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Cover

Captain Matthew “Glib” Kutryk, the Royal Canadian Air Force 2017 Demonstration Jet pilot, flies over the wilds of northern Alberta, 6 April 2017. This CF-18 looks striking in its birthday celebration livery.

Credit: DND photo CK01-2017-0278-009
by Corporal Manuela Berger



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NOTE TO READERS

As a bilingual journal, readers should take note that where citations are translated from their original language, the abbreviation [TOQ] at the end of the note, which stands for "translation of original quote", indicates to the readers that the original citation can be found in the published version of the Journal in the other official language.

EDITOR'S CORNER

Welcome to the Summer 2017 edition of the *Canadian Military Journal*, in a summer chock full of celebrations as we commemorate our 150th birthday as a confederated nation. The rather flamboyant CF-18 *Hornet* on the cover, looking very festive in its 'birthday suit,' is being flown by Captain Matthew "Glib" Kutryk, the 2017 Royal Canadian Air Force Demonstration Jet Pilot, over the wilds of northern Alberta on 6 April.

With respect to our current issue, we lead with a section of major articles entitled "The world in which we live." Specifically offered are a brace of studies focusing upon Russia's recent military actions in the contemporary security environment, supposedly based upon perceived challenges, which begs the question, is Russia embracing the Western concept of 'hybrid warfare'? Both studies are penned by individuals with significant expertise on the subject; the first by a senior intelligence officer, and the second, by a highly experienced retired infantry officer.

Then, a team of scholars from the Canadian Forces College in Toronto takes a fresh look at the totalitarian communist regime in North Korea and the considerable and worrisome resources they have invested in their nuclear program, which has yielded various sanctions and international embargoes against the state. However, "...the authors of this article will demonstrate that the fundamental ideology underpinning the North Korean regime serves both to justify the possession of nuclear weapons and to reinforce the regime's legitimacy."

Next, Andrew Fraser, a graduate of the Schulich School of Law at Dalhousie University, with graduate degrees in history and international affairs, examines "...the reasons for the shocking rise in the use of child suicide bombers in Afghanistan. Specifically, Fraser maintains that it is Pakistan's faltering education system that forces families to send their sons to madrassas or other boarding-type schools in the tribal areas located in or near the western part of Pakistan. From here: "Once away from home and isolated, these children are vulnerable to the predatory advances of cold-blooded recruiters who often act with the forced or willing assistance of community authority figures."

Defence scientist Dominik Pudo and combat engineer Jake Galuga then explore the fascinating world of high energy laser systems for use as directed energy weapons. After careful

examination, the authors conclude that, after decades of research and development, "...high energy laser weapons have begun to make their irreversible transition onto the battlefield. Whether they will proliferate towards commonly-used systems, or settle in a niche for specific applications still remains open for discussion. However, their fielding as part of armed forces is now a matter of fact."

Moving right along, Adjunct Associate Professor of History at the Royal Military College of Canada Peter Denton opines that, for this generation, "...its own unique challenge, its own defining struggle...is to create the foundations for a sustainable future in the midst of a climate-changing world." With respect to military operations, Denton believes: "We must either find ways of mitigating or minimizing our environmental impact in all of our ways of interacting with each other and the Earth, or we guarantee a nightmare future. Mutually Assured Destruction is not only a nuclear option; ecological warfare has just as certain an outcome, over a longer period of time."

We then offer two very different opinion pieces for consideration. In the first, Dr. Bill Bentley offers some interesting reflections and observations on Brigadier-General Jennie Carignan's article published in our most recent issue on the relationship between fighting, tactics, strategy and the concept of strategic victory, particularly with respect to Clausewitzian tenets. Bentley is followed by Padre Gerson Flor, who maintains that, in lockstep with the implementation of Operation *Honour* and all its initiatives to eliminate sexual misconduct in our armed forces, a successful, permanent cultural change depends upon tackling another key finding of the Report of the External Review on Sexual Misconduct in the CAF (the Deschamps Report), namely, the role of language in the workplace.

Our own Martin Shadwick is taking a brief hiatus this time out to mark papers and essays, but he will be back in force for the autumn edition, assuming he hasn't slashed his wrists in the interim. Finally, we close with a number of book reviews for summer reading consideration.

Until the next time.

David L. Bashow
Editor-in-Chief
Canadian Military Journal

LETTERS TO THE EDITOR

Sir:

Your cover illustration depicting the 1936 unveiling of the Vimy memorial for the Spring 2017 edition of CMJ (Vol. 17, No. 2) was not only appropriate, given the anniversary of that battle this year, but perhaps as a predictor of some of the issues addressed in the copy. George Bertin Scott's painting (the original now hangs in the Canadian War Museum) brings out elements and themes of the event in a way that no photo can properly capture. Front and centre in the picture (and rightly so) are the politicians: King Edward VIII in his new role as King of Canada, and the President of France, along with Ernest Lapointe (effectively Canadian Deputy PM), Charles "Chubby" Power (Minister of Pensions and Health), and just behind the King to his left, Ian Mackenzie (Minister of Defence). Further back, behind the King, is the wartime PM, Sir Robert Borden. The image is not just one of soldiers on parade and veterans in the background, but also of politicians and politics in the forefront – for as your other articles point out, war is a continuation of policy (or politics, the German word can be translated either way) by other means. And so it is in this image in a very Canadian way. The painting shows rather prominently the King wearing the Vimy Pilgrimage Medal minted

Sir:

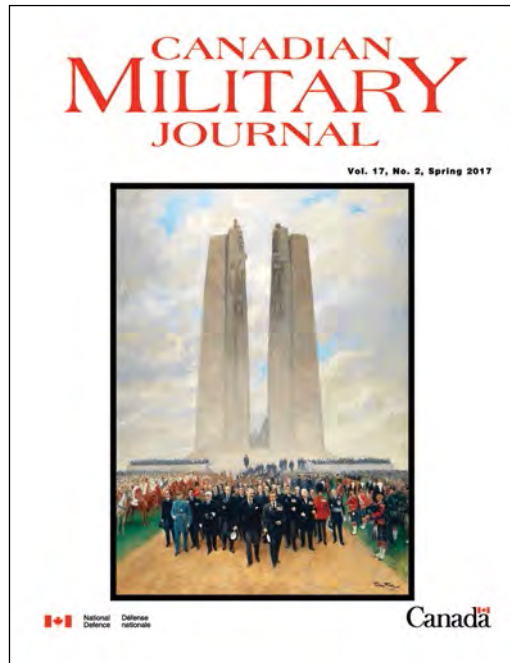
The entire Spring 2017 issue (Vol. 17, No. 2) was interesting and invited comment, but what attracted my concern was "Conscience and the Canadian Armed Forces" by Chaplain Victor Morris. I have enormous respect for our military padres, and hope that my remarks will not be taken as criticism of Padre Morris. He is entitled to his opinions. But when he claims that the Shidane Arone torture and murder by two members of the Canadian Airborne Regiment was a "cover-up," I must object.

I was retired to a civilian pursuit just before that episode, and knew only what was touted by the press. What I subsequently learned from known members of the Canadian Armed Forces was somewhat different. Sources I trust said that the murder was immediately reported through the unit's hierarchy to NDHQ's Operations Centre via military message and follow-up methods, and thereby to the Canadian government, in accordance with long-standing rules. Details were passed to the media by the same route. Some two weeks later, a journalist who had been assigned to the Airborne Regiment's element in Africa returned from a vacation (possibly not authorized by his parent medium) in another country, saw a

for the occasion by the Royal Canadian Legion. Some 6000 bronze medals, plated in silver were issued for wear by veterans who attended the event. Five were cast in gold. These were issued to the King (his medal hangs by Scott's painting in the CWM), the President of France, the King of Belgium, Walter S. Allward (the designer of the monument and who may be the lone figure in the background), and ... to Prime Minister W.L. Mackenzie King. Try as you might you won't see Mackenzie King anywhere in the picture. He had sat out the First World War, and in consequence, always felt rather ill at ease around war veterans. He was ill that day.

The painting, then, can be looked at as an allegory for an issue discussed in your final book review in the issue discussing the travails of Canadian defence procurement. This takes so long that one government spends its political capital approving a project, the next gives up financial capital to fund it, while the third gets the kudos for deploying the capability finally acquired. Just as in 1917, when Borden almost lost the nation in backing the Canadian army with conscription to maintain our capability through to the end of the war – while Mackenzie King got the medal...

Mark Tunnicliffe
Commander (Ret'd)
Royal Canadian Navy



DND

note about the event on a notice board, and raised a hue and cry. His medium seized upon his report, and others followed. The resulting public relations caused the MND of the day to take certain placative action. Further, the later Airborne hazing tale eventually prompted him to eliminate the Airborne Regiment entirely.

The Arone incident was not covered up. I had no great love for the Airborne Regiment, as I was always a little too old to join despite repeated applications and changes to its age standard, but I respected that unit as the bravest and boldest of Canada's combat organizations. It should not have been disbanded. Chaplain Morris stated that the Arone incident was "...within earshot of individuals who could and should have stopped what was happening." If he is right—and I think he is—the hierarchy of the Commando should have been punished. I believe that they were not punished at all.

Canadian Forces rules intimate that all ranks who are guilty of an offense satisfy Canadian justice if they alone are punished. As a retired Canadian Forces officer, I again must object. We generally require our Other Ranks to obey blindly the commands of our officers. In many cases, other ranks know nothing beyond their immediate horizons of action, and we neither expect nor train them to make decisions beyond those horizons. It is the

LETTERS TO THE EDITOR

officers who make decisions, based upon a wider and adequate knowledge of a given situation. Therefore, we should not expect non-commissioned military personnel to accept responsibility for mistakes beyond their ken.

In the Sharon case, the master corporal and his assistant were both guilty of murder. But in my opinion, their officers were equally guilty, due to their lack of adequate oversight. This case resulted in the permanent disability of the master corporal thus engaged, and punishment of his immediate non-commissioned subordinate. But where were the Duty NCO, Duty Officer, Company Commander, and Commanding Officer? Was any corrective action taken against them? Had the Geneva Convention ever been read to the other ranks?

In Canadian government circles, ministers of the Crown take responsibility for their subordinates' mistakes—or they *should*—and then resign. I suggest that officers commanding criminal subordinates should be subject to similar punishment, because according to our commissioning scrolls, we are to “...exercise and well discipline in arms both the inferior officers and men serving under you and use your best endeavours to keep them in good order and discipline.” We should read our commission scrolls more often...

Charles Hooker
Major (Ret'd)
Royal Canadian Corps of Signals



DND photo OD2007-09-05a

Intercepts of Russian Tu-95 *Bear* strategic bombers by NORAD fighters are once again on the rise. The latest Canadian intercept occurred on 18 April, in similar circumstances to this file photo of a previous CF-18/Tu-95 intercept.



Russian armoured vehicles during a joint Russian-Tajik exercise in the Khatlon Region of Tajikistan, next to the border of Afghanistan, 30 March 2017.

New ‘Hybrid War’ or Old ‘Dirty Tricks’? The Gerasimov Debate and Russia’s Response to the Contemporary Operating Environment

by Andrew J. Duncan

Major Andrew J. Duncan, CD, is a member of the Canadian Forces Intelligence Liaison Office (Washington), and is currently the Liaison Officer to the Defense Intelligence Agency.

Introduction

In February 2013, the *Voyenno-Promyshlennyy Kurier* (Military-Industrial Courier) published an article written by Russian Chief of the General Staff Valery Gerasimov entitled “The Value of Science is in the Foresight.” The article, which appeared in a military journal known for its wide military readership, outlined General Gerasimov’s viewpoint regarding the contemporary security environment.¹ Although largely ignored by Western analysts at the time, the article became the subject of intense debate after the annexation of Crimea in 2014. While some argued that Gerasimov was merely outlining the challenges posed by the contemporary operating environment, others theorized the article was a hidden blueprint for the annexation of Crimea and subsequent actions in East Ukraine. Notably, some also argued that Gerasimov’s article called for the use of “hybrid war” in order to confront Russia’s adversaries.

Troublingly, the debate over Gerasimov and hybrid war suffers from conceptual difficulties that may lead to faulty models of Russian forces and misunderstanding of Russian actions. Specifically, the concept of hybrid war is a Western concept not present in Russian military thought, and therefore, does not adequately capture Russian perspectives and practices. Instead, recent Russian actions since the end of the Cold War suggest continuity with the Soviet concepts of deep operations, active measures, and reflexive control. The concept of deep operations helps explain the recent Russian emphasis upon integration of all elements of its national power in pressuring a target state, while active measures explains the use of proxy forces and certain kinds of information operations. Meanwhile, reflexive control theory makes sense of Russian actions in the information domain which, through Western eyes, can appear bewildering and contradictory. Although all three concepts are used simultaneously by Russia when confronting a situation, this examination will focus upon the use of deep operations during the 2008 Russo-Georgian War, active measures as they relate to the crisis in Eastern Ukraine, and reflexive control theory as applied to the annexation of Crimea.

What is the “Gerasimov Doctrine?”

In his 2013 article, General Gerasimov begins by stating that “Wars are no longer declared and, having begun, proceed according to an unfamiliar template.”² He went on to describe the events of the “Arab Spring” as typical of warfare in the 21st Century, giving the Russian perspective that they were triggered by the West’s:

...broad use of political, economic, informational, humanitarian, and other non-military measures – applied in potential with the protest potential of the population. All this is supplemented by military means of a concealed character, including carrying out actions of informational conflict and the actions of special operations forces. The open use of forces – often under the guise of

peacekeeping and crisis regulation – is resorted to only after a certain stage, primarily for the achievement of final success in the conflict.³

Gerasimov further noted the emergence of “mobile, mixed-type groups of forces” using intelligence and sophisticated command and control systems to avoid frontal engagements, and stated that “asymmetrical actions have come into widespread use, enabling the nullification of an enemy’s advantages in armed conflict.” These asymmetrical forces, integrated with “global strike” capabilities, private military contractors, and adept usage of non-military elements of national power, posed a serious challenge to the Russian Federation.⁴ Gerasimov also identified a requirement to “perfect the forms and means of applying groups of forces,” and that:

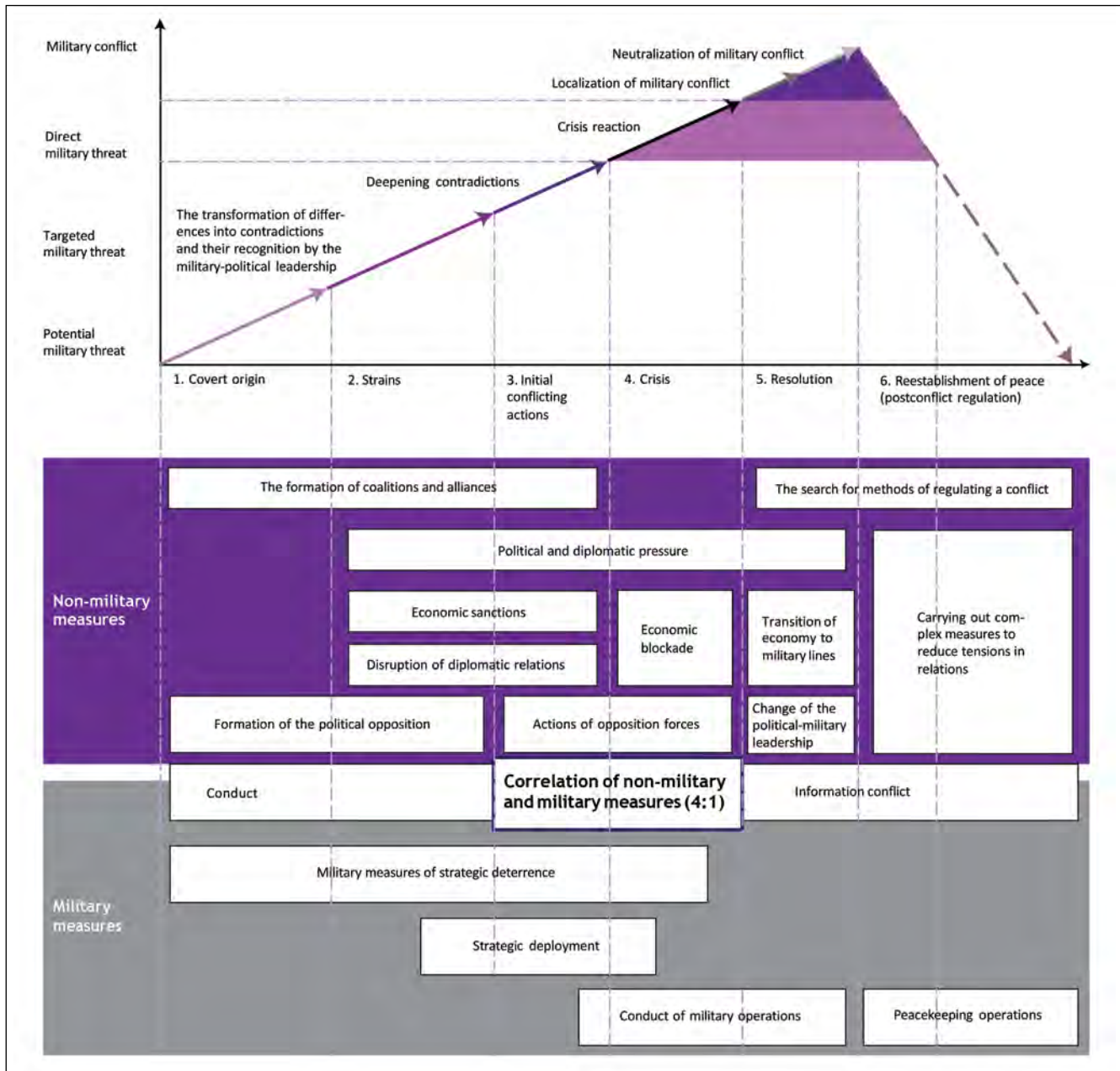


Figure 1 – The role of non-military measures in interstate conflict resolution.

Graphic from Gerasimov article in *Voyenno-Promyshlennyy Kurier*, 26 February 2013, translated by Charles Barthes, taken from “Getting Gerasimov Right,” in *Military Review* (Jan-Feb 2016), US Army Combined Arms Center.



Russian armoured personnel carriers on their way to Gori in Georgia, August 2008.

...the information space opens up wide asymmetrical possibilities for reducing the fighting potential of the enemy. In North Africa, we witnessed the use of technologies for influencing state structures and the population with the help of information networks. It is necessary to perfect activities in the information space, including the defence of our own objects [objectives].⁵

Later, in a section entitled “Controlling Territory” Gerasimov outlined the importance of a “whole of government” approach integrating the armed forces of the Russian Federation with other Russian government departments and agencies for “countering diversionary-reconnaissance and terroristic forces.”⁶ This theme of cooperation between military and diplomatic, informational, and economic instruments of national power is repeated in an accompanying graphic, where Gerasimov outlines the use of all four in the resolutions of interstate conflicts (See Figure 1).⁷

Gerasimov concludes his article by appealing to his audience to accept new ideas and that:

...no matter what forces the enemy has, no matter how well-developed his forces and means of armed conflict may be, forms and methods for overcoming them can be found. He will always have vulnerabilities, and that means that adequate means of opposing him exist.... We must not copy foreign experience and chase after leading countries, but we must outstrip them and occupy leading positions ourselves.⁸

Although at first overlooked by military analysts, Gerasimov’s article is now the subject of intense debate. At issue is whether or not the article is meant to be *descriptive* or *prescriptive* in nature. Proponents of the descriptive interpretation argue that Gerasimov was relating his perception of the Western approach to war in the contemporary operating environment, as demonstrated by successes during the Arab Spring and in Libya. The article is not meant as a blueprint in the conduct of war for Russia, but a wakeup call for Russia’s military theorists to adapt their thinking to this new environment.⁹ On the other hand, proponents of the prescriptive interpretation argue the article is too good a guidebook for Russia’s subsequent actions in the Ukraine to be a mere descriptive article. They maintain it is a form of “mirror imaging,” masking a Russian method of conducting “hybrid war” within an alleged American approach.¹⁰ Although proponents of the prescriptive interpretation disagree in some areas, they generally concur that Gerasimov was outlining a Russian model of war integrating all elements of national power with a military capable of using both deniable irregular and high-technology conventional forces.¹¹

Hybrid War and Traditional Soviet Concepts

Many participants in the debate over Gerasimov’s article are using the term hybrid war to describe Gerasimov’s supposed vision of warfare, and what occurred in Ukraine in 2014. In 2007, the term hybrid war was defined by Frank Hoffman, a former long-serving Marine Corps officer and Senior Research Fellow at the Center for Strategic Research, US National Defense University, as “...a full range of different

modes of warfare including conventional capabilities, irregular tactics and formations, terrorist acts including indiscriminate acts and coercion, and criminal disorder.” Hoffman further stated that hybrid war “can be conducted by both states and a variety of non-state actors.”¹² Since the idea was defined by Hoffman it has found a level of acceptance in NATO armed forces, being the subject of multiple articles and studies.¹³

However, hybrid war only appears in Russian publications when Russian analysts refer to it as a concept within Western military thought that has been employed against Russia.¹⁴ Most Russian military thinkers completely reject the concept, arguing it is nothing new, and has been practiced since the beginning of warfare.¹⁵ Some critics also point out that most Western examinations of hybrid war under-emphasize the role of conventional state forces,¹⁶ and that the concept fails to capture the specific political and information manipulation that Russia executes in support of its objectives.¹⁷ A better concept is therefore required when describing Russian perspectives, preferably one present in Russian thought.

The debate between those who see Gerasimov’s article as a descriptive survey of the operational environment or a clever means of communicating a doctrinal concept is of little help to military practitioners. However, what can be of assistance is the realization that a number of concepts that appear in the Gerasimov article may be based upon Soviet concepts updated for the 21st Century. Specifically, key elements of the alleged Gerasimov doctrine appear to be derived from the concepts of deep operations, active measures, and the theory of reflexive control. These concepts are the new means through which Russia exerts its influence in its ‘near abroad,’ and the wider world.

Deep Operations

One of the few traditional military thinkers directly referenced by Gerasimov in his article is Georgy Isserson, who was portrayed by Gerasimov as a prophet. Isserson was a proponent of the Soviet theory of deep operations, along with other prominent Soviet-era military figures such as Mikhail Tukhachevsky and Vladimir Triandafillov. The concept of deep operations was based around the central belief that the most effective way to defeat an opponent was to subject it to a number of successive blows throughout its operational depth.¹⁸ Unlike Western military thought, deep operations theory did not stress the identification of a single centre of gravity, and then directing efforts towards it. Instead, deep operations encouraged attacks upon a wide variety of objectives, and then reinforcing success as it occurred.¹⁹ Over time, this idea manifested itself in Soviet manoeuvre doctrine as the use of a “breakthrough force” to allow a longer-range “mobile force” to push deep into an enemy’s tactical defensive area, enveloping defending forces. The result would be a collapse of those tactical defending enemy forces, either through their systemic destruction or prolonged isolation, while the mobile force pushed forward towards higher-level operational objectives.²⁰ Although many Western observers began to conflate the theory’s expression in manoeuvre with the theory itself, others warned against such literalism, noting that adherents often hinted at a high degree of flexibility.²¹

“Deep operations theory still holds a significant place in Russian military doctrine, as evidenced by recent military reforms.”

Deep operations theory still holds a significant place in Russian military doctrine, as evidenced by recent Russian military reforms. As part of its ongoing military modernization program, Russia appears to have prioritized the *Vozdushno-Desantnye Voyska* (VDV), its airborne and airmobile forces. This gives Russia a rapidly deployable military capability that can intimidate countries in its ‘near-abroad,’ and in the case of a conventional conflict, exploit the success of mechanized forces by attacking deep into enemy territory.²²

While deep operations theory appears to have informed some aspects of Russia’s military reforms, the 2014 edition “Military Doctrine of the Russian Federation” appears to endorse a closer coordination of state resources to achieve the ends of the state. In one paragraph describing the operational environment, it identifies the “...integrated use of military force, political, economic, informational, and other non-military measures,” and “...the effect on the enemy throughout the depth of its territory simultaneously in the global information space, aerospace, land, and sea” as characteristics of modern warfare. Large portions of the document are dedicated to mapping out interdependencies between the military, economic, and political institutions as a basis for national mobilization.²³ Similarly, the National Security Strategy discusses ways of achieving whole-of-government approaches to deterrence and national security, as well as social mobilization.²⁴



Marshal of the Soviet Union Mikhail Tukhachevsky (1893-1937).

SPUTNIK/Alamy Stock Photo B91RJF



General Valery Gerasimov, Chief of the General Staff of the Russian Armed Forces, and Russia's First Deputy Defense Minister.

The emphasis upon deep operations underlying Russia's military reforms and Russia's stress on "whole of government" integration can also have offensive applications, a fact that has been put into practice. Instead of using military forces alone, recent history shows Russia is more than willing to strike at an adversary multiple ways simultaneously using diplomatic, informational, military, and economic instruments of national power following the prescriptions of deep operations theory.

In the lead-up to the Russo-Georgian War in 2008, Russia launched a series of coordinated actions designed to cripple Georgia and force it to abandon its policy of rapprochement with NATO. Diplomatically, Russia attempted to undermine Georgian President Mikheil Saakashvili by encouraging protests against his government, establishing direct contact with unofficial governments in Ossetia and Abkhazia, and lifting sanctions prohibiting arms exports to those same regions.²⁵ Concurrently in the information domain, Russia spread accusations of Georgian atrocities in South Ossetia, and marketed its troop presence in the region as "peacekeeping."²⁶ Economically, Russia imposed energy, trade, and financial sanctions on Georgia as punishment for its NATO rapprochement.²⁷ Finally, Russia undertook a number of small-scale military actions and exercises in July 2008 designed to intimidate Georgia, and ultimately, to prepare for the invasion.²⁸

Russia's invasion of Georgia therefore came after extensive diplomatic, informational, economic, and military preparations that struck at a number of strategic objectives, including the legitimacy of the Saakashvili presidency, Georgia's ties with South Ossetia and Abkhazia, its international reputation, and its economic



Russian military vehicles in Georgia, August 2008.

health. Striking these objectives throughout Georgia's strategic depth weakened it to the point that when Russian conventional forces entered the country, Georgia's political will collapsed in a manner predicted by deep operations theory. Although Russia's means described in this section appear relatively conventional, the 2008 Russo-Georgia Conflict also saw extensive use of cyber-warfare and irregular forces.²⁹ The use of such forces and 'dirty tricks' was not new to Russia, and they had their origins in another concept inherited from the days of the Soviet Union, namely, active measures.

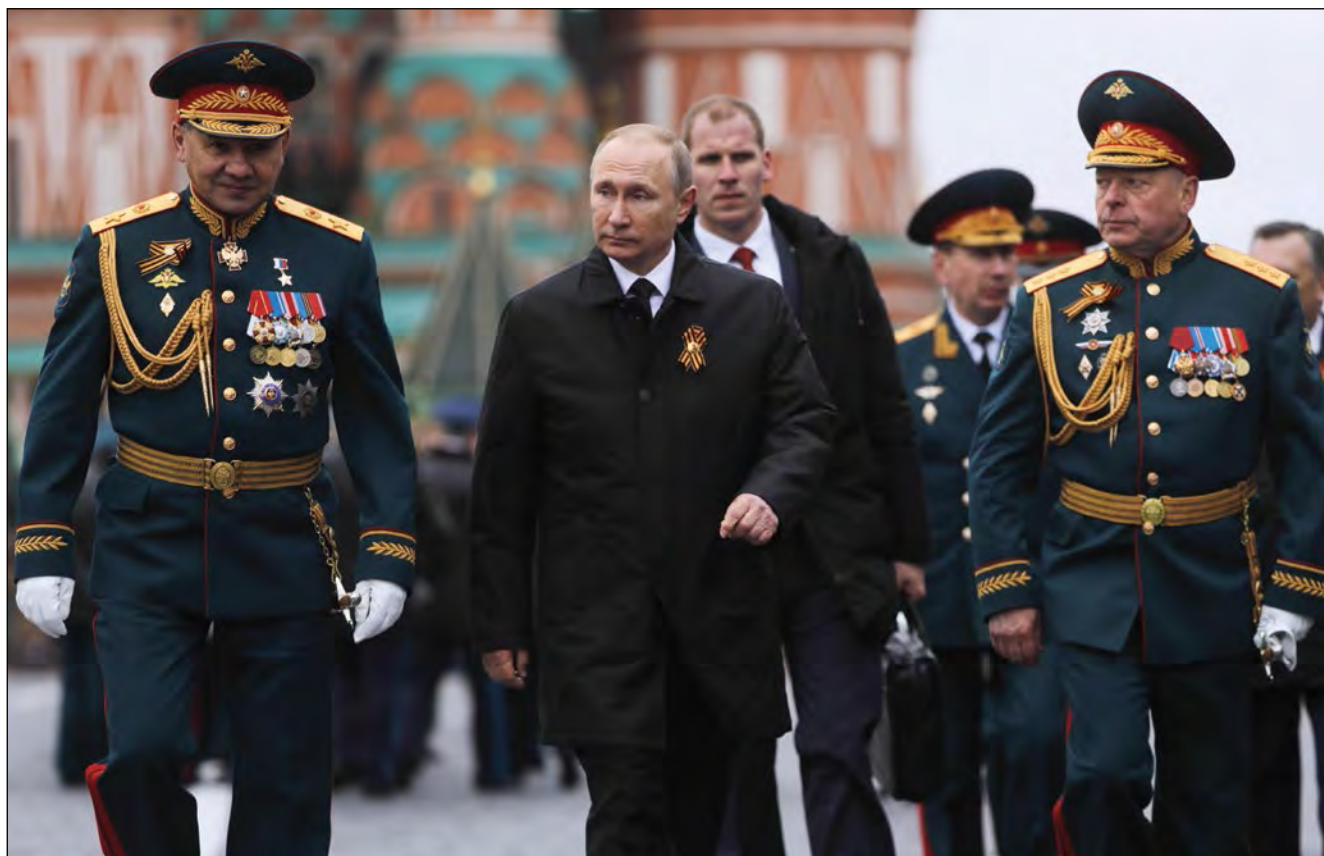
Active Measures

A concept that describes many of Gerasimov's 'non-military' and 'asymmetric' methods is the Soviet notion of active measures. Although its exact Russian definition is vague and heavily based upon the imperfect recollections of defectors, most Western definitions of active measures state they consist of:

...a form of political warfare conducted by Soviet intelligence and security services to influence the course of world events. Active measures ranged from 'media manipulations to special actions involving various degrees of violence' and included disinformation, propaganda, counterfeiting official documents, assassinations, and political repression...³⁰

Although the concept was developed to assist the spread of communism through non-conventional means, many of its elements are evident in the means used by contemporary Russia to advance its interests. The Russian use of deniable irregular forces, cyber-warfare, ethnic diasporas, media manipulation, political parties, and 'think tanks' are all contemporary manifestations of this old Soviet concept. Although the collapse of the Soviet Union meant that the use of some of these tactics was suspended for a period of time, the skill sets behind them continued to survive in the Russian security services, and they have been exploited domestically by President Vladimir Putin.³¹ Far from a dead art, active measures now find expression both within Russia defending Putin's regime, and internationally, as a means for Russia to pursue its interests.

Significant evidence exists that Russia employed active measures in Ukraine, particularly in the East. Russian agitators appear to have travelled into the Ukraine to aggravate the regional grievances of ethnic Russians and to undermine law and order, provoking a Ukrainian response.³² This response was then used to unleash a series of irregular forces consisting of Pan-Slavic Russian "Patriots," local pro-Russian political parties, Cossacks, and adventurers/mercenaries, all armed and supplied by the Russian security services and special operations forces.³³ Led by Russian intelligence officers, detachments of rebel forces appeared to prioritize communications facilities in an attempt to suppress narratives different from that of the rebels, which portrayed the revolt as a reaction to a humanitarian crisis engineered by Kiev.³⁴



Left-to-right: Russia's Defense Minister Sergei Shoigu, President Vladimir Putin, and Colonel-General Oleg Salyukov, Commander-in-Chief of the Russian Ground Forces, after a Victory Day parade marking the 72nd anniversary of victory over Nazi Germany in the 1941-1945 Great Patriotic War, as celebrated in Moscow's Red Square, 9 May 2017.

ITAR-TASS Photo Agency/Alamy Stock Photo J43XRR



A Ukrainian serviceman sits at his entrenchment near Donetsk, 16 September 2014.

All the while, Russia denied involvement, but sustained these irregular forces with weapons and manpower, as well as the occasional direct (but denied) conventional military action.³⁵

The situation in Eastern Ukraine therefore has all the hallmarks of Active Measures: internal political manipulation of a sovereign state, the use of violence through proxy forces, and information manipulation, all coordinated to achieve a common end. Unlike Russia's actions in Crimea, the situation in Eastern Ukraine did not result in a quick victory. Instead, the conflict drags on today, and it has provoked economic sanctions, a re-invigorated NATO, and military assistance to Ukraine and other Eastern European countries.³⁶ However, by inspiring and controlling an insurgency, Russia can bide its time until an opportune moment arises to re-seize the initiative.

Reflexive Control

In addition to the use of violence, active measures consist of media manipulations, disinformation, and propaganda components. Reflexive control is a behavioural theory that links these informational means together, and it is defined as

“In addition to the use of violence, active measures consist of media manipulations, disinformation, and propaganda components.”

“...a means of conveying to a partner or an opponent specifically prepared information to incline him to voluntarily make the predetermined decision desired by the initiator of the action.”³⁷ A well-established concept in Russian military theory, reflexive control emerged in the 1960s, and it has evolved into an interdisciplinary field with its own journals and experts.³⁸ The ‘reflex’ in reflexive control refers to a behavioural model constructed to understand a target’s decision-making processes. If an actor understands the behavioural model of its target, that actor can manipulate the target’s plans, views, and how it fights.³⁹ Reflexive control’s roots in behavioural theory places its emphasis on achieving the desired decision/behaviour without regard for truth, morality, or reason.⁴⁰

Russia’s use of reflexive control can be detected in information operations during the 2014 annexation of Crimea. Russia’s primary informational aim appears to have been to cause significant confusion and doubt at the international level, even to the extent of convincing external audiences that all reporting from the region was suspect.⁴¹ This would blunt any potential NATO and US responses, as this informational ‘pollution’ would weaken the

public opinion needed by Western politicians to take firm action. Although clear evidence existed that the ‘Little Green Men’ in Crimea were Russian soldiers, Western journalistic ethics forced respectable news outlets to report outright denials by Russian officials, Russian-owned news outlets, and thousands of ‘cyber warriors’ in on-line commentary.⁴² This reinforced the legitimacy of Russia’s false narrative of a spontaneous heart-felt Crimean uprising and created enough doubt to weaken the resolve of Western politicians:

Given the habit of leaders in democratic nations to attempt always to say something that at least resembles the truth, implausible denials are a ploy which Western media are particularly ill-equipped to respond and report appropriately...it is not important that what he [Vladimir Putin] says is plainly untrue – the approach is effective not only in press conferences... it also makes it impossible to confront or engage with Putin even when face to face.⁴³

While the public in Western democracies struggled to understand the deliberately confused and contradictory messages emerging from Crimea, Russia also carefully influenced Ukrainian decision makers. As tensions mounted, the Russian Federation Armed Forces held a snap exercise near Ukraine’s borders, diverting Ukrainian attention away from Crimea to a potential existential threat that played into long-standing national fears.⁴⁴ Russia concurrently used its deep media penetration into ethnic Russian-Ukrainian

communities (particularly television) to fuel pro-Russian sentiment in support of an illegal annexation referendum.⁴⁵ These combinations of informational pressures paralyzed the government in Kiev, hampering a firm and effective response to the ongoing seizure of facilities in Crimea.⁴⁶

Far from being an exercise in perception management, Russia’s use of reflexive control during the annexation of Crimea undermined the ability of Western politicians to confront Russia over its actions by exploiting an understanding of Western political decision-making. Meanwhile within Ukraine, Russia set the conditions for an illegal referendum that would provide a legal excuse for annexation by targeting ethnic Russian Ukrainians, and then played upon Ukrainian fears of a military invasion of their nation. The end result was decisions (and non-decisions) that supported Russian objectives.

Conclusion

The debate over Gerasimov’s article has led to a greater awareness of the concept of hybrid war and the challenges of the contemporary operating environment. However, ‘hybrid war’ is a Western term for a form of warfare that is not native to Russian military thought. Russia’s recent actions in both Georgia and Ukraine can instead be understood through concepts it inherited from its Soviet past, namely deep operations, active measures, and reflexive control theory. While deep



A man looks at graffiti produced to support the territorial integrity of Ukraine and to protest Russia’s annexation of the Black Sea peninsula of Crimea, Odessa, 7 April 2014.

REUTERS/Alamy Stock Photo H4XTH2



Georgian artillery unit soldiers in Georgia, August 2008.

operations theory gives Russian decision-makers a framework through which to integrate its diplomatic, informational, military, and economic instruments of power in an offensive manner, active measures gives them deniable or ambiguous means to pursue their objectives. Meanwhile, the theory of reflexive control shapes the Russian use of information operations, and explains its approach to them.

It is likely that, as Russia continues pursuing its aims in the international arena, it will draw upon concepts developed during the Cold War to advance its interests. Many of these concepts have a long history, and provide Russia with the “forms and methods” Gerasimov’s referred to as necessary to “...outstrip them [Russia’s

opponents] and occupy leading positions ourselves.”⁴⁷ It would be a mistake for contemporary analysts to dismiss these concepts and instead fit Russia’s actions into Western constructs, as this overlooks some subtleties in the Russian approach to contemporary conflict: namely, simultaneous coordinated action, use of deniable means, and manipulation of decision-making processes. After years of counter-insurgency oriented operations, the re-emergence of Russia as an adversary is an unwelcome development for Western armed forces. What would be even more unfortunate is if the West were to misunderstand this re-emergence...





Vladimir Konstantinov/Reuters RTR4TJK

Pro-Moscow head of Crimea Sergei Aksyonov (L), Crimean State Council speaker Vladimir Konstantinov (R), and Oleg Belaventsev (C), Vladimir Putin's envoy to Crimea, attend a meeting to celebrate the first anniversary of Russia's annexation of Ukraine's Black Sea peninsula of Crimea, Simferopol, 16 March 2015.



Oleg Zabelin/Alamy Stock Photo H344EA

Soviet Spetsnaz in Afghanistan.

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Sergei Karpukhin/Reuters RTX16MB9

Ukrainian President Viktor Yanukovich (L) gives a wink to his Russian counterpart Vladimir Putin during a signing ceremony after a meeting of the Russian-Ukrainian Interstate Commission at the Kremlin in Moscow, 17 December 2013.

Looking for Little Green Men: Understanding Russia's Employment of Hybrid Warfare

by Tony Balasevicius

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Introduction

In February 2014, anti-government protesters toppled the Ukrainian government of Viktor Yanukovich. Shortly thereafter, pro-Russian separatists began seizing infrastructure in Crimea while systematically occupying territory in the eastern part of the Ukraine. As it would later be revealed, many of these supposed separatists were, in fact, highly trained Russian Special Forces personnel wearing no insignia, the so-called "Little Green Men." The precision with which these operations were carried out shocked many Western analysts. Not only for the speed at which events unfolded, but also for the efficiency with which the Russians were able to coordinate and execute the numerous operations they had in play.¹

What was remarkable about the annexation of Crimea and subsequent fighting in Eastern Ukraine was the fact that Russia's conventional military forces, which traditionally lead such operations, played only a supporting role. Even Russia's high-profile Special Forces, which organized much of the resistance, secured key infrastructure, and established many of the checkpoints that sprang up throughout the peninsula, were not the decisive element in this conflict. In the end, it was the extensive and well-coordinated use of intelligence, psychological warfare, intimidation, bribery, and internet/media propaganda that undermined and eventually collapsed Ukrainian resistance.² The end result was a clear and overwhelming victory achieved by what some are referring to as Russia's "New Generation Warfare."³

In adopting "New Generation Warfare" as a doctrine, the Russians have embraced hybrid warfare as a strategic tool. In the process, they have shifted the focus of conflict away from operational level conventional military campaigns and into the strategic realm. In so doing, they have redefined the concept of the battlefield and re-established the importance of national level strategic planning and coordination.



Lt. Col. Stephen Capehart, the battalion commander for 1st Battalion, 68th Armor Regiment, 3rd Armored Brigade Combat Team, 4th Infantry Division, climbs onto his Abrams on a range in Adazi Military Base, Latvia, 14 April 2017. LCol Wade Rutland, the commanding officer 1st Battalion, Princess Patricia's Canadian Light Infantry, prepares to mount the Abrams as well.

Russia's success with "New Generation Warfare" means that they will likely continue refining and using this doctrine to achieve their strategic aims. With Canada ready to deploy a battle group into Latvia as part of NATO's 5,000-strong rapid reaction force, it will need to understand how this doctrine works, and what its impacts may be. This article will look at the basic components of Russia's "New Generation Warfare" and provide an overview of its underlying philosophy. However, in order to do this, it is important to first examine and understand the theory of hybrid warfare, and how it seeks to defeat an opponent.

Frank Hoffman and the Western Concept of Hybrid Wars

The Western view of hybrid warfare has been heavily influenced by Frank Hoffman, a Research Fellow at the Marine Corps Warfighting Laboratory.⁴ In a 2007 monograph entitled *Conflict in the 21st Century: The Rise of Hybrid Wars*, Hoffman laid out the key principles that have come to define Western perceptions of hybrid war. In this work, he defined hybrid wars as incorporating "...a range of different modes of warfare including conventional capabilities, irregular tactics and formations, terrorism acts, including indiscriminate violence and coercion, and criminal disorder."⁵ He described this form of warfare as blurring the lines between different types of

conflict, those who fight them, and the technologies that are used.⁶ In this respect, Hoffman saw the world entering a period when multiple types of warfare would be used simultaneously by flexible and sophisticated adversaries.⁷

Hoffman believed: "The future does not portend a suite of distinct challenges with alternative or different methods but their convergence into multi-modal or Hybrid Wars."⁸ He emphasized that units operating in such an environment would be hybrid in both form and application. As an example, he pointed out that future conflict would include hybrid organizations like Hezbollah and Hamas, employing a diverse set of capabilities. Additionally, he envisioned states shifting their conventional units, to irregular formations, and adopting new tactics, as the Iraqi *Fedayeen* did in 2003.⁹ Hoffman also highlighted the fact that although these activities could be carried out by the same, or separate units, they would usually be operationally and tactically coordinated within the main battlespace by one headquarters to achieve synergistic effects.¹⁰

"One of Hoffman's most critical observations pertained to how hybrid wars would function in terms of the interaction between regular and irregular elements."

One of Hoffman's most critical observations pertained to how hybrid wars would function in terms of the interaction between regular and irregular elements. He revealed that historically, many wars had seen both regular and irregular elements fighting; however, these elements traditionally operated in different theaters

and/or in different formations. He hypothesized that in the future, this may no longer be the case. In fact, he declared that it would not be unusual for the irregular element to become operationally decisive, rather than just being relegated to the traditional role of a secondary player.¹¹

Hoffman's ideas regarding the simultaneous use of multiple forms of warfare, the employment of state level hybrid war, hierarchical political structures employing decentralized cells, and the emergence of the irregular element as a *decisive*, or at least, an *equal* partner in conflict have all played out in Russia's "New Generation Warfare" doctrine. Yet, these ideas are rooted at the tactical and operational level, and alone, they do not fully explain the efficiency or success of recent Russian operations.¹² To better understand Russian achievements with its hybrid warfare model, it is important to understand how those activities were coordinated at the *strategic level* as part of a well-developed doctrine focused upon achieving a single political objective. In seeking to better appreciate this aspect of Russian operations, it may be beneficial to examine the Chinese view on this subject.¹³

China's View of Unrestricted Warfare

Traditionally, the Chinese People's Liberation Army (PLA) relied on a "Peoples War" doctrine, along with an emphasis upon numerical conventional force advantage to offset the technical superiority of its perceived opponents. However, as it started looking at power projection capabilities in the 1980s, the Chinese realized they needed to modernize both their force structure and doctrine.¹⁴ The stunning victory of the American-led coalition in the first Gulf War against Iraq gave

the Chinese an opportunity to study best practices in modern military operations. From the PLA perspective, the conflict demonstrated that the balance in warfare had shifted heavily in favor of smaller, high technology forces.¹⁵

They were particularly impressed with the American use of new technologies, such as networked computers, precision-guided munitions, Global Positioning System (GPS), global telecommunications, and unmanned aerial vehicles.¹⁶ They realized that these capabilities gave the Americans an unprecedented degree of information about the opposing forces, and they believed this played a vital role in their subsequent destruction. As a result, PLA analysts started seeking ways to overcome this informational advantage.¹⁷

The result was a two-step process. First, the PLA embarked upon a program to become more technologically enabled by acquiring advanced equipment and weapon systems. However, they also looked at options to mitigate the advantages given to a high technology enemy.¹⁸ Part of this later effort bore fruit in February 1999, when two PLA Air Force colonels, Qiao Liang and Wang Xiangsui, published a book entitled *Unrestricted Warfare*.

The thesis of their work was based upon the idea that there was little value in directly confronting American operational excellence on the battlefield. As a result, the focus of conflict needed to move away from conventional warfare. They argued this could be done by broadening the idea of conflict to include the various elements of national power. The authors reasoned that advances in technology and weapons, globalization, and the diffusion of state power had combined to create the needed conditions for this new form of warfare.¹⁹ Moreover, they suggested that



Damir Sagol/Reuters RTX10UBQ



New recruits to the Chinese People's Liberation Army during field training.

those involved in the planning and conduct of warfare had generally viewed the non-military domains as little more than accessories that serve military requirements. As a result, the development of the modern battlefield, as well as possible changes in strategy and tactics, had been limited to that one domain.²⁰

The authors understood that developing a strategy involving a number of different domains would require integrating a complex mix of information and resources. This process would start with producing a detailed knowledge of the strengths and limitations of one's own national security capabilities. Armed with this information, a country would be able to superimpose "political and military factors on the economy, culture, foreign relations, technology, environment, natural resources, nationalities, and other parameters to draw out an 'extended domain'"²¹ Once the strategic requirements (resources) were in place for this "extended domain," a nation would be able to create the battlefield of battlefields.

In theory, the creation of the battlefield of battlefields would allow one to reduce the impact of superiority in one (military) battlefield by forcing an opponent to deal with many battlefields simultaneously.²² They termed the synthesis of these ideas "modified combined war that goes beyond limits."²³ A key pillar of this concept is to exploit the benefits of "combinations" in types of

"In theory, the creation of the battlefield of battlefields would '...reduce the impact of an overwhelming advantage in a specific (military) battlefield.'"

organizations and among the various domains of national power.²⁴

In this respect, the authors reasoned that the key to victory on the battlefield of battlefields was understanding and coordinating the effective use of four specific types of combinations: Supra-National Combinations (combining national, international, and non-state organizations to a country's benefit), Supra-Domain Combinations (combining battlefields and choosing the main domain), Supra-Means Combinations (combining all

available means, military and non-military, to carry out operations), and Supra-Tier Combinations (combining all levels of conflict into each campaign).²⁵

Integrated within the idea of combinations was the use of eight principles that they outlined as follows:

- Omni-directionality;
- Synchrony;
- Limited Objectives;
- Unlimited Measures;
- Asymmetry;
- Minimal Consumption;
- Multi-dimensional Coordination; and
- Adjustment and Control of the Entire Process.

Three of these principles are of special interest to the West in attempting to understand state level hybrid warfare. These include Omni-directionality, Synchrony, and Asymmetry.²⁶

Omni-directionality – “is the starting point of ‘unrestricted war’ ideology and is a cover for this ideology..., there is no longer any distinction between what is or is not the battlefield. Spaces in nature including the ground, the seas, the air, and outer space are battlefields, but social spaces such as the military, politics, economics, culture, and the psyche are also battlefields. And the technological space linking these two great spaces is even more so the battlefield over which all antagonists spare no effort in contending. Warfare can be military, or it can be quasi-military, or it can be non-military. It can use violence, or it can be non-violent.”²⁷

Synchrony – [is about] “Conducting actions in different spaces within the same period of time... So many objectives which in the past had to be accomplished in stages through an accumulation of battles and campaigns may now be accomplished quickly under conditions of simultaneous occurrence, simultaneous action, and simultaneous completion. Thus, stress on ‘synchrony’ in combat operations now exceeds the stress on phasing.”²⁸

Asymmetry – “...No matter whether it serves as a line of thought or as a principle guiding combat operations, asymmetry manifests itself to some extent in every aspect

of warfare. Understanding and employing the principle of asymmetry correctly allows us always to find and exploit an enemy’s soft spots. The main fighting elements of some poor countries, weak countries, and non-state entities have all used ‘mouse toying with the cat’-type asymmetrical combat methods against much more powerful adversaries... Instead, the weaker side has contended with its adversary by using guerrilla war (mainly urban guerrilla war), terrorist war, holy war, protracted war, network war, and other) forms of combat.”²⁹

The fundamental precept derived from the idea of combinations used within the context of these principles is that there is no longer a distinction between *what is* or *is not* a battlefield. Along with the traditional battlefields normally associated with military operations (Air, Land, Sea, Cyber, and Space) everything from politics, economics, culture, to the national psyche may now become a possible battlefield. The key feature of this type of warfare is the ability to conduct, coordinate, and synchronize actions within these different battlespaces, which potentially *can*, and in many instances *should* occur at the same time.³⁰

The authors theorized that throughout history, military victories “...display a common phenomenon: the winner was the one who could combine well.”³¹ To highlight the idea of combining activities within multiple battlefields they introduced the concept of ‘simultaneously,’ and emphasized that it would play an increasingly important role in future operations.³² They reasoned that if a state could achieve a single full-depth, synchronized action



PLA soldiers on armoured vehicles equipped with anti-aircraft artillery, Tiananmen Square, Beijing, 3 September 2015.

Damir Sagolj/Reuters RTX1QV1G



PLA sailors line decks aboard PLA frigate *Hengshui* as it arrives at Pearl Harbour to participate in the multi-national exercise *Rimpac*, 29 June 2016.

across all battlefields, the paralysis caused to the enemy could be sufficient to decide the outcome of an entire war.³³ The authors provide an example of how such an operation might unfold as it links into the concept of combinations:

...by using the combination method, a completely different scenario and game can occur: if the attacking side secretly musters large amounts of capital without the enemy nation being aware of this at all and launches a sneak attack against its financial markets, then after causing a financial crisis, buries a computer virus and hacker detachment in the opponent's computer system in an attacking nation advance, while at the same time carrying out a network attack against the enemy so that the civilian electricity network, traffic dispatching network, financial transaction network, telephone communications network, and mass media network are completely paralyzed, this will cause the enemy nation to fall into social panic, street riots, and a political crisis. There is finally the forceful bearing down by the army, and military means are utilized in gradual stages until the enemy is forced to sign a dishonorable peace treaty.³⁴

In their analysis, Liang and Xiangsui suggested that *preparation for* and specific activities *related to* this form of conflict would likely occur well before the start of a formal declaration of war. Moreover, they saw the center of gravity focused upon creating social panic, leading to a political crisis. Once the crisis had developed sufficiently, conventional military force could be applied, but only to the extent necessary to achieve victory.

In developing this asymmetric approach, the authors concluded that asymmetry, which is at the heart of this type of warfare, should be used to find and exploit an enemy's soft spots. They asserted that poor countries, weak countries, and non-state entities have all used some type of asymmetrical combat methods against much more powerful adversaries as a means to level the playing field. This means that when a country faces a technologically superior enemy, the key to success lies in moving the fight from pure military operations to a much broader interpretation of warfare, namely, one that includes Financial Warfare, Cultural Warfare, Media Warfare, Technological Warfare, Psychological Warfare, and Network warfare, to name a few.³⁵

By using such methods, a nation or non-state entity could minimize the impact of technological superiority and the associated increase in combat power that such advantages provide to a conventional military force. In so doing, a nation would make the enemy fight one's own type of war, which, if done correctly, would occur on a number of different and more complex battlefields than has previously been the case. Interestingly enough, this is exactly what the Russians are now doing in Eastern Europe.

How much the Russians have been influenced by Chinese thinking on the subject of hybrid warfare is difficult to ascertain. It is clear that many of the key concepts underlining *Unrestricted Warfare's* philosophy, particularly the ideas of coordination, synchrony, the 'battlefield of battlefields,' creating social panic leading to political crisis, and the judicious application of military force, have all been displayed in recent operations undertaken by the Russians. Also, much of this philosophy has been articulated in public statements by senior officials on how the Russians view the future of conflict within the context of "New Generation Warfare."

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Russia’s Doctrine of “New Generation Warfare” and the Future of Warfare³⁶

The Russian concept of “New Generation Warfare” was first introduced to the public in a paper published by General Valery Gerasimov, the Chief of the Russian General Staff, in February 2013.³⁷ In it, Gerasimov laid out a number of key principles behind Russia’s thinking on the employment of modern/hybrid warfare. The first principle revealed was the idea that the world is now in a continual state of conflict. He asserts, “...in the 21st Century we have seen a tendency toward blurring the lines between the states of war and peace.” He explains that the conduct of wars has changed as they are no longer declared and, having begun, they move in different and unfamiliar directions.³⁸ He extrapolates on this statement by saying: “This unfamiliar template refers to asymmetrical operations using a host of [strategic] capabilities to ‘nullification of an enemy’s advantages in armed conflict.’”³⁹

Gerasimov believes that the specific capabilities needed to affect change will include the use of Special Forces linking up with internal opposition groups throughout the target country to create an operational front that extends throughout the entire depth of the enemy’s territory. These actions will be combined with information operations, cyber warfare, legal warfare, economic war, and any other activities that are directly linked to the designated strategic outcome. He points out that the entirety of these



Chief of the General Staff of the Russian Armed Forces Valery Gerasimov, 23 February 2017.



DND photo RE2011-M089-004 by Corporal Mathieu St-Amour

A CF-18 *Hornet* launches for a mission at sunset during Operation *Mobile*, Trapani, Italy, 21 August 2011.



A T-72B1 tank crew of the Russian Airborne Troops 83rd Guards Air Assault Brigade on exercise in Primorye Territory, Russia, 16 February 2017.

activities would be initially selected, but constantly modified to meet the specific needs of a changing situation.⁴⁰

The Russians deem that such methods, employed and sequenced properly, can, in a very short period of time, throw a stable and thriving state into a web of chaos, humanitarian upheaval, and outright civil war, making it susceptible to foreign intervention.⁴¹ Although Gerasimov acknowledges that such events were not traditionally part of what would be considered wartime activities, he believes that they will now become typical of conflict in the 21st Century.

The idea of collapsing a state onto itself through social upheaval, even before a declaration of war, is an important part of “New Generation Warfare’s” underlying methodology. In this respect, Gerasimov postulates: “The very ‘rules of war’ have changed...[as] the focus of applied methods of conflict has altered in the direction of the broad use of political, economic, informational, humanitarian, and other non-military measures—applied in coordination with the protest potential of the population.”⁴² The example he uses to illustrate his point is NATO’s role in Libya, where a no-fly zone and naval blockade were combined with the use of private military contractors working closely with the armed formations of the opposition.⁴³

Gerasimov also comprehends that new information technologies have allowed much of this change to occur. As a result, the information space has opened the door to the

widespread use of asymmetrical possibilities for reducing the fighting potential of the enemy, particularly through the use of influence operations.⁴⁴

Jānis Bērziņš, Managing Director for the Center for Security and Strategic Research at the National Defense Academy of Latvia, emphasizes this point. He asserts: “The Russians have placed the idea of influence operations at the very center of their operational planning and used all possible levers of national power to achieve this.”⁴⁵ He adds: “These levers include skillful internal communications, deception operations, psychological operations, and well-constructed external communications.”⁴⁶ Bērziņš explains that the Russians “...have demonstrated an innate understanding of the key target audiences and their probable behavior... Armed with this information they knew what to do, when and what the outcomes are likely to be.”⁴⁷

The Russians feel that these changes in the conduct of conflict have reduced the importance of frontal engagements by large conventional military formations, which they believe are gradually becoming a thing of the past. This belief is due to the fact that even if conventional operations are required to finish off the enemy, this would be done primarily by using stand-off operations (i.e., indirect and/or precision fires), throughout the entire depth of its territory.⁴⁸ The Russians perceive this shift towards irregular war and stand-off operations is blurring the lines between the strategic, operational, and tactical levels, as well as between offensive and defensive operations.⁴⁹

These ideas of future conflict have been formally articulated into what has become known as the eight phases of “New Generation Warfare.” These phases provide a good template for understanding how the Russians could conduct a state-level hybrid war. They are as follows:

First Phase: *deals with non-military asymmetric warfare (encompassing information, moral, psychological, ideological, diplomatic, and economic measures as part of a plan to establish a favorable political, economic, and military setup);*

Second Phase: *special [specific] operations are used to mislead political and military leaders by coordinated measures carried out by diplomatic channels, media, and top government and military agencies. This is done by leaking false data, orders, directives, and instructions;*

Third Phase: *is focused on intimidation, deceiving, and bribing government and military officers, with the objective of making them abandon their service duties;*

Fourth Phase: *destabilizing propaganda to increase discontent among the population. This is boosted by the arrival of Russian bands of militants, escalating subversion;*

Fifth Phase: *establishment of no-fly zones over the country to be attacked, imposition of blockades, and extensive use of private military companies in close cooperation with armed opposition units;*

Sixth Phase: *This phase deals with the commencement of military action, which is immediately preceded by large-scale reconnaissance and subversive missions. This includes all types, forms, methods and forces, such as special operations forces, space, radio, radio engineering, electronic, diplomatic, secret service intelligence, and industrial espionage;*

Seventh Phase: *combination of targeted information operations, electronic warfare operations, aerospace operations, continuous air force harassment, combined with the use of high precision weapons launched from various platforms, including (long-range artillery, and weapons that are based on new physical principles, such as microwaves, radiation, non-lethal biological weapons); and*

Eighth Phase: *roll over the remaining points of resistance and destroy surviving enemy units by special operations conducted by reconnaissance units to spot which enemy units have survived, and transmit their coordinates to the attacker’s missile and artillery units; fire barrages are used to annihilate the defender’s resisting army units by effective advanced weapons; airdrop operations to surround points of resistance; and territory mopping-up operations by ground troops.⁵⁰*

Each of these phases can occur in sequence or simultaneously, depending upon the specific situation. According to Gerasimov, this new doctrine manifests itself in the use of asymmetric and indirect methods, along with the management of troops in a unified informational sphere.⁵¹ Should the conflict escalate, these activities would be followed by the massive use of high-precision weapons, special operations forces, and robotics. If necessary, the next step would involve simultaneous strikes on an enemy’s units and facilities, as well as battle on land, air, sea, and in the informational space.⁵²

Strategic Thinking and the Coordination of State Tools

Notwithstanding the fact that there appears to be a number of similarities between *Unrestricted Warfare’s* philosophy and that of “New Generation Warfare” doctrine, it is clear that the Russians have taken significant steps towards creating the ‘battlefield of battlefields.’ Blurring the lines between strategic, operational, and tactical level operations while maintaining a unified informational sphere is almost impossible without the

ability to conduct and coordinate the various events within the different battlespaces in a strategically effective manner. In fact, some believe that it’s this ability to synchronize that has constituted the biggest change in recent Russian operations. Kristin Ven Bruusgaard, a Research Fellow at the Norwegian Institute for Defense Studies (IFS), states: “Experts have focused on the military novelties in the Russian approach—the use of asymmetric, covert, and otherwise innovative military tools. However, the real novelty in Crimea was not how Russia used its armed might (in terms of new military doctrine), but rather how it combined the use of military with state tools.”⁵³



ITAR-TASS Photo Agency/Alamy Stock Photo J3AX1A

Russian heavy lift and strike helicopters on display in the Moscow area, 4 May 2017.



ITAR/TASS Photo Agency/Alamy Stock Photo HX4BTN

In Palmyra, Syria, sappers of the Russian Armed Forces International Mine Action Centre clearing the city's residential areas of mines, 22 March 2017.

It is this innovative integration and coordination of military and state tools that has allowed the Russians to seamlessly transition from peace to conflict. *Importantly*, if not *significantly*, very few international players understood what was actually occurring until it was almost all over.⁵⁴ Ven Bruusgaard believes that this ability to coordinate has been the key to Russian success so far. She states: “Since Putin came to power, there has been increased academic and policy debate on the coordinated use of state tools to reach formulated goals. This awareness has led to a large-scale formulation of strategies on how to pursue policy goals, and, most recently, to bureaucratic changes that have likely improved Russia’s ability to use its policy tools in an integrated manner.”⁵⁵

One of the more important of these bureaucratic changes has been the creation of the National Defense Coordination Center (NDCC), which reached initial operating capability in December 2014. The center has the task of coordinating 52 federal executive authorities and three state-owned corporations engaged in Russia’s defence. This includes the armed forces, the Interior Ministry, the Federal Security Service, and the Emergencies Ministry.⁵⁶ One could argue that the concept of the NDCC goes back to the Chinese idea of creating the “extended domain,” by integrating information that superimposes national interests and national security requirements onto the larger strategic situation map. If this is the case, it means that the Russians can now *create* and simultaneously *coordinate* their version of the ‘battlefield of battlefields.’⁵⁷ More concerning is that they have changed the rules of the conflict game.

Conclusion

Russia’s adoption and employment of “New Generation Warfare” has validated key theories of hybrid warfare. Operations in Ukraine have shown that the Russians have skillfully moved the center of gravity for conflict from the *operational level*, where conventional military forces play a predominant role, into the *strategic realm*, where the integration of strategic planning and the coordination of state tools becomes the critical denominator.

The devastating effectiveness of this form of warfare can be seen within NATO today. More than two years after the annexation of Crimea, the alliance has still not developed a coherent strategy to counter Russia’s hybrid war activities in Ukraine. This inaction has created concern among some NATO members with respect to the Alliance’s resolve to *protect*, while others have openly questioned its ability to *stand up* to the Russians.

Russia’s success with “New Generation Warfare” means that they will continue refining and using this doctrine to achieve its strategic aims. Moreover, as time goes on, they will only become more effective as experience creates sophistication of both process and reaction. If Canada wishes to counter this type of warfare, it needs to understand what it seeks to achieve and how it is capable of accomplishing its goals. More importantly, it needs to develop an effective strategy to counter its multi-faceted capabilities. In this respect, we can no longer rely upon employing conventional solutions to unconventional problems, as we have done in the past.





ITAR-TASS Photo Agency/Alamy Stock Photo HXTG8Y

Russian soldiers on exercise in the Khatlon Region, Tajikistan, 30 March 2017.



REUTERS/Alamy Stock Photo HN504X

Russian separatist commander Mikhail Tolstykh, known by the *nom de guerre* "Givi," walks past tanks taking positions near the Sergey Prokofiev International Airport during fighting with Ukrainian forces in Donetsk, Ukraine, 4 October 2014.

NOTES

1. Jānis Bērziņš, *Russia's New Generation Warfare in Ukraine: Implications for Latvian Defense Policy* (National Defense Academy of Latvia, Center for Security and Strategic Research; Policy Paper 2, 6 April 2014), p. 4. Note: Most of the troops involved in the operation comprised of naval infantry, airborne, and Spetsnaz commandos.
2. *Ibid.*
3. Note: "New Generation Warfare" has also been referred to as the Gerasimov Doctrine of Ambiguous Warfare, hybrid war," "next generation warfare," and "non-linear warfare."
4. Francis G. Hoffman, *Conflict in the 21st Century: The Rise of Hybrid Wars*. (Arlington, VA: Potomac Institute for Policy Studies, 2007), p. 28, at http://www.projectwhitehorse.com/pdfs/HybridWar_0108.pdf. Accessed 1 May 2015. Note: At the time he wrote the paper, Hoffman was an employee of the Potomac Institute for Policy Studies and working for the Marines.
5. *Ibid.*, p. 29. Note: Over the years, he has modified this initial definition.
6. *Ibid.*, p. 14.
7. *Ibid.*, p. 28.
8. *Ibid.* Note: Hoffman states: "In such conflicts, future adversaries (state, state-sponsored groups, or self-funded actors) will exploit access to modern military capabilities including encrypted command systems, man-portable air to surface missiles, and other modern lethal systems, as well as promote protracted insurgencies that employ ambushes, improvised explosive devices (IEDs), and coercive assassinations. This could include states blending high-tech capabilities, like anti-satellite weapons, with terrorism and cyber-warfare directed against financial targets."
9. *Ibid.*
10. *Ibid.*, p. 14.
11. *Ibid.*, p. 29. Note: Hoffman stated that normally these units would be used to prolong the conflict, provoke overreactions, or siphon off resources from the enemy.
12. Dr. J. Paul de B. Taillon, *Russian Strategic Methodology in the Ukraine Crisis: Back to the Future*, <http://mackenzieinstitute.com/russian-strategic-methodology-ukraine-crisis-back-future/>. Accessed 7 August 2016. Note: Some analysts have concluded that Russian actions are little more than a variation on traditional Soviet approaches. Historically, such approaches have included the use of subversion, destabilization, and other 'active measures' along with the employment of Special Forces and proxies to achieve the desired political results. Dr. Taillon states, "The art of POLWAR was for the most part forgotten in the wake of the break-up of the Soviet Union. Known by its Soviet/Russian proponents and practitioners as "active measures" (aktivnyye meropriatia), it was employed extensively throughout the Cold War. The Soviet Union employed active measures as a means to change political situations to their advantage by utilizing conspiracy theories, disinformation, and propaganda to discredit and undermine the reputation of their targeted adversary. In some cases, they employed targeted terrorism and violence orchestrated by intelligence agents, saboteurs, and special operators attempting to change world events by using violent means."
13. Keir Giles, Russia's 'New' Tools for Confronting the West Continuity and Innovation in Moscow's Exercise of Power, (Russia and Eurasia Programme, 21 March 2016), p. 2, at <https://www.chathamhouse.org/sites/files/chathamhouse/publications/research/2016-03-21-russias-new-tools-giles.pdf>. Accessed 14 June 2016.
14. Xiabing Li. *A History of the Modern Chinese Army*, (Lexington, KY: University Press of Kentucky, June 2007), p. 271.
15. Dean Cheng, *Chinese Lessons From The Gulf Wars*, found in *Chinese Lessons from Other Peoples' Wars*, Andrew Scobell, David Lai, and Roy Kamphausen (Eds.), (Strategic Studies Institute, U.S. Army War College, 2011), p. 159.
16. *Ibid.*
17. *Ibid.*
18. *Ibid.*
19. Dean Cheng "Unrestricted Warfare: Review Essay II" (*Small Wars & Insurgencies*, Spring 2000), p. 123, at <http://www.tandfonline.com/doi/abs/10.1080/09592310008423266?journalCode=fswi20&context=pdf>. Accessed 3 May 2015.
20. *Ibid.*, p. 189.
21. *Ibid.*, p.118. Note: This superimposes both national interests and national security requirements onto the larger strategic situation map.
22. Qiao Liang and Wang Xiangsui, *Unrestricted Warfare*, (Beijing: PLA Literature and Arts Publishing House, February 1999), at <http://www.c4i.org/unrestricted.pdf>. Accessed 1 May 2015.
23. *Ibid.*, p. 181.
24. *Ibid.*
25. Major John A. Van Messel, USMC *Unrestricted Warfare: A Chinese doctrine for future warfare?* At <http://www.dtic.mil/dtic/tr/fulltext/u2/a509132.pdf>, p. 7. Note: the author provides a good overview of both the combinations and principles.
26. Qiao Liang and Wang Xiangsui, p. 206.
27. *Ibid.*, p. 207.
28. *Ibid.*
29. *Ibid.*, pp. 206-209.
30. *Ibid.*, p. 208.
31. *Ibid.*, p. 140. Note: By "combined well," the authors meant that the winner was able to coordinate and synchronize the different forces they had available to them to enable victory.
32. *Ibid.*
33. *Ibid.*, p. 208.
34. *Ibid.*, pp. 145-146.
35. *Ibid.*, pp. 38-43.
36. Note: This section was originally published by the Mackenzie institute. Tony Balasevicius, Russia's "New Generation War" and Its Implications for the Arctic, at <http://mackenzieinstitute.com/russias-new-generation-war-implications-arctic/#reference-3>. Accessed 24 July 2016.
37. Mark Galeotti, *The 'Gerasimov Doctrine' and Russian Non-Linear War*, (blog in Moscow's shadows), posted on line at <https://inmoscowshadows.wordpress.com/2014/07/06>. Accessed 1 May 2015. Note: The-Gerasimov-doctrine-and-Russian-non-linear-war, first appeared in the Federation *Military-Industrial Kurier*, 27 February 2013. Accessed 10 May 2015. Note: Many authorities on Russia believe that the article may have been written by someone else. Also, the same briefing was presented by the Chief of the Russian General Staff, Army General Valeriy Gerasimov, in January 2013 at the Russian Academy of Military Sciences' annual meeting; key elements of the Gerasimov Doctrine have since been integrated into the new edition of the Russian Military Doctrine, as approved in December 2014.
38. *Ibid.*
39. *Ibid.* Note: It should be noted that this is the underlying theme of *Unrestricted Warfare*.
40. *Ibid.* Note: This is the development of the 'battlefield of battlefields.'
41. Col. S.G. Chekinov (Res.), Lt. Gen. S.A. Bogdanov (Ret.), *The Nature and Content of a New-Generation War* (Military Thought: A Russian Journal of Military Theory and Strategy), p. 13. Published on-line at http://www.eastviewpress.com/Files/MT_FROM%20THE%20CURRENT%20ISSUE_No.4_2013.pdf. Accessed 5 July 2015.
42. *Ibid.*
43. Galeotti.
44. *Ibid.*
45. Bērziņš, p. 6.
46. *Ibid.*
47. *Ibid.*
48. Chekinov and Bogdanov. p. 13.
49. Galeotti.
50. Tchekinov and Bogdanov, as quoted in Janis Berzins, "Russia's New Generation Warfare in Ukraine: Implications for Latvian Defense Policy," Policy Paper 2, Center for Security and Strategic Research, National Defence Academy of Latvia, 6 April 2014.
51. *Ibid.*
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53. Bruusgaard, Kristin Ven. 2014. "Crimea and Russia's Strategic Overhaul," in *Parameters*, Vol. 44, No. 3, pp. 81–90, at http://www.strategic-studiesinstitute.army.mil/pubs/parameters/issues/Autumn_2014/11_BruusgaardKristin_Crimea%20and%20Russia's%20Strategic%20Overhaul.pdf. Accessed 15 June 2015.
54. *Ibid.*, p. 89.
55. *Ibid.*, p. 86.
56. What Is the Russia's National Defense Control Center? How It Works? at <https://southfront.org/russias-national-defense-control-center-works/>. Accessed 1 September 2016. Note: Originally appeared at *Rusplit*, translated by Mikhail Alexandrovich exclusively for *SouthFront*.
57. *Ibid.*, p. 118.

KCNA (North Korean Central News Agency)/Reuters RTX2HQYT



A test launch of a ground-to-ground medium long-range ballistic missile *Hwasong-10*.

North Korea: Perfect Harmony between Totalitarianism and Nuclear Capability

by Patrick Chartrand, Frédéric Harvey, Étienne Tremblay and Éric Ouellet

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Introduction

For years, analysts have been predicting the end of the totalitarian communist regime in North Korea, which has difficulty feeding its own people.¹ To make matters worse, the leaders in Pyongyang have invested considerable resources in their nuclear program, and they have been ‘playing the atomic weapons card’ since the early-1990s, which has resulted in

various international embargoes and sanctions against the country. On the face of it, the North Korean regime’s nuclear strategy seems irrational and counter-productive.

The authors of this article will demonstrate that the fundamental ideology underpinning the North Korean regime serves to both justify the possession of nuclear weapons and to reinforce the regime’s legitimacy. Nuclear capability offers the regime protection against external and internal pressures that call into question its merits and the ideology upon which it is based. The possession of nuclear weapons is thus irrevocable and definitive, because it contributes to the regime’s strong, consistent institutional alignment.

The analysis presented in this article is based upon an institutional approach² that privileges the search for the sources and dynamics of legitimization, which enable institutional structures to be perpetuated over time, despite emerging social and political pressures. This analysis will focus upon the three forms of institutional legitimization: laws, rules, and legal systems; implicit shared norms and values; and shared ideas and cognitive constructs. The authors conclude the article by demonstrating that, within the North Korean regime, the sources and dynamics of institutional legitimization are highly consistent and are mutually reinforced by the development of nuclear capability.



Korean peninsula.

Institutional Legitimacy Based upon Legal Mechanisms

The country's official ideology is called *juche*. Since 1955, the *juche* ideology has been codified in the country's official constitution, which rests upon three main pillars:³ political independence (*chaju*); military independence (*chawi*); and economic independence (*charip*).⁴ *Juche* is interpreted in the light of another important concept, *suryong* (leader), which states that the leader of the people is the only one able to determine the substance of *juche*. This prevents ideological deviations. At the end of the Korean War, Kim Il-sung quickly carried out ideological purges within the party. The effect of those purges was to consolidate the party's political position and to strengthen the cult of personality attached to it. Kim created an ideological monopoly and positioned himself as the sole interpreter and practitioner of the *juche* philosophy. Doctrinal control of the tenets of *juche* gave Kim Il-sung the power of ideological justification he needed in order to definitively establish his dictatorship in the Democratic People's Republic of Korea (DPRK).⁵

need for a Supreme Leader who must be the only one with the power to implement *chawi*, this was regarded as a major deficiency that could undermine the Kims' legitimacy. To overcome that deficiency, Kim Il-sung reinforced his son's institutional legitimacy by appointing him to the prestigious positions of Supreme Commander of the North Korean People's Army (NKPA) and Chairman of the National Defence Committee.¹⁰

The preparations for the handover of power were not sufficient to ensure Kim Jong-il's legitimacy. Quickly realizing that he was in a vulnerable position, the new leader had no choice but to acknowledge that the military forces were the greatest asset at his disposal for achieving that goal. The period was marked by the introduction of the *songun* (military first) principles, which assigned a central role to the NKPA,¹¹ and also by the adoption in 1998 of a new constitution in which the importance of the NKPA's role in *juche* was made official, and the power of the entire NKPA would be at Kim Jong-il's disposal.¹² In other words, Kim Jong-il used his power as the sole interpreter of *juche* to attribute greater importance to the *chawi* pillar, in accordance with the principles of *songun*, than to the other two pillars.

The concept of *suryong* is, in turn, justified, in a near-tautology, by the pillar of *chaju* (political independence), which is at the heart of *juche*. Foreign influences can be better contained when all the important decisions that concern the country are made unilaterally by a strong leader, who is the only one able to channel the energies of the people in support of *suryong*.⁶

The pillar of *chawi* (military independence) takes the form of an overtly-belligerent policy aimed at countering and deterring any "imperialist moves of aggression and war" by means of military threat.⁷ Not only did the generation of impressive armed forces become indispensable for defending national independence, but it also ensured the mass mobilization essential for deliberately instilling the *juche* ideology. In addition, the need to equip the armed forces with weapons produced within the country created the conditions required to support *charip* (economic independence).⁸

Charip serves to engage the people, not only in producing the military arsenal required to ensure the country's survival, but also in achieving economic autarky. *Charip* is a crucial condition for freeing the DPRK from its dependence upon foreign aid and investment.⁹

The transfer of power from Kim Il-sung to his son Kim Jong-il necessitated some adjustments to *juche*. For one thing, unlike his father, Kim Jong-il had no military experience. Given the



STR New/Reuters RTXMRC5

Kim Il-sung, founder of North Korea, with his son, Kim Jong-il in 1983.

To protect the legitimacy it had just acquired, the NKPA had to establish its presence everywhere in North Korean society.¹³ The *songun* policy therefore involved reinforcing national defence through development of the defence industry.¹⁴ From then on, the military-industrial complex was considered to be the primary pillar of the economy, with the manufacturing and agricultural sectors relegated to second place.¹⁵

Following the adoption of the constitution in 1998, Kim Jong-il succeeded in implementing the measures necessary for effective management of the various internal and external pressures applied to the regime. Through massive investments in defence,¹⁶ the regime was able to adequately support the nuclear arms development program.

From a military point of view, the development of a nuclear weapon highlighted the success of the new policies by enhancing the prestige of an organization that had been morally diminished due to famine and widespread commodity shortages. At the same time, it kept the risk of a coup d'état to a minimum.¹⁷ Most importantly, nuclear technology enabled the NKPA, which had to counter the American threat, to

Under the legislation it had just enacted, the DPRK presented itself as a nation with nuclear capability like the other powers, and it even went so far as to institute an official policy for employing that capability. The legislation states, among other things, that North Korea is willing to support international efforts to achieve denuclearization, but that as long as the other countries maintain their nuclear arsenals, so will North Korea. However, the arsenal must be used only for dissuasion and for retaliation, not for offensive actions.²¹ Paradoxically, by refusing to draw a distinction between military and economic use of nuclear weapons, the legislation confirms the regime's intention to definitively reject the concept of non-proliferation.²²

In practice, *byungjin* is manifested in two ways: support for nuclear-related industries (such as ballistic missiles) through the sums invested

and "job creation" for the people; and the filling of government coffers through illegal sales of military technology to other countries, as occurred with Syria and Libya.²³ *Byungjin* gives the regime a way to justify its massive spending on energy and on nuclear weapons to its people and the international community, thereby enabling it to simultaneously support its economy and reassure the senior military leaders.

"Effective development of operational nuclear weapons and the ascension to power of a new Kim necessitated further political changes."

achieve a force ratio sufficient to deter a superpower from intervening in the Korean peninsula.¹⁸

In a situation that could have led to a popular uprising, the changes introduced by *suryong* contributed both to expanding military troops' role of interacting with the local population, and to increasing the local people's appreciation for the military. Because the NKPA administered food and other indispensable goods, it was able to distribute those resources to the people, and it even took the credit for providing humanitarian aid from abroad.¹⁹

Effective development of operational nuclear weapons and the ascension to power of a new Kim necessitated further political changes. Kim Jong-un modernized the interpretation of *juche* by officially adopting *byungjin* (parallel development) on 31 March 2013. The new approach, which favours the pursuit of economic development in conjunction with reinforcement of the nuclear arsenal to counter military threats, was designed to keep the peace on the Korean peninsula through nuclear deterrence while stimulating economic growth.²⁰ In other words, once the nuclear weapon had been acquired, the pillars of military independence (*charwi*) and economic independence (*charip*) could be accorded equal importance.



Damir Sagol/Reuters RTS12E30



KCNA (North Korean Central News Agency)/Reuters RTS13YAO

US Air Force Photo/Alamy Stock Photo H2F72W



USAF B1-B stealth strategic bomber and F-15 fighter escort fly close to the North Korea/South Korea border in South Korean airspace, 21 September 2016.

The announcement in April 2013 that the Yongbyon nuclear reactor, which had been inactive since 2008, would be put back into operation and that an experimental light water reactor was under construction demonstrated the regime's intent to make use of its nuclear capability. Although Pyongyang has stated publicly that the reactor would be used to produce energy to meet the country's needs, it is highly likely that the infrastructure could be configured to produce up to 20 kilograms of plutonium per year for military use.²⁴

Institutional Legitimacy Based upon Implicit Norms

The specific geography of Korea has historically been an obstacle to the advance of neighbouring powers. The intense internal shocks North Korea experienced between 1860 and the Korean War (1950–1953), added to the trauma engendered by six invasions, gave Koreans the impression that theirs was one of the most invaded countries on Earth.²⁵ As a result of that long series of invasions, Koreans lived in fear of foreigners.²⁶ The PDRK's leaders were quick to leverage those fears rooted in history and mould them into a "siege mentality" that has convinced Koreans that their country is under threat from a hostile world seeking to annihilate it.²⁷

From the time he came to power, Kim Il-sung feared that too much dependence upon foreign aid would reduce the DPRK to the rank of an economic satellite.²⁸ Consequently, from Pyongyang's point of view, the country's fears for its survival constituted irrefutable proof that the country could be emancipated only through political liberation, together with total economic autarky. Those fears underlie the *juche* ideology, defined as "the stance of

rejecting dependence on others and of using one's own powers, believing in one's own strength and displaying the revolutionary spirit of self-reliance."²⁹

Xenophobic fears also forced Kim Il-sung to add a Korean cultural touch to the Marxist–Leninist ideology he was promoting, whose origins were inherently foreign, in order to indigenize and legitimize it.³⁰ He thus drew strongly (and secretly) upon the historic social and spiritual traditions of Confucianism. A number of the elements of that traditional Asian doctrine, such as respect for the father, filial devotion, and harmony achieved through absolute adherence to the rules, were incorporated into the *juche* ideology and channelled into respect for the "Father," which was transformed into a cult of personality surrounding Kim Il-sung.³¹ Since *juche* was partly based upon norms and values that had prevailed before the establishment of the Kims' communist regime, its premises rallied the people directly and with sensitivity.

Nor was the concept of *suryong* created in a sociological void. The ancient Confucian traditions counselled the veneration of paternal authority, respect for the ancestors, and filial piety, and they played a fundamental role in shaping the regime and in promoting acceptance of the idea that the "Father of the Nation" knew better than others how to defend it against the foreigners.³²

However, that does not mean that the leader is immune to power struggles. Although it is difficult to obtain detailed information about the various threats perceived by the Kims over time, it would be fair to say that there was a perceived risk of a coup d'état orchestrated by the elites or by a group of dissatisfied mili-



Kim Jong-un at a military parade, 15 April 2017.

process of discreditation of authority” emerged, which could have “undermined the stability of power.... Aware of the danger, Kim Jong-il [had] launched an internal reform movement [to] work toward appeasement on the foreign affairs front.”⁴⁰ [Translation.] Although this reform movement may indicate a certain flexibility, it should not be interpreted as a trend toward openness, but rather, as a new approach for addressing the danger of revolution that even limited capitalism might generate, thereby jeopardizing the survival of the dictatorship.

The DPRK’s cultural isolation serves the purposes of the totalitarian regime in Pyongyang very well, but, curiously, it is justified in

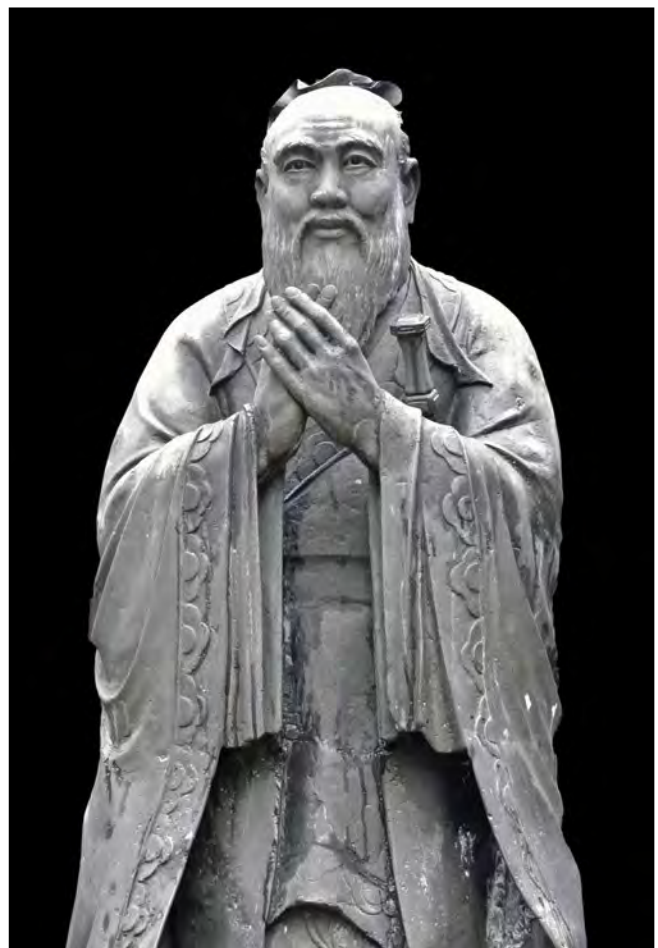
tary leaders. The actions that were intended to protect the Kims’ legitimacy reveal that chronic paranoia. Since taking power in 2011, Kim Jong-un is thought to have ordered the executions of at least 100 senior officials and military leaders. He may have used purges as a means of consolidating his power, or to allay any insecurity created by his relative youth.³³

Another strategy that reveals a certain insecurity on the part of the North Korean leaders is the coopting of the “preferred son,” an element of Korean Confucianism.³⁴ While neglecting the majority of its population, the DPRK was able to set up a system favouring a small, influential selectorate which then depended upon the institution in order to maintain its privileges.³⁵ Rather than instilling a climate of fear, this type of strategy works much more subtly, ensuring the elites’ continued loyalty. The various advantages made available to the upper class may be *economic* as well as *political*, and are a product of their influential positions in the government.³⁶

Curiously, these norms and values that were promoted before the establishment of communism had to be isolated and protected against any form of modernism. The regime seemed to recognize the possibility, however remote, that it might be overthrown by the North Korean people. The regime in Pyongyang is well known for blocking the flow of information from outside the country. Recent examples reveal a perceived danger that North Korean “moral purity” would be corrupted—a danger which was invoked to justify closing the Kaesong border crossing between North Korea and South Korea in December 2009.³⁷

The creation of restricted economic zones in the 1990s³⁸ was another way of blocking access to foreign markets and trade for all but a few selected economists and businesspeople. However, when the economic incentives are big enough, even the most reliable, patriotic officers may succumb to corruption, thereby eroding the regime’s ability to govern effectively.³⁹ Thus, “an insidious

terms of the need to protect the ancient, implicit norms and values of Confucianism—already deeply rooted before the arrival of communism—which are the basis for social stability. The rejec-



Confucius (551-479 BC).

tion of Western modernism has real and legitimate foundations in North Korea, as it also does today in other societies. In that context, nuclear capability, which is intended to guarantee the DRPK's absolute independence, can also be justified on the basis of norms that are *subtle* but sociologically *powerful*.

Legitimacy Based upon Shared Ideas and Cognitive Constructs

Perceptions and interpretations of reality, whether or not they are founded upon objective facts, remain powerful determinants in decision making. As mentioned previously, the North Koreans have, over time, acquired a fear of other nations that essentially amounts to a fear for their own country's very survival. However, beyond normative attitudes toward foreigners, North Koreans' common perceptions of reality have specific cognitive foundations, namely, the "imperialist" enemies from the South.⁴¹ The regime in Pyongyang deliberately builds those foundations.

Since the end of the Second World War, the PDRK's only real enemies have been the United States and South Korea. But the United States is a nuclear power, and it maintains a reserve of warheads in the region for the express purpose of countering the DPRK. In that sense, nuclear deterrence as practised by the North Koreans is logical and consistent.⁴² In addition, history has shown that a nation which possesses nuclear weapons gains access to a

real 'place at the table' with the sovereign nations, and that fact has not escaped the North Koreans' attention.⁴³

These cognitive constructs, which are easy to legitimize, are part of another construct used actively by the regime: the danger of an imminent surprise attack by the United States and its ally, South Korea. In this context, nuclear capability may become the only guarantee that *chaju* can really be maintained⁴⁴ and that it can actually ensure the country's security.⁴⁵ However, the regime goes farther, maintaining that it must not only possess nuclear weapons, but also develop a nuclear weapon that will give it the advantage over the Americans and their allies in order to defend North Korean sovereignty.⁴⁶ This view is consistent with the logic behind Cold War-era calculations, which were made at a time when, in order to create a truly deterrent effect, the countries involved had to demonstrate that they were capable of surviving a pre-emptive nuclear strike.⁴⁷

To convince the North Korean people that the threat was imminent, the regime created a collective memory, and the narratives that would become part of it were diffused officially and in a structured way through the education system, the media, and official rhetoric. The American threat to employ nuclear weapons to put an end to the war for the liberation of North Korea⁴⁸ was clearly foregrounded, and war was defined by the regime as a secession resulting from external forces. The official rhetoric hammered home the dogmas of threat, oppression, suffering, and anti-imperialism, which were then kept alive in the collective memory.⁴⁹



North Koreans ride a train past propaganda posters in the capital of Pyongyang.

David Gray/Reuters RT11XMIW

The reality of the imminent invasion, as interpreted by Pyongyang, was reshaped recently by comparing the situations of North Korea and Iraq. The events of 11 September 2001 were used to justify the invasion of Iraq, even though that nation had very little to do with the World Trade Center attacks. In its analysis of the situation, North Korea suggested that, if Iraq had had nuclear weapons to defend itself, it would never have been invaded by the United States.⁵⁰ That view is completely consistent with the principle of *chaju*, and, from the North Koreans' perspective, fully justifies their possession of nuclear weapons. Thus, the idea that the DPRK could be besieged by powerful hostile forces serves as the cognitive basis for the development of North Korea's military strategy, in which nuclear weapons are depicted as the only possible option.⁵¹

This way of seeing the situation is reinforced by other perceptions. Specifically, the North Korean strategists concluded that their conventional military capabilities were numerically and technologically inferior to those of the Americans and the South Koreans. Nuclear weapons were therefore justified by the need to close the gap,⁵² and to compensate for the obsolescence of a conventional military arsenal dating from the Soviet era.⁵³ Nuclear capability was often cited in the regime's official messages as a strategic equalizing element that cost less to use and acted as a deterrent, providing protection against any aggression.⁵⁴

Lastly, the additional privations—notably famine—to which the North Korean people were subjected following the prioritization of the nuclear program⁵⁵ also demonstrate that those privations

“Specifically, the North Korean strategists concluded that their conventional military capabilities were numerically and technologically inferior to those of the Americans and the South Koreans.”

were considered to be a price worth paying. But since Kim Jong-un took power, the justification of nuclear weapons in the broad sense has been inextricably tied to raising ordinary people's standard of living.⁵⁶ *Byungjin* accords the same importance to economic development as to defence, and the DPRK does not distinguish between its use of nuclear power for military or civilian purposes. The regime tacitly justifies its decision to possess nuclear weapons by citing the need to have access to them in order to develop civilian applications that will increase standards of living and reduce the costs of obtaining conventional weapons.

Institutional Assessment

In light of this analysis, it is easier to understand that Kim Jong-un's introduction of the *byungjin* policy (and the April 2013 law on nuclear weapons) may constitute a recalibration of *songun* that raises the *charip* and *chawi* pillars to the same height. We have seen that this change is the culmination of the long series of palliative corrections introduced during the Kim Jong-il era, and that it formalizes the possession of nuclear weapons as an official means of preparing for the country's future economic expansion.

We have seen how external pressures, such as the American threat, the obsolescence of the NKPA's conventional arsenal in the context of South Korea's growing modernization, and the disastrous results of bad economic policies have affected the relationship between the pillars of *juche* and aggravated the regime's existential fears. Figure 1 illustrates the relationship between the pillars and the central role of nuclear capability as a

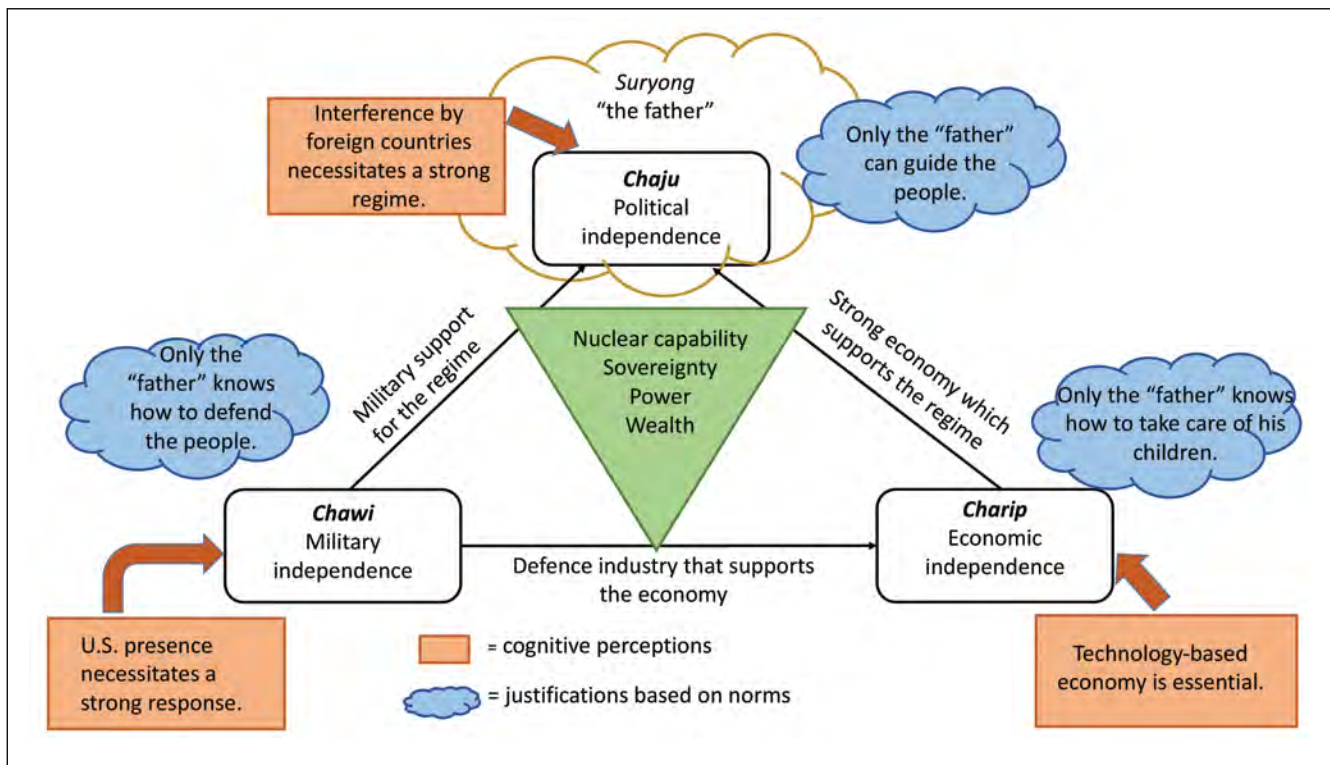


Figure 1 – *Juche* and Nuclear Capability.



Damir Sagolj/Reuters RTS12G5B

A North Korean Navy truck carries the 'Pukkuksong' submarine-launched-ballistic-missile (SLBM) during a military parade in Pyongyang, 15 April 2017.

gauge of the regime's stability. When all those factors are brought together in a balanced relationship, they create a surprising stability. The DPRK is not a regime on the verge of collapse, or of abandoning its nuclear capability.

However, nuclear weapons are not the only tool the DPRK can use to dispel its existential fears. The regime also ensures its legitimacy through a series of manoeuvres which can be characterized as isomorphic and mimetic behaviours. As we have seen, the fundamental principles on which *juche* is based were a product of the isomorphic appropriation of ideas drawn from Confucian and Marxist-Leninist thought. Those apparently-disparate principles were amalgamated to create a political alloy combining the DPRK and Korea's Confucianist past. That alloy serves as the foundation and justification for all the regime's actions. Thus, it appears that the regime is using two main tools, *juche* and nuclear capability, for the purpose of justification—tools that, in its view, not only support one another, but *could not exist without* each other. In that sense, the authoritarian nature of the regime has been a blessing for the Kims, since it has allowed them to modify *juche* several times and to renew the ideology's legitimacy when it faced pressure both from inside the country (for example, the famines), and from outside it (for example, the growing obsolescence of its conventional weapons).

It is important to note that ideological realignments generally do not happen quickly. On the contrary, they are part of a series of slow transformations, such as those observed during the doctrinal revisions that led to the introduction of *songun* and *byungjin*.

Interestingly, none of those revisions were carried out during the Kim Jong-il regime, which was marked by cognitive misalignments. It appears that a doctrinal revision occurs shortly after the arrival of a successor in the Presidium, but that a leader cannot carry out more than one revision during his time in power. This pattern can be explained in two ways. First, it can be interpreted as the regime's refusal to acknowledge its mistakes. This perspective would support the idea that the regime must appear strong in order to prevent internal dissent. A second interpretation holds that each Kim feels obliged to emulate his father in issuing a *juche* to which he has added his own personal touch. This perspective underlies the concept of the *suryong*, according to which the Supreme Leader is the only one capable of guiding the people toward the communist ideal that North Korea is defending. In short, doctrinal revisions could be interpreted as a rite of passage through which the leader, inspired by the *suryong* concept, proves that he is enlightened, and, above all, establishes his legitimacy in relation to the legal or regulatory systems.

Conclusion

The fourth nuclear test carried out by North Korea, on 6 January 2016, demonstrated that the DPRK definitively possesses nuclear capability and will not abandon it. The arguments advanced by Pyongyang to justify that nuclear test are directly related to North Korea's military strategy, which focuses upon the use of nuclear weapons as a persuasive measure in the context of a perceived threat from the United States.⁵⁷ The DPRK's possession of nuclear weapons is supported by strong and consistent alignment of the three pillars: normative, cognitive, and

regulatory. It has been demonstrated that nuclear weapons, *juche* ideology and the legitimacy of the regime support one another on an ongoing basis. There is a circular logic in the relationship between *juche* and nuclear weapons: the two elements support and justify each other. Therefore, in order to perpetuate the regime, the Kims need both a strong ideology and nuclear weapons.

The nuclear test on 6 January 2016 also drew strong reactions from the international community. The UN Security Council announced that it would expand sanctions against the DPRK.⁵⁸ The President of South Korea, Park Geun-Hye, announced that her country would apply pressure for severe sanctions against the DPRK, and stated that its actions represented an “unacceptable challenge” for global security.⁵⁹ The U.S. House of Representatives voted in favour of tougher U.S. sanctions against the DPRK.⁶⁰ All those actions have contributed directly to the implementation of multiple mechanisms to justify the DPRK’s possession of nuclear weapons. Building higher walls

around the DPRK has reinforced the legitimacy of the regime and the *juche* ideology. Once the North Korean people are isolated, the current regime can easily maintain norms and ways of thinking that are favourable to it, and also create new ones.

“The DPRK’s possession of nuclear weapons is supported by strong and consistent alignment of the three pillars: normative, cognitive, and regulatory.”

On 17 October 2015, U.S. President Barack Obama attempted to re-start the negotiations and engage in a dialogue with the DPRK. The pre-condition for resuming negotiations was that the DPRK denuclearize.⁶¹ However, the regime viewed foreign countries’ insistence upon denuclearization as a threat to its security, which reinforced its feeling that it could not give up its nuclear weapons.⁶² If the international community wants to negotiate productively with the current North Korean regime, it has no choice but to modify the pre-condition it had imposed, and accept at the outset that the DPRK has nuclear capability. Otherwise, any new negotiations will be doomed to failure.



KCNA (North Korean Central News Agency)/Reuters RTX2HQVZ



North Korean leader Kim Jong-un reacts during a test launch of a ground-to-ground medium long-range ballistic missile *Hwasong-10*.

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Afghan would-be child suicide bombers attend a ceremony to mark the release of 20 would-be child suicide bombers in Kabul, 24 August 2011.

Martyrdom's Children: The Tragedy of Child Suicide Bombers in Afghanistan

by Andrew Fraser

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Introduction

On 16 May 2008, Canadian soldiers operating in Afghanistan came under attack from a suicide bomber for the 35th time since 2004. A combined group of Afghan and Canadian soldiers were on a foot patrol in the village of Nalgham in the perennially dangerous Zhari district, west of Kandahar City. The bomber approached the patrol on foot, moments later a bomb affixed to his body detonated, killing an Afghan soldier and slightly injuring two of the Canadians. Those who lived through the attack reported that the bomber was no more than 11 years old. It appeared that he had positioned his hands away from his body prior the explosion, leading to speculation

that someone else may have detonated the device by remote control.¹ For their part, the Taliban denied having killed a child, professing instead that they had employed the services of an adult suicide bomber. Press accounts described this as a new turn in the horrific saga of suicide war in Afghanistan. Tragically, this was just the latest incident in an extensive pattern of minors being used as suicide bombers in the resurgence of the Taliban in Afghanistan.

This article will examine the reasons for the shocking rise in the use of child suicide bombers in Afghanistan. Cases surveyed for this monograph illustrate how Pakistan's faltering education system forces families to send their sons to madrassas and other boarding-type schools. Once away from home and isolated, these children are vulnerable to the predatory advances of cold-blooded recruiters who often act with the forced or willing assistance of community authority figures. The recruiters use a combination of manipulative trickery and terrifying threats to elicit cooperation from their child victims.

Peter Andrews/Reuters RTXSXYD



A soldier from the 3rd Battalion PPCLI (Princess Patricia's Canadian Light Infantry) walks by a poppy field in the Zharey District of Afghanistan, 20 May 2008.



REUTERS/Alamy Stock Photo H200BW

Foreign Islamic students in a madrasa, 4 August 2005.

As the problem relates to the internal dynamics of Pakistan, a country with a long history of allowing boys and young men from its poorer classes to be recruited for regional wars, the solution to child suicide bombing will mainly have to come from inside Pakistan where local pressure from families has been successful in repelling the recruiters. The central course of action that the West can take at both the government and non-governmental organization (NGO) level is to invest in the unique challenges faced by boys in the region, particularly those who are poor and must navigate a broken school system that often leaves them isolated and at the mercy of predatory forces.

“Numerous accounts have emerged charting the actions of recruiters who ruthlessly exploited isolated and vulnerable children by cajoling and manipulating them into becoming suicide fodder for the war in Afghanistan.”

often with the arrival of militant recruiters at schools and madrassahs. The recruiters launch an aggressive sales pitch, promising virgin brides and paradise to those who volunteer their lives, and pontificating about the terrible consequences that will befall those who do not offer themselves up as martyrs. Sometimes money is promised; at other times, the prospect of adventure is dangled in front of Pashtun school boys to lure them into the grip of the militant recruiters. The recruiters employ a ruthless ‘carrot and stick’ approach, with some of the child recruits describing death threats being levied upon them by militants if they do not go through with an attack.

A Disturbing Pattern

Numerous accounts have emerged charting the actions of recruiters who ruthlessly exploited isolated and vulnerable children by cajoling and manipulating them into becoming suicide fodder for the war in Afghanistan. As is often the case with events in Afghanistan, most roads eventually lead back to Pakistan. The tales of the suicide children almost invariably begin *in* or *near* the tribal areas of western Pakistan,

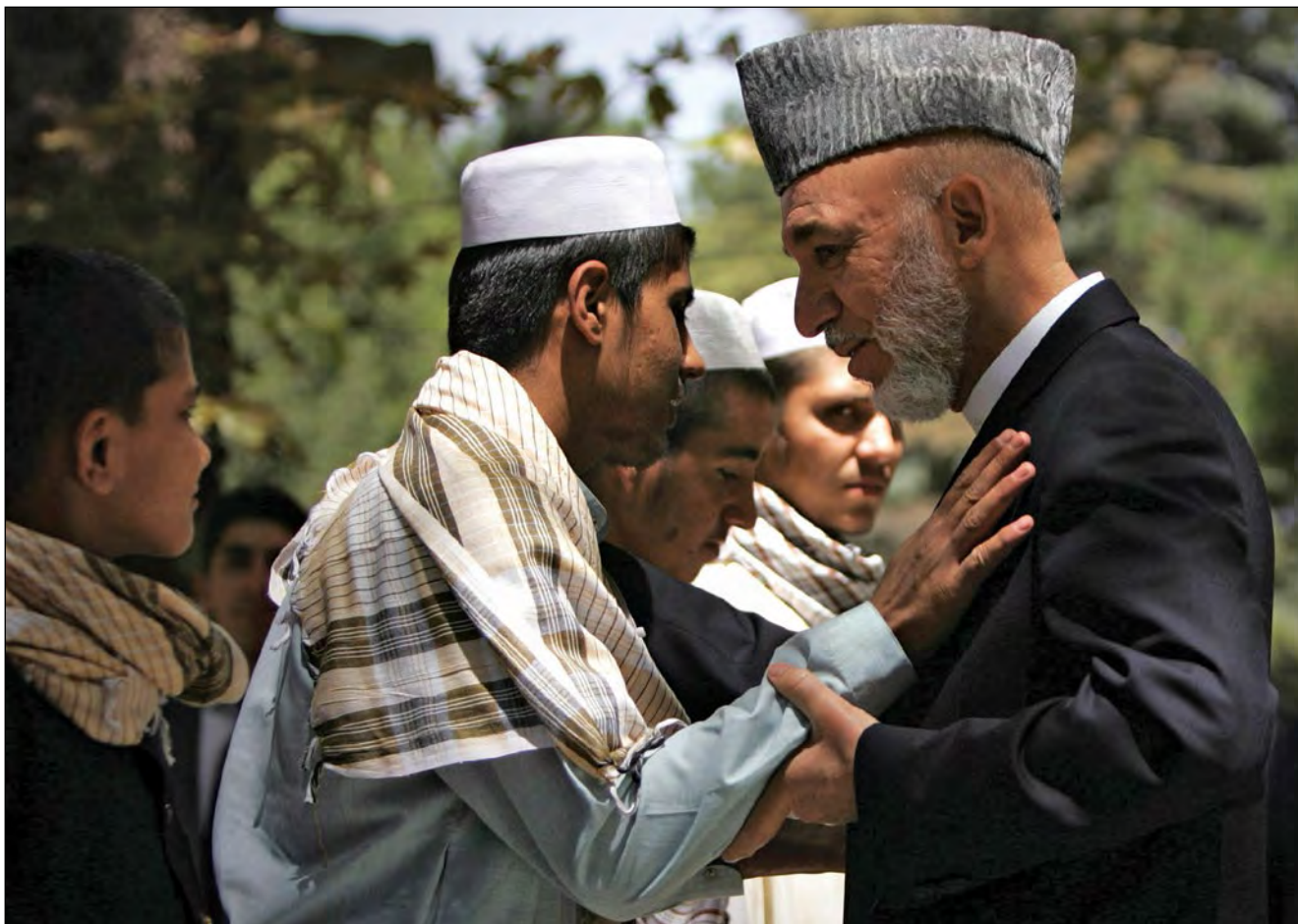
The recruitment of children also reflects the position of boys and young men from Pakistan’s poorer classes in the country’s brutal and amoral power game. Pakistan spends less of its GNP per capita on education than either Nepal or Bangladesh.² Education for lower class Pakistanis is frequently so out of reach that many rural districts have abysmal literacy rates. The failure of public education in Pakistan drives many poor families to enroll their sons in madrassahs, which charge little or nothing and offer room and board where they incessantly memorize the Quran.



Stringer Pakistan/Reuters RTR150NB

Pakistani investigators collect evidence at the site of a suicide bomb explosion outside a police training centre in Hangu, 19 July 2007.

REUTERS/Alamy Stock Photo GFPCZY



Afghan President Karzai embraces a would-be child suicide bomber during a ceremony to mark the release of 20 detained would-be child suicide bombers in Kabul, 24 August 2011.

It is here where the boys are away from home, usually for the first time. Those who are shyer and more reticent will experience the fear and discomfort of being away from their parents, sisters, and cousins, and will have the difficult task of fitting in to a new and unfamiliar social order. Those who are bolder and more assertive will live the exhilaration of being on their own with their friends, looking for adventure and mischief. This newfound remoteness, away from home for the first time, makes these boys particularly susceptible to the charms and the menace of the ruthless militant recruiters. That sense of isolation is one of the principal tools that the militant recruiters exploit when they ensnare the young boys they will exploit as suicide killers.

In the West, there has been extensive press coverage and government concern

about the plight of women and girls in the region, particularly the difficulty of receiving an education in a rigidly patriarchal and often reactionary society. The plight of Nobel Laureate Malala Yousafzai



Nobel Peace Prize laureate Malala Yousafzai flashes the 'V' sign from the balcony of the Grand Hotel, Oslo, 10 December 2014.

Suzanne Plunkett/Reuters RTR4H1V

from Pakistan's Swat Valley, and her efforts to advance the cause of education for girls while under threat from the Taliban caused a global sensation.³ At the same time, there has been little concern about the plight of boys and the unique educational challenges they face. This includes the risks of being recruited at school as either a child suicide bomber or combatant who exists as little more than an object to be used and killed in the service of the Taliban.

It is unlikely that children would be recruited in such circumstances unless Pakistani authorities had at some level had 'turned a blind eye' to the actions of the recruiters. The presence of aggressive recruiters at madrassahs and other educational institutions with the support of the authorities has a frightening history in Pakistan. In the mid-1990s, when Islamabad decided to massively invest in the emergent Taliban rebellion in Southern Afghanistan, thousands of Pakistanis were recruited to fight in Afghanistan on the side of Mullah Omar and his men. This included extensive recruitment from madrassahs, some of which were closed so that their students could go and do battle in Afghanistan.⁴ Previously, the Pakistani government and its powerful intelligence apparatus sponsored recruiters who targeted boys and young men to go and fight the Indian Army in Kashmir and before that, to wage war against the Soviet invaders in 1980s-era Afghanistan.⁵

Suicide bombing was almost never a part of warfare in Afghanistan prior to the fall of the Taliban regime, and the tiny number that *did* occur, including the one that killed Northern

Alliance leader Ahmed Shah Massoud in September 2001, were attributed to foreigners.⁶ The adoption of suicide bombings in Afghanistan occurred slowly in the era of post-Taliban governance, beginning in Kabul and expanding outward. Three attacks followed in 2004, and in 2005, there were at least twenty. The phenomenon was now spreading outward from the capital to provinces that included Kandahar and Helmand in the south.⁷

A tremendous increase in the phenomenon in 2006 saw at least 115 bombers blowing themselves up throughout the country.⁸ Estimates for the number of suicide bombings in Afghanistan in 2007 run as high as 160.⁹ Between 2008 and 2015, the number of suicide bombings in Afghanistan fluctuated between 83 and 131, before abruptly dropping to 27 in 2016.¹⁰

The shattered bodies of those who blow themselves up are rarely identified with any certainty. A United Nations report found that 20 boys blew themselves up in suicide attacks between September 2010 and the end of 2014.¹¹ As the occurrences of suicide bombing were swelling in mid-2007, details began to emerge of bombers being recruited from among the ranks of children at educational institutions in the Pashtun tribal belt in Pakistan.¹²

In every case that appears in the sources, the would-be bombers maintained that their families had no knowledge of activities in which they were involved. As highlighted, the fact that many of the boys in question were living away from home for the first



Stringer Pakistan/Reuters RTX4VE6

Residents sit next to a wall which displays a slogan for Taliban leader Mullah Mohammad Omar in the Pakistan-Afghan border town of Chaman, 19 December 2007.



Shamil Zhumatov/Reuters RTXKRT.4

A man hangs up a portrait of legendary leader Ahmed Shah Massoud at the entrance to the Afghan embassy in Dushanbe, 21 September 2001.

time while attending schools or madrassahs appears to have made them particularly vulnerable to the influence of the pernicious recruiters. Another recurring theme is the alleged role of respected community figures in recruiting child suicide bombers. Some of the would-be suicide bombers purport that local Mullahs and madrassah instructors played important roles in facilitating their recruitment.

Rafiqullah

Perhaps the most well-known case concerns a 14 year-old Pashtun youth named Rafiqullah from South Waziristan in the Federally Administered Tribal Areas in Pakistan. The admitted child bomber was the beneficiary of a presidential pardon in Kabul in mid- 2007 before being returned to his parents in Pakistan.¹³ According to Rafiqullah's family, his father was too poor to pay for the teenager's education, so he opted to send his son to a madrassah in another part of South Waziristan.

By Rafiqullah's own account, a small group of militant recruiters arrived at his pro-Taliban madrassah and gave a presentation to a group of about 150 boys. They also screened a video depicting the glory of suicide warfare. Rafiqullah stated that he and two other boys from the group volunteered, although he offered no explanation as to *why*. The militants instructed him on how to drive a car and even afforded him the thrill of riding a motorcycle.¹⁴

“Rafiqullah was a member of the Mehsud tribe, whose leadership is well-known for their pro-Taliban outlook.”

When the time came to act in June 2007, Rafiqullah claimed to have walked for eight hours from his militant training camp to reach Khost province in eastern Afghanistan, where his handlers had destined him to make an attempt on the life of the governor. Once across the border, he met his militant contact, who gave him an explosives laden vest, and reportedly, told the boy at gunpoint that if he did not go through with the attack, he would be killed. At some point shortly thereafter, Rafiqullah was apprehended while riding a motorbike in Khost City.¹⁵

Rafiqullah was a member of the Mehsud tribe, whose leadership is well-known for their pro-Taliban outlook. Around the time of Rafiqullah's pardon, reports emerged from South Waziristan that a number of children from his tribe had recently gone missing in the wake of militant attempts to procure suicide bombers in the area. In response, angry parents in the area reportedly protested to tribal leaders against the actions of the recruiters, prompting the militants to scale back their recruitment efforts in the area.¹⁶ This appears to have been the most effective solution to the recruitment of child suicide bombers: pressure from within a community indicating that they would not tolerate the actions of the recruiters.

Abdul Quddus and Farmanullah

The New York Times interviewed two other failed attackers held in detention in Kabul. Both were 17 year-old



The failed Pakistani child suicide bomber, Rafiqullah, with his father, Matiullah, in Kabul, 15 July 2007.

Pakistanis who were apprehended in June 2007.¹⁷ One of them, Abdul Quddus, reported that he was the son of a Peshawar businessman. He had graduated from a respected private high school before going on to study at a madrassah in the vicinity of the Afghan border.

Although vague on his motivations, he reported that he volunteered to be driven, blindfolded to a distant training camp for suicide bombers. There, he spent 40 days training in the company of 20 aspiring suicide attackers. His friend, Farmanullah, reported that recruiters had visited his school in the village of Lodhikhel in Hangu district, in the North West Frontier Province in Pakistan and boldly proclaimed that those who did not offer themselves for martyrdom would be condemned to hell.¹⁸ In a subsequent interview, he stated that although not well-versed on religious matters, he was enthralled by the prospect of a rapid ascension to heaven.¹⁹

He also reported that he was influenced by extensive exposure to scathing anti-American propaganda during his many visits at the invitation of the recruiters to a Taliban camp in the region. Farmanullah claimed that his visits to the camp were made without the knowledge of his family, who were led to believe his spurious tales of visiting distant relatives in Peshawar.²⁰

According to Farmanullah, the recruiters warned him that there would be no brides waiting for him in paradise unless he died as a martyr.²¹ It was an ethereal threat that left a deep impression, and one that was evidently discussed at length by his trainers. "Even before you blow yourself up, virgins come to the site of the explosion and wait to take you to Paradise," he effused during another interview with author and former CIA agent, Robert Baer.²² The familiar association of martyrdom with the highly idealized quenching of sexual desire is among the tools that recruiters and trainers manifestly use well to their advantage when targeting, in the words of one Pakistani witness to the recruiters called, "youth with raw minds."²³

Shakirullah

In the spring of 2008, Afghan intelligence agents showed off their latest prize to a succession of visiting journalists; a Pashtun boy of about fourteen named Shakirullah, who had reportedly been apprehended in Khost, in eastern Afghanistan, while on his way to carry out a suicide attack.²⁴ He related that he was a farmer's son who hailed from a village in Jandola district in South Waziristan. His family had scattered well beyond the Pashtun tribal areas with one of his three older brothers finding work in the United Arab Emirates, and another taking a job in Karachi. He reported that

he had never been educated until his family had enrolled him in a madrassah in another part of their district the previous year. The earnings that his brothers sent home made the family reasonably prosperous relative to the rest of the village, and it easily covered Shakirullah's modest tuition and board.



Failed child suicide bomber Shakirullah.

Shakirullah's madrassah was guided by an aggressively pro-Taliban ideology. He claimed that after six months, his instructors appealed for him to become a suicide bomber. They professed that the Americans and the British had offended God, and that becoming a suicide bomber would grant Shakirullah eternal life in paradise, and it would achieve justice for all of those who had been killed in Afghanistan. He reported that one instructor would come to his room every night and lectured him about his duty to wage holy war against the infidels. They also told him that his family would be paid a substantial amount of money if he carried out a suicide attack.

Shakirullah reported that there were about 50 boys studying at the madrassah, but his story indicates that he was specifically singled out. He missed his family terribly. As his teachers pressured him to sacrifice himself, Shakirullah pleaded with them to let him go visit his parents. His instructors promised him that if he went through with the attack, he would come back, at which time he would be reunited with his family. Although apparently uncertain, the Pashtun teenager went along with the orders of his teachers. He claimed that it was actually one of those teachers who gave him the vest that would be used to conceal the explosives.

They drove him to Miran Shah, an important town in North Waziristan where he was introduced to his militant handlers, including one referred to as *The Doctor*, who was in charge. They took him to a location across the border in Afghanistan, where they spent two days instructing him on the skills he would need for what they claimed would be an attack on foreign soldiers. Most of that time was invested in giving him elementary driving lessons so that he could deliver his explosives by vehicle. He was eventually taken to Khost City in eastern Afghanistan, where *The Doctor* purportedly informed the boy that his mission had changed, and that he was now destined to set off his bomb in a market during the celebration of the Afghan New Year. In March 2008, Afghan authorities apparently arrested Shakirullah near a checkpoint in Khost City, discovering that his bulky jacket was stuffed with explosives.

Based upon what he claimed, it would appear that the hatred of the foreigners in Afghanistan that his instructors tried to instill in him had a rather limited impact upon the boy. As he explained, he had never seen a foreigner before, either in person, or even in a photograph. Prior to setting off for the madrassah, he had never even left his village. With their underling not being fired up with militant rage towards the international forces in Afghanistan, Shakirullah's testament indicates that the militants moved on to other incentives, such as offers of money for his family, and the promise that he would survive the bombing and then be permitted to see his parents. This illustrates that the child bombers are not necessarily motivated by Islamic fundamentalism, and that sometimes they have little understanding of the concepts with which the recruiters are trying to entice them.

Zarak Khan

Another case concerns one Zarak Khan, a 16 year-old who lived in the Kohat area of the North West Frontier Province in Pakistan. Like Rafiquallah, his family could not afford to send him to school so they opted to enroll him in a local madrassah. As it was nearby, Khan was not isolated from his family to the same extent as some of the students in the other cases. His parents reported to journalists in the region that in early 2007 they were horrified about some of the instruction that he was receiving. He came home talking about suicide bombing and the heavenly afterlife that was reserved for those who perished while in the act of attacking their enemies. Fearing that his instructors were nudging him along the path to becoming a suicide bomber, Khan's family withdrew him from the madrassah and fled the area, relocating to the relatively- sedate setting of Lahore in Punjab province.²⁵ This again underlines the importance of family intervention in forestalling the recruitment of child suicide bombers.

Ghulam

As part of an extensive study on suicide bombing in Afghanistan, the United Nations Assistance Mission in Afghanistan (UNAMA) interviewed nearly two dozen suspects held in custody outside Kabul who were accused of either attempting to carry out suicide attacks, or of facilitating them.

Some maintained their innocence, while others conceded their involvement. At least two of those who admitted to being aspiring suicide attackers were minors. One was a young Waziri identified pseudonymously as Ghulam. He reported that he was sixteen. However, the story he told implies that he was even younger. He recounted that, like Shakirullah, he had received no formal education until his father enrolled him in a madrassah when he was thirteen. His newfound education was curtailed by his inability to understand what was being taught.

Upon leaving the madrassah, his father arranged a spell of employment for him at a nearby inn. Just before he was about to start his new job, two mysterious 'Afghans' introduced

themselves to the teenager and invited him to visit Afghanistan. Along with the headmaster of his former madrassah, the duo visited his parents and dangled before them the prospect of a job for Ghulam in Afghanistan, which they said would avail him with more money that he could send back to his family. At the insistence of the headmaster, his parents reluctantly agreed to send him into Afghanistan.

Once Ghulam had left his village in the company of the two men, they revealed their true intent. They commanded that he was to carry out a suicide bombing and threatened to cut off his head if he did not obey. The militants reportedly told Ghulam that killing foreigners

"This illustrates that the child bombers are not necessarily motivated by Islamic fundamentalism, and that sometimes they have little understanding of the concepts with which the recruiters are trying to entice them."



United Nations/Jenny Rockett/Photo 1771564

Kai Eide, Special representative of the Secretary-General for Afghanistan and Head of the United Nations Assistance Mission in Afghanistan (UNAMA), briefs media on the situation in Afghanistan and its implications for international peace and security, 12 March 2008.

would bring him favor with God, and would grant him access to paradise. They were concepts of which Ghulam admittedly had little understanding. Furthermore, unlike his militant handlers, the boy cared nothing about the presence of international forces in Afghanistan. By his account, the militants serenaded their unenthusiastic pupil with a new proposal. They told the boy that he would survive the bombing, as God would never permit an innocent to die, and upon his return, the militants proclaimed that they would pay him 10,000 Pakistani rupees.²⁶ The prospect of collecting such a princely sum, amounting at the time to the equivalent of just over 160 American dollars, left Ghulam enthralled, and motivated him to continue along with the plot.²⁷

to have been pivotal in his parents' decision to let him leave for work in Afghanistan.

Amir

The other youth who told his story to UNAMA was a 15 year-old identified by the pseudonym Amir. He related that he had been born to an Afghan family in Pakistan, and spent half his life in Pakistan, and the other half in his family's native Gardez province, in eastern Afghanistan. He reported that he had never received any schooling, except for two days at a madrassah. His father had ordered him out, so the boy could

His handlers instructed him on the basic skills required to carry out a suicide bombing, particularly how to work a detonator. Ghulam confessed to his UN interviewers that he really didn't understand most of it. When the time came to act, his handlers equipped the boy with explosives, and dropped him off near a group of coalition soldiers. Ghulam reported that he tried to blow himself up, but was unable to get his detonator to work. He specified that the attack occurred in Ghazni province in eastern Afghanistan, meaning that the targeted soldiers were very likely American. He ended his tale to the UNAMA investigators by stating that both he and his handlers, who remained nearby in a vehicle, were apprehended immediately.

Among the most striking aspects of Ghulam's tale are the incessant clues that he was, to some degree, mentally handicapped, and that his handlers manipulated his disability in their effort to turn him into a suicide bomber. The UNAMA interviewers reported that Ghulam had considerable difficulty following their questions. Two foreign correspondents in Afghanistan who investigated the issue of suicide bombing in 2007 have separately concluded that a significant number of the bombers who have killed themselves in the Kabul area were people who suffered from either physical or mental disabilities.^{28, 29} However, they presented no specific evidence that any of the attackers were minors.

A rough timeline that Ghulam offered indicated that his failed attack took place around January 2007, about three months prior to the interview. One aspect of his story that also appeared in previous testaments is the purported obliviousness of his family to the drama that was unfolding. The alleged collusion of his old madrassah headmaster with the men who were trying to recruit him highlights another familiar theme, the role of trusted community figures in the bombers' recruitment. By Ghulam's account, the intervention of the headmaster would appear

take a job. He claimed that he had been heavily influenced by the proclamations of a Mullah in Gardez, who had told him that foreigners had come to occupy Afghanistan, and that if he went to Kabul and killed a foreigner, he would be sent to heaven. Amir reported that he desperately wanted to go to heaven. He offered no details about any of the training that he might have received in preparation for the attack. He said that he traveled to Kabul by bus. He was issued a suicide vest, but his account is unclear about exactly *when* in his journey it was given to him.

He related that when he arrived in Kabul, he went to a mosque to pray. At some point, he aroused the suspicions of a local Mullah, who queried the boy about what he was doing. Amir said that he showed him his jacket lined with explosives. The Mullah tried to disarm him, and a scuffle ensued. A guard intervened, and Amir tried to set off the bomb, but the detonator failed. The guard opened fire, wounding the boy, and ending his journey.³⁰ In a familiar refrain, he claimed that his family never knew what he had done. He fretted that if they found out the truth, his father would be deeply ashamed of him.

His tale indicates a particularly strong naiveté on his part, though the question of his mental health would appear to be far more opaque than in Ghulam’s tale. His deep susceptibility to the proclamations of a venerated community figure and its subsequent role in his recruitment, is very familiar in the sources. It would also appear that it was his trust of another venerated figure, the Mullah in Kabul, that led to the demise of his suicide mission. It is worth noting that this is the only case where the aspiring bomber was alleged to have been recruited in Afghanistan by a man who was apparently an Afghan.

“Few examples are available that detail the timing of suicide bombers prior to their deployment in Afghanistan.”

Few examples are available that detail the training of suicide bombers prior to their deployment in Afghanistan. However, in early 2007, a writer from *Newsweek* was given access to a Taliban hideaway in eastern Afghanistan and introduced to three men who identified themselves as would-be suicide bombers. One of them was a Pakistani who spoke of how he had been trained with a large group of others at a militant camp, apparently somewhere in Waziristan, before their instructors had asked for volunteers for martyrdom operations. He reported being



A soldier holding a rocket launcher asks residents to move away from the site of a suicide bomb blast in Pakistan’s Mohmand ethnic Pashtun tribal region, 9 July 2010.

Stringer Pakistan/Reuters RTR2G8Y3

one of about 15 who volunteered. They were then given a second round of training on driving, operating detonators, and packing jackets with concealable explosives.³¹

The training described for the child bombers in the sources differs in that it was far more individualized, with emphasis exclusively upon 'one-on-one' instruction from the handlers. None of the boys who described their training indicated that they ever encountered any other trainees. A one time Pakistani brick layer, who, in 2005, was found guilty in Karachi of recruiting suicide bombers for a domestic militant group, commented in an interview that when he would entice a "boy" into becoming a suicide bomber, it was important that the recruit be isolated throughout the entire process.³²

Tank City

In June 2007, a correspondent from the British Broadcasting Corporation (BBC) visited the much-troubled Tank City in a small Pakistani tribal area on the border with South Waziristan. He was investigating a series of startling rumours spreading through the region that the Taliban had kidnapped a number of local children and forced them into joining the fight in Afghanistan. The terrible story of what had occurred in the volatile town of about a quarter-million inhabitants was revealed over the course of often whispered discussions with fearful local school officials. They confirmed that although there had been no abductions, armed Taliban recruiters had been entering area schools and telling the students thrilling tales about the grand adventure that awaited them in Afghanistan. One school official commented morosely that for quite a few students, the promise of adventure was all that it took to reel them into the clutches of the recruiters. He estimated that a total of about 200 students had been recruited from the town's four government schools. Others had also signed up from the various private schools and madrassas in the area.

School officials professed to the visiting reporters that their acquiescence with the Taliban recruiters was not voluntary. When the police tried to stop a group of recruiters from entering a school in March 2007, it resulted in a shootout, followed by a protracted militant rampage. This prompted the authorities to adopt a more tolerant approach to the militant recruiters. According to school officials, they were certain that they would be killed if they obstructed the recruiters. One teacher commented that it was well-known that martyrdom operations were very much a part of the curriculum that the Taliban were teaching to their student recruits from Tank.³³

The information unearthed by the BBC about the disturbing events in Tank City represents a larger-scale example of recruitment efforts at madrassas described in the other cases. It is also the only case where administrators at an educational institution offered a version of events about the actions of Taliban recruiters. Although their claim that they cooperated with the

recruiters only as a result of coercion is self-serving, it should be noted that the violent tendencies of the recruiters in Tank City have been thoroughly documented in the Pakistani media, particularly the violence that ensued from the police attempt to block the recruiters from a Tank area school in March 2007.³⁴ This led to a series of gun battles on the streets of Tank.³⁵ It is also important to note that according to local school officials, a great many students were recruited from government and private schools in the area, and not solely from madrassas.

When it comes to stopping the recruitment of young boys as suicide bombers, efforts by the outside world are fraught with peril. These are often deeply reactionary areas where outsiders are viewed with suspicion. The figures who were implicated in facilitating the recruitment, such as local Mullahs, are deeply venerated, and outside opposition to their efforts might have little influence. An obvious solution is to markedly improve the poor quality of education in poor areas of Pakistan. Given the rampant corruption prevalent in Pakistan, outside efforts, such as those by foreign donors and NGOs to update Pakistan's educational system, could fall victim to local graft and corruption. Yet, international stakeholders would nevertheless be wise to craft programs that recognize the unique challenges Pakistani boys face at the hands of a dysfunctional education system that leaves them away from home and vulnerable to predatory recruiters. At the very least, international pressure should be brought to bear against Islamabad to encourage it to make advances in the area of basic education.

Many of the stories profiled indicate that the families of the boys were unaware that they were being recruited. The recruitment only worked because the prospective child suicide bombers were isolated from their families and

their communities, often for the first time, as they attended madrassas. It was ultimately pressure from Pakistani villagers themselves that was able to curtail the recruiters. In the meantime, the outside world must recognize that the recruitment of child suicide bombers is a form of systemic child abuse and human trafficking that now exists as a largely-unrecognized war crime.

Conclusion

The stunning emergence of suicide bombing in Afghanistan has included a revolting pattern of recruitment of child suicide bombers in Pakistan. Recruiters target young boys when they are at their most vulnerable, at schools and madrassas, usually when away from home for the first time. They employ familiar aggressive tactics, based upon the notion of 'carrots and sticks.' They tempt the boys with wondrous promises of sex, paradise, and adventure, and they brutally threaten those who do not want to go along with their plans. There is also evidence that in some cases, children with mental disabilities were manipulated into partaking in plans for suicide attacks. Community leaders were often instrumental in facilitating the recruitment of child suicide bombers. Mullahs and teachers either *stood by* or *actively facilitated* recruitment.

"The recruitment only worked because the prospective child suicide bombers were isolated from their families and their communities, often for the first time, as they attended madrassahs."

Pakistan has a long history of government-sanctioned recruitment of boys and young men to fight in regional wars to advance the interests of Pakistan’s rulers. What is new is the recruitment of naïve and impressionable boys to become, not just battlefield fodder, but suicide bombers. Given that the recruiters are often, although not always, unopposed, it is unlikely that the recruitment would be taking place without at least the tacit complicity of the authorities.

The conservative order that holds sway over tribal areas and other parts of rural Pakistan limits the influence of outsiders. A first step would require vast improvements to Pakistan’s haphazard educational system, which fails to reach many of its most vulnerable in any meaningful way. Poor families have few options but to send their young sons to madrassahs, where they

are away from home and susceptible to the predatory advances of recruiters. Cases where the recruiters were forced to scale back their operations typically involved pressure from local villagers for them to stop. The outside world, including the NGO community, must recognize the unique challenges faced by young boys in the region, and champion them with the same concern it showed for girls’ education in the region by pressuring Pakistan to improve its often ramshackle education system that leaves children isolated and at the mercy of murderous terrorist recruiters. Otherwise, the next crisis in the region will elicit yet another cycle of dangerous men showing up to schools and madrassahs in rural Pakistan looking to prey upon the children inside.



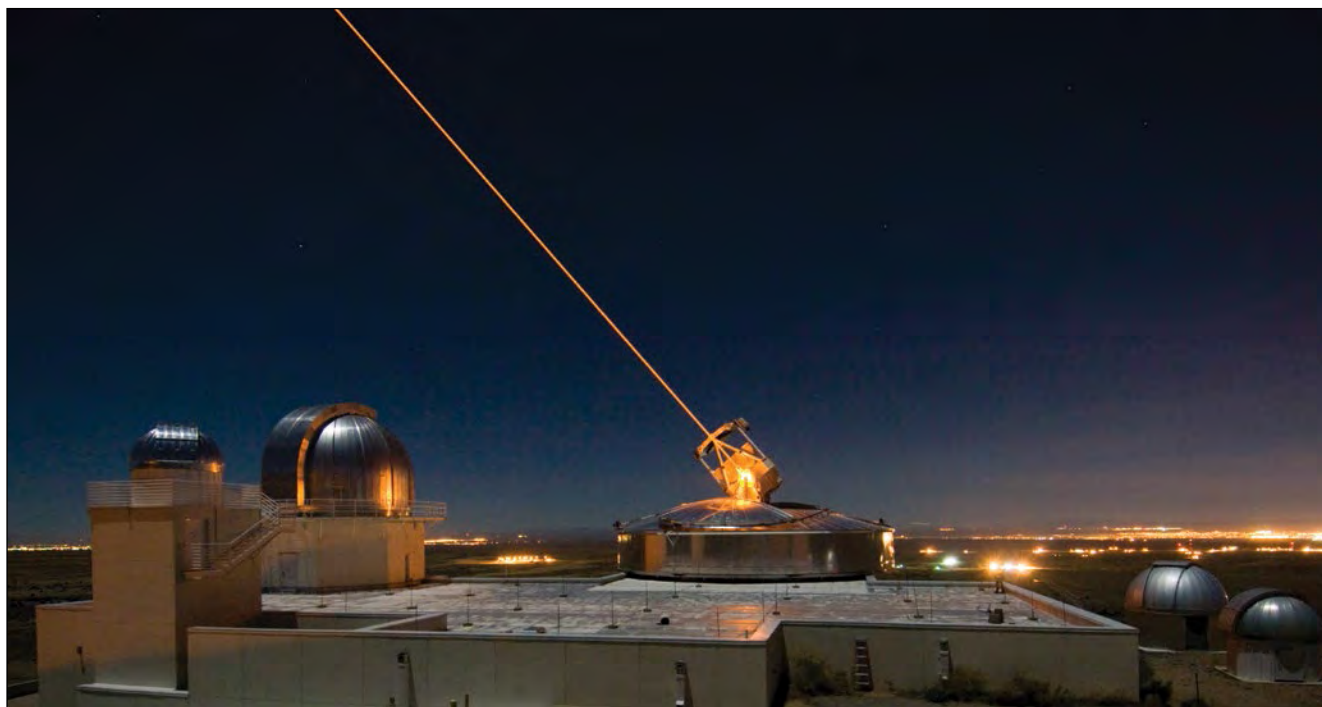
Stringer Pakistan/Reuters FTR2G8U5

A policeman covers his mouth to protect against dust as rescue workers and residents view the aftermath of a suicide bomb blast in Pakistan’s Mohmand ethnic Pashtun tribal region, 9 July 2010.

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The Sodium Guidestar laser at the Air Force Research Laboratory's Starfire Optocal Range, Kirtland Air Force Base, New Mexico.

High Energy Laser Weapon Systems: Evolution, Analysis and Perspectives

by Dominik Pudo and Jake Galuga

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Historical Perspective

From the dawn of military warfare history, nearly every weapon relied upon a rapid transfer of destructive energy onto a target,¹ with an 'intermediate' consisting of a physical projectile. Technological progress then allowed for the delivery method to evolve from direct hits to ballistic trajectories and propulsion-driven flight, while the kinetic (the speed of

the projectile multiplied by its mass) energy delivered on target got augmented by the chemical energy released from explosive warheads. The basic physical paradigm remained unchanged. However, even the sophistication of modern military platforms and missiles do not preclude the fact that the underlying mechanism of neutralization is still based upon a physical projectile which has to reach its objective.²

It was the invention of the laser in the early-1960s³ that stemmed a vision of a breakthrough approach – that of a directed energy weapon,⁴ obliterating targets by the means of an instantaneous linear energy beam. Although successful in a limited number of demonstrations, early lasers able to generate sufficient powers so as to damage a target at the required range were both extremely complex and suffering from a large footprint. Known as chemical high energy lasers⁵ (HELs), as the process used to generate the laser beam was an exothermic reaction between chemical substances, the systems inherently bore a resemblance to rocket engines – augmented by the addition of state-of-the art fragile optics inside, testifying to their complexity. Work on these Megawatt-class systems nevertheless continued, driven by their envisioned employment paradigm as point defence systems against missiles, the primary threat of interest during the Cold War era. Despite tremendous engineering challenges, they matured into a number of *successful*, if not *incredible* military demonstrators, among which were the Tactical High Energy Laser⁶ (THEL) and the Airborne Laser Laboratory⁷ (ABL), on board a modified Boeing 747 platform.

At their apex, these chemical laser projects spearheaded two fundamental contributions to the development of directed energy weapons. First, they pioneered a vast array of scientific and engineering advances, resulting in the ability to manufacture complex optical systems of quality and power levels unseen before, in addition to their capacity to operate in harsh environments. Second, despite their complexity and issues, they were a proof of concept that directed energy can effectively neutralize relevant military targets at operational ranges.

Notwithstanding their achievements, chemical lasers suffered from three major flaws, which contributed to their demise prior to a sustained transition into the armed forces. First, they were often delivered too late and at too great a cost. Program delays, combined with cost overruns due to inherent issues in tackling what was basically an unexplored technological frontier, led to system demonstrations occurring sometimes a decade after what was initially planned. It can be argued that such delays are intrinsic to most complex weapon systems development. However, the case for chemical HELs was further challenged by the change in the geo-political and global military context,

along with the continuous development of traditional weapon systems. Increasing budgetary pressure, a diminishing Soviet-era missile threat to the continental United States, the shift towards asymmetrical warfare since 9/11, and the advances in conventional missile defence systems, made expensive, point-defence HEL endeavours increasingly difficult to justify. The technology itself was also handicapped by the complexity of the laser systems themselves, along with a cumbersome logistics trail made necessary by the *supply* as well as the *disposal* of highly



Tactical High Energy Laser.

US Army Space & Missile Defense Command/Wikimedia Commons



US Missile Defense Agency/Wikimedia Commons

Airborne Laser Laboratory.

toxic chemical fuels and by-products. The decision to terminate the ABL⁸ then became somewhat of a symbol of a fabulous military and scientific defence achievement which simply came too late, with too high a price tag.

With the beginning of the 21st Century, a novel approach for high energy laser weapon systems emerged, relying upon solid-state lasers,^{9,10} driven in part by industrial applications for welding and material processing. These inherently-simple and robust lasers, requiring no other fuel than an electrical power supply, initially suffered from what was seen as a major flaw: their output powers, in the kW range, are a fraction of what their older chemical counterparts were able to achieve. The technology, nevertheless, attracted significant attention, as it promised to singlehandedly eliminate a major logistical handicap associated with chemical lasers. In addition, kW power levels forced a major paradigm shift in the anticipated use of HELs for defence applications, with the focus shifting away from *strategic* and going towards *tactical* applications with specific, more limited mission scopes. Turning the page away from ambitious HEL endeavours,¹¹ which aimed at affecting the balance of power against the Soviet Union, the new approach led to the birth of lower risk and lower cost programs, supported by an increasing number of high level strategic and budgetary assessments.^{12,13,14,15} A number of successful demonstrators followed, either neutralizing explosive devices, such as with the U.S. *Zeus*¹⁶ and Israeli *Thor*¹⁷ systems, or incoming mortar rounds and unmanned aerial vehicles (U.S. HEL Mobile Demonstrator).^{18,19}

As of 2016, with Israel operating their *Thor II* system, and the U.S. Navy being given official permission to use the AN/

SEQ-3 (LaWS) on board the USS *Ponce*,²⁰ electrically-powered lasers have henceforth started their transition into a *regular*, if not *inevitable* technological component of modern warfare. The focus of the U.S. defence community is now upon rapidly operationalizing HELs, with a strong support from senior military leadership across all services. The laser systems produced now are modern and mature technologies that can be employed at the tactical level to gain an operational advantage.

Perception, Reality, and Lethality

Notwithstanding their actual properties, directed energy weapons have long suffered from a somewhat inaccurate portrayal, driven by their representation in media and literature. Well before the advent of *Star Wars*, the exaggerated depiction started with H. G. Wells' *The War of the Worlds*, published as far back as 1898, and depicting death rays obliterating any target in their path. Subsequently glamorized by a plethora of special effects emanating from movie studios, HELs gained an aura of extremely powerful weapons, with visible beams annihilating every target in a spectacular explosion, not to mention the accompanying symphony of sound effects. While such representation was shunned by subject matter experts, decades of exposure to such an *exaggerated* if not *flawed* image of a technology shaped to some extent the *perceptions of*, and *expectations related to* HELs.

Within this context, it is therefore useful to look at some of the most basic properties of a HEL weapon system so as to understand its strengths and flaws, as compared to traditional, kinetic systems. Notwithstanding the underlying technology, a continuous-wave HEL beam is nothing more than a focused ray



High Energy Laser Mobile Demonstrator.



DND

Mortar rounds neutralized using a HEL.

of – most often invisible to the naked eye – optical radiation, which simply delivers heat to the surface of a target. That in itself leads to three fundamental properties of a HEL: First, the system is line-of-sight, requiring good visibility of the target; secondly, the time of flight is effectively nil; and finally, it delivers only thermal energy on a target’s surface over a non-negligible time scale. In stark contrast with kinetic weapons, there is henceforth no momentum transfer, no shock wave, no high velocity fragments, and generally no instantaneous effects. The energy deposited on target is usually cumulative over a *few*, to *tens of seconds*. (For the sake of accuracy, it is worth noting that, in some cases, a HEL does induce complex secondary effects, such as surface plasma, localized shockwaves, and others.)

At the very basic level, the anticipated lethality of a HEL weapon system is thus reduced to whether the target of interest can be neutralized by (over)heating a small area on its surface, as if it were exposed to a blowtorch flame. It then becomes intuitively easy to list a few sensitive target types, such as explosive devices, where the main charge or the detonator is easily ignited by heat, or control surfaces of aerial vehicles, often fragile and flammable.

Unsurprisingly, optical sensors and cameras are also inherently sensitive to optical radiation. Conversely, a system surrounded by layers of insulating, inflammable, and high melting point material is all but immune to surface heating – whether by a laser or a flame. In such a case, a kinetic weapon *does*, and *will remain* the best approach.

“At the very basic level, the anticipated lethality of a HEL weapon system is thus reduced to whether the target of interest can be neutralized by (over) heating a small area on its surface, as if it were exposed to a blowtorch flame.”

Features, Benefits, and Drawbacks

While early discrimination of targets with low vulnerability to a laser narrows down the likely (and realistic) applications of HELs, four key features of lasers can lead to direct operational and tactical benefits. First, HELs operate at a nearly nil cost-per-shot basis, since the financial burden of an engagement can be reduced to the cost of operating the generator which provides the required current. Second, they benefit from a nearly-unlimited magazine depth, as they can continuously operate as long as their power supply is fueled. Third, the time-of-flight

of a laser beam is instantaneous, which leaves the targeted system with no room to avoid a first strike. Finally, HELs, by design, can be used at lower power levels than their rated

maximum, thus allowing the effects on target to be tailored to the mission and constraints. It nevertheless goes without saying that these features ought to always be considered in the context of a specific scenario and mission objectives to assess their actual benefit. As stated earlier, for an array of applications, kinetic weapons will remain the tool of choice for the simple reason that they deliver an *explosive warhead*, as opposed to only *heat*.

A better assessment of the high-level impact of acquisition and deployment of HEL defence systems is also gained when examining the strategic impact of each of the aforementioned properties. The minimal cost-per-shot argument becomes of paramount importance in conflicts where the opponent's objective is not only military, but economic. Modern defence systems, costing over a million dollars per shot for a surface-to-air missile, such as the RIM-162 evolved *Sea Sparrow*, or the MIM-104 *Patriot*, can rapidly inflict a non-negligible financial dent when used in significant numbers – a hindrance, especially against low-cost threats. This discrepancy between the cost of the incoming threat and that of the countermeasure is a prominent, and rising element of asymmetrical warfare, on land (IEDs vs. land platforms), in the air (home-made rockets against urban areas), and on the sea (mortar launches against surface vessels). It is worth noting that the economic aspect is becoming arguably one of the key arguments behind the announcement of the *Iron Beam* in Israel, a HEL-based defence system against short range rockets, mortars, and artillery.

The lack of a 'logistics tail' associated with munitions also has an impact upon the complexity of military operations involving HELs. While of lesser importance in a domestic context, or in

the proximity of supplies, the ability of a nation to conduct (and afford) deployed operations is affected by the effectiveness of its logistics chain. The concept of weapon systems with reduced maintenance and spare parts requirements and no ammunition relieves the supply burden which can then be redirected towards other needs and consumables. As a result, it contributes to more agile, more autonomous, and more flexible armed forces. One context in which this has been a major argument for HEL systems is that of surface naval platforms, which have limited storage space, and carry increasingly less of the increasingly expensive countermeasure systems; not to mention, the inherent difficulties in re-supplying. Seeing the potential of HELs, the U.S. Navy recently fielded their AN/SEQ-3 high energy laser system on board the USS *Ponce*.

Last but not least, the ability of a scalable effect on target is a *novel*, and henceforth *arguably yet unexplored* concept in weapon systems. Indeed, kinetic weapons function under the 'hit-or-miss premise,' where a warning shot in which the projectile deliberately misses the target yet remains close enough to be noticed, is the only way to deliver a scaled-down message. Lasers, on the other hand, can operate at any power level up to their rated maximum, which, in specific circumstances, allows tailoring the desired effect. A HEL system designed for a hard kill of aerial threats could still be used to temporarily dazzle or fry the camera on board a UAV, or an aircraft performing a hostile overfly, without inflicting any kinetic damage. The ability to undertake such action could have a major impact insofar as avoiding excessive escalation of force in politically delicate circumstances and providing a commander a wider choice of direct action from a single weapon system. Finally,



AN/SEQ-3 laser system on board USS *Ponce*.

the availability of a continuous range of power levels from a laser is also tied to their reliability – they tend to suffer from a ‘graceful degradation’ of output powers, instead of catastrophic failures.

Issues, Challenges, and Lessons Learned

Nevertheless, the same physical properties of HELs that translate into the aforementioned advantages bring their share of limitations. As mentioned earlier, HEL lethality is only driven by localized surface deposition of heat, which renders them ineffective against a number of target types. The amount of energy delivered on target even by state-of-the-art HELs is currently orders of magnitude smaller than that by conventional weapons. While a 100 kW laser delivers 100 kJ per second of dwell time, one kg of TNT equivalent yields 47 times more energy over a fraction of a second. The requirement for sustained firing over seconds also limits their use against fast-moving objects. The physics of atmospheric propagation add an additional challenge for long-range applications insofar as the beam undergoes distortions, which reduces the irradiance (power per surface area) on target. These are further aggravated in adverse atmospheric conditions, although advances in beam control and laser sources at different wavelengths allow some of the issues to be circumvented. While weather will remain a challenge for HELs in the foreseeable future, the military could nevertheless rely upon backup kinetic weapon systems when necessary.

One particular aspect pertaining to the use of HELs is that of laser safety. With intra-beam irradiances orders of magnitude above laser safety limits, the risk of reflections in the vicinity of the target, and the perception of an ‘infinite’ reach of the laser beam, there has been an understandable mistrust pertaining to the safety aspects of such weapons. It was further exacerbated by the psychological impact of invisible and silent beams, as well as by industry-driven laser safety standards which employ a deterministic, zero-risk exposure approach. Recently however, the consideration of HEL laser safety has resulted in significant advances on many levels. Risk assessment is shifting from being *deterministic* to *probabilistic*, where not only the possible laser irradiance, but also the risk of exposure is taken into account. As such, it brings HEL safety assessments at par with the approach governing transportation safety, satellite collision with debris, or nuclear weapons. In parallel, the hazards associated with a HEL beam affecting airspace or space assets are being alleviated through the development of systems which prevent the beam from firing into specific azimuth and elevation coordinates. The hazards pertaining to reflections from the target are being addressed by exhaustive research, experimentation, and modelling efforts – not unlike what was once done to determine safety ranges for explosives. Finally, development efforts are already under way towards the next generation of laser sources, operating at much safer wavelengths.

“Risk assessment is shifting from being deterministic, to probabilistic, where not only the possible laser irradiance, but the risk of exposure is taken into account.”

As with any weapon system, the final balance between the advantages and drawbacks is ultimately determined by the specific mission requirements. Nevertheless, despite being a viable solution in a number of scenarios, and despite their technological maturity, the fielding of HELs has been repeatedly ‘grinding to a halt’ at the demonstrator level over the past decades. A number of issues have been identified as possible root causes for what is colloquially called the ‘valley of death’ in between a successful demonstrator, and a subsequently-approved acquisition project:

- **Overpromising and underdelivering.** Over decades of HEL defence programs, there has been a cycle of setting excessively ambitious expectations for political and financial support, followed by inevitable delays and underperforming deliverables. Although part of the risk in setting the goals stemmed from the fact that these were truly scientifically challenging and novel endeavours, there was also at times an arguably-excessive push for ‘the technology for the sake of the technology.’ That approach acted as a double-edged sword: while managing to secure support and raising expectations, it inevitably led to subsequent scepticism once delays and cost overruns became apparent. Avoiding such pitfalls thus requires a more realistic if not humble mission-specific expectation-management approach from the start, without ever neglecting the limitations of laser systems.
- **The ‘behind-the-corner’ syndrome.** As opposed to their kinetic counterparts, laser technologies undergo a more continuous development process. Nearly every year brings incremental improvements in laser diodes, materials, semi-conductors and other sub-components, which increase the power, and efficiency of a system, coupled with a size and weight reduction. As a result, it becomes difficult to freeze the technical specifications to start the acquisition process, while knowing that improved products are constantly becoming available. Furthermore, since each enhancement in the technology expands the mission envelope of a system, manufacturers are under a temptation to push a more-and-more capable solution at the expense of a small delay. Consequently, an early and firm definition of the mission envelope for which the HEL is being acquired would allow freezing the specifications, and also accelerate procurement.
- **Technology-driven approach.** In parallel to the ‘behind-the-corner’ syndrome, the debates and arguments over early HEL systems sometimes suffered from being excessively centered upon the technology and parameters, as opposed to mission requirements. Despite the fact that from both the military operator’s and the decision-maker’s perspective, the laser power, or the underlying technology, remains nearly irrelevant, it has been too often used as the spearheading sales argument. Since this has recently been the trend, HEL systems thus need to be addressed either from the weapons’ performance level (engagement range, target lethality, etc.), or from the tactical planning (mission, logistics, and kill probability) perspectives.

The Business Case

While early ambitious HEL defence programs, such as the ABL, required investments well into billions of dollars, the emergence of kW-class electrically-powered lasers opened up an opportunity to explore this technology for defence applications at a fraction of past costs. With allied countries having borne the burden of high-risk technology research over the past decades, and having recently turned their attention towards tactical-level employment HELs with a number of demonstrators, there is now arguably a significant potential to leverage on the current level of R&D at *lower cost* and with *lower risks*.

“Regardless of their applications, it can be safely stated that after decades of research and ‘rescoping,’ high energy laser weapons have begun to make their irreversible transition onto the battlefield.”

- **Existence of low cost, high technological readiness level (TRL) technologies:** The underlying technology for HELs with an output power into the 10s of kW is both *commercially available*, and *already used* in a number of military system demonstrators. In parallel, lasers can, to a certain extent, be ‘piggybacked’ to existing targeting and tracking systems. As a result, new HEL defence programs and projects can leverage existing products, thus minimizing the delays and cost overruns associated with the development of emerging technologies.
- **Emerging threats and narrowed-down mission scope:** The rising complexity of modern defence systems ensures that asymmetric, low cost threats will continue to proliferate. At the same time, HELs have been increasingly proving themselves as serious contenders for specific missions: countering soft, short-range targets such as surface explosives, unmanned aerial vehicles, swarm boats, and sensors. As a result, there is now sufficient evidence to identify, with a high degree of confidence, applications where the HEL has the higher likelihood of being a *practical* – if not the *best* – tool.
- **Experience through deployment:** While demonstrators are both useful and necessary in verifying the potential and threshold performance of military systems, no amount of controlled tests will replace the knowledge and experience gained through realistic trials of military systems, not to mention that gained through deployment and operational use. It is therefore increasingly argued that, given their technological maturity, long-term risk mitigation and short-term benefits would be best achieved by rapidly fielding simpler HEL systems, as opposed to delaying more ambitious programs. It has to be noted that this approach was recently endorsed by the U.S. Navy, which saw the deployment of a relatively low

power laser on board one of its platforms as being the best option to both *test* and *learn from* the employment of naval HEL systems.

Conclusion

Regardless of their applications, it can be safely stated that after decades of research and ‘rescoping,’ high energy laser weapons have begun to make their irreversible transition onto the battlefield. Whether they will proliferate towards commonly-used systems, or settle in a niche for specific applications still remains open for discussion. However, their fielding as part of armed forces is now a matter of fact.

Notably, this applies to the debate on high energy lasers and, more broadly, directed energy weapons expanded beyond the military circles, as testified by the increasing number of public reports originating from such sources as the Center for Strategic and Budgetary Assessment,²¹ or the Congressional Research Service.²² Within NATO, work has already started on the *impact of*, and *interoperability considerations for* the use of HELs in a shared battlespace.²³ The Alliance thus acknowledged that such a scenario is likely to happen in the near-future – whether or not additional nations develop their own HEL programs. Therefore, it does not take a significant leap of faith to foresee that defence against HELs is to be addressed as well – which cannot be accomplished without a fundamental and thorough understanding of their underlying technology and lethality in the first place. Increasingly fast-paced research with respect to the development of novel laser systems will thus continue, complemented by an increasing control of atmospheric propagation and lethality on selected targets, potentially revealing unforeseen applications. At the same time, there is a rising need for a military-driven incorporation of HELs into doctrine, concepts of operations, techniques, tactics and procedures. This will prepare the armed forces both for the eventual use of HELs, or unavoidable interoperability with allied laser weapon systems. It is within this context that the increasing support and investment of the Canadian Army towards research and development efforts undertaken at the Defence Research and Development Canada (DRDC) will now quickly allow assessing HELs as viable options for specific missions of interest. The cross-service potential of this technology has also been recognized by the Royal Canadian Navy, which envisions it to be a possible component of its next generation surface platforms.





DVIDS/Samuel King/Photo 899270

A-10 fires first-ever laser-guided rocket, 20 March 2013.

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Sustainability, Ethics and War

by Peter Denton

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Introduction

As we mark the centenary of the Great War (1914–1918), it is hard not to think that every generation faces its own unique challenge, its own defining struggle. For our generation, it is to create the foundations for a sustainable future in the midst of a climate-changing world. Other generations had to meet their challenge through force of arms; we are effectively required to find other ways than force to solve the problem of sustainability for everyone, not just for ourselves. The future will be sustainable for all of us or for none.

Sustainability is, at heart, a social and cultural problem, not a technical problem. Its solution requires developments in society and culture, not in science and technology. To talk about sustainability in a military context is paradoxical, because it can easily be argued that the human propensity for conflict and the vast sums of money currently spent on militaries around the world make a sustainable future utterly impossible. The answer is not to turn the proverbial 'Red Force/Blue Force' split into some combined global 'Purple Force' for peace, however, because the historical reasons for current conflict are not so easily overcome. What instead the world needs is a new 'Green Force,' recognizing the ethical imperative on all sides to find some other way to solve the urgent problem of sustainability at local levels, globally.

As the distinguished scholar, lawyer, and long-time public servant Raymond Blaine Fosdick wrote in 1928, when the world teetered on the brink of the challenges of the Great Depression and the Second World War, we face the problem of "the Old Savage in the New Civilization."¹ Our moral development has not kept pace with our scientific and technological development, giving the 'same old savage' much more destructive weapons to wield than the stones and clubs of earlier time, and thus, the capacity to

do far more damage. 'The savage' has to evolve morally in order to survive. In essence, solving the problem of sustainability and war requires a focus upon ethics – both individual and social.

It was a delight, therefore, to find two recent articles in the *Canadian Military Journal* (CMJ) on the subject of ethics, "Is There a Role for Canadian Armed Forces (CAF) Chaplains in Ethics?" by Padres Yvon Pichette and Jon Derrick Marshall, responded to by Stephen Hare in "Humanism and the Military Conscience: A Reply to Pichette and Marshall."² These articles not only opened up a necessary conversation, they provided a reminder of how the Defence Ethics Programme found its roots and impetus in the outcomes of the Somalia inquiry – pointing to the necessity of ethical conduct by members of the CAF at home and abroad and to the responsibility of the Department of National Defence (DND) to provide the infrastructure for training in ethical decision-making.

I would like to add a third dimension to the discussion of ethics in the CAF, relating to the roles members play in their personal and professional lives, as well as to the role played by the defence establishment in all its operations, in terms of how we *can* and *must* make better choices toward a sustainable future. If (as I would argue) we need a 'Green Force' concept in military operations to create the foundations for such a future, there is no reason why Canada could not lead the way.

As someone who has wrestled with the practical problems of teaching ethical decision-making in relation to technology and sustainability for nearly thirty years,³ I have come to prefer a pragmatic approach in terms of ethical 'boots on the ground' that leads to the kind of personal and social transformation a sustainable future requires. Morality is what people *think* is good or bad; ethics is what people *do* about it. Morality is grounded in the person – what the individual believes is good or bad, multiplied by the number of people who share that opinion into the morality associated with a culture or a society, which is then reflected in the laws we make and the rules we follow. When personal and social morality diverge, laws are broken, leading to some form of punishment of the individual when the crime is identified.

Without rules, laws or any punishment for breaking them, there are effectively no ethical boundaries on what people choose to do in society. If ethics is entirely personal, whatever your own reasons happen to be, they guide the actions you take. No one has the right to criticize what you do, nor is there any good reason to punish you for doing something wrong, because (in effect) there is nothing 'wrong.'



Raymond Fosdick.

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Obviously, as Canadians, we do not live in a world like this, where social ethics do not exist. We have developed our rules, regulations, and legal codes by thinking through what are the best ethical choices for individuals to make who want to live together in a peaceful, just, and equitable society. Recruits are not allowed to determine the ethical code of the CAF; they are taught the ethical behaviour expected of a member of the CAF and they learn how to behave, sometimes the hard way, if they want to continue in uniform.

For a sustainable future, we need to make environmental sustainability an integral part of the ethical matrix of how we live and what we choose to do, as individuals, and as a society. It also needs to be made part of the ethical expectations of members of the CAF. The same environmental principles and regulations should be applied to military affairs, domestic and foreign, as they are to individuals and institutions in Canadian society. Environmental ethics therefore matters in the Canadian Armed Forces; there is no exemption due to the uniform, nor should there be any exemption for how the CAF undertakes military operations.

It may seem entirely absurd to worry about the ecological effects of the production of military materiel, or to be concerned about the ecosystems of a region upon which we are dropping bombs, but these are crucial examples of the nexus of sustainability, ethics and war. We must either find ways of mitigating or minimizing our environmental impact in all of our ways of interacting with each other and the Earth, or we guarantee a nightmare future. Mutually Assured Destruction is not only a nuclear option; ecological warfare has just as certain an outcome, over a longer period of time.

To make a stronger case, if we are to have any real hope for a sustainable future, we must stop acting as though military activities are unrelated to their environmental effects. In a climate-changing world, if we fight with impunity or without forethought, we face ecological disaster on a global scale that otherwise could have been avoided. Ecological factors should be factored into decisions made by governments, as well as by their military establishments, when preparing for or engaging in combat operations. When an ill-considered sortie causes more environmental harm in one place than can be remedied by a century of recycling somewhere else, for example, it also reminds us that local wars can have global effects, and that the proverbial ‘strategic corporal’ makes ethical decisions about ecological systems as well.

However paradoxical this might sound, therefore, military operations in the 21st Century need to, as much as possible, protect the environment, manage conflict, and support sustainable development, with a view to making players on all sides into members of a planetary ‘Green Force.’

From what follows here, I hope it will be clear this idea is neither improbable nor impossible, and, in fact, that walking this path is our best hope for a sustainable future in the midst of current circumstances.

To begin, understanding the nexus of sustainability, ethics and war requires us first to understand the implications of climate change, the need for global sustainable development, and how these together relate to security concerns and the potential for sustainability leadership by the Canadian Armed Forces and other military forces, including those fielded by the United Nations.

A Climate-Changing World

Lurching across a remote region of Kenya during the dry season three years ago, I asked my Maasai companions about the huts we passed that had missing or poorly-thatched roofs. Somewhat incredulous at what to them was a foolish question, they answered that there had not been enough rain for several years to grow the long grass required for the thatch – and then they asked me if I hadn't heard about climate change where I lived?

The absurdity that the nature and extent of climate change is still debated in some First World circles, while its effects are clearly felt by indigenous people world-wide, raises doubt about whether modern science speaks loudly enough for decision-makers to hear and to heed its voice. The more these decision-makers live in large, wealthy urban centres and try to insulate themselves against the effects of changing climate – or any climate at all – the more divorced from reality the environmental policies they implement can therefore become.

While scientists can be defunded and their findings ignored, Mother Earth will not be so easily dismissed. That the global climate is changing is indisputable; what the specific regional effects might be remains unclear, but the time scale of these changes seems to be more rapid than was first predicted, especially temperatures in the polar regions, leading to the loss of ice cover, and the corresponding likelihood of rising sea levels and warming oceans.

When it comes to making decisions about conflict in the 21st Century, understanding the mechanisms of climate change and the key areas where a changing climate increasingly will have security implications should therefore be a fundamental consideration for militaries worldwide. For example, areas where clean water supplies are marginal translate into flashpoints for conflict when upstream neighbours threaten the water supply for people downstream. Alternatively, anyone wishing to force migration out of such an area need only tamper with the water supply, letting drought, famine, and disease push people away from their homes instead of using other means of force. If access to minerals is the goal, fostering local ecological insecurity in this way means smallholder farmers will leave for safer places.

Scientific information about climate change is readily available and should therefore be incorporated into planning and training cycles in the Canadian Armed Forces on a regular basis. The most recent (and most comprehensive) report is the Global Environmental Outlook 6 (GEO 6) from the United Nations Environment Programme (recently UN Environment), which included six regional assessments when it was released in May 2016. (A global combined GEO 6 is in development and will be released by 2019.) GEO 6 is available free on-line, and, for each of the six regions, reports on the state of the environment and identifies situations where climate change will provide challenges to the people who live there.⁴ As such, GEO 6 is *descriptive* rather than *prescriptive*, focusing more upon states and trends than specifically upon what different member states or regions must do. While these national and sub-national concerns officially lie outside the scope of UN Environment's activities,

there continues to be a need for improvements to environmental regulations, and especially their enforcement, by governments at all levels around the world.

Yet, whether it is drought that destabilizes regions and causes famine that forces migration and promotes conflict, or whether it is the lack of political stability that promotes conflict, causes famine, and leads to increased 'desertification' and drought, these elements are all intimately interrelated. There is a disturbing degree of overlap when current conflict zones are overlaid by other maps depicting drought, famine, and extreme weather, to the point one author described this region of trouble circling the globe as the "tropic of chaos."⁵ When recent popular publications have lurid titles like *Climate Wars*⁶ or *Climate Wars: Why People Will Be Killed in the Twenty-First Century*,⁷ what is evident to the reading public should be commonly discussed within any military establishment that is preparing for conflicts to come in a climate-changing world.

Sustainable Development Goals

Similarly, there should be more conversation about the need for sustainable development, especially in those areas where civilian populations are most at risk from the effects of climate change. Global warming in general is the result of increasing human population and its unsustainable levels of production and consumption – more people producing and consuming more 'stuff' creates an increasing burden on the carrying capacity of the planet, pushing toward or exceeding planetary boundaries in dangerous ways. The global disparity between rich and poor nations, along with

disparities between rich and poor people within nations or regions, is a source of ongoing and potentially devastating conflict. A reduction in consumption by developed regions is required to offset the necessity of further development in regions where the bulk of the populations hovers at the edge of subsistence.

The complexities of this problem were addressed by the 2030 Agenda for Sustainable Development, approved by the United Nations in October 2015. The seventeen Sustainable Development Goals (SDGs), with their subsets and targets, identify what needs to be done to move the planetary population in the direction of a sustainable future by 2030.⁸ Agreed upon by consensus, through the largest consultation ever undertaken involving governments, industry, and civil society, the 2030 Agenda's goals are, admittedly, an ambitious projection of global society from where we *are now* to where we *need to be*. It presumes a collective collaboration to mitigate the effects of climate change and work together toward a common planetary goal of environmental, social, and economic sustainability.

Agenda 2030 is a noble effort, but throughout, there is assumption that – somehow – these goals will be accomplished peaceably, with even less conflict than there is at present.⁹ The SDGs assume that the planetary shift to sustainability will be led by the countries that have the wealth to manage and finance the shift. Unfortunately, these countries also have the money to deploy or support militaries that would render the SDGs pointless. Environment and develop-

“Scientific information about climate change is readily available and should therefore be incorporated into planning and training cycles in the Canadian Armed Forces on a regular basis.”

ment are inescapably intertwined. Unless we solve the development problem by reducing consumption among the wealthy and increasing it among the poor – and do so in a way that does not fuel further climate change – the future is bleak. It is also bleak if we do not at the same time find ways to ensure that the military establishment, in all its domestic and foreign operations, enhances the necessary shifts in security, ecology, and development at local levels, instead of preventing them.¹⁰

Looking at recent or ongoing conflicts, it is clear that environmental considerations are not paramount in the current conduct of war.¹¹ While the dangers of linking humanitarian and development aid to military operations have been observed,¹² at the same time, it is clear that in the aftermath of the human and environmental devastation of war, outside intervention involving military forces is often essential. If those interventions are undertaken in ways to minimize possibilities for future conflicts, restore and rebuild ecosystems and infrastructure, and provide the means for local populations to support themselves, they can create a foundation for a sustainable future in that place. There is, moreover, a growing body of excellent work that



Ablain St-Nazaire, 1918, by John William Beatty.



Returning to the Reconquered Land, by Sir George Clausen.

Beaverbrook Collection of Wart Art/Canadian War Museum/CWM 19710261-0100

Beaverbrook Collection of Wart Art/Canadian War Museum/CWM 19710261-0121

demonstrates the importance and the necessity of interweaving environment and peace building, with examples drawn from a wide range of global experiences.¹³

Working toward sustainability in this way requires deliberate ethical choices on the part of militaries, their members, and the governments to whom they must answer. These choices cannot be accidental, nor their actions incidental; they must be based upon the conviction that this is what needs to be done, in this place, and for good reasons.

There are good reasons to be found in the devastating environmental and social aftermath of past and present industrial warfare. We do not need to look very far to find evidence of what it means when environmental devastation is shrugged off as merely collateral damage in time of war and ethical considerations about the environment are discounted.

As we revisit the events of the Great War, it is still easy to see how modern industrial warfare has more than generational effects upon the landscape and the lives of the people who live where battles once were fought. Thousands of acres of the battle lines are still off-limits, because of what lies hidden beneath the surface. Every year, farmers turn over (and sometimes explode) munitions from the war, including shells filled with chemical warfare agents. The decomposition of these munitions affects the ground water, adding heavy metals in sufficient concentration to pose human health risk even where the bombs are inactive and unlikely to ever be found.

These munitions were intended to explode, but did not do so. In less concentration, and spread over wider areas, Second World War munitions also continue to be found in the process of excavation in cities and towns, requiring populations to be evacuated while the bomb disposal units do their work. Similarly, the chemical aftermath of dioxins and other agents used in the Vietnam War continue to affect the health of the civilian population.¹⁴

Some efforts have been made to change the development and deployment trajectory of munitions that are residual hazards to the civilian population in conflict zones long after the war has ended. The extensive use of anti-personnel mines, especially in Afghanistan, led to the drafting and signing in Ottawa of the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (1997). Yet while Canada took the lead on this treaty, major players (the United States, Russia and China) and others have so far refused to sign. Similarly, though the use of chemical and biological agents against civilian populations is prohibited under international law, considerable stockpiles of both are rumored on all sides, and occasional examples of deployment, at least, of chemical agents, have been reported in Iraq and Syria.¹⁵

International legal frameworks have some value in shaping the behaviour of combatants. After all, when it comes to dealing with people, the international community has imposed a legal framework upon conflict that allows for the *post facto* prosecution

of 'war crimes,' or 'crimes against humanity.' In theory, such a legal framework acts as a deterrent and affects the behaviour of combatants by setting ethical boundaries on what is expected or will be tolerated. Perhaps this ethical framework could be extended to criminalize, at least to an extent, environmental or ecological offences. In fact, ecocide actually has more far-reaching consequences than genocide because it also perpetuates the immediate offence into a crime against future generations.

Forty years ago, the serious environmental dangers posed by industrial warfare led to the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) that came into effect 5 October 1978. Long before climate volatility was seen as a problem, this convention tried to restrict the deliberate use or destruction of the environment in time of war. While major players signed, ratified, or acceded to the document, very few of the countries in current conflict zones are included in the list. Moreover, ENMOD was to have periodic reviews, the latest of which was cancelled in 2014, due to lack of interest among member states.¹⁶

However, given how much has transpired since 1978, both in terms of climate change and the science of environmental modification, this ENMOD agreement by itself is unlikely to provide the necessary legal framework for environmental protection. The UN's International Law Commission continues to work on the problem, but progress remains slow, and, whatever is decided, it still only applies to the aftermath of such environment damage.¹⁷ Nonetheless, at the same time, a resolution on the protection of the environment in areas affected by armed conflict was passed by consensus of member states at the second United

Nations Environment Assembly (UNEA-2) in Nairobi in May 2016, something considered to be a hopeful sign of further efforts.¹⁸

While it would be a positive step to make environmental crime by itself something over which the International Criminal Court has jurisdiction, realistically, any punishments would come long after the conflict was over, presuming those responsible survived and could be brought to trial.

Prosecution after the fact, however, is cold comfort for those who do not live to see justice done. The relationship between war and environment must involve more than post-conflict restoration or remediation scenarios. Nor is prosecution for eco-crimes afterward necessarily an effective deterrent to ecologically destructive behaviour in a conflict zone when the fighting is taking place. What we know of the aftermath of warfare in the modern age therefore requires an ethical framework with respect to sustainability that mitigates the damage that war can do *long before it happens* – or which *prevents it from happening at all*.

Using ethics to link sustainability and war identifies a crucial nexus of current decision-making where choices are being made that will determine whether we have a sustainable future – or (given a nuclear scenario, in which any exchange risks global annihilation) whether we have any future at all.

“There are good reasons to be found in the devastating environmental and social aftermath of past and present industrial warfare.”



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From the Vietnam War, in Laos, bomb craters left from US B-52 bombing raids.



Eye Ubiquitous/Alamy Stock Photo B95GD3

From the Vietnam War, from North Vietnam, a women carrying a basket of vegetables on her head while passing the ruins of war damaged buildings.



In Afghanistan, on 1 June 2004, near Bagram Air Base, a member of the HALO Trust at work clearing landmines.



Ruins in Kabul, Afghanistan.

Unfortunately, this ethical nexus does not appear to be well understood, nor are the right conceptual tools being used that would yield a range of wise decisions with respect to the ecological impacts involved in the planning and conduct of military operations by the Canadian Armed Forces, or by other militaries around the world.

Some brief digression is needed here... Planning and combat simulation exercises are very much a part of contemporary training, because they allow for outcomes to be evaluated against the options presented to the opposing 'red' and 'blue' forces, without actually having to fight.

But the validity of those simulations depends upon the accuracy and complexity of the modeling; if ethics (and good choices) in warfare only depended upon choosing the best consequences for oneself and one's own forces, then no one would ever lose a battle or a war.

However, if the models do not incorporate the environmental (as well as social and cultural) damage even a local conflict will cause, then they are three-dimensional representations of multi-dimensional systems that, inevitably, will be wrong in critical respects, especially in the longer term.

Making better choices therefore requires better analytical and ethical tools. Wars no longer take place on the 'battlefield' of earlier times; the term of choice for the past twenty years has been 'battlespace.' I believe this term is also inadequate, something I explained at length in an earlier article in the CMJ. I therefore suggest it is better to use 'battlesphere' to depict the multi-dimensional system effects of actions in warfare, over time: "The battlesphere is the dynamic operational sphere surrounding a particular conflict which is bounded in all directions by its causal effects. Included within that sphere are the dynamic relationships of the geographical, logistical, tactical, strategic and human elements involved."¹⁹

Ancient philosophy would often refer to 'the music of the spheres' as a way of depicting how every action reverberated in the heavens, on the earth and under the earth, demonstrating the essential unity and interrelationship of all life. The more we learn about those interrelationships – often the hard way, as landscapes or seascapes change and species disappear – the more powerful the idea of the ecosphere becomes. Humans are very much interwoven with that ecosphere; we cannot go anywhere on the planet and find that human activities have not significantly affected how other creatures live.

The ecology movement warns of the need to better understand those complex, dynamic and living systems, before they are shifted into a new planetary equilibrium that makes human life difficult or impossible. *Earth* will survive; whether or not *people* survive is up to us. Simply put, what we do has an effect upon the world around us; what we do without thinking causes damage we do not intend, but it is just as bad as if we had deliberately attacked our own habitat or intentionally destroyed the world in which our children are supposed to be able to live.

If we understand the battlesphere as the sphere of all the effects of some military action, the size of that sphere and its duration depends upon the intensity of what was done. Some of its effects are ecological, and we can identify those by intersecting the battlesphere with the ecosphere. The area of overlap, and its persistence, reflect the severity. Chop a tree down to remove a potential observation point and the effects are local and short-term; defoliate and burn a forest to deny cover to guerrillas, and the effects are at least generational, changing the hydrology of the area, the wildlife, the opportunities for livelihoods dependent upon the forest, and so on. Residual chemicals (like dioxins) can continue to cause health problems for a very long time.

The greater the overlap between the battlesphere and the ecosphere, the more systems are affected over a longer term, and the more serious the effects of the actions taken during a conflict therefore become. Nuclear war, for example, would entirely overlap battlesphere and ecosphere, leaving nothing unaffected by the weapons used. Total war, as conflicts in the 20th Century were described, would involve the same complete overlap in the 21st Century, given the increased interdependence of global society and the sophistication and range of weapons able to be used in cyberwar, space war, economic war, bio-chemical war, and so on. The overall result could be just as lethal for humanity as a nuclear exchange.

“Making better choices therefore requires better analytical and ethical tools. Wars no longer take place on the ‘battlefield’ of earlier times...”

We should know all this by now, and it should be affecting how our militaries plan and conduct operations. After more than a century of experience with modern industrial warfare, to claim that catastrophic environmental effects in warfare are the result of unintended and unforeseen consequences is simply unacceptable. There is ample evidence of post-conflict environmental problems that should be considered in military decision-making, thus rendering any unintended ecological consequences of war the result of ignorance or

poor planning, not just bad luck. We need to make better choices.

There is also at least one more sphere to consider, one that brings us back to the nexus of sustainability, ethics, and war. The effects of a military action, the creation of a battlesphere, involve more than ecological impacts. The effects of something happening in battle also ripple out into the personal, social, and cultural systems that are involved. Those other system effects can be devastating and longer term than the ecological effects and one less easily explained; post-traumatic stress disorder (PTSD) is an excellent example of the long-term effects upon combatants of having been involved in some conflict situation that requires another framework to understand that goes beyond the spheres of physical effects.

I prefer the term the distinguished anthropologist Wade Davis first suggested, the 'ethnosphere,' to depict this third interrelated sphere,²⁰ but I have enlarged and redefined it to be more useful. Whereas the ecosphere and the battlesphere are *descriptive*, the ethnosphere is *explanatory*. The ethnosphere is "...the totality of human motivations toward personal, social and cultural activities and the practical expression of what they mean." It is also the place where our decisions are located, the reasons we have for acting the way we do, and the locus of ethical decision-making. Thus,



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“...if the ecosphere defines where we live and the battlesphere what happens when we fight, the ethnosphere defines not only who we are, but how we answer that question, especially in our interactions with each other and with the planet.”²¹

Our personal ethnosphere is like our personal morality – the sphere of what we each believe (literally) about life, the universe and everything. When that personal ethnosphere leads us to do something, it creates an ethical moment. Our actions immediately become social and ecological, because whatever we do (because of what we believe) affects others. The tools we need to manage that intersection between what we believe and what we do are therefore ethical tools.

Ideas about “nature” and about “war” are located in the ethnosphere; it is what we do with those ideas that matter. When unchallenged by others, those ideas can persist in our personal ethnosphere for a long time, perhaps even reinforced by finding people who share them. Arguments about the reality of climate change, or the possibilities of sustainable development, or the potential for world peace are thus fought in the ethnosphere, which is why some ideas retain currency long after any reasonable person should have rejected them.

What constitutes a sustainable future, whether or not it is possible, and what needs to change are therefore discussions found in the ethnosphere of both Canadian society and our global society. How we resolve those issues when they intersect with the lives of others and the ecological systems of the Earth will help shape our collective future.

However, we have come a long way from my insistence upon transformative ethics being expressed in terms of ethical ‘boots on the ground’, so I want to offer some specific suggestions about how to transform the CAF into a ‘Green Force’:

- 1) Ensure the incorporation of the best available scientific data, from all sources, in any discussions about environmental impacts or sustainable development in training, planning, and conducting military operations. Plan to avoid ecological impact as much as possible, not try to fix it afterward;
- 2) Apply the best principles of sustainability to CAF bases, installations and operations (domestic or deployed), not merely meeting current environmental regulations, but exceeding them, to reduce or eliminate the CAF local ecological footprint;
- 3) Apply the business case for sustainability to CAF operations, to improve efficiencies, increase resilience, reduce dependency upon ‘just-in-time’ long-distance deliveries of essentials, not only to reduce the ecological footprint, but to save money for other operational requirements. ‘Green’ should not only be *smarter*, but *cheaper* as well;
- 4) ‘Green’ the CAF supply chain by mandating stringent sustainability standards, which must be met by all suppliers of materiel to the CAF as an enforceable condition of procurement contracts;

- 5) Understand the principles of sustainable development and incorporate them on all deployments abroad, leveraging local change in a sustainable manner, respecting local ecological conditions, and, if possible, (following the goals laid out in the 2030 Agenda for Sustainable Development) intentionally using CAF resources and personnel on deployment to advance the Sustainable Development Goals that relate to the local population;
- 6) While on deployment, whenever possible, use CAF personnel to collect and forward to UN Environment the crucial environmental data from conflict zones that civilian organizations are unable to gather;
- 7) Identify ways in which changing climate increases risk and vulnerability both at home and abroad. Incorporate adaptation, mitigation, and resilience strategies in training, planning, and operational cycles for all CAF personnel;
- 8) Beginning with senior staff, ensure that education, training, and experience in ethics relating to climate change, sustainability, and sustainable development becomes a core competency among all CAF officers and NCMs, and made part of the responsibilities of the person responsible for ethics at the unit level.

In conclusion, a new Defence White Paper for the Canadian Armed Forces is long overdue. Perhaps, in view of the need to work together in ethical ways toward a sustainable future, it should be a Defence Green Paper...

CMJ



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NOTES

1. Raymond Blaine Fosdick, *The Old Savage and the New Civilization* (New York: Doubleday Doran, 1928). This is a collection of college commencement addresses by Fosdick, who went on to become the President of the Rockefeller Foundation and who championed a shift away from emphasis upon the 'hard' sciences to the social sciences.
2. Yvon Pichette and Jon Derrick Marshall, "Is There a Role for Canadian Armed Forces (CAF) Chaplains in Ethics?" in *Canadian Military Journal*, Vol. 16, No. 1, Winter 2015, pp. 59-66. Stephen Hare, "Humanism and the Military Conscience: A Reply to Pichette and Marshall," in *Canadian Military Journal*, Vol. 16, No. 3, Summer 2016, pp. 60-65.
3. For a case-based approach to transformative ethical decision-making, see my "Making Better Choices: Ethics, Technology and Sustainability," in *World Trends on Education for Sustainable Development*, Walter Leal Filho (ed.), (Frankfurt am Main: Peter Lang, 2011), Chapter 13, pp. 219-234.
4. I was privileged to be part of the writing team for the North American Regional Assessment, primarily for the Outlook chapter, as well as being elected Rapporteur for the Intergovernmental Global Multi-Stakeholder Consultations in Berlin (21-23 October 2014), that established parameters for GEO 6. The experience was a confirmation of how much our public scientific information is dependent upon consensus (and therefore tends to be conservative in outcomes). The six regional assessment reports may be accessed at: <http://web.unep.org/geo/>
5. Christian Parenti, *Tropic of Chaos: Climate Change and the New Geography of Violence* (New York: Nation Books, 2012).
6. Gwynne Dyer, *Climate Wars* (Toronto: Random House, 2008)
7. Harald Welzer, *Climate Wars: Why People Will Be Killed in the Twenty-First Century*. (Trans from Patrick Camiller 2008), (Cambridge: Polity Press, 2012).
8. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>
9. A good example is Jeffrey Sachs, *The Age of Sustainable Development* (New York: Columbia University Press, 2015). In its 500+ pages, there is no chapter devoted to the problems of peace and security, or to conflict in the midst of climate change.
10. Even the fact of deployment to conflict or disaster zones by itself can have serious ecological consequences that need to be planned for and mitigated. See Annica Waleij and Birgitta Liljedahl, *The Gap between Buzz Words and Excellent Performance: The Environmental Footprint of Military and Civilian Actors in Crises and Conflict Settings* (Stockholm: FOI, March 2016).
11. For an excellent civil society-led resource hub on the effects of conflict on the environment, see *The Toxic Remnants of War Project* at: (<http://www.toxicremnantsofwar.info>). I owe special thanks to Doug Weir from TWRP for his assistance in research for this article. The Stockholm International Peace Research Institute (SIPRI) is another excellent source (<https://www.sipri.org/>), as is the Swedish Defence Research Agency (FOI) (<https://www.foi.se>).
12. Samantha Nutt, *Damned Nations: Greed, Guns, Armies & Aid* (Toronto: McClelland and Stewart, 2011).
13. <[Environmentalpeacebuilding.org](http://environmentalpeacebuilding.org)> is a community of practice created by the Environmental Law Institute, the United Nations Environment Program, McGill University, and the University of Tokyo. Its five-year project (2008-2013) resulted in five excellent anthologies, now available online, detailing many facets of environmental peacebuilding, the last of which was published in 2016. See: <http://environmentalpeacebuilding.org/books>
14. Donovan Webster, *Aftermath: The Remnants of War* (New York: Vintage, 1998).
15. <http://www.telegraph.co.uk/news/2016/08/25/un-proves-assad-regime-dropped-chemical-bombs-on-civilians/>.
16. Letter from the UN Secretary General, 27 January 2014, at: <https://www.un.org/disarmament/geneva/enmod/>
17. In September 2016, the Office of the Prosecutor at the International Criminal Court published a paper indicating that environmental damage was to be considered as one factor in determining whether a charge is warranted. See: https://www.icc-cpi.int/itemsDocuments/20160915_OTP-Policy_Case-Selection_Eng.pdf. This is a small step forward, since the report released by UNEP in 2009 that effectively pointed out the inadequacy of current legal frameworks to address even post-conflict environmental damage. *Protecting the Environment During Armed Conflict: A Inventory and Analysis of International Law*, at: http://post-conflict.unep.ch/publications/int_law.pdf
18. Ambassador Marie G. Jacobsson, Working to Protect the Environment in Armed Conflict, at: <https://medium.com/@UNEP/working-to-protect-the-environment-in-armed-conflict-ce9aff1aa479#61netajmg>. Having been present for the initial discussions and for the debate at UNEA-2 (as Major Groups and Stakeholders Regional Representative to UNEP from North America), recognition of the need for this protection was generally agreed by delegates, but not the means by which it might be accomplished. The resolution was a compromise out of several others initially proposed that focused on specific regions. It therefore marked a step forward, but I fear not a substantial one, in terms of the international regulation of environmental impacts of war. However, others working in the area had a more optimistic perspective. See: <http://www.trwn.org/unea-2-passes-most-significant-resolution-on-conflict-and-the-environment-since-1992/>
19. Peter H. Denton, "From Battlespace to Battlesphere," in *Canadian Military Journal*, Vol. 12, No. 4, Autumn 2012, p. 28.
20. He defines it as: "...the sum total of all thoughts and intuitions, myths and beliefs, ideas and inspirations brought into being by the human imagination since the dawn of consciousness." Wade Davis, *The Wayfinders: Why Ancient Wisdom Matters in the Modern World* (Toronto: Anansi, 2009), p. 2.
21. Denton, p.31.



Granger Historical Picture Archive/Alamy FF9HM9

Carl von Clausewitz (1780–1831), after a lithograph by W. Wach.

Clausewitz: War, Strategy and Victory – A Reflection on Brigadier-General Carignan’s Article, Volume 17, Number 2

by Bill Bentley

“For as long as humankind engages in war, Clausewitz must rule” – Colin S. Gray (*Modern Strategy, the Strategy Bridge, Perspectives on Strategy, Strategy and Defence Planning, The Future of Strategy*)

Brigadier-General Jennie Carignan has written a thoughtful, and, indeed, heartfelt piece on the relationship between fighting, tactics, strategy, and the concept of (strategic) victory. In her review of past theorists and practitioners, she mentions Sun Tzu, Jomini, J.F.C. Fuller, and Carl von Clausewitz. She goes on to argue that Clausewitz is responsible for the ‘tacticization’ of strategy, and that for this great master theorist of war, combat is first and foremost an end in

itself. This is profoundly misleading. In fact, a deep reading and understanding of Clausewitz’s thought provides an ideal framework for the dialogue she wants to have, and it actually supports her thesis.

To begin, as she points out, Clausewitz states that “...war is simply a continuation of political intercourse with the admixture of other means. We deliberately use the phrase ‘with the admixture of other means’ because we want to make it clear that war in itself does not suspend political intercourse or change it into something entirely different. In essence, that intercourse continues irrespective of the means it employs. The main lines along which military events progress and to which they are restricted are political lines that continue throughout the war into the subsequent peace”¹

Clausewitz returns to this point many times in the course of *On War*, so the thread that ties his theory together from the shortest fire fight to the ultimate peace is established. Thus, "... the political object is the goal, war is the means of reaching it and means can never be considered in isolation from their purpose. The more modest your political aim, the less importance you attach to it and the less reluctantly you will abandon it if you must. The political object—the original motive for war—will thus determine the military objective to be reached and the amount of effort it requires." Victory, therefore, is a function of the degree to which the political goal has been achieved.

Clausewitz is acutely aware of the escalatory tendencies inherent in waging war, and the need for policy-makers to factor in carefully the military means at their disposal. "That however, does not imply that the political aim is a tyrant. It must adapt itself to its chosen means, a process that can radically change it; yet the political aim remains the first consideration. Policy then will permeate all military operations and in so far as their violent nature will admit it, it will have a continuous influence on them." Most military strategists and practicing soldiers (generals and admirals) fail to appreciate Clausewitz's insistence that policy reigns - war has its own grammar, but not its own logic. Therefore, "...policy of course will not extend its influence to operational details. Political considerations do not determine the posing of guards or the employment of patrols. But they are the more influential in the planning of war, of the campaign, and often even the battle."

Below the level of policy (politics), Clausewitz divides the conduct of warfare into two elements – tactics and strategy. "According to our classification tactics teaches the use of armed forces in the engagement: strategy, the use of the engagement for the (political) object of the war. Each of the elements which become distinct in the course of fighting is named an engagement." Now, Clausewitz was *very familiar with*, and *emphatically opposed to*, those theorist and practitioners of the 18th Century and early-19th Century who relied upon geometry and campaigns of maneuver designed to avoid battles. These included Antoine Jomini and von Bülow, and especially Saxe. Saxe famously wrote: "I do not favour battles. I am sure a good general can make war all his life and not be compelled to fight one."²

Clausewitz's study of the wars of Frederick the Great, and especially those of Napoleon, convinced him that modern war, by its very nature, required fighting. "Since in the engagement everything is concentrated on the destruction of the enemy or rather of his armed forces, which is inherent in its very concept, it follows that the destruction of the enemy's forces is always the means by which the purpose of the engagement is achieved. The complete or partial destruction of the enemy must be regarded as the object of the engagement."

Clausewitz then makes his leap of genius when he turns to the concept of strategy; a concept that has profound implications for a proper understanding of war, policy, and peace. "The original means of strategy is victory – that is, tactical success; its ends in the final analysis are those objects which will lead directly to peace. IN STRATEGY THERE IS NO SUCH THING AS VICTORY. Part of strategic success lies in timely preparation for a tactical victory; the greater the strategic success, the greater likelihood of a victorious engagement. The rest of strategic success lies in

the exploitation of a victory won." Tactics are action, strategy is thinking. As Colin Gray tells us: "Strategy is virtual behavior. It has no material existence. Strategy is an abstraction, though it is vastly more difficult to illustrate visually than are other vital abstractions like love or fear. Furthermore, because strategy is uniquely difficult among the levels of war few indeed are the people able to shine in the role. Their number can be increased by education, though not by training, and not at all reliably by the experience of command and planning at warfare's operational and tactical levels."³

Clausewitz had concluded that: "War can be two kinds, in the sense that either the objective is to overthrow the enemy – to render him politically helpless or militarily impotent thus forcing him to sign whatever peace we please; or merely occupy some of his frontier districts so that we can annex them or use them for bargaining at the peace negotiations." This fundamental distinction led Clausewitz to distinguish explicitly between two kinds of strategy depending upon whether the war in question was *unlimited*, due to political motivation (Second World War), or *limited* (Korea). These two types of strategy were later dubbed the strategy of annihilation and the bi-polar strategy by the late 19th Century German military historian Hans Delbruck. In the former, decisive battles are sought to achieve the ultimate goal—unconditional surrender and an imposed peace. In the latter, the war is conducted on two poles, the battle pole and the non-battle pole, to achieve limited objectives. On the battle pole are Clausewitzian engagements. On the non-battle pole, opponents engage in simultaneous diplomacy, economic and other sanctions, more-or-less extended pauses, peacekeeping, information operations, and what Thomas Schelling called coercive diplomacy. History tells us that the first kind of war, and hence, the strategy of annihilation, is a much rarer phenomenon than the second, prosecuted through a bi-polar strategy. Clearly the issue of assessing the utility of military force is far more complex when engaged in a bi-polar strategy. In either case, nonetheless, we must return to the Clausewitzian conclusion that victory is a component of the logic of war, and *not* its grammar; that is, it is a political conclusion.

General Carignan's thought process leads us directly to Clausewitz's considerations concerning limited war and conflict and the bi-polar strategy without, unfortunately, foreclosing on the less likely but far more dangerous alternative, especially in the nuclear era. Her analysis should lead the CAF in its professional development processes to a much more serious and extended study of Clausewitz in detail.

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NOTES

1. All direct quotes from Clausewitz are drawn from the Michael Howard and Peter Paret edition of *On War*.
2. Quoted in C. Nolan, *The Allure of Battle* (London: Oxford University Press, 2017) p 142.
3. Colin S. Gray, *The Strategy Bridge: Theory for Practice* (London: Oxford University Press, 2010) p 204.



The Canadian Press/Adrian Wyld/Photo 08516593

Marie Deschamps, a former Supreme Court justice and author of an inquiry into sexual misconduct in the Canadian Armed Forces, speaks at a news conference in Ottawa, 30 April 2015.

So We Speak: Language and Sexual Misconduct in the Canadian Armed Forces

by Gerson Flor

Introduction

Since the inception of Operation *Honour* in 2015,¹ the Canadian Armed Forces (CAF) have adopted a number of measures to move the topic of sexual misconduct from the shades of taboo to the forefront of daily workplace conversations. Following recommendations of the Report of the External Review on Sexual Misconduct in the CAF (Deschamps report),² headed by the Honourable Marie Deschamps, a retired judge of the Supreme Court of Canada, the CAF recognized the existence of the problem and established an independent Sexual Misconduct Response Centre. In an effort to change the organizational culture, senior leaders have repeatedly stated that sexual misconduct is unacceptable and will not be tolerated in the Canadian military, and reported incidents of sexual misconduct have been followed up with appropriate action. This short article will argue that in addition to all these essential initiatives, a successful, permanent cultural change depends upon tackling another key

finding of the Deschamps report, namely, the role of language in preserving and perpetuating an environment conducive to sexual harm.

In the first part of this discussion, the findings of the Deschamps report will be reviewed. Second, the usage and effect of inappropriate language in civilian contexts will be examined. Finally, the need for the chain of command to address the issue of language in the workplace will be advocated.

A Civilian Look into Military Life

In many ways, the Deschamps report was a ground breaking effort. It interviewed thousands of military members across Canada, offering different settings in which people could report experiences they faced or witnessed in the course of their careers. More importantly, however, was the fact that the report was produced by an external review authority, not a task force composed of military members.

The relevance of this last point cannot be overstated. As the report itself indicated, there was a strong resistance among the military to even accept the existence of a problem in the matter of sexual misconduct. Notable incidents were easily dismissed as the actions of a few individuals who did not fit in with the organizational culture. It was a problem of the Canadian society, not something specifically troubling among our military. For instance, "...the ERA [External Review Authority] found that many officers were quick to excuse sexual incidents in the CAF on the basis that this kind of conduct is a 'reflection of Canadian society.' Both male and female officers appeared to have become desensitized to the prevalence of sexually inappropriate conduct."³ This allowed the organization to minimize the problem and treat victims and whistleblowers as people who were unable to adjust to military culture.

In commending the review on sexual misconduct to an external authority, the CAF took the risk of asking a member of Canadian civilian society to 'look into the messy attics' of our garrisons and 'peek under the rugs' where their darkest secrets used to be swept. This transparency before civilian society is a fundamental principle for the profession of arms, as the legitimacy and self-regulation accorded the profession by Canadians is based upon their trust that missions will be achieved in a professional manner,⁴ that is, in a matter that resonates with the values and expectations of civilian society.

What the External Review Authority found was not pretty, as one would have expected from the outset. The shock came

from learning that the problem was not just under the carpets, but everywhere. In the eyes of a Supreme Court justice, the fine dust covering the furniture was seen, not just in the attics, but even in the dining hall. Much of what was taken for granted and seen as "just the way of the military" was called into question and deemed inappropriate or harmful, if not *blatantly*, at least *potentially*.

Not only did the inquiry confirm the reality of inappropriate conduct in the Canadian military, but it warned about the existence of "an underlying sexualized culture" in the organization that is "conducive to more serious incidents of sexual harassment and assault."⁵ The report called for a change of culture as a key to transforming the *status quo*, a challenge that the senior CAF leadership have accepted, reminding all in uniform of the ethical foundations of the profession of arms in Canada – to uphold the values of the society it serves in order to secure its support and justify its trust.

Here stands the main virtue so far of the effort to change the culture. It led to a more intentional and sustained dissemination of the professional values of the armed forces, of which not much was heard before the publication of the Deschamps report. In the words of the Chief of Defence Staff (CDS) himself, "...in the eyes of many in uniform if not most, [the CAF's approach to addressing harmful and inappropriate sexual behaviour] relegated the endeavor to secondary importance. The direct relationship between solving this problem, upholding the warrior ethos, and sustaining CAF operational excellence was not made strongly enough,"⁶ and again, "training on this issue was sporadic and disjointed."⁷



Chief of the Defence Staff, General Jonathan H. Vance, addresses the audience during an Operation *Honour* Progress Review held on 30 August 2016 at National Defence Headquarters in Ottawa.

The publication of *Duty with Honour* was a strong statement of the positive relationship that the Canadian military seeks with all Canadians; it must be a document well known by every individual wearing the Canadian patterned uniform, and the pursuit of its ideals must be a capital factor in career progression if the current desensitization of the leadership to the issue of sexual misconduct is to be eliminated in the future.

Language Breeds Culture

Having noted the positive changes made so far in addressing the problem, there is at least one area where the effort must be stronger. One of the important findings of the Deschamps report, is that consultations revealed a sexualized environment in the CAF, particularly among recruits and noncommissioned members, characterized by the frequent use of swear words and highly degrading expressions that reference women's bodies, sexual jokes, innuendos, discriminatory comments with respect to the abilities of women, and unwelcome sexual touching. Cumulatively, such conduct creates an environment that is hostile to women and LGTBQ members, and is conducive to more serious incidents of sexual harassment and assault.⁸

In its initial response to the Deschamps report, Operation *Honour* tackled the more critical incidents of sexual misconduct – clearly, sexual violence, touching, sexual jokes and the use of sexually charged terms with the purpose of humiliating or demeaning a person. In its second progress report, mention was at last made to a project to study the relationship between language and culture, “including the impact of language on culture and the impact of dehumanization.”⁹ The literature on the adverse effects of crude language in social behaviours is well-established. According to psychiatrist and author Dr. Sharyn Lenhart, an environment that is less overtly sexualized but where one can find obscene language, swearing, practical jokes, etc. is an unprofessional workplace where there is a greater likelihood of sexual harassment.¹⁰ Professor Dr. Sarah Coyne of Brigham Young University, together with colleagues, found that teenager exposure to profane language on television and in video games was related to more supportive attitudes regarding the use of profanity, and that the use of profanity was clearly linked to relational and physical aggressive behaviours.¹¹ The connection between exposure to violent or degrading language and violent acts has been noted among youngsters in urban communities.¹²

From a feminist point of view, author and activist Erin McKelle calls sexualized vocabulary a vocabulary of rape, warning that “every time we use this kind of language, we are a part of the problem.” She calls for the abandonment of sexually violent language as a necessary step in overcoming the culture of sexual violence against women:

*Language like “f*ck you” and “suck my d*ck” is rape-permitting and normalizes sexual violence. It creates a society that is full of rape myths and rape, even though we never talk about it. It creates rape culture.*¹³

McKelle's argument resonates with the social semiotics of Dr. Jay Lemke, an American physicist and professor of education at the University of Michigan, who describes communities as dynamic open systems:

*All of us, all the time, are meeting each others' needs for social information, helping and coercing each other into the behavior patterns of our community. We do not learn these once and for all at some particular time; we are reshaped into them again and again by the features, including behaviors of our fellow humans, of the specific situations to which they are adapted. What persists in us, for the most part, is just a disposition toward certain sorts of behaviors when in these situations. We do not need a complete model of how to behave; the situational environment will fill in the details for us, will remind us, will constrain us, keep us on track.*¹⁴

Lemke's argument suggests that sexual misconduct – or any other interactional behaviour for that matter – is not necessarily brought into a group from outside by a few bad individuals. Rather, accepted standards in daily social interactions create a common culture to which members of the group tend to adapt in order to thrive, to be accepted, or merely to cope. This process is neither taught nor set in a written workplace doctrine, but intuitively learned from collective conventions, such as behaviour and language.

In short, the language employed by a group has a substantive impact upon its culture, and it will generate and sustain cultural beliefs and behaviours which may linger under the surface, dormant and undetected like an insurgent ideology, until the appropriate conditions for their manifestation propel them to the fore.

While addressing gross violations of human dignity by sexual misconduct in the CAF must be an absolute priority in the short term, the problem of the existence of a pervasive language that provides a niche for inappropriate sexual behaviour or conversations is one that must be addressed if the long term success of the operation is to be ensured. One may kill the mosquitoes, but new generations will pop up as long as the still water breeding ground is not dried up.

Leadership Role in Language and Cultural Change

An ancient church principle says, *Lex orandi, lex credendi*. Literally, it translates, “the rule of prayer is the rule of faith,” meaning that the way people worship – their words (and actions) when praying – reflects, reveals, defines their beliefs. Evidently, any external behaviour that conflicts with someone's alleged beliefs would be either an inconsistency or sheer hypocrisy – both objectionable traits.

The truth behind that old principle is applicable not only to faith matters. It can easily be transposed to any area of human society, and the profession of arms is no exception. The Canadian Forces Leadership Doctrine is clear when stating that, in order

to ensure its legitimacy, the profession of arms in Canada must uphold and embody the same values held by Canadian civil society, whom it claims to represent and protect. In the same vein, the Canadian Armed Forces Ethics program strives to inculcate such values as integrity and honour, reminding our military that our actions should always pass the “front page” test, that is, they should be such as not to cause public outrage or disapproval if made public by the media.

For some reason, our military ethics does not seem to dare venturing into the realm of language. It will hardly come as a surprise to any reader that vulgar, inappropriate language is by no means uncommon among uniformed members. Some people, even senior leaders in the CAF, believe this to be normal, a part of the military culture. Not only is this appalling language standard used profusely by junior ranks in their casual conversations, but it can be heard being used by senior NCOs in giving directions to their sections, by instructors during the delivery of military courses, and yes, even by senior and commanding officers during orders groups, and in addressing the troops.

The problem is that this kind of language is not an accepted professional standard in any workplace in Canada. Besides the adverse effect upon public perception, it easily serves as a *petri dish* for harassing, abusive, and discriminatory attitudes. The CAF Code of Ethics’ first principle is the respect and dignity for all persons, and it imposes upon its members the expectation of “... helping to create and maintain safe and healthy workplaces that are free from harassment and discrimination.”¹⁵

What leaders in the CAF must understand is that this use of language has a devastating ripple effect upon the moral fabric of the organization. When the poor example comes from above, those who aspire to ascend the rank ladder, taking their cues from that behaviour, not only feel validated when using similar language, but are more likely to replicate the behaviour of their leaders in dealing with subalterns and peers, incorporate it into their own leadership style, and perpetuate a toxic culture for years to come.

Leaders ensure that the profession is constantly evolving to higher planes of effectiveness and performance. They set and maintain the necessary standards, and they set an example that inspires and encourages all members to reflect these standards in their day-to-day conduct. Above all, effective leaders exemplify the military ethos, and especially the core military values that are the essence of military professionalism. They make sure that all understand that their duty to country and colleagues is central to the profession of arms. They demonstrate that loyalty can and must be applied both upwards to superiors and civil authority and downwards to subordinates. Finally, leaders act courageously, both *physically*, but more especially, *morally*.¹⁶

Conclusion

It has been the argument of this short article that the CAF must address the issue of acceptable language used by those wearing the military uniform. As public servants entrusted with the use of lethal force if necessary, CAF members have a moral obligation to embody and inspire the best values of Canadian society.



DND 1505-2015-0008-12 by Corporal Eric Girard

DND IS06-2017-0004-161 by Master Corporal Jennifer Kusche



The Deschamps report has identified the noxious impact of language upon military culture. Studies from different fields of science have suggested a correlation between inappropriate language and adverse, aggressive behaviour. The ethics of the profession of arms and the responsibilities of military leaders place on the organization the expectation of employing the moral courage and integrity that characterizes military ethos and values in order to deliver the organizational culture from its connection with sexual misconduct of all kinds.

Whatever excuses one could advance for using inappropriate language when in uniform, they should not be tolerated if our Canadian military is to be purged of sexual abuse and misconduct. To claim that the military is merely a mirror of Canadian society is to relinquish the duties and high ideals to which we are called. Of public servants, Canadians expect exemplary conduct. When government representatives or public servants use foul language in their communications with their peers or with the public, there is protest from society. Why should the profession of arms be content with a lower, reproachable standard? Leaders do not just blend in with the culture of their day; they embody its best values

and highest ideals, inspiring others to emulate them and fashion a more harmonious society.

So we speak, so we believe, and so we become. Any serious effort to reform the perceived shortcomings of our military culture, particularly in what pertains to inappropriate sexual behaviour, is bound to fail if nothing is done to bar vulgarities from the accepted standard of language in which we conduct our business in the service of Canada and Her Majesty.

Padre (Captain) Gerson Flor *joined the CAF in January 2009 after ten years as a pastor serving Lutheran congregations in Brazil and Canada. He holds a Master of Theology degree in Biblical Studies, and was a guest lecturer at Concordia Lutheran Theological Seminary in St. Catharines, Ontario, from 2006 to 2008. As a military chaplain, he served at 8 Wing Trenton from 2009–2016, and deployed with OP Reassurance Air Task Force to Romania and Lithuania in 2014–2015. He is currently the chaplain of the 5 Combat Engineer Regiment at CFB Valcartier.*

CMJ



NOTES

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2. Marie Deschamps, *External Review into Sexual Misconduct and Sexual Harassment in the Canadian Armed Forces*. 27 March 2015. (Hereafter referred to as “Deschamps report.”)
3. Deschamps report, p. 18.
4. *Duty With Honour: The Profession of Arms in Canada*. A-PA-005-000/AP-001, 2003, p. 66. (Hereafter referred to as “Duty with Honour.”)
5. Deschamps report, pp. i-ii, 12-18.
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Westmoreland's War: Reassessing American Strategy in Vietnam

by Gregory A. Daddis

New York, Oxford University Press, 2014

250 pages, \$40.95 (hardcover)

ISBN 978-0-19-931650-2

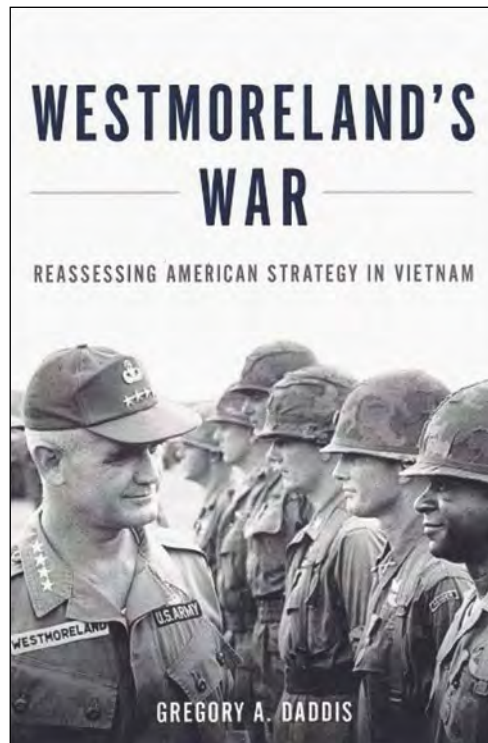
Reviewed by
Peter J. Williams

Haig. Custer. Harris. In the pantheon of military history, there are soldiers such as these (or airmen in the case of Marshal of the Royal Air Force Sir Arthur Harris) whose reputations remain controversial, to say the least. To this group could be added 'Westmoreland,' that is, U.S. General William C. Westmoreland, Commander U.S. Military Assistance Command, Vietnam (MACV, 1964–1968), and subsequently U.S. Army Chief of Staff.

Such figures attract numerous biographies, and every so often, a re-assessment, which is the object of this book, focused upon the central military figure, in a conflict whose wounds continue to run deep in America, some 40 years on...

The author is a serving U.S. Army officer who has previously written on the Vietnam conflict.¹ It was while conducting research on Vietnam that Daddis got the inspiration for the book under review. He was somewhat confounded on the quantity and breadth of reporting sent in by units in the field in order to measure progress in a war whose ostensible approach was mere attrition. While there were reports with respect to the proverbial "body counts," so too were there submissions related to, "...population security, economic development, political stability and scores of non-military programs."² It was with the aim of questioning the conventional wisdom on American strategy in Vietnam, and to demonstrate that the Americans did have a comprehensive strategy for Vietnam encompassing defence, diplomacy, and development (the so-called "3Ds"), that the author set out to write this book.

This book, as the Brits would say, "...does what it says on the tin." It is not a biography of General Westmoreland (who is first mentioned in the Vietnam context only about a third of the way into the book), nor a chronological history of the Vietnam conflict in the 1960s, although on the last point, it is worthwhile remembering that the first U.S. military advisors arrived in Vietnam in 1950, almost 1½ decades before Westmoreland took command of MACV. Initially, the author goes into great detail in providing context for the strategy adopted in Vietnam during an era, it must also be remembered, which was dominated by the Cold War.



Surprisingly, perhaps *counterintuitively* for some, the U.S. Army did not arrive in Vietnam with no knowledge of the counterinsurgency (COIN) environment they were to find there. By the late-1950s, 20 percent of U.S. Army officers had experience of this type of warfare, and it formed part of U.S. military doctrine. Indeed, while he was Commandant of West Point before coming to Vietnam, Westmoreland added COIN to the U.S. Military Academy's core curriculum.

Next, the author takes a thematic approach, which I found to be useful in assessing a conflict whose strategy needed to be multi-pronged. He spends some time in discussing the strategy developed by Westmoreland, which included military, diplomatic, and economic aspects, combined with the realization that the war would not be won quickly. In his words it would require a "long pull," a term which doubtless did not endear Westmoreland to those hoping for a rapid victory. Daddis then

looks at the implementation of the strategy in terms of the U.S. military role in civil operations and pacification, a role in which MACV established an Office of Civil Operations and Revolutionary Development Support (CORDS), headed by a civilian, who reported to Westmoreland. Finally, in what would be familiar to veterans of the latter stages of our Canadian involvement in Afghanistan, the author analyses the American role in training and advising the Armed Forces of the Republic of Vietnam, a force the author calls "An Uncertain Army."

Personally, I found the author's arguments quite convincing. Time and again, it became quite clear from the documentary evidence presented that from Washington to the U.S. Ambassador, to HQ U.S. MACV, and down to unit level, there was a common understanding that military means alone would not bring victory, and that ultimately, the South Vietnamese would have to bear the burden of defence. In the end, they were unable to do so, and, *inter alia*, when combined with a U.S. media, which appeared to focus upon military matters at the expense of the other "2Ds," as well as differences of culture between the US military and those whom it was advising, meant that the U.S. did not emerge victorious, but had to settle for, in President Nixon's words, "peace with honour." In the end, Daddis concludes that, Westmoreland's strategy, while a correct one, was too optimistic under the circumstances, and that: "Perhaps the time has come to envisage Westmoreland not as a bad general, but rather as a good general fighting a bad war."³ Doubtless, there will be many who will be uneasy with such an assessment, and it will be interesting to see the extent to which the conclusions reached here make their way into schoolbooks around the world, and into future studies on the Vietnam War.

BOOK REVIEWS

In writing this book, the author has delved deeply into archival material, such as operational reports and lessons learned submissions from U.S. units in the field, including Westmoreland's own HQ U.S. MACV, military and diplomatic traffic between Saigon and Washington, and internal US government traffic of the State Department, the National Security Council, and the Joint Chiefs of Staff. The Notes run to some 60 pages, and although there is no separate bibliography, the author does provide an annotated bibliography when making references to works on Westmoreland himself, the Vietnam War in general, and on strategy.

Canada's commitment in Afghanistan was, not only its longest such military engagement, but also, and arguably, the first time that a so-called Whole of Government approach to a problem overseas had been truly put to the test. Like the figures mentioned at the outset, our involvement in South-West Asia remains controversial, and it may require a few interim histories of our role there (which to date appear to have been few) before a definitive

re-assessment can be made. This reviewer looks forward to such a future chronicle, and in the meantime, this valuable study, indeed, this *cautionary* tale of the challenges and pitfalls of a comprehensive approach in the midst of a military conflict is recommended for those considering such interventions abroad.

Colonel (Ret'd) Peter J. Williams's *final post before retiring* was as Director Arms Control Verification on the Strategic Joint Staff.

NOTES

1. Gregory A. Daddis, *No Sure Victory: Measuring U.S. Army Effectiveness and Progress in the Vietnam War* (New York: Oxford University Press, 2011).
2. Gregory A. Daddis, *Westmoreland's War: Reassessing American Strategy in Vietnam* (New York: Oxford University Press, 2014).
3. *Ibid.*, p. 183.

La voie du retour: Un ouvrage destiné aux militaires et vétérans pour survivre à la guerre intérieure

by Vanessa Germain, Ph.D., and Line Vaillancourt, Ph.D.

Montreal: Éditions au Carré, 2016

248 pages, \$24.95

ISBN: 978-2-923335-75-9

Reviewed by
Dave Blackburn

I must start by saying that I had very high expectations of this book – first, because it addressed a significant gap in the field of operational stress injuries and their treatment; second, because a work like this, written in French specifically for Francophone military personnel, military families, and veterans, is a rarity in Quebec.

The authors have enviable reputations in the field of mental health, particularly in the treatment of operational stress injuries, and that heightened my anticipation. So did the fact that the preface was written by my friend Marc Dauphin, with whom I served in Germany in 2007–2008. Not only is Marc an outstanding doctor and an accomplished author, but he has also experienced the suffering caused by an operational stress injury. His association with this book was an indication that the quality of the finished product should be excellent.



I read *La voie du retour: Un ouvrage destiné aux militaires et vétérans pour survivre à la guerre intérieure* from cover to cover in a few hours. It is a very easy read, written in accessible language. To be honest, I had been expecting a more theoretical work; instead, it leans more toward the practical and includes exercises. The theoretical passages are often very brief, barely scratch the surface of the subjects addressed, and are not always based on the most current work in the field. The bibliography is also quite limited for this type of book. I would not say I was disappointed, but I was expecting something more fully developed, even though I knew that the book was intended for a general audience. However, my personal expectations do not in any way change the fact that this is a very interesting, high-quality work.

It is important to note that *La voie du retour* is intended for neophytes in the field of mental health and operational stress injuries, particularly military personnel and veterans who would like to gain a better understanding of some of their own reactions, emotions or behaviours that may be linked to their mission in a theatre of operations. The authors have done an excellent job of simplifying some complex mental-health concepts and of suggesting reflection activities, practical exercises, and strategies for improving well-being. Therein lies the book's strength and uniqueness.

BOOK REVIEWS

For military personnel who return from a mission and wonder about its impacts on them, *La voie du retour* will provide some answers, de-stigmatize some of their reactions, and help them make connections between their mental health and their work in the military. It might even lead them to consult a mental health professional. Having worked in the Canadian Armed Forces, I am well aware that mental health is still a taboo topic in the CAF today. This book offers information and raises awareness on the subject. It will help readers understand that it is possible to have “normal” mental and behavioural reactions to “abnormal” events in life. Military operations are generally carried out in settings where personnel are likely to be exposed to potentially traumatic events.

The book deals with a multitude of topics directly related to operational stress injuries and operational missions. On the one hand, the large number of topics makes the book highly relevant and provides a useful overview. On the other hand, the coverage lacks depth. Some chapters are only a few pages long, including some on subjects as important as post-traumatic stress disorder, anger, and other emotions. I understand that this is a work for a general audience and should be considered as complementary to, or a precursor of, mental health services provided by professionals, but in my opinion it could and should have been more fully developed.

The same is true of the sections for families: they are much too short and move through the topics too quickly, especially given that family members of military personnel are often the indirect

“victims” of the day-to-day repercussions of operational stress injuries and that, in their own way, they too participate in the operational missions. As I have said before, the men and women who deploy on missions receive medals when they return, and so should their families. Had more space been devoted to the issues and challenges faced by family members, it would have added to the book’s value.

In conclusion, I encourage all brothers and sisters in arms and all veterans who are wondering about their personal state, their emotional or behavioural reactions or their mental health to obtain a copy of *La voie du retour*, read it attentively, and complete the activities and exercises it suggests. Doing so could enhance their personal growth and shed light on the connections between their mental and emotional state and their military mission in a theatre of operations. Emergency services personnel could also benefit from it, since the majority of them participate in operations likely to cause trauma. In addition, it could help readers determine whether they need to consult a mental health professional. Lastly, although the book does not directly address military families, it will be a source of information and awareness for them.

Dave Blackburn is a professor at the Université du Québec en Outaouais (UQO). He has a Ph.D. in social science with a specialization in sociology of health and a master’s in social services. His research focuses on mental health and psychosocial intervention with serving military personnel and veterans. He served as a social work officer in the Canadian Armed Forces and was voluntarily released in 2014 at the rank of major.

The Air Force Way of War: US Tactics and Training after Vietnam

by Dr. Brian D Laslie

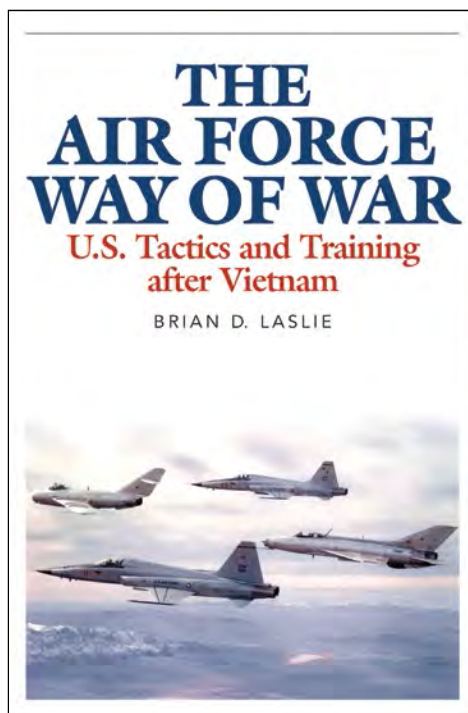
Lexington: University Press of Kentucky (2015)

260 Pages, \$67.54

ISBN: 978-0813160597

Reviewed by
Richard Shimooka

Written by the deputy command historian for NORAD and US Northern Command, who is also an adjunct professor at the US Air Force Academy, *The Air Force Way of War* is a critical piece of literature for understanding the US Air Force (USAF) in the post-Vietnam Era. As a mark of its significance, it was placed on the US Air Force Chief of Staff’s reading list for 2016.



The book provides a new narrative on the nature of American airpower since the Vietnam War. Works like Benjamin Lambeth’s *The Transformation of American Air Power* tend to focus upon the technical superiority achieved by the United States. Instead Laslie argues that “...it has been training, not technology, that has separated American pilots from their enemies during aerial combat.” While a provocative and compelling thesis, it highlights a number of issues.

The first quarter of the author’s work covers the problems encountered during the Vietnam War. This is somewhat well-worn ground, with several books, such as Lon Nordeen’s *Air Warfare in the Missile Age*, or Wayne Thompson’s *To Hanoi and Back*, covering the same issues. Laslie’s treatment, however, focuses more upon the personnel and training issues that affected the USAF fighter effort, rather than the technical failings and political limitations placed

upon their operations. A quote by a USAF major in Vietnam best encapsulates the author’s focus:

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Most missiles were fired outside of their intended envelope or at the edges where performance would be low. Pilots entering into combat needed better preparation. No ground troop would be allowed to enter battle without first firing his weapon, and yet, that is exactly what was happening to air force pilots in Vietnam.

Following his dissection of the Vietnam War, the author turns to the nub of his book – Exercise *Red Flag* and USAF training efforts in the post-conflict period. For the uninitiated, *Red Flag* is a large air-warfare exercise simulation conducted in Nevada, primarily for United States Air Force, but with other services and allied nations participating. It may involve hundreds of aircraft over a realistic training environment with simulated weapons that reflect contemporary threats. The author provides a background of the politics and personalities that led to its creation and development. Overall it is a fascinating insight into a rarely-examined event.

While this section is convincing, it also exposes a flaw in the author's central argument. The training provided by *Red Flag* can only be effective if it accurately replicates potential threats pilots may face. To this end, Laslie spends a number of pages discussing the *Constant Peg* program. This was a top-secret aggressor unit largely made up of covertly-acquired Soviet aircraft, against which select pilots were able to train. While perhaps the most tangible component of the US intelligence community's contribution to *Red Flag*, it is unfortunately the only area the author discusses in any depth. He glosses over the vast effort to obtain data that could improve *Red Flag* as an exercise. One glimpse was recently evident in David Hoffman's work, *The Billion Dollar Spy*, which detailed the extent of Adolf Tolkachev's spying upon advanced Soviet radar systems in the 1970s and 1980s. The fruits of his work clearly had an influence upon the USAF's tactics and training, which improved their operational efficacy. While much of this area remains classified, its omission diminishes the critical component of explaining how *Red Flag* remains relevant to present circumstances.

The final half of the book covers many of the major interventions that have occurred since 1975, including Operation *El Dorado Canyon* (Libya 1985), *Desert Sword* (Iraq/Kuwait 1991), and *Allied Force* (Serbia/Kosovo 1999). They are somewhat re-conceptualized around the author's focus upon training and personnel. These chapters also illustrate the issues with the author's view on the importance of technological development in developing the USAF's capabilities. He acknowledges the importance new technologies played in improving the USAF's capabilities, such as the F-117 *Nighthawk* stealth bomber, and

the so-called "teen" series of fighters that emerged after Vietnam. As the author notes:

These new systems... presented Tactical Air Command with a modern and technologically advanced fleet. However, the most important contribution to the air force's preparation for combat was that each new aircraft was tested in various realistic training exercises. Having new systems and technologies would not in itself lead to success on the battlefield. More than anything, the air force needed a way to train the pilots of these aircraft in a realistic manner to ensure that, when they faced combat, they would be prepared. This training was found in the *Red Flag* exercises.

Few serious people would disagree with such a characterization. However, the author's argumentation goes further in several instances, suggesting that advanced training could supplant purchasing 'cutting edge' technologies. This is problematic in a number of ways, especially when one considers the scant attention paid to precision-guided munitions (PGMs) in the book. PGMs have played a critical role in the organization and application of air power since Vietnam. They have enabled greater economy of force by requiring fewer aircraft to prosecute targets and flexibility in target selection. No amount of training will offer the same level of capability as guided munitions.

In sum, *The Air Force Way of War* provides an excellent new perspective into the development of US airpower since the Vietnam War. The development of a realistic training environment certainly has provided a lopsided advantage for the USAF and partner militaries. Moreover, considering the development of cyberwarfare, autonomous vehicles, and high-bandwidth networks, the commitment to provide a realistic training environment is essential to maintaining this edge in the future.

Unfortunately, the book's potential influence has been diminished somewhat by downplaying the significance of other factors. The nexus of training, intelligence and technology is the core component in assuring American military dominance in the air, but this book prioritizes the first over the other two. As such it almost needs to be read alongside other works, to obtain a more fulsome appreciation of American airpower's character since the Vietnam War.

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