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by Denis Thompson
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POLICY PERSPECTIVE

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Canada's extant defence policy, *Strong, Secure, Engaged*, mandates that the Canadian Armed Forces (CAF), and by extension the Canadian army, must be able to contribute to eight core missions¹ and operate across the spectrum of conflict including combat. Specifically:

At one end of the spectrum are traditional defence tasks. This includes working with allies and partners to prevent potential adversaries from causing harm and to deter hostile actions against Canada and its allies. It also involves being prepared to engage in combat if prevention and deterrence fail.²

Without question, the most demanding mission is to “engage in combat.” While the remaining missions are important, professional soldiers largely agree that an army capable of engaging in combat can cope with other missions. Any examination of the Canadian Army should therefore prioritize the demands of high-intensity warfare to ensure that the entire menu of options on offer to the Canadian government is executable.

The war in Ukraine has brought into sharp focus the necessity for armies to be prepared for the developing realities of 21st century high-intensity conventional land warfare. While it is perhaps too early to harvest all the relevant lessons from the ongoing fight, some deductions cannot be ignored.

The surprisingly inept Russian assault on Ukraine has highlighted many old combat truisms. Despite all the necessary tools at hand, the Russian Army has failed to assemble a combined arms effort to defeat a quantitatively inferior Ukrainian Army. Images of armoured vehicle columns unsupported by infantry or close air support being sniped at by Ukrainian tank-hunting teams, suffering under artillery barrages directed from all manner of UAVs and falling prey to free-roaming loitering munitions, all indicate an army that has lost its ability to co-ordinate an all-arms advance. In short, the Russians are failing to synchronize all the elements necessary to succeed on today's complex battlefield and the Ukrainians are thwarting almost every ham-fisted advance with devastating counterpunches.

Implications for Canada's Army

Foremost, the army must nurture and grow its core war-fighting competencies if Canada wishes to make a meaningful contribution to future a coalition effort.³ This is accomplished by deploying

¹ The eight core missions are: 1) Detect, deter and defend against threats to or attacks on Canada; 2) Detect, deter and defend against threats to or attacks on North America in partnership with the United States, including through NORAD; 3) Lead and/or contribute forces to NATO and coalition efforts to deter and defeat adversaries, including terrorists, to support global stability; 4) Lead and/or contribute to international peace operations and stabilization missions with the United Nations, NATO and other multilateral partners; 5) Engage in capacity building to support the security of other nations and their ability to contribute to security abroad; 6) Provide assistance to civil authorities and law enforcement, including counter-terrorism, in support of national security and the security of Canadians abroad; 7) Provide assistance to civil authorities and non-governmental partners in responding to international and domestic disasters or major emergencies; and 8) Conduct search and rescue operations. Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy*, Ottawa, June 7, 2017, 82.

² Ibid.

³ Realistically, Canada is unlikely to act unilaterally excepting domestic tasks or operations other than war.



combined arms teams of infantry, armour (tanks), artillery, engineers, aviation and joint capabilities. Joint capabilities can include close air support, naval support, electronic warfare, cyber-warfare and support from space-based systems, to name a few.

Fortunately, the Canadian Army has long experience in combining the available capabilities (personnel, weapons and equipment) into cohesive mixed groupings and regularly trains at the combat team (100 to 200 soldiers), battle group (600 to 1,200 soldiers) and brigade group (up to 6,000 soldiers) levels. These are precisely the groupings used when deploying on any international mission, including the current Canadian-led enhanced Forward Presence Battle Group in Latvia (Operation REASSURANCE).⁴ To keep pace with the evolving nature of conflict, Canadian combined arms groupings will need to continue to adopt a flexible approach to potential war-fighting deployments by adding more and varied weapons systems and mastering the associated tactics, techniques and procedures.

Increasingly, militaries are augmenting their employment of:

- UAVs of all sizes
- Loitering munitions
- Anti-tank guided missiles
- Long-range precision artillery fires, and
- Layered ground-based air defence systems

Each system is worthy of examination. As some are new to the Canadian Army, there is a corresponding doctrine and training load that cannot be disregarded but that falls outside the scope of this paper.

UAVs

Canada is no stranger to UAVs, in particular armed U.S. Predators and Reapers, which the Canadian Army relied on extensively to destroy legitimate enemy targets in Afghanistan with minimal collateral damage. Additionally, the CAF deployed its own reconnaissance UAVs in Afghanistan to provide overwatch and to assist in calling in other lethal fires from organic field artillery. What has changed today is the proliferation of UAVs, on a hitherto unknown scale.⁵

The wide distribution of UAVs pushes a close-in reconnaissance capability to the lowest level of the combined arms team. Plagued for millennia by the nagging desire to know “what’s on the other side of that hill,” tactical commanders now have a simple, cheap solution at hand. Thus, an agile combined arms team can use the knowledge gained by forward deployed UAVs to direct and focus

⁴ Department of National Defence, “Operation REASSURANCE,” accessed April 25, 2022, <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-reassurance.html>.

⁵ Hülya Kinil and Sinem Çelik, “The Role of Turkish Drones in Azerbaijan’s Increasing Military Effectiveness: An Assessment of the Second Nagorno-Karabakh War,” *Insight Turkey*, Ankara vol. 23, issue 4, (Fall 2021), 169.



the lethal elements of their team (infantry, armour [tanks], artillery and/or other joint enablers) to engage and destroy the enemy from an advantageous position. Akin to the propitious increase in the use of machine guns by the armies engaged in the First World War,⁶ UAVs are today's must-have equipment at all tactical levels and in ever-increasing numbers.

Loitering Munitions

Loitering munitions appeared initially in the 2010s and had a dramatic impact throughout Azerbaijan's decisive defeat of Armenia in Nagorno-Karabakh during their six-week war in the autumn of 2020.⁷ The benefit of loitering munitions is that they are launched from beyond line of sight and can accurately destroy enemy elements ranging from entrenched soldiers to high-value, mobile air defence radars and missile launchers. Additionally, their relatively small size makes them difficult to shoot down while the noise signature of some models (Israel's Harop series, in particular) adds to the terror induced on targeted units, like the terror experienced by those under bombardment by Stuka dive bombers in the Second World War. Of note, the recent introduction of the U.S. Switchblade and Phoenix Ghost in Ukraine have been and will be important to destroying Russian forces in Ukraine.⁸ Loitering munitions are cheap, simple and available to any nation willing to invest in this emerging capability.

Anti-Tank Guided Missiles

The direct-fire battle has been transformed in Ukraine by fire-and-forget anti-armour weapons. Such weapons (the U.S. Javelin is the current media darling, although there are others) have prompted some to sound the death knell of the main battle tank, given their vulnerability to these weapons. Historically, independent tank-only operations have often ended in disaster.⁹ The lesson, neglected by some, from the war in Ukraine is that tanks are most effective when they are integrated into a balanced combined arms team and benefit from the mutual support of the other team members. Nevertheless, it is clear that fire-and-forget anti-tank guided weapons are devastating and should form an integral part of any combined arms team and in certain circumstances can be deployed independently.

Long-Range Indirect Precision Fires

Disrupting enemy forces throughout the entire breadth of their footprint, including command-and-control nodes and theatre logistic networks, can effectively derail an enemy's military

⁶ In 1914, a Canadian (British model) infantry battalion was equipped with four machine guns. By 1918, that number had risen almost ten-fold to 36 machine guns per battalion. In 1918, the increase in distribution of more and lighter machine guns, alongside other innovations, directly contributed to the success of the Canadian corps as a shock formation during the war's last 100 days. "Machine Gun Corps in the First World War," The Long, Long Trail, accessed April 25, 2022, <https://www.longlongtrail.co.uk/army/regiments-and-corps/machine-gun-corps-in-the-first-world-war/#:~:text=The%20original%20official%20establishment%20was,infantry%20tactics%20to%20be%20devised.>

⁷ "Such unmanned munitions employed by Azerbaijani infantrymen proficient in their ability to find and destroy the enemy with loitering munitions—were credited with destroying 185 main battle tanks, 89 armored fighting vehicles, 182 artillery pieces, 73 rocket launchers, 451 trucks, 26 air defense systems, and 14 radars in just a few weeks." Maj. Gen. Julian D. Alford, "Implementation of the Hunter Killer Platoon," *Marine Corps Gazette*, Quantico vol. 106, issue 2, (February 2022), 34.

⁸ Greg Hadley, "Pentagon Reveals Secretive New Drone the Air Force is Giving to Ukraine: Phoenix Ghost," *Air Force Magazine*, last modified April 22, 2022, <https://www.airforcemag.com/air-force-rapidly-developed-a-new-drone-for-ukraine-phoenix-ghost/>.

⁹ The disastrous Israeli tank-only counterattack after the Egyptian army crossed the Suez Canal in October 1973 provides just such an example. Azriel Lorber, *Misguided Weapons: Technological Failure and Surprise on the Battlefield*, (Washington, DC: Potomac Books, 2002):79-80.



campaign. Deep fires (i.e., the ability to apply accurate long-range fire [100 km+]) from precision rockets can achieve these results. Such assets need assistance from all available intelligence, surveillance and reconnaissance (ISR) assets. Military ISR assets may include ground-based counter rocket, artillery and mortar radars, long-range, large-surveillance UAVs (often referred to in the media as drones), a host of satellites operating across the electromagnetic spectrum and/or aircraft with sideways-looking ground surveillance radar.¹⁰ In addition to accelerating improvements in resolution from available military ISR assets, there is a remarkable amount of data on hand from commercial satellites and social media from civilians in the battlespace. The challenge is to assemble these data into actionable intelligence and distribute it to the shooters in a timely manner. Doing so requires an intelligence system that draws on commercial techniques to sift the wheat from the chaff.

Ground-Based Air Defence

The threat of attack from above, even in a future case where the coalition enjoys air supremacy, requires layered air defence. Currently, systems range from radar-directed anti-aircraft guns through to sophisticated surface-to-air missiles (examples are Canada's retired ADATS in 2012 or the U.S. Patriot Missile System). These systems are optimized to engage enemy combat aircraft, larger UAVs/drones or helicopters. Countermeasures to the ever-growing threat of medium to small UAVs, armed or otherwise, are as nascent a field as the small UAVs themselves. Regardless, this proven threat, effectively employed in the wars in both Nagorno-Karabakh and Ukraine, will require a defensive capability integrated into the combined arms team.

Leadership and Morale

All this talk of hardware might lead one to believe that limitless capital expenditures might be sufficient to render an army a formidable force. Alas, the opening phases of the war in Ukraine have disabused those who may have subscribed to this erroneous notion. For example, Russia had, and still has, virtually all the weapons necessary to field an army that fights in an all-arms team and is fully tied into the necessary joint enablers (primarily close air support from combat aircraft and attack helicopters). And yet, they have failed miserably because the Russian Army operates in individually vulnerable stovepipes under a centralized command-and-control structure that gives no room for initiative to be exercised at the lowest tactical level. Trust, the cornerstone of the leader-follower relationship, is non-existent in the Russian Army that invaded Ukraine. Thus, it comes as no surprise that morale, particularly among conscript soldiers, is poor. Without battle discipline, reinforced by non-commissioned officers (NCOs, aka corporals and sergeants), the soldiery becomes a rudderless mob capable of the horrific atrocities already witnessed and prone to abysmal battlefield performance. Morale matters and morale is a product of institutional culture that, as Russia has demonstrated, is ignored at an army's peril.

¹⁰ Department of the Army, FM 100-5, *Operations* (Washington, DC, 1993): 9-4.



So What?

In essence, should the call come, Canada's Army already has the habit of operating in combined arms groupings in order to field a small and effective field force in support of a coalition fight in a high-intensity 21st century conventional war setting. However (and it is a rather large however), weapons and the corresponding doctrine and training need to be addressed to permit success on the 21st century conventional battlefield.

First, the army should undertake an accelerated UAV program to examine tactical UAV usage at low altitudes. They are today's machine guns. Given the low price point and rapidly evolving commercial variants, it is time to invest in inexpensive UAVs, coupled with field experiments and related operational research to optimize their employment at the lowest practical tactical level. This experimentation should incorporate the development of countermeasures to mini-UAVs and loitering munitions.

Second, Canada must shed its aversion to owning armed UAVs and loitering munitions and procure these weapon systems with the same sense of urgency as non-lethal reconnaissance UAVs.

Third, the acquisition of fire-and-forget anti-armour weapons should be prioritized. Experience with the tactics, techniques and procedures associated with anti-armour weapons already exists; however, the latest tools have not been procured by the CAF.

Fourth, there is the requirement to acquire precision-guided, long-range rocket systems tied into an ability to analyze oceans of data and distribute actionable intelligence rapidly.

Fifth, Canada's intention with respect to air defence resources needs some thought. Assuming the Canadian Army will operate under a coalition air defence envelope (medium to high altitude), Canada's air defence should focus on the level necessary to protect a combined arms team from low altitude direct attack.

Finally, and of the utmost importance, the Canadian Army's esprit de corps must be nurtured by sustained interest in its well-being as a fighting force. From private soldier to general officer, Canada has a well-led, deep-thinking and motivated force. With additional tools in hand and coupled with the Canadian Army's culture of empowered leadership, Canada would be well positioned to make a meaningful contribution to future coalition efforts. Adjusting doctrine and training to fully exploit the latest military tools will ensure that the Canadian Army can stand up to a near-peer army in a conventional fight as prescribed in *Strong, Secure, Engaged*.

► About the Author

*Major-General (Retired) **Denis Thompson** served 39 years in the Canadian Army as an Infantry Officer. He deployed on multiple operations commanding at the platoon, company, battalion, brigade, national, and multinational level in Canada and abroad in Cyprus, Germany, Bosnia, Afghanistan and Egypt including command of NATO's Task Force Kandahar (2008/09), Canada's Special Operations Forces (2011-2014) and the Multinational Force & Observers in the Sinai (2014-2017).*

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