liberties and adapted his theories to current visions of conflict, such as accepting the prevailing opinion of

[177] JFCOM, Joint Publication 5-0, *Joint Operation Planning* …, IV-9.
[178] Simpkin, *Race to the Swift*…, 11.

multiple COGs at each level of conflict.[179] Regardless, the Clausewitzian theory underpinning Classical Operational Design is outdated, requiring revision and adaptation for the COE.

Similarly, there is little description of a process in doctrine to determine a COG using the Classical methodology. While interpretational definitions of the COG, as well as information presented in the JIPB analysis, may assist in determining an adversary's or one's own, there is no methodology to determine a COG. Some choose to list an adversary's strengths and weaknesses and then simply select the adversary's greatest strength as the COG.[180] More often than not, it is often left to a commander's *coup d'oeil*, or intuition to determine an adversary's COG, as opposed to a formatted method. However, *Coup d'oeil* as an intuitive decision making process is based upon pattern recognition and one's experience.[181] The limitation in this formulation is the depth and breadth of one's experience. It follows that "commanders lacking experience with regard to a mission will generate lower-quality plans when using the RPM [Recognition Planning Model]."[182] If a commander is experienced in war fighting but not in COIN or PSO, the ability to adapt his or her vision to a more abstract COG, could prove problematic. U.S. General Westmoreland commanded Military Assistance Command Vietnam (MACV) from 1964-1968. During his first year he pursued an offensive campaign against the Viet Cong (VC)

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[179] This doctrinal interpretation of multiple COGs at the strategic and operational levels of war is published in U.S., British and Canadian doctrine. Department of the Army, FM 3-0, *Full Spectrum Operations*,…, 8-4, NATO, *Guidelines for Operational Planning (GOP)*…, 3-8, and U.K. Ministry of Defence, JWP 5-00, *Joint Operations Planning*...., 2B3-1.

[180] This is reminiscent of the strengths, weaknesses, opportunities, threats (SWOT) technique used in analysing business improvement. Net MBA Business Knowledge Center , "SWOT Analysis," SWOT Analysis; Internet: accessed 14 April 2007.

[181] Major Brad Bergstrand, "Situating the Estimate: Naturalistic Decision-Making as an Alternative to Analytical Decision-Making in the Canadian Forces" (Toronto: Canadian Forces College Command and Staff Course New Horizons Paper, 1997): 3–4.

[182] Karol G. Ross, Ph. D., Gary A. Klein, Ph.D, Peter Thunholm, Ph.D, John F. Schmitt, and Holly C. Baxter, Ph.D., "The Recognition-Primed Decision Model," *Military Review* (July-August 2004): 9.

based "…big operations with fancy names and never thought about any other way."[183] The VC simply adapted, 'hugging' U.S. forces in the jungle, to deny them the use of their vastly superior firepower. Despite the unconventional nature of the conflict, Westmoreland *initially* chose a conventional offensive strategy based on his Second World War and Korean War conventional experience.[184] Thus, he conformed to the U.S. organizational culture of the time, fulfilling a "…strong temptation to hit someone."[185] This was a classic example of a commander without direct operational experience in a particular type of conflict, reverting to what he or she knows despite it being an inappropriate solution to the problem. As McAndrew points out regarding ways of improving one's experience, one may "…participate vicariously in military operations only through historical study. They may do this implicitly…or preferably through conscious study."[186] Given the extremely complex problems within the COE, such as the insurgency in Afghanistan or Iraq, it therefore follows that *coup d'oeil* should only come from a highly informed, educated and experienced commander, or such a staff supporting the commander. Of note, the current American commander of OIF, General Petraeus, has brought with him to Iraq a band of 'warrior-intellectuals' including an Australian anthropologist, a Princeton economist and a military expert on the Vietnam War.[187] As an example of an intuitive approach to determining a COG one need only look to Canadian operations in Afghanistan. The Canadian Battle Group Commander of Task Force 1-06, Lieutenant-Colonel Hope, used Clausewitzian theory in reverse

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[183] Major-General (Ret'd) John Tillson, MACV operations officer in 1966, in John A. Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lesson from Malaya and Vietnam* (Chicago: The University of Chicago Press, 2002), 153.

[184] After his initial attempts for a rapid and decisive victory in Vietnam, Westmoreland issued his Theory of Victory, which outlined his vision of how the war in Vietnam should be won. It was progressive in nature because it understood that development efforts would be key to success. His thoughts on capacity building in terms governance, police and reconstruction issues reflect the early ideals of a 'comprehensive' approach. John M. Carland, "Winning the Vietnam War: Westmorland's Approach in Two Documents," *The Journal of Military History*, 68, (April 2004): 568.

[185] Nagl, *Learning to Eat Soup*…, 151.

[186] McAndrew, "Operational Art…", 98.

to determine the Taliban's COG. Rather than analyse the Taliban, he considered the Afghani government as the friendly COG and then analysed what activity was most detrimental to the Afghan National Development Strategy (ANDS); the result was the illicit drug economy.[188] For those missions which do not have the benefit of such an august group as General Petraeus, the less experienced commander must rely upon doctrine and an OPP to guide him to the best determination of the COG. The results of such determination may not prove optimal and as such may present a critical vulnerability in the Classical methodology. Therefore, for good reason, the Classical methodology for determining an adversary's COG is limiting and requires a less intuitive methodology.

The last point of contention with respect to the Classical methodology is more difficult to explain. This may very well be due to the assertion that it lays in the realm of organizational culture. As Canadian doctrine is greatly influenced by American doctrine, the argument is worthy of consideration. Classical Operational Design is founded on the Clausewitzian tradition of nation state conflict (war) where the purpose of such conflict, when unable to disarm an adversary, is to decisively defeat an adversary's military force in battle, whether by annihilation or attrition:

> …for if war is an act of violence meant to force the enemy to do our will its aim would have *always* and *solely* to be to overcome the enemy and disarm him. …The fighting force must be *destroyed*: that is, they must be *put in such a condition that they can no longer carry on the fight*.[189]

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[187] Thomas E. Ricks, "Officers with PhDs Advising War Effort," *Washington Post,* 5 February 2007, A01.

[188] In discussion with Military Historian, Howard Coombs the subject came up regarding methods for determining centres of gravity. He offered as anecdote, this example of reverse engineering Clausewitzian theory to determine the COG. Clausewitz posits that the greatest blow to a COG is impelled from one's own COG. Howard Coombs came by this anecdote through conversations with his personal friend Lieutenant-Colonel Ian Hope. Interview with Howard Coombs 29 January 2006.

[189] Clausewitz, *On War*…, 90.

Clausewitz goes on to postulate that the most important acts for the defeat of the enemy are the destruction of his Army, seizure of his capital, and if applicable, an effective blow against the adversary's principal ally.[190] Alternatively, Clausewitz indicates that such acts may not be successful in ending the war "…so long as the enemy's *will* has not been broken: in other words, so long as the enemy government and its allies have not been driven to ask for peace, or the population made to submit."[191] Central to this understanding is the importance of will as Clausewitz articulated it:

> …[T]he moral elements are the most important in war. They constitute the spirit that permeates war as a whole, and at an early stage they establish a close affinity with the will that moves and leads the whole mass of force, practically merging with it, since the will is itself a moral quality…
>
> The spirit and other moral qualities of an Army, a general or a government, the temper of the population of the theatre of war, the moral effects of victory or defeat – all these vary greatly…
>
> History provides the strongest proof of the importance of moral factors and their often incredible effect: this is the noblest and most solid nourishment that the mind of a general may draw from the study of the past.[192]

Clearly the moral element in war is absolutely crucial to understanding one's environment and the critical path to an adversary's COG. Though Clausewitz's strident opinion that the moral component of war supersedes the physical and political in importance, he is less forthcoming in analysis, concluding his chapter on *Moral Factors* by stating that he prefers "…to treat the subject in an incomplete and impressionistic manner, content to have pointed out its general importance and to have indicated the spirit in which the argument of this book are conceived."[193] His conclusion at the end of the chapter may be valid; that analysis of the moral factor would lead to platitudes already understood by all. However, such academic inquiry may have produced a more 'non-kinetic' strategy for war than is presented in his work. Consequently, *On*

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[190] Clausewitz, *On War*…, 596.
[191] Emphasis in original. Clausewitz, *On War*…, 90.
[192] Clausewitz, On War…, 184-185.

War is a treatise almost wholly devoted to the political and physical aspects of the art of war and neglects a thorough analysis of the moral plane of war.

As such, Classical Operational Design doctrine is couched in war fighting terminology where the physical destruction of the adversary is emphasized instead of the 'non-kinetic' or non-physical aspect of the conflict. The contention is that while Classical Operational Design doctrine is written tangentially to include such 'woolly' concepts as the moral or psychological plane and effects (much like *On War's* treatment of the moral element), their implementation or emphasis is muted by doctrine and organizational culture. A review of the CF publications related to OPP finds only passing mention of the moral or psychological plane of conflict and effects are mentioned cursorily throughout, both with little amplifying theory on their application.[194] A potential reason for this is because the concept is too difficult to quantify, as Clausewitz indicates in *On War*. This is even more pronounced with military organizational culture, or as Echevarria calls it, the American 'way of war.' Echeverria contends that, "…the American way of war tends to shy away from thinking about the complicated process of turning military triumphs, whether on the scale of major campaigns or small-unit actions, into strategic successes."[195] Thus, U.S. forces focus on war fighting to win the conflict but do not plan well for post-conflict success; the current situation in Iraq is demonstrative of this type of power

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[193] Clausewitz, *On War*…, 185.

[194] The moral or psychological plane of conflict is mentioned briefly only eight times throughout the 152 page manual, while effects are again briefly mentioned nine times in the document. Notably, a systemic approach to the COE is not mentioned whatsoever despite having a direct relation to effects theory. Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,… 1–152.

[195] Echeverria uses the term 'grammer' to indicate tactical activity and 'grammar' to indicate the strategic level in his article. "To move toward a genuine way of war, American military and political leaders must address two key problems. First, they must better define the respective roles and responsibilities of the logic and grammar of war, and, in the process, take steps that will diminish the bifurcation in American strategic thinking – what Osgood called the disassociation of power and policy." Antulio J. Echeverria II, "Toward An American Way of War," (Carlisle, PA: United States Army War College, Strategic Studies Institute Paper, September 20002), 7; quotation in footnote, 16.

warfare. One could argue that Canadians do not face this problem for several reasons. Canadian culture is different from U.S. culture and Canada is not and has never been a warlike nation. Though Canada has participated in several wars, it has been equally out of a sense of duty as a Commonwealth country than as based on our national interest. Furthermore, it is because the Canadian nation was forged with a pen and not a sword that Canadians will not tolerate a large standing force. It is this historical truth, the size of our force that keeps Canadians purely to the 'grammar' or tactics of war as opposed to its 'logic' or strategy.

Ironically, Clausewitz, speaks to the post-conflict phase of war in a section concerning "*Defence"* in *On War*. While the context of the chapter *The People in Arms* relates to home defence, one can easily imagine the obverse; rebellion as a response to the defeat of an adversary's regime. Clausewitz admits to '…groping for the truth…' on the subject of insurgency, which is '…not as yet very common."[196] Today, the very nature of the increasing threat in the COE is intrastate conflict or insurgency. It is therefore ironic that despite Western doctrine based on Clausewitzian theory, which stridently purports that the moral element of war is paramount to victory and outlines the difficulties of post-conflict insurgency, a contemporary super-power like the United States allowed itself to become embroiled in an insurgency in Iraq.

Post-conflict success is largely determined by 'non-kinetic' factors such as culture, perception, goodwill, infrastructure, fear, diplomacy and development, though these factors must be considered and shaped during the conflict phase. Resultantly, three years after initiation of OIF, the U.S. Joint Forces Command has revised its Joint Operations Planning publication to emphasize such concepts. The joint publication incorporates effects as elements of Operational Design to facilitate joint planning, discusses a 'systems perspective' of the operational

[196] Clausewitz, *On War*…, 483.

environment and expands its discussion of elements of Operational Design to include war termination as an element. One might argue that the 'Canadian way of war' is the product of its post-Cold War experience and as such, the CF does not suffer from the same war fighting focus when conducting OOTW. Regardless, Clausewitzian theory and Classical Operational Design do not lend themselves well to the complexities found in the COE. While they can be adapted for OOTW, their emphasis remains strictly in war fighting or the conflict phase of an operation. Furthermore, organizational culture based on the doctrinal foundation of Clausewitzian theory can potentially exacerbate any chances for success in OOTW or the post-conflict phase of war.

Western militaries have come to know and appreciate Classical Operational Design concepts and elements over the past twenty-five years. Rooted in theoretical military underpinnings of war and, in some cases, military organizational culture, this methodology has always reflected a combat emphasis despite sound, but limited, theory on the moral plane of conflict. While academics and military theory purists have disagreed on the 'true' interpretation of Clausewitz's COG theory, operators have managed to adapt the concept for application in OOTW despite a lack of process to assist in the determination of COG. While it may be adapted to facilitate Operational Design in the COE, it is a less than ideal construct that requires vigorous doctrinal adaptation to make it a more viable methodology for OOTW.

To make war on rebellion is messy and slow, like eating soup with a knife.[197]

T.E. Lawrence

CHAPTER FIVE – STRANGE ANALYSIS

Origin

What has come to be known as the 'Strange Analysis' is an attempt by a United States Marine Corps (U.S.M.C.) Academic Dr. Joe Strange to bring coherence and a common service understanding to the core Operational Design concept of centres of gravity. This incoherence can be attributed to the likelihood that over the years, few have taken the time to study Clausewitz's torpid prose in the original German and resultantly, a series of diverging interpretations of the COG concept evolved. So, ten years after the introduction of the COG concept to Army doctrine in 1986, Strange published his monograph to standardize the concept of COGs. While unique, the theoretical underpinning of the 'Strange Analysis' is tied to both Jomini and Clausewitz. Also, it only addresses the concept of COGs and not other EODs, and as such, "Strange Analysis' is not considered a method of Operational Design unto itself. Interestingly, Strange posits that Clausewitzian theory is about the 'nature' or violence of war which is immutable, and therefore, despite the fact that the 'character' or 'form' of war has changed in the late 20th Century, Clausewitzian theory of the dynamics of war remain valid.[198]

Description

'Strange Analysis' is in essence an alternative interpretation of the COG concept and a model for determining methods of attacking an adversary's COG. Strange decried the 1986 Army interpretation of COG as a "…characteristic, capability or location…",[199] as well as the Marine Corps and Air Force interpretations of the COG as a critical vulnerability. Strange states

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[197] B.H. Liddell Hart, *Lawrence of Arabia* (New York: Da Capo Press Inc., 1935), 135.

that COGs are the "…moral, political and physical entities which **possess** certain characteristics and capabilities, or benefit from a given location/terrain."[200] From analysis of *On War* Strange posits that Clausewitz viewed COGs as "…sources of moral and physical strength, …significant entities, relatively few in number at each level of war."[201] As Clausewitz had intimated, an adversary's COG would likely be protected and therefore be difficult to attack. Strange took his analysis further in devising a model for determining the linkages for attacking an adversary's COG. According to Strange, the key to attacking a COG was through a critical vulnerability which was somehow connected to the COG. In effect, Strange created a systems perspective for determining how to defeat an adversary's COG. His model is based on four concepts; COG, critical capabilities (CC), critical requirements (CR) and critical vulnerabilities (CV). Strange defined COG as "…[p]rimary sources of moral and physical strength, power and resistance." His CC is defined as "…[p]rimary abilities which merits a Center of Gravity to be identified as such in the context of a given scenario, situation or mission." Strange's definition of CR is "…[e]ssential conditions, resources and means for a Critical Capability to be fully operative. …", while his definition of CV is "…Critical Requirements or <u>COMPONENTS THEREOF</u> which are deficient, or vulnerable to neutralization, interdiction or attack (moral/physical harm) in a manner achieving decisive results." [202] Strange makes clear that a CC is not a COG as loss of a CC will not cause the COG to fail.[203] As one can deduce, the elements of Strange's CG-CC-CR-CV concept are interrelated, with the COG being supported by CC, with these in turn being supported by CR. A CV then is simply a vulnerable CR or a component thereof; the idea being,

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[198] Strange, *Perspectives on Warfighting*…, 5.
[199] United States, Department of the Army, *FM100-5 Operations*…, Glossary.
[200] Emphasis in original. Strange, *Perspectives on Warfighting*…, 143.
[201] Strange, *Perspectives on Warfighting*…, 24.
[202] Dr. Strange uses the acronym CG for centre of gravity vice the author's use of COG. The two are the same and interchangeable. Strange, *Perspectives on Warfighting*…, 43.

that should one neutralize or destroy one or more CV, the adversary's COG will be indirectly affected, and ideally, decisively defeated or toppled. A diagram of Strange's Model in Figure 6, is illustrative of this systemic approach to Clausewitz's COG theory.

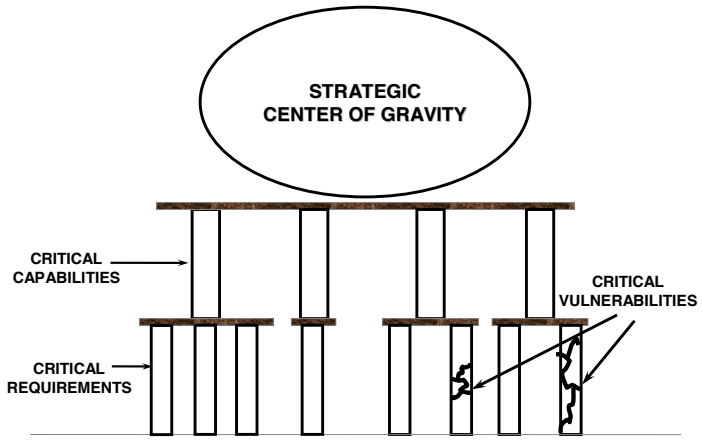

Figure 8. Strange's CG-CC-CR-CV Concept as a Model.[204]

Observations

'Strange Analysis' does bring some benefit in terms of making Operational Design more adaptable to the COE. Most importantly though, it is based in military theory pertaining to Clausewitz and Jomini and as such, it remains difficult to apply to the complexities of the COE. However, while not an Operational Design methodology by itself, it provides a systemic process to assist in the determination of the COG. Similarly, it constructs a framework for determining other key Operational Design elements, such as decisive points (DP).

Foremost of all, Strange's concept, though he may not have intended it so, provides an indirect, regimented approach to determining a COG. While he indicates that "…[i]dentifying Centers of Gravity Should Not Normally Be the Hard Part…", this is not necessarily so in the COE given much more complex problems than in war fighting. Fortunately, Strange's

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[203] Strange, *Perspectives on Warfighting*…, 143.

monograph is replete with practical examples of his CG-CC-CR-CV concept based in conventional war fighting , but despite his preponderance of conventional examples, Strange rightfully includes moral entities as COGs. He also provides examples of national will and public support as a moral COG at the strategic level and breaks it down into its constituent CCs and CRs.[205] Another example, on the moral importance of Verdun in 1916, is helpful. He contends that at the Operational level, the French will to fight for Verdun is a CR, their capability to defend a CC and finally the French forces defending Verdun as the Operational CG (COG).[206] From these cases, Strange implies that though the moral element is vitally important, one must try to reduce the COG to something physical at the Operational level if one is to able to influence it. Though this implication has verisimilitude, that physical actions can have effects on the moral or psychological plane, this is not immutable truth and an Operational COG may be intangible in the COE. For example, according to David Galula, a leading academic on COIN operations, the COG for both the counterinsurgent and the insurgent is the support of the population. Within the population there are pro-insurgent (bitter-enders), the uncommitted (fence-sitters) and the pro-counterinsurgent (allies). The support of the fence-sitters best gained through an active minority (allies or bitter-enders) and this support is only conditional upon the ability of each competitor (insurgent or counter-insurgent) to provide a better alternative.[207] While the support of the population is manifested in physical actions, such as providing intelligence on insurgent activity, it is a moral contract based on mutual trust. Strange's systemic relationship between his CG-CC-CR-CV elements provides a vehicle for the determination of

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[204] United States, Joint Forces Command, U.S. Joint Publication 5-00.1, *Joint Doctrine for Campaign Planning* (25 January 2002), II-6, II-7.

[205] Strange, *Perspectives on Warfighting*…, 52-53.

[206] Strange, *Perspectives on Warfighting*…, 80-81.

[207] David Galula, *Counterinsurgency Warfare: Theory and Practice*, Foreward by John A. Nagl, (London: Praeger Security International, 2006. First published in 1964), 52-55.

COG through first principles. By identifying the Critical Requirements and Capabilities of an adversary's system, one can theoretically, deduce an adversary's COG. While this is an exhaustive 'ground-up' process, it may have greater design value for the COE than the intuitive approach required for Classical Operational Design.

Similarly, 'Strange Analysis' reveals in its process, Critical Vulnerabilities. These CVs are those poorly protected CRs which offer target opportunities (kinetic and non-kinetic) for the adversary with initiative, motive and means. Strange's theory is that these targets provide an opportunity to influence, weaken or topple an adversary's COG. Given that a decisive point (DP) is "…a point from which a hostile or friendly centre of gravity can be threatened. …," then vulnerable CRs are prime examples of DPs worthy of consideration for inclusion in the Campaign Plan.[208] In fact, current use of this concept when examining an adversary results in the initial draft of the high value target list (HVTL). It is worthy of note that the latest version of JFCOM's *Joint Operations Planning* (2006) divorces the COG from its former DP definition and embraces 'Strange Analysis' as a core tool for Operational Design.[209] This may be reflective of a deliberate move by Joint Forces Command away from a COG dominated theory to a more systemic and effects based methodology.

Ultimately, 'Strange Analysis' builds on Clausewitzian theory to create a systemic methodology which links the COG to one or more CVs. By doing so, Strange has created a regimented means by which one can determine the COG and its associated DP. While Strange has focused his examples of his concept predominantly in the physical and conventional realm, his two examples in the moral plane, the most important plane of war, are enlightening and demonstrate the utility of his system to address the less tangible aspects of a COG. Regrettably,

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[208] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…2-3.

Strange's CG-CC-CR-CV concept is soundly based in Clausewitzian theory, and as such, is not appropriate for use in the COE without considerable adaptation. Strange's move to incorporate a systemic vision of the COG is an intuitive step in the right direction towards adapting the necessary tools needed to reveal the social and cultural complexities of the COE.

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[209] JFCOM JP 5-0, *Joint Operation Planning*…, IV-16.

In total war it is quite impossible to draw any precise line between military and non-military operations.[210]

Winston S. Churchill

CHAPTER SIX – SYSTEMIC OPERATIONAL DESIGN

Origin

Systemic Operational Design (SOD) is based in both general systems theory and complexity theory. As the term system implies, these theories attempt to address complex issues from a holistic or whole of system viewpoint. The need for such theories were largely borne out of the inability of Newtonian physics to explain certain phenomena relating to the biosocial sciences and the increasing complexity of modern technology.[211] A leading exponent of system theory, Ervin Laszlo, indicates the benefits of a systems theory perspective as opposed to a Newtonian specialist's perspective:

> The specialists concentrate on detail and disregard the wider structure which gives it context. The systems scientists, on the other hand, concentrate on structure on all levels of magnitude and complexity, and fit detail into its general framework. They discern relationships and situations, not atomistic facts and events. By this method they can understand a lot more about a great many more things than the rigorous specialists, although their understanding is more general and approximate. Yet some knowledge of connected complexity is preferable even to a more detailed knowledge of atomized simplicity, if it is connected complexity with which we are surrounded in nature and of which we ourselves are a part.[212]

Laszlo's observation is particularly relevant to military forces operating within a socially complex COE. Systems theory in its simplest form describes a system as "…sets of elements standing in interrelation…."[213] Such a simple theory, however has had a significant impact on

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[210] Winston S. Churchill, *The Second World War, Volume II, Their Finest Hour* (New York: Houghton Mifflin Company, 1949), 17.

[211] Ludwig von Bertalanffy, *General System Theory: Foundations Development Applications* (New York: George Brazillier, Inc., 1969), 11-12.

[212] Ervin Laszlo, *The Systems View of the World: A Holistic Vision for Our Time* (Cresskill: Hampton Press, Inc., 1996), 9-10.

[213] Bertalanffy, *General Systems Theory*…, 38.

not only the sciences but more importantly the biosocial or 'open system' sciences; psychology, psychiatry, cultural relativity and biology. An open system is defined "as a system in exchange of matter with its environment, presenting import and export, building-up and breaking-down of its material components."[214] As opposed to a closed system, which is isolated from its environment, an open system is considered within the greater environment or system of systems in which it interacts. Resultantly, open systems are considered to include living systems, including human systems and their environment. Therefore, for the study of the complexities of modern warfare, open system theory provides the theoretical underpinnings of Systemic Operational Design.

This unique approach to military problem solving is not new. Academic Peter Checkland worked on adapting a systems engineering process to assist managers in the organizational complexities of the workplace. Over a thirty year period, Checkland was able to develop what is termed 'soft' systems thinking as opposed to 'hard' systems thinking; the latter views systems as mechanistic and which can be engineered, whereas the former focuses on making sure the process of inquiry into real-world (open system) complexity is itself a system for learning.[215] At its heart, 'soft' systems methodology (SSM) is a methodical way of learning about a problem. Its premise is to bring a collective group of people together to discuss a 'wickedly' complex problem. Through Checkland's SSM, a systemic process is followed through which a profound understanding of the problem is arrived at. It is through this collective understanding that 'the' solution will become intuitively apparent.

The militarization of a systemic approach to Operational Design was introduced by Brigadier-General (Reserve) Shimon Naveh, an Israeli Defence Force (IDF) officer. The need

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[214] Bertalanffy, *General System Theory*…, 141.

for such an approach was spawned by a perceived crisis in IDF Operational Art; operational failures, ineffective Operational thinking and design. The IDF were unable to logically bridge the gap between strategy and tactics within the increasingly complex Israeli security environment.[216] Naveh and his colleagues at the Operational Theory Research Institute (OTRI) conducted considerable research into Operational Art, resulting in the publication of *In Pursuit of Military Excellence: The Evolution of Operational Theory* in 1997 and developed SOD as an alternative to the Western teleological approach to design.[217] Naveh's model for Operational Design is based on epistemology. To better understand the fundamental differences between the Western and Israeli models it is necessary to compare the two approaches.

Teleology may be defined as "…the doctrine of final causes, especially that natural and historic processes are determined not only by causality but also by their ultimate purposes."[218] Western military thought is based on such a deterministic approach. The CF military estimate process and OPP are based on teleology and deductive reasoning; the staff is required to "…derive logical deductions from each of the factors being considered."[219] The late Lieutenant-Colonel R.E. Giffin, a military strategist and philosopher contended that CF problem solving processes are not 'deductive' as perceived, but are essentially inductive, based "…namely an

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[215] Peter Checkland, Soft Systems Methodology: A 30-Year Retrospective (New York: John Wiley & Sons, 2005, c1990), 149-150.

[216] For a discussion of Shimon Naveh's ideas see Lieutenant-Colonel Craig Dalton's, "Systemic Operational Design: Epistemological Bumpf or the Way Ahead for Operational Design?" (Fort Leavenworth, Kansas: United States Army Command and General Staff College, School of Advanced Military Studies Course Paper, 2006), 26-27.

[217] Dalton, "Systemic Operational Design…," 27.

[218] *The New Lexicon Webster's Encyclopedic Dictionary of the English Language*, Canadian Edition (New York: Lexicon Publications, Inc., 1988), 1016.

[219] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…4-8 – 4-9.

inference that is broader than the particular facts that it is drawn from."[220] Giffin argued that inductivism has crept into military thought based on the combination of the tenets of inductivism and the scientific method. The former introduced the logical process of probable inference such that we can infer causes from effects or observations in nature, while the latter method allowed for the elevation of hypotheses to theories and laws based solely on confirmation as opposed to refutation of such hypotheses.[221] Simply put, by observing effects in the COE (roadside explosion), we may infer its unknown causality (roadside IED) with confidence based on probability, through only confirmation of apparently related observations (person running away with cell-phone in hand), without any rigour in refutation of the inferred causality (gas main catastrophic failure). This deterministic need to establish the truth through the use of inductivism is faulty. Western tendencies in Operational Design accept as truth these deductions by confirming them as opposed to refuting them. It is likewise the author's personal experience that once a deduction has been made and confirmed there is no rigorous argument that may follow later to critically attempt to refute the deduction, and thereby strengthen its basis. This is not the case with epistemology.

Epistemics may be defined as "…the scientific study of knowledge especially by construction of formal models of perception etc. by which knowledge is obtained."[222] Such an approach is based on a heuristic[223] method to determine a logical foundation for planning. Designers observe the conditions of the complex problem they are required to solve and

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[220] Lieutenant-Colonel R.E. Giffin, "Superstitious Rituals. Naïve Inductivism in Command and Control Doctrine: Its Causes, Consequences and Cures," Director Information Management – Strategic Planning, Discussion paper presented to the 7th ICCRTS, Québec City (September, 2002): 12.

[221] Giffin, "Superstitious Rituals…," 4-5.

[222] *The New Lexicon Websters's…*, 318.

[223] "[H]eurisitc…useful for discovering knowledge, e.g. of a teaching method owhich encourages the pupil to proceed by his own investigation || of the creation of models as a working hypothesis of a goal or solution." *The New Lexicon Webster's…*, 455.

hypothesize causality for the conditions of that complex problem. This hypothesis forms the surrogate causality, as opposed to the 'real' causality (which cannot be observed), and shapes the basis for conceiving a logic for solving the problem.[224] The surrogate causality is not taken as the truth, but as a vehicle to understanding the problem in its complexity; it is a learning mechanism. It is subjected to a rigorous and critical debate throughout the planning process and may need to be reformed. This logic becomes the design upon which planning is implemented and action is taken.

Description

SOD is simply its namesake. It is not a planning process such as CF OPP or JFCOM JOPES. It is a design process underpinned by systemic theory. It is a spiral and associative process that is comprised of seven steps of related discourse that build upon and inform one another.[225] A diagram of the seven steps may be seen in Figure 9.

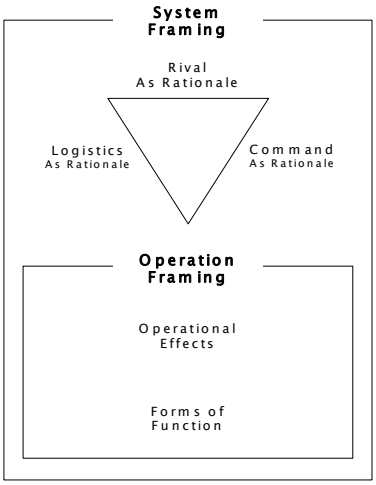

Figure 9. Systemic Operational Design: The seven steps.[226]

[224] Schmitt, "A Systemic Concept…,"15.
[225] Dalton, "Systemic Operational Design…," 36.
[226] Dr. B.G. Shimon Naveh, "Questions of Operational Art: The Depth Structure of Systemic Operational Design," (Initial Draft), October 2005, 7.

The process is served through discourse throughout the process, based on a step-related aim with associated thematic design questions. The questions address the Meta inquiry (external to the system frame) and the system frame itself (the framed Operational problem). The process is non-linear and questions may arise in a particular step which relate either to a completed or to-be-completed step providing insight or enhancement as appropriate to the discourse. The discourse is enhanced at each stage with systems mapping to stimulate and focus discourse. In its simplest form, SOD is a more systemic and holistic form of brainstorming.[227] At first glance, SOD's turgid language appears to be its sole drawback. This is in large part due to its translation from Hebrew to English. However, one can translate these complex ideas into a more lucid lexicon in classical Western military terms.

System Framing constitutes the initial step of SOD. As its purpose, system framing is "…to set the conditions for both, the thinking process, and the operationalization of forces and resources."[228] The system which is framed is a larger system in which the Operational problem is but a part; potentially a strategic system. The discourse within the Operational Design group serves to discern and populate the strategic system with elements that have a bearing on the Operational problem at hand, including our own Operational level military organization with its own strategic restraints and constraints. These elements are discussed in detail to illuminate their form, function and logic to determine their interrelationship and interaction within the strategic system, especially as they relate to tension or friction within the system. From this initial framing an abstract model is constructed in an attempt to explain the causality of observed events, which has led to the Operational problem. This model is really a surrogate model for the actual, and more than likely indiscernible, causality. Through such discourse and abstraction,

[227] Dalton, "Systemic Operational Design…," 36.

enlightenment on the greater context of the Operational problem serves to inform the Operational Designers on the potential effects of one's actions in the environment and their strategic impact. As such it may better provide or refine strategic constraint and restraints on the Operational problem.[229] To aid in the Operational Design, system framing is developed around two products; a diagram of the hypothetical system with all of its elements and interrelationships graphically represented, as well as a running discourse captured for further development and enhancement throughout the Operational Design process. An example of a system frame may be seen in Figure 10.

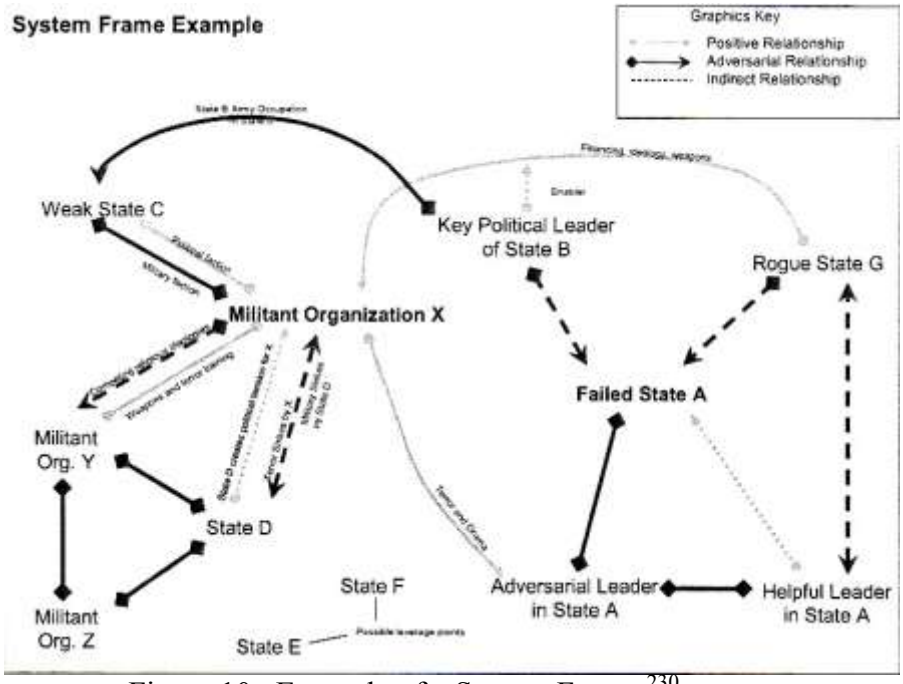

Figure 10. Example of a System Frame.[230]

Rival as Rationale constitutes the second step of SOD which addresses all adversaries, but could also be used to address elements which create tension in the strategic system. *Rival as Rationale* is both a subject matter and a sub-process. It functions to rationalize all rivals as

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[228] Naveh, "Questions of Operational Art…," 3.20.10.
[229] Brigadier-General (Reserve)Shimon Naveh, Process Notes on Systemic Operational Design, 4-7.

systems as well as constructs a tension-generating framework for subsequent *command* and *logistic rationales* and assembles rivals' forms as a reference for *operation framing* later on in the process. The sub-process uses inquiry and discourse to assemble a singular system model to define and explain the form and logic of rivals. The rival system may constitute a number of rival elements which may or may not act as a whole against achieving the desired system end state. Once defined and formed, the elements are analyzed from a multifaceted perspective; economics, sociological, cultural, strategic, command and learning, logistical, organizational and Operational manoeuvre. The rival systems are further discussed from an internal and external-to-rival-system perspective to better understand the form and logic of the rival systems as a whole.[231] By understanding the adversary, or rival, from a holistic point of view, one would be better able to act against that opponent to ensure one's strategic end state. This process is completed with a graphical representation of the rival systems and a narrative capturing all of the relevant insights on the rival systems' form and logic. Figure 11 depicts the *Rival as Rationale* frame.

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[230] United States, Army Training and Doctrine Command, *Systemic Operational Design: Designing Campaigns and Operations to Distrupt Rival Systems,* Version 3.0, Pre-Decisional Draft (4 April 2005), 9.

[231] Naveh, Process Notes …, 8-11 and Dalton, "Systemic Operational Design…," 38.

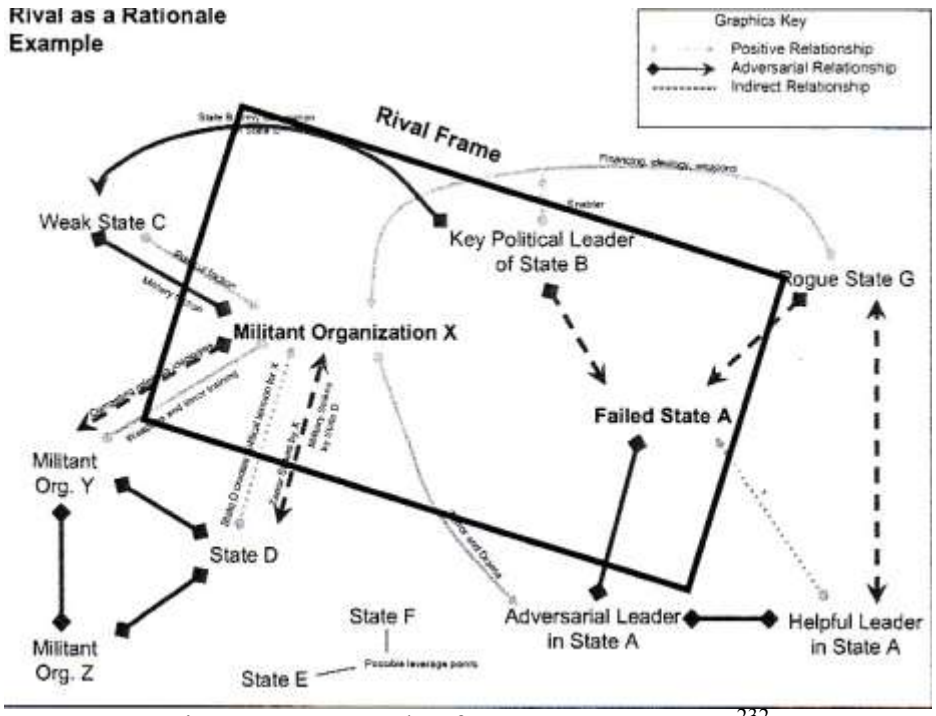

Figure 11. Example of a *Rival as Rationale*.[232]

The aim of *Command as Rationale* is to determine the feasibility of command and control options to address the Operational problem. It is done primarily through examination of the tensions between the extant organization and command structure and the conceptual challenges derived from the system frame, in particular the strategic directive (higher direction) and the rival systems.[233] The ideal command and control structure, which may be achieved through internal re-organization, must enable action and learning within the system frame. Given that course of action (COA) development occurs later in the process it is unlikely to determine precise command and control requirements at this stage. This process, like previous stages, is also achieved through the continuation of discourse and an accompanying command and control graphic.

[232] United States, Army TRADOC, *Systemic Operational Design…*, 11.
[233] Naveh, Process Notes …, 12-15 and Dalton, "Systemic Operational Design…," 38-39.

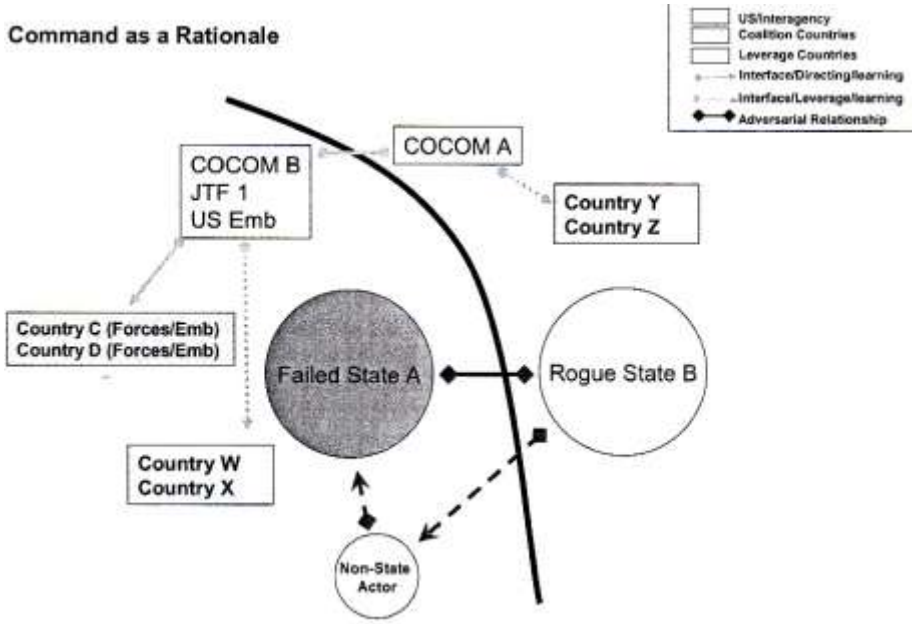

Figure 12. Example of a *Command as Rationale*.[234]

Logistics as Rationale examines the tensions between the extant logistics and the material challenges derived from the system framing. It has as its ultimate aim, the construct of a logistics system which enables the implementation of the subsequent operation framing or COA. Its focus is in three particular areas; strategic mobilization, strategic and Operational deployability, and Operational sustainment.[235] The outcome of the *Logistics as Rationale* is an understanding of the unique challenges revealed and the identification of ways in which to address them; in short, it determines the feasibility of the organization to address logistics. Should the extant logistics structure not optimally support the design, a change to the logistics structure would be proposed. A graphic of the logistics system is developed along with continuing discourse.

[234] United States, Army TRADOC, *Systemic Operational Design…*, 12.
[235] Naveh, Process Notes …, 16-19 and Dalton, "Systemic Operational Design…," 39.

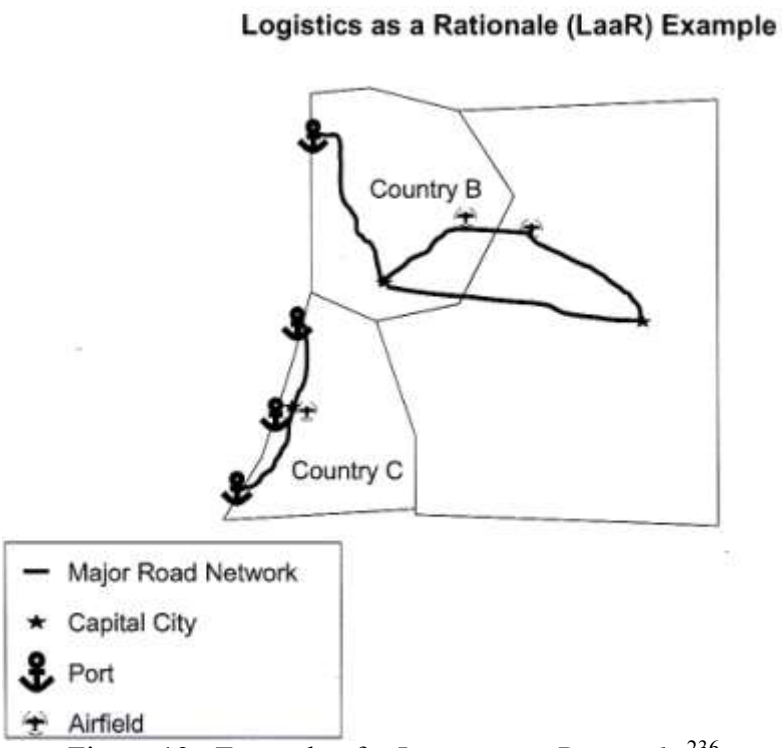

Figure 13. Example of a *Logistics as Rationale*.[236]

The focus in the process to this point has been centred on understanding and assessing the Operational problem. We now shift our focus to problem solving with *Operation Framing*. The purpose of operation framing is to narrow the focus within the strategic system frame and provide broad ideas on how to solve the Operational problem. Key to developing a broad COA, or logic to counter the rival system, is the *Rival as Rationale* form and logic. *Operation Framing* establishes what we wish to achieve against the rival system and the broad ways in which we may achieve it.[237] This is articulated within systems framing in practical terms of time and space. The output of this process is captured in the continuous design narrative and is carried into the *Operational Effects* step.

The purpose of *Operational Effects* is to conceptually identify those conditions, sequenced along logical lines, that once achieved will transform the system into the desired end

[236] United States, Army TRADOC, *Systemic Operational Design…*, 14.

state. It also facilitates greater understanding of the interrelationship between oneself and the rival through the tension in each of the conditions. As output, the *Operational Effects* discourse includes a graphic that details conditions and desired effects related to the Operational logic and particular insights incorporated into the design narrative. This output informs the detail required in the final step, *Forms of Function*.

Forms of Function represents the transition from design to planning. Its aim is to provide considerable form to the directed COA in order to facilitate detailed planning and development of the concept of operations into a complete plan. The directed COA is captured graphically and is accompanied by the running design narrative with sufficient detail to effect comprehensive planning.

SOD as a process is similar in many ways to the orientation stage of CF OPP. It addresses JIPB through its System Framing and discourses on Rival, Command, and Logistics as Rationale. *Operation Framing* outlines the broad strokes of the directed COA development, while *Operational Effects* discourse rationalizes the sequence conditions and effects into a critical path for achievement of the end state. This forms a campaign plan. Finally, the *Forms of Function* discourse engages the planning staff in the detailed development of the directed COA's concept of operations with attendant annexes. While SOD mirrors closely the CF OPP, its methodology is fundamentally different, representing an Eastern vice Western perspective to problem solving; heuristic versus deterministic. It is because of this that the use of systems theory as the basis for Operational Design for the COE has considerable merits, albeit with some significant challenges for Western militaries.

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[237] Naveh, Process Notes …, 20-22 and John Schmitt, "Systemic Operational Design," Draft Paper, 5.

Observations

SOD as a methodology and a process offer several advantages for addressing the COE. Chief among these is its methodology and focus. An epistemological methodology develops frameworks for the sole purpose of understanding the greater context of the Operational problem first. Its focus is heuristic in nature; to learn as much as possible about the system and its elements and their interrelationships before trying to solve the problem. In this regard, it allows for the systemic understanding of the 'wickedly' complex problems in the COE from all perspectives, at all levels, including the abstract. It serves to educate the commanders on the COE as it relates to the Operational problem so that with this foundation of understanding, they may more quickly adapt to the rapidly changing dynamics of the Operational problem or one of its related systems.

Its next greatest strength is the requirement for the Operational and his component commanders to conduct the Operational Design discourse together. Though the CF espouses a 'command driven' environment, the author's experience is that a considerable amount of the orientation stage in CF OPP, is relegated to the staff. SOD, dictates that the design process is 'command participative' as opposed to 'command driven.' As such, the commanders, supported by staff, engage in rigorous discourse to evolve the Operational Design. The advantages of this direct superior-subordinate discourse should be obvious for those proponents of 'manoeuvre warfare.' The benefit of understanding a superior's thought processes and approach to operations and vice versa is crucial to superior-subordinate relationship trust, especially in a complex and often dislocated battle space. Most importantly though, it also assists in establishing a shared vision and common intent amongst commanders.

Of equal benefit is a defined process for Operational problem solving, in comparison with the lack thereof for the previous two methodologies; Classical Operational Design and 'Strange Analysis'. The spiral and interrelated steps along with the graphical and discourse method contribute to a naturally intuitive way of brainstorming. Its open architecture offers utility for the incorporation of interagency and multinational planners into the process as is often required in the COE to address the 3D+C approach to an Operational problem. At a recent Joint Interagency Multinational experiment, after a short period using SOD, the interagency participants started taking the lead in the discourse, sometimes leaving their military counterparts behind in the discussion of some abstract models relating to the Operational problem.[238] Similarly, the process is not overly product dependent, with free-form drawings and dialogue forming the basis of product until such time as the single directed COA requires elaboration.

This leads to the last benefit of note for SOD. The commander is intimately involved in the design with his subordinate commanders, attempting to understand and learn from the Operational problem's complexity, interrelationships and environment. This comprehensive education and introspection of the Operational problem often brings intuitive clarity to the issue such that a single COA may be developed for execution as opposed to multiple COAs using other methodologies. While the process may be time consuming for the Operational commander and his subordinates, maximizing the commanders' Operational experience liberates the staff's time to address other Operational issues of import and potentially increases tempo.

Despite its obvious benefits, SOD has some significant limitations for application in a Western culture. First, the lexicon is turgid. This is largely due to translational choices made in

[238] LCol Colin Magee, the Canadian Forces College Army Planning Leader, participated in Ex EXPEDITIONARY WARRIOR in February 2007 where SOD AND EBAO was introduced in a JIMP HQ exercise. The exercise focused on the study of Operational Design for a Pacific Command (PACOM) scenario focused on an eight year campaign for the Philippines. Lieutenant-Colonel Colin Magee, conversation with author, 19 April 2007.

migrating the methodology from Hebrew to English. Considerable investment needs to be placed on re-vamping the terminology to more common English usage to better facilitate interagency integration. Lastly, the integration of SOD into Western culture will have its challenges. The discourse method of learning and understanding the Operational problem is one of this methodology's strongest traits. However, to engender open and frank discussion between superiors and subordinates in a Western military culture is counter-intuitive. Western military organizational culture is such that openly criticizing a superior's ideas, even in a constructive manner, is most likely to have adverse effects. While this is not always the case, it occurs more often than not so. To implement SOD into CF doctrine without addressing this fundamental issue would dissipate the benefits to a 'command driven' process in which staff would be largely participative vice commanders.

As one can see, SOD has considerable merit for use within the COE. It offers a systemic and heuristic method for revealing the complexities of the COE while providing a simple, graphical and discoursive method to facilitate necessary interagency cooperation. It is 'command participative' building on the superior-subordinate relationship and trust while facilitating staff action and efficiency. To achieve this, requires a vigorous and critical intellectual discourse aimed at better understanding the problem and a confident and secure personality to allow for engendering the discourse. Its major impediments to incorporation in Western doctrine lay in its turgid lexicon and in the inflexibility of Western military organizational culture. The impediments to overcoming this organizational culture cannot be underestimated as it takes generations for culture to percolate up and out of the military as an older generation of leaders release and retire.

Essential though it is, the military action is secondary to the political one, its primary purpose being to afford the political power enough freedom to work safely with the population.[239]

David Galula

CHAPTER SEVEN – EFFECTS BASED APPROACH TO OPERATIONS

Origin

Effects based operations (EBO) evolved from U.S. Air Force warfare theory developed by author and air power theorist Colonel John A. Warden III. Warden proposed an alternative concept of warfare from the extant and then preferred method of attrition. Warden proposed a theory of warfare by control: "…the idea that an enemy organization's ability to operate as desired is ultimately more important than destruction of the forces it relies on for defense."[240] In 1988 Warden developed a systemic nation state model to develop his airpower theory. This model of five concentric rings has at its centre leadership, surrounded by expanding concentric rings of organic essentials, infrastructure, population and fielded forces. Based on Clausewitzian physical centres of gravity, the innermost ring (leadership) represents the most protected and important COG to the system. Warden postulated that the "…most effective strategic plan always focused on the leadership, first and foremost."[241] As such, Warden believed that one could influence the leadership through physical attack of the outer rings. By imposing a form of physical paralysis on the system attacked, one could achieve the second order effect on the mind or will of the enemy to discontinue their resistance. Warden postulated that such attacks contribute to controlling or influencing the enemy and hence used the term *control warfare*. Key to this concept is that physical activities against an adversary, while they may have first order

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[239] Galula, *Counterinsurgency Warfare…,*63.

[240] Brigadier-General David A. Deptula, "Effects-Based Operations: Change in the Nature of Warfare," *Defense and Airpower Series* (Arlington, Virginai: Aerospace Education Foundation, 2001): 14.

physical effects, but more importantly, they may have second and third order effects on the enemy's moral or psychological planes. While this is not new, Warden's postulations served to revive the interest in moral aspects of warfare theory, which is at the heart of EBO.

The pursuit of 'control warfare' theory was capitalized on by noted American Air Power theorist Brigadier-General Dave Deptula, who advocated a new systemic theory of 'parallel warfare', whereby simultaneous air attack against all vital enemy systems creates such paralysis in the enemy's physical capacity to resist that the second order effect on the enemy leadership creates capitulation.[242] 'Parallel warfare' is simply a refinement of 'control warfare' with both being considered as EBO. Deptula argues that EBO "…offer[s] a viable alternative to attrition and annihilation as the means to compel an adversary's behaviour."[243] It is clear through both Warden and Deptula's theories, that EBO is systemic in nature, as it relates activities to first, second and third order effects felt in the environment and throughout the enemy system. The ultimate expression of EBO is opined by Deptula:

> The ability to achieve effects directly against systems without attacking their individual components would allow a preferable application of the concept of parallel war than we are capable of today. Indeed, the ultimate application of parallel war would involve few destructive weapons at all – effects are is objective, not destruction.[244]

As opposed to annihilation or attrition theories, this reinforces the heart and focus of EBO; the ability to influence an enemy's mind and will to resist. Simply put, EBO are operations in the cognitive domain.

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[241] Lieutenant-Colonel David S. Fadlock, "John Boyd and John Warden: Airpower's Quest for Strategic Paralysis," in *The Paths of Heaven: The Evolution of Airpower Theory*, edited by Colonel Phillip S. Meilinger (Maxwell Air Force Base: Air University Press, 1997), 373.

[242] Colonel Gary Crowder, Chief of Strategy Concepts and Doctrine. Headquarters Air Combat Command Presentation, "Effects-Based Operations."

[243] Deptula, "Effects-Based Operations…," 20.

[244] Deptula, "Effects-Based Operations…," 25.

Since Warden, ideas concerning EBO have percolated through Western doctrinal organizations and infiltrated much Operational level doctrine. While the concept of EBO as a way of thinking or approach to the conduct of operations is intuitively simple, it has not been widely accepted throughout the services. This is largely due to its lack of development as a doctrinal concept. A memorandum from the U.S. Army Futures Center in late 2005 indicated that the Army was not implementing EBO into its doctrine until U.S. JFCOM had thoroughly validated it. EBO had caused some confusion in the field force and was viewed by the U.S. Army as an emerging concept.[245] The Canadian Forces has had similar experiences with EBO. At the strategic level it has percolated through some key documentation such as the CF *Strategic Operating Concept* where EBO is described as:

> …an effort to leverage the soft and hard power assets of a nation or coalition, including its political, economic, technological, and social resources, in order to achieve a set of desired outcomes. It seeks to establish influence over the mind of an adversary to affect his will to act while, at the same time, keeping collateral damage to a minimum.[246]

That EBO thinking has influenced the CF level and is yet to be found anywhere else in CF doctrine is surprising. The new CF Operations manual has omitted any mention of the moral plane of war that used to be in previous editions. The extant CF OPP manual (2002), while it explains the requirement to mass joint effects against the enemy's COG provides no explanation of an effects based approach to operations (EBAO), let alone guidance on attacking an enemy's moral COG. For this reason we shall turn to Allied doctrine for a description of EBA as it applies to Operational Design. Only the U.S. and the U.K. have relatively mature doctrine on the

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[245] United States, Department of the Army, Training and Doctrine Command, Memorandum: "Effects Based Concepts and Doctrine in Army Education," dated 22 December 2005.

[246] Department of National Defence. Canadian Forces Strategic Operating Concept (Draft 4.4) (Ottawa: National Defence Headquarters, 21 May 2004), 18.

subject, and of the two, the U.K. doctrine is more fully developed in the area of Operational Design and bears scrutiny when discussing EBAO in the COE.

Description

Undoubtedly the most comprehensive publication on the subject of EBO theory is the U.S. Department of Defense Command and Control Research Program's (CCRP) *Effects Based Operations: Applying Network Centric Warfare in Peace, Crisis, and War*. This publication defines EBO as "…coordinated sets of actions directed at shaping the behaviour of friends, foes and neutrals in peace, crisis, and war."[247] Therefore, EBO is clearly aimed at influencing the cognitive or moral plane through the full spectrum of conflict, and peace. The British definition is more general in its application of EBO theory, defining effects as "…changes as a result or consequence of actions, circumstances or other causes."[248] Equally general, its EBA is defined as "…[t]he way of thinking and specific processes that, together, enable both the integration and effectiveness of the military contribution within a [comprehensive approach (CA)] and the realisation of strategic outcomes."[249] One might easily be confused by a lack of reference to either activities, effects or the cognitive plane of war in this definition however further review of the doctrine brings out the effects piece. U.K. EBA further describes that the principle of 'outcome based thinking' is encouraged in the CA and that consequences of activities have effects, intended or otherwise, on the adversary in the physical plane in terms of influencing capability or capacity as well as in the cognitive plane in terms of influencing will and understanding.[250] Focused scrutiny reveals that British EBA is closely related to that of JFCOM.

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[247] Edward R. Smith, *Effects Based Operations: Applying Network Centric Warfare in Peace, Crisis and War* (CCRP Publication Series, November 2002), xiv.

[248] MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 1-3.

[249] MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 1-3.

[250] MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 1-4, 1-7.

However, the British have taken one step further and adapted EBA to their method of Operational Design to incorporate effects.

U.K. Operational Design has not usurped the Clausewitzian concept of COG as the focus of Operational Design. It has broadened its use for OOTW, indicating that "…it continues to provide a focus; not one that can necessarily be attacked or defeated in a conventional sense, but is nevertheless critical in the realisation of effects and the achievement of favourable military outcomes."[251] While still keeping the COG concept for war fighting this adaptation has allowed the British to keep elements of their Classical Operational Design methodology for OOTW rather than invent a new military theory of Operational Design. Key to the incorporation of EBA within this Clausewitzian model is the focus and emphasis on end state and its link to activities or tasks. U.K. EBA establishes a systemic linkage in planning from the end state through Decisive Conditions (DC), through Supporting Effects (SE) and finally to activities and tasks. This relationship may be seen graphically in Figure 10.

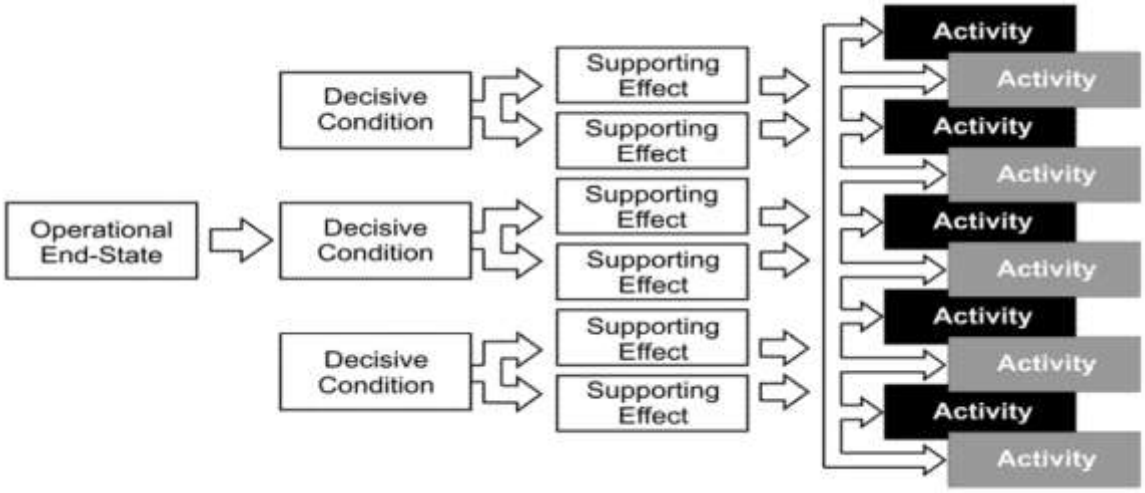

Figure 14. Relationship of Operational End State to Activity[252]

[251] MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 2-5.
[252] MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 1-6.

Decisive Conditions are defined as "… a combination of interrelated changes and circumstances that contribute to a favourable end-state….", while Supporting Effects are defined as "…[c]hanges brought about by the interplay of deliberate activities and dynamic circumstances that contribute to the realisation of Decisive Conditions."[253] In essence, EBA has replaced Decisive Points, which are related to the COG concept and replaced them with DC, which are related to the end state, thereby relegating the COG concept to a secondary role in Operational Design. Furthermore, the addition of Supporting Effects has allowed for the use of general descriptors to define the Decisive Condition as opposed to the Clausewitzian model where a Decisive Point, as articulated in Canadian doctrine, was synonymous with a military objective. An example of an EBA campaign plan is therefore very similar to a Classical Operational Design with emphasis placed more on the end state than the COG. An example of one may be seen in Figure 11.

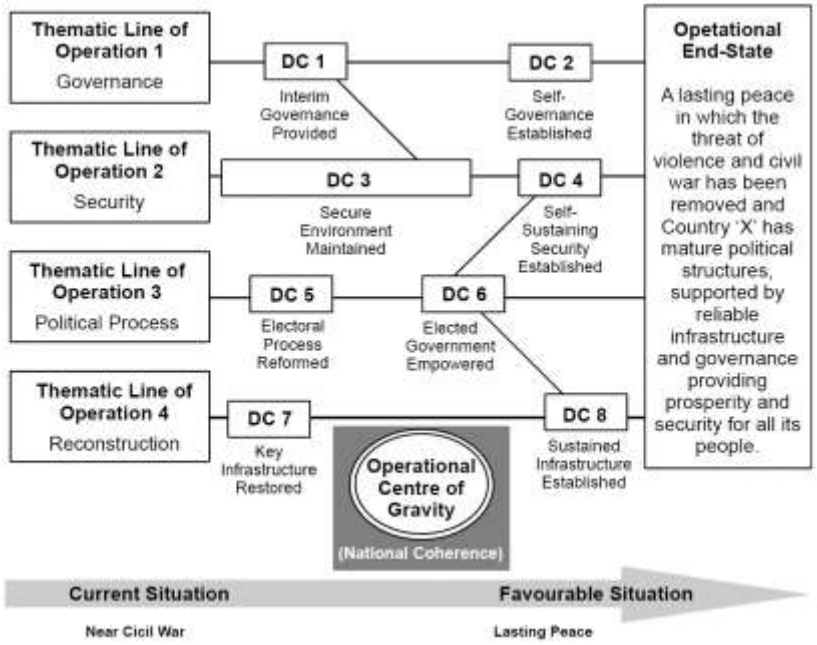

Figure 15. EBA Campaign Plan Schematic - OOTW.[254]

[253] MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 1-5.
[254] MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 3-3.

Observations

The British approach to incorporating EBO into their extant joint doctrine is masterful and subtle. Without abandoning Clausewitzian roots, their synthesis of EBO has provided for flexibility and interagency incorporation in the COE. By keeping the COG concept, the use of EBA joint doctrine accommodates war fighting as part of the continuum of conflict and facilitates a holistic long term view to campaign planning.[255] Classical Operational Design may be used for the deployment and conflict phase of a campaign, incorporating the Operational COG, while other lines of operation achieve Decisive Conditions towards an end state in support of less 'kinetic' lines of operation. Sequel planning after achievement of the Operational COG or the end of major conflict, can be expressed as Decisive Conditions beyond the Operational COG which move towards end state, thus ensuring a smooth transition from conflict to post-conflict.

Another benefit in the EBA approach to Operational Design is in its use of Decisive Conditions, Supporting Effects and Activities. By breaking from classical elements of Operational Design, any associated war fighting 'baggage' is left behind for Operational Design during OOTW. This provides a planning environment ripe for discussion of both the physical and moral planes of war, with emphasis on the latter.

Likewise, the lexicon is more appealing for inter-agency coordination as each of the terms is less esoteric than classical terminology, such as centre of gravity, and as such is easier to understand. Furthermore, a systemic approach to linking these Operational elements combined

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[255] The U.K. EBA has eliminated the term objective from their Operational Design lexicon, as its military cultural inertia could not be overcome. Objective has been used at the tactical level for so long that it is universally associated with a physical object, whether it be the enemy, a piece of terrain or infrastructure. It is the author's opinion that given the Decisive Condition, Supporting Effect and Activity (task) construct, this should not inhibit the use of EBA Operational Design for war fighting. MOD, JDN 7/06, *Incorporating and Extending the U.K. Military Effects-Based Approach*…, 1-5.

with the use of the term ‘effects’ promotes a more open-minded approach to force package development. By describing Supporting Effects in more general terms outlining what needs to be achieved, as opposed to historically associating Decisive Points with military service or ‘kinetic’ capabilities, it allows the joint force and component commanders to approach Decisive Conditions in a more holistic manner, considering all elements of national power for their achievement.

Despite the fact that EBO/EBA is an emerging military theory, both U.S. and U.K. militaries are adapting this concept for their use in an incremental approach. While one could argue that the concept of effects has been with us for longer than Warden’s ‘discovery’ of it, the impact of incorporating it into post-Cold War doctrine is significant. As a ‘way of thinking’ EBAO has the ability to affect cultural change within the military from a Cold War ‘kinetic’ to a post-Cold War holistic approach to the full spectrum of conflict.

The aim in war is to overcome the enemy's will to resist and this will be achieved,….in one or both of two main ways. The physical destruction of most of or part of his forces by killing is one way to induce in him the feeling of helplessness which begets hopelessness and defeat. Sometimes, however, it will be enough to disrupt his cohesion by placing forces where they can cut his central nervous system - his channels of communication and supply - or where, by the threat of fire, the enemy is persuaded to give up. The aim should be as much to slip a knife between his ribs as to beat out his brains with a club.

CFP 165, *Conduct of Land Operations*, 1967

CHAPTER EIGHT – DESTROY-DISLOCATE-DISINTIGRATE

Origin

The last alternative to Operational Design, recommended by Greer, is derived from Professor James J. Schneider's 'crucible of war' concept that was originally articulated in his seminal work on the theory of Operational Art. Schneider postulates that in war military forces are subjected to the forces of destruction. By extending Clausewitz's metaphor of 'burned out' military units, he describes the process where the military force is likened to a block of lead:

> Destruction, especially the rate of destruction, turns the battlefield into a crucible that transforms the units from a solid state of cohesion, to a liquid state of disorganization, and finally to a gaseous state of disintegration.[256]

Schneider's metaphor, coined near the close of the Cold War, is particularly appropriate as it relates to both moral and physical cohesion of military forces in battle. His expansion of this metaphor in 2000 led to his classification of a new form of warfare; cybernetic warfare. Schneider explains that military forces of today are enabled through a complex communications network, which is vulnerable to attack. This vulnerability poses an alternative and complimentary defeat mechanism to the traditional mechanisms of attrition and manoeuvre. Cybershock, the new defeat mechanism, can potentially cause cybernetic paralysis of a military

[256] Emphasis in original. James J. Schneider, "Theoretical Paper No. 3: The Theory of Operational Art," (Fort Leavenworth, Kansas: United States Army Command and General Staff College, School of Advanced Military Studies, 1 March 1988), 6.

formation's ability to fight and survive on the battlefield. Cybershock "…causes this paralysis by attacking the enemy's nervous system in the same way that maneuver causes exhaustion by defeating the enemy's metabolic system – his logistics."[257] Schneider's defeat model, as can be seen in Figure 12, depicts the new triad of defeat strategies and mechanisms which have as their aim, the attack of military cohesion to bring the force to a state of disintegration.[258]

Figure 16. Schneider's Defeat Strategies and Mechanisms.

The model demonstrates the complimentary and mutually reinforcing nature of these defeat strategies and mechanisms. Schneider's updated metaphor for the post-Cold War battle brings graphically, the dynamics of this model in action:

> *Armies in battle burn, melt and vaporize*. The heat of battle is calibrated in the temperature of casualties. Armies enter battle in a solid state of cohesion, like a block of lead. The heat and energy of combat attrition may be so great as to vaporize instantly the entire mass in a battle of annihilation and cause a great disintegration of morale and will to fight. The combination of attrition and maneuver may slow the process with an intervening "liquid" phase of logistic collapse before the Army is swept away in a disintegrated cloud of human ash and iron debris.[259]

Cybershock serves to paralyze and disorganize the enemy so that the strategies of annihilation and exhaustion may work their effect on cohesion.

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[257] James J. Schneider, "A New Form of Warfare," *Military Review*, (January-February, 2000): 60.
[258] Schneider, "A New Form of Warfare…," 57, 59-60.
[259] Emphasis in original. Schneider, "A New Form of Warfare…," 57.

While an excellent extension of Clausewitz's metaphor and defeat mechanisms, it does little to assist in Operational Design unless the concept is related to another military theory. That military theory is manoeuvre warfare as developed by Lind. The connection between Schneider's metaphor and Lind's theory is related to the notion of attacking an enemy's cohesion, be it moral or physical. Commander Joseph A. Gattuso, Jr., U.S. Navy, makes this connection in an article on warfare theory:

> In contrast to attrition theory, which targets the enemy's physical forces, maneuver theory concentrates on outperforming the enemy's thought processes with the intent to destroy force cohesion. …The maneuver theorist eyes the enemy closely and adopts whatever methodology works to pre-empt, dislocate or disrupt him. This style of warfighting carries enormous consequences for doctrine, force structure, personnel requirements, and leadership.[260]

Gattuso's observations are correct regarding Lind's strategy of maneuver warfare. Simpkin connected Lind's theory with Liddell Hart's 'indirect approach' by stating that "…[m]anoeuvre theory is about amplifying the force which a small mass is capable of exerting: it is synonymous with the indirect approach."[261] Simpkin further amplifies stating, "…let us be absolutely clear that, in the indirect approach which is the essence of manoeuvre theory, the application of fire is in no way comparable to the manoeuvre of a mobile force."[262]

Lind's theory of manoeuvre warfare is premised on military theorist John Boyd's decision-action cycle theory, which in brief argues that if one is able to consistently observe, orient, decide and act (OODA) more quickly than an enemy, one can gain tremendous advantage from maintaining the initiative in the battle. Such advantage can have an unbalancing effect on the enemy and in extreme cases cause mental paralysis, which may be exploited to defeat the

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[260] Commander Joeseph A. Gattuso, Jr., U.S. Navy, "Warfare Theory," *Naval Warfare College Review* (Autumn, 1996): 4-5.

[261] Simpkin, *Race to the Swift*…, 133.

[262] Simpkin, *Race to the Swift*…, 137.

enemy.[263] In his handbook on manoeuvre warfare, Lind states that the simple object of manoeuvre warfare is "…to move through the OODA Loops faster than the enemy."[264] By doing so, one is 'getting inside' an opponent's OODA loop to dislocate the opponent's orient phase of the loop, such that he is unable to react to the attack. The results as Cattuso pointed out, is to destroy the opponent's cohesion. To achieve this Lind prescribes several requirements to achieving this goal. These include a decentralized military based on *auftragstatik* or mission orders, the acceptance of confusion and disorder on the battlefield, the imposition of the same friction on the enemy, and the abandonment of predictable patterns in combat. These theories have been comprehensively incorporated into extant Operational Design methodology.

Description

The theories of Boyd, Lind, and Liddell Hart permeate the essence of Operational Art and Design. One sees their influence in Classical Operational Design in terms of elements of Operational Design. Such elements listed in CF OPP include tempo, manoeuvre, direct and indirect approach, and in sequencing. As general theories, or approaches to warfare, their application is not restricted to the Operational Level of conflict, but is relevant at all levels and through the entire spectrum of conflict. One need only change emphasis from a physical to a moral plane application to bring theories from war fighting to an OOTW spectrum of conflict.

As it relates to Operational Design, tempo is undoubtedly the most closely derived element from manoeuvre theory. Tempo is described as "…the rate or rhythm of activity relative to the opposition."[265] Almost a direction translation from Lind, it indicates that a faster tempo will wrest the initiative from the enemy and allow the faster opponent to dictate the pace of

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[263] Lind, *Maneuver Warfare Handbook*…, 5.
[264] Lind, Maneuver *Warfare Handbook*…, 6.
[265] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…2-6.

operations. It also suggests, like Lind, decentralized control within a unifying intent (*auftragstatik*).

The Operational element of manoeuvre is similarly tied to manoeuvre warfare. It is defined as seeking to gain "…a position of advantage in respect to the opponent from which force can be applied or threaten."[266] The object of manoeuvre is to either destroy the opponent's physical means of battle or his capability to resist, the latter implying an opponent's cohesion or will. The former method is labelled attritionist, while the latter is considered manoeuvrist. Clearly, Lind's ideas reflect the manoeuvrist approach.

The indirect approach element in CF OPP can be associated more with Liddell Hart's theory of the same name, whereby a smaller force seeks to gain advantage over a larger force through the exploitation of an opponent's critical vulnerabilities and the avoidance of its' strengths. At the Operational level this is best expressed by the 'whole of government' approach (3D+C) to expeditionary operations, where all aspects of national power are applied to a crisis, as opposed simply a military option. Within Operational Design, it may also take the form of an approach to a line of operations, such as Information Operations, where the focus is concerned with changing the perception of an opponent or neutral on an issue or series of issues, to achieve an Operational objective.

Sequencing refers to the arrangement of events or objectives along lines of operation in an order that is best suited to achieve the end state. The connection with any of the described theories is not apparent, however, a lack of sequencing, or in other words, synchronization, of events has the potential for attacking an opponent's cohesion. This refers to an idea similar to that contained in Deptula's parallel warfare, whereby, the opponent is faced with a considerable

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[266] Department of National Defence, B-GJ-005-500/FP-000, *CF Operational Planning*,…2-5.

mass of simultaneous attack throughout his force, with the goal of creating a cybernetic paralyzing effect, much like Schneider postulates in discussion of the cybershock defeat mechanism.

The ideas of Boyd, Lind, Liddell Hart and their relationships to Western doctrine are not insignificant. Though their warfare theories were not originally fully developed for implementation as doctrine, these ideas have percolated through Western military doctrine over the past two decades to the extent that they are now the preferable way of war in the COE. It has become fashionable within militaries of the West to denigrate 'attritionists' as doctrinal dinosaurs and laud 'manoeuvrists' as latter-day von Kleists.

Observations.

Manoeuvre warfare theory and the indirect approach are clearly not methodologies for Operational Design. They are tactical concepts which have degrees of applicability across the levels and full spectrum of conflict. Their universality lies in their relation to the cognitive plane; one attempts to work within the "OODA loop' of an opponent while the other is an approach to thinking about how to gain positional advantage in relation to an opponent. Consequently, their graphical impact on the product of an Operational Design, the campaign plan, is difficult to discern. One must look closely at each line of operation and the nature of each Decisive Point to reveal either the indirect or direct approach to its related Operational objective along the same line. The density and nature of Decisive Points sequenced along a particular line gives an appreciation of the tempo of operations. Similarly, a look across multiple lines of operations is required to capture the evidence of simultaneity or Deptula's 'parallel warfare' as a way of inducing paralysis in the opponent. Even more difficult to determine from an Operational Design is the application of the "OODA Loop.' While tempo or density of

Decisive Points along a line of operations may reveal this, it is the skill and efficiency in which a military conducts its OPP, tactical decision making, dissemination of orders and directives and the creation of intent and shared awareness that reveals the true essence of manoeuvre warfare.

Even though the impact of manoeuvre warfare theory may be discerned in a campaign plan its most profound influence may be found in Operational Design as a thought process. It is in the minds of Operational Designers and commanders from which comes the brilliance of insight or the barren mediocrity of repetition. As an approach, manoeuvre warfare is aimed at disintegrating the opponent's will or cohesion. Its target is psychological and as such promotes a more abstract than physical approach to operations and Operational Design. In the COE where the nature of operations are socially complex, involving cultures fundamentally different than Western society, this abstract approach naturally opens one's mind to more indirect or 'non-kinetic' ways and means of solving the 'wicked problem.' This liberal-mindedness allows for a broader view of the environment and the means by which the opponent may be influenced. More often than not, this approach leads to ways and means other than a military solution in the COE. After all, the military is but one instrument of national power, and the crises of the post-Cold War COE often require a comprehensive solution. However, as a military assigned objective, the problem cannot be wished away to the diplomatic or development instruments of power, but must be developed from a 'non-kinetic' military method such as information operations, or the perceived threat of military power.

Similarly, the indirect approach results in a quest for an opponent's vulnerabilities from which an advantage may be gained. Strange's approach to centres of gravity is simply a manifestation of Liddell Hart's indirect approach. Critical vulnerabilities are used to exploit avenues that can influence an opponent's centre of gravity. The advantage of leveraging one's

strengths against an opponent's weaknesses is an appealing ideal for a nation with a relatively small military force. For Canada, the indirect approach is the preferred method of Operational Art in the COE. By appreciating the moral and cultural issues in a theatre of operations the CF is able to operate effectively, exploiting weaknesses, thereby limiting risk and avoiding attrition. Canada's current COIN operation in Afghanistan is but one example of this.

Manoeuvre warfare theory and the indirect approach are fundamental to current Operational Design. They do not represent a methodology for design but are an integral part of the necessary thought process. While both were initially conceived for war fighting, they remain highly relevant to OOTW in the COE. Moreover, though currently tied to Clausewitzian Classical Operational Design within CF OPP, their concepts are equally translatable to Systemic or Effects Based Operational Design and of benefit in the COE.

> Combat *is characterized by breaking things and killing people;* war *is about much more than that. If the most difficult task facing a state that desires to change the regime in another state is securing the support of the defeated populace for the new government, then the armed forces of that state must do more than break things and kill people.*[267]
>
> *Frederick Kagan*

CONCLUSION

Canada has a long and colourful history of tactical level actions from the Boer War to Afghanistan. Canada was able to achieve significant success and influence at Vimy and in the last one hundred days of the First World War. Similarly its sound record of successes in the Italian Campaign, Normandy and the Scheldt during the Second World War proved its tactical acumen in war fighting. The Korean War saw similar tactical successes. However, Canada, as a middle-power, was prosecuting its tactical level actions through Allied led, Operational Level formations in the pursuit of its military strategic ends. Content to have its military commanded by Allied nations in pursuit of shared interests, Canada almost practiced a form of 'blind contribution warfare.' Throughout this period, Canada was largely oblivious to the military theories underpinning tactics and doctrine and resultantly, its experience with the Operational Level of conflict was primarily at the hands of its Allies. The U.S. renaissance in Operational Art in the mid 1980s, served to bring the CF along to a heightened sense of the Operational Level of conflict at the same time as the Cold War security dynamic was ending. With it came a new host of complex PSO to test the mettle of CF leadership. It was in this post-Cold War environment that the CF further developed its understanding of Operational Art and Operational Design, in a series of expeditionary operations escalating from peacekeeping, to peacemaking, to counterinsurgency and combat operations. The gradual evolution of Operational thought

[267] Frederick Kagan, "War and Aftermath," *Policy Review*, Issue 120 (August & September,2003): 10.

throughout this period and new command structures such as the Deputy Chief of the Defence Staff (DCDS) Group and Canadian Expeditionary Force Command (CEFCOM), has led to a subtle change in the form of Canada's way of 'contribution warfare.' A 'whole of government' approach to campaign design in the COE and a better understanding of Operational Art has allowed the CF to move to a more 'strategically guided' form of 'contribution warfare;' a warfare where the management of the Operational effort is emphasized to achieve tactical effects in support of a particular end state. Canada has made significant strides in its contribution to Operational Art and Operational Design within the COE.

Success in the COE has not always been the case for Western militaries, especially the U.S. The American way of war has not been as effective in the COE. Failure to translate the tactical successes into strategic end state in the post-conflict phase Operation Iraqi Freedom (OIF), has led the U.S. to doubt its grammar and logic of war. Greer postulates that extant Operational Design doctrine for use in the COE is hampering U.S. effectiveness and offers five potential methodologies as remedy.

Analysis of Clausewitzian-based Classical Operational Design reveals that its theoretical underpinnings are considerably out of date with the socially complex nature of today's asymmetric and technologically enhanced global battle space. Though Clausewitz's concept of centres of gravity still bears use in Operational Design for war fighting, it would require considerable adaptation to make it an effective design tool for anything other than war fighting or the combat phase of a lengthy campaign design in the COE. Based on Napoleonic clashes between massed armies, Clausewitz's theory focuses on the physical as opposed to the moral component of war, is limiting in the culturally diverse and socially complex security environment in the COE.

On the other hand, while Strange does provide some adaptation of Clausewitz's centres of gravity theory, it too is overly focused on the physical aspects of conflict. Strange's method of determining Critical Vulnerabilities as a systemic way to influence or indirectly attack an opponent's centre of gravity is commendable. His system has great utility in bringing form and function to an otherwise intuitive process for the determination of centres of gravity. Ultimately though, 'Strange Analysis' is underpinned by Clausewitzian theory and is therefore circumspect for application in the COE despite this regimented method of deducing centres of gravity. This circumspection is further reinforced when considering the integration of interagency partners in a 'whole of government' planning process. Likewise, Clausewitz's esoteric lexicon does not facilitate ease of understanding for such key interagency partners.

One need only look to systemic theory for a more holistic approach to the COE's 'wickedly' complex security problems. A more comprehensive and systemic method of Operational Design is the IDF creation called SOD. A systemic way of brainstorming, using the dialectic method of inquiry to frame and understand a problem, SOD offers considerable benefits to problem solving in the COE. Its use of subordinate and superior commanders to argue the problem in a critical fashion, facilitates a better common understanding and shared intent of the problem, reinforcing these tenets of *auftragstaktik*. Emphasis on understanding vice problem solving allows a deeper appreciation of the environment in which the problem is set and the relationships between its key agents. Furthermore, the simplicity of the diagram and discourse combination to brainstorming facilitates an intuitive approach to problem solving which may be of more appeal to interagency partners. The only drawbacks to this method are its turgid lexicon and unfamiliar epistemological approach. The awkward language and argumentative approach

may be of some cultural difficulty for a military organizational culture which is very hierarchical in nature.

British EBAO offers a compromise to Clausewitzian theory by adapting it to the COE. Relegating the centres of gravity concept to a supporting campaign theme and by de-linking Decisive Points from their centre of gravity, EBAO has bridged the Clausewitzian gap for the COE. Re-labelling Decisive Points as Decisive Conditions with Supporting Effects which break down further into tactical tasks or activities, provides a logical basis for Operational Design in the COE. The use of effects terminology, which does not describe ways or means, allows for both joint and interagency integration into the Operational Design process. The de-linking of lines of operations from centres of gravity allow for the pursuit of Decisive Conditions direct to end state, as opposed to through the centre of gravity, and accommodate a combined war fighting and PSO campaign plan in the same graphic. EBAO offers considerable advantage in the COE and as a systemic concept in of itself, it is complimentary to SOD.

As a way of thinking, the theoretical underpinnings of Schneider's destroy-dislocate-disintegrate concept offer considerable merit in the COE. Manoeuvre warfare and the indirect approach focus the Operational Designer at attacking the opponent's moral cohesion or will, as opposed to the opponent's physical destruction. Furthermore, the indirect approach advocates the attack of weaknesses or vulnerabilities as opposed to strengths. While not a method of Operational Design, its theories may be universally applied in all methodologies as a Western military's preferred approach to conflict.

It is apparent in this review of Operational Design methodologies that all extant doctrine and emerging concepts offer benefit to military commanders and planners alike. None of the methodologies here presented are a panacea or a replacement for CF OPP. Each of these

methodologies brings to the Operational Design table, unique, relevant and complimentary theories and approaches, to address the complexities of the COE. One might argue that for Iraq, a Design Team could have approached the deployment and conflict phase of OIF using traditional Clausewitzian theory and Strange Analysis to plan the military defeat of Iraqi Forces. Concurrently, a Design Team with interagency and coalition partners could have used a combination of systems theory and EBAO to better understand the impact of the conflict phase on the post-conflict phase. Based on their systemic discourse and in depth understanding of the post-conflict phase and all its human systems and their relationships, they may have been able to inform the first Design Team of the effects of their actions on the post-conflict phase, and been able to better shape conflict planning for easier transition to and better success post-conflict. The nature of hindsight is always 20/20 vision.

Regardless, it is clear that the CF needs to stay abreast of emerging concepts, if only to ensure interoperability with our Allies. As evidenced through a brief historical summary of Canadian Operational Design experience, the CF is moving towards a more informed 'whole of government' approach to expeditionary operations, which requires a more sophisticated understanding of the issues and interests at stake. CEFCOM's current expeditionary operations in Afghanistan represent the zenith of this 'whole of government' planning approach to date. The emerging Operational Design concepts discussed in this paper, offer the CF the potential tools to better integrate such an interagency team in an informed manner. As such, these concepts bear further examination and experimentation in order to be properly implemented within CF doctrine.

One other aspect of this particular approach bears mention and that is the relevance of culture to these emerging methodologies. An experienced planner might argue that the Clausewitzian model of Classical Operational Design is indeed relevant and useful in the COE and that it is the *organizational culture* of the Operational planners and commanders which are inhibiting the process in the COE. If this is indeed the issue, it will take more than an emerging methodology to overcome the organizational inertia within the system. Sometimes, doctrine is not enough.

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