CANADIAN ARMOUR IN AFGHANISTAN

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By deploying tanks and armoured engineers to Afghanistan in October 2006 and supporting the acquisition of the Leopard 2, the leadership of the Canadian Forces (CF) has acknowledged the importance of maintaining heavy armour in a balanced force. While the continued development of sensors and technology will be extremely important to achieving improved situational awareness (SA) on the battlefield, the hard-earned experiences of the Canadian Army and our allies in sustained combat in Afghanistan and Iraq have proven we must be prepared to get our hands dirty and come into physical contact with the enemy if we wish to define their strength, composition and intentions, and subsequently kill them. Canadian tanks and armoured engineers have better protected our dismounted infantry soldiers in Southern Afghanistan, allowing them to close with and destroy a fanatical and determined enemy in extremely complex terrain.

This article will review tactical lessons learned of Canadian armour in Afghanistan since October 2006, provide a candid assessment of the challenges faced by tankers in this counter-insurgency (COIN) environment, and consider the introduction of the Leopard 2. Nowhere in this editorial is it implied that Canadian armour is the predominate arm, or that it should be reinvigorated at the expense of other battlefield enablers. On the contrary, our recent experience in combat has provided irrefutable evidence that all elements of the combined arms team remain fundamental to the delivery of decisive combat power in the contemporary operating environment (COE), and that our efforts in training and operations should reinforce this grouping.

Background

After fighting a protracted counter-insurgency battle across Southern Afghanistan, 1st Battalion Princess Patricia's Canadian Light Infantry Battle Group (1 PPCLI BG) was confronted in the spring of 2006 with a significant increase in insurgent activity in the Panjwayi and Zhari Districts of Kandahar Province. Although the Canadian BG working closely with the Afghan National Army (ANA) was able to disrupt the enemy in a series of BG-level operations culminating in Operation ZAHAR (as part of Operation MOUNTAIN THRUST), Taliban forces quickly re-asserted their presence in the region once hostilities had ended. The International Stabilization Assistance Force (ISAF) could not ignore the threat posed by this massing of insurgents on the doorstep of Kandahar City, the coalition centre of gravity in the south of Afghanistan. A significant information operations (Info Ops) victory would be awarded to the Taliban if they could not be dislodged from these areas, and the ability of the International Stabilization Assistance Force (ISAF) to achieve its stated mission of reconstruction would be virtually impossible to achieve without the confidence and support of the local populace. Within weeks of arriving in theatre in August 2006, the 1st Battalion The Royal Canadian Regiment (1 RCR) BG was tasked to clear the Taliban from Panjwayi and Zhari Districts in Operation MEDUSA, the largest combat action undertaken to date by the North Atlantic Treaty Organization (NATO).

Rather than adhering to small unit attacks and ambushes, and retreating in the face of direct confrontation with NATO forces, the Taliban chose to make a conventional stand at Pashmul. They occupied well dug-in defensive positions amongst densely packed grape and poppy fields and they covered with direct fire and improvised explosive

Combat Camera AR2007-Z041-06, 23 Oct 2007 Panjwaii, Afghanistan

Soldiers from Lord Strathcona's Horse stand guard over their new Leopard 2 tank at Forward Operating Base Masum Ghar, Afghanistan. They are part of the 3 R22R Battle Group.

devices (IEDs) all ingress routes suitable for wheeled vehicles. The BG Commanding Officer (CO), Lieutenant-Colonel Omer Lavoie, realized quickly that restoring tactical battlefield mobility would be essential to dislodging the enemy from this complex terrain. Without armour at his disposal, he introduced civilian-pattern tracked dozers to the fight in order to slice through grape fields and allow dismounted infantry soldiers to get "up close and personal" with the insurgents. The tactic was extremely effective. Advancing under the cover of heavy artillery and aerial bombardment, the dozers allowed the BG to seize key terrain and facilitate the systematic clearance by dismounted soldiers of all compounds and infrastructure. By 13 September 2006, Taliban forces operating in

Pashmul and Zhari had capitulated. Hundreds of insurgents had been killed and many others were forced to flee to the west.

While two successive infantry-heavy Canadian BGs conducted successful counter-insurgency operations for nearly nine months without integral armour, the lessons of Operation MEDUSA reinforced the importance of retaining all combat enablers in full spectrum operations. According to Lieutenant-Colonel Lavoie, "If you'd asked me five months ago, 'do you need tanks to fight insurgents?' I would have said, 'No, you're nuts." He added, "Because [the Taliban] are acting conventionally, then conventional assets like tanks, armoured engineering vehicles, and armoured bridge-laying vehicles certainly have their place here."[1] The leadership of the CF and the Government of Canada agreed with Lieutenant-Colonel Lavoie's assessment. At the request of Commander RC(S), Canadian Brigadier-General David Fraser, the Government announced on 15 September 2006 the imminent deployment of an enhancement package to better facilitate "reconstruction and stabilization efforts in Afghanistan." In addition to an infantry company designated to serve as close protection for the provincial reconstruction team (PRT), the enhancement package was to include a squadron of Leopard C2 tanks from Lord Strathcona's Horse (Royal Canadians) [LdSH(RC)] and an armoured engineer troop from 1 Combat Engineer Regiment (1 CER).[2]

The Army generated, trained and deployed a 15-tank squadron and armoured engineer troop across the globe within six weeks of receiving a warning order. Within days of the first Leopard C2 arriving at the Kandahar Airfield (KAF) on 3 October 2006, the B Squadron Advance Party had arrived to receive equipment and parts, and establish with the leadership of the BG the tactical employment and sustainment concepts for armour in Afghanistan. The Squadron took advantage of every moment at KAF to prepare equipment for battle, and conduct training and rehearsals based on the hard-learned experiences of the 1 RCR BG in combat.

Canadian Armour in Counter-Insurgency Operations

After deploying forward on 2 December 2006, the tank squadron and armoured engineers featured prominently in all major combat operations undertaken by the Canadian BG. B Squadron was tasked initially to establish attack-by-fire positions in support of infantry companies and form the nucleus of a BG counter-moves force capable of responding throughout the entire Canadian area of operations (AO). Many Taliban insurgents learned the hard way the capabilities of the Leopard's main gun during this period when attacking Canadian strong points with rocket propelled grenades (RPG) and indirect fires. Leopard tank crews fired 105 mm rounds that destroyed enemy ambush parties and mortar groups that had infiltrated the Zhari District. On 19 December 2006, the Canadian BG recommenced offensive operations as part of Operation BAAZ TSUKA, a mission intended to deny the enemy sanctuary in Kandahar Province and reduce their capacity to mass for a spring offensive. Grouped with an infantry company and armoured engineer troop to form a square combat team, the tank squadron was tasked to disrupt insurgents in Howz-e-Madad and the Maywand District.

Throughout January and February 2007, B Squadron worked closely with A Company 2 PPCLI and the ANA in a series of offensive operations aimed at expanding the BG's security zone. Conducting several complex deliberate breaching and cordon and search operations in Zhari District, the ANA and Canadians demonstrated clearly their capacity and resolve to go after the Taliban at a time and place of their choosing. After securing the Siah Choy area with the ANA, the tank squadron united with American Special Operations Forces (SOF) and the Canadian Reconnaissance Squadron to dominate the Dowrey-Arghandab peninsula, keeping the enemy off balance in the

region. Following the transition of command authority to 2 RCR, B Squadron remained in theatre for nearly a month conducting disruption operations along the Helmand-Kandahar provincial border and reinforcing Afghan National Security Forces (ANSF) in contact with insurgents in Howz-e-Madad and Sangsar. While sub-unit integrity was maintained for specific missions, B Squadron was tasked as a steady state to support two different operations concurrently: the squadron minus (two troops of four tanks and the squadron headquarters) usually formed a combat team with A Company, while the third tank troop was detached to another sub-unit elsewhere in the AO. Tanks never worked independently and the value of the combined arms team was evident. The tank squadron commander led routinely during the advance and break-in phases of operations, while infantry company commanders naturally retained control of the fight through/clearance and consolidation phases. By the end of the deployment, all operations were conducted with Canadian infantry, the ANA and Afghan National Police (ANP).

Combat Camera AR2007-Z041-08; 23 Oct 2007 Panjwai, Afghanistan

Soldiers from Lord Strathcona's Horses stand guard over their new Leopard 2 tank at Forward Operating Base Masum Ghar, Afghanistan. They are part of the 3 R22R Battle Group.

A Squadron LdSH(RC) relieved B Squadron in early March 2007, in time to join Hotel Company 2 RCR BG for Operation ACHILLES, another effort on the part of ISAF to blunt the Taliban's ability to wage a spring offensive. While the bulk of fighting during this mission was left to TF Helmand and SOF, the tank squadron proved its ability to conduct sustained combat operations at great distances from the re-supply nodes at each of the forward operating bases (FOBs). In fact, the tank squadron A1 echelon, under the command of the Squadron Sergeant-Major (SSM), was called on to re-supply multiple sub-units concurrently. In spite of initial reluctance on the part of sustainment planners to commit to the tank squadron a dedicated echelon, this organization has now become the model for integral support in the Canadian BG. Elements of the ISAF Reserve Battalion were certainly relieved to see the tanks during Operation ACHILLES, especially when the Leopard mine ploughs were used to extract several of their utility vehicles and crews that had found the hard way an old Soviet minefield.

Since May 2007, the tank squadron has fought almost constantly alongside Canadian and Afghan infantry in close combat with the Taliban. Supported by the artillery, combat engineers, attack aviation and fast air, mechanized combat teams from the 2 RCR BG have achieved decisive victories against insurgents in the Howz-e-Madad, Nalgham and Sangsar areas of Zhari District, where vineyards and imposing compounds render wheeled vehicle movement particularly difficult. Leopard tank crews have used extensively the 105 mm High Explosive Squash Head (HESH) round to eliminate insurgents attempting to attack dismounted soldiers. More importantly, tank rollers and ploughs have continued to mitigate risk to coalition soldiers by clearing routes of pressure-plate detonated IEDs, while providing intimate support and a breaching capability to dismounted infantry companies. A testament to the tremendous contribution tanks are making to counter-insurgency operations and their high demand throughout the Canadian AO, A Squadron has routinely been split into troop-sized elements or less and attached to each of the infantry companies. This decentralized employment of armour and extremely high temperatures has strained the sustainment concept and serviceability of the tanks, while dispersing the breaching assets integral to the sub-unit. The impact of this squadron has been felt as far west as the Helmand border, and north towards Ghorak and Shah Wali Kot.

Combat Camera AR2007-Z042-05, 25 Oct 2007 Zhari, Afghanistan

A new Canadian Leopard 2 tank passes a light armoured vehicle 3 (LAV III) near Forward Operating Base Wilson, Afghanistan.

The "Limitations" of Armour

Soon after the Government of Canada announced the deployment of Leopard tanks to Afghanistan, military experts rushed to criticize the decision. One such pundit, Mr. Michael D. Wallace, a political science professor at the University of British Columbia, argued in his article *Leopard Tanks and the Deadly Dilemmas of the Canadian Mission in Afghanistan* that the "…risks of putting our 1960s-designed Leopard 1 C2 tanks in harm's way surely outweighs any additional protection they can supply to Canadian Forces in Afghanistan."[3] He continued that the deployment of Canadian armour was misguided as tanks are vulnerable to a variety of weapons employed by insurgents, such

as anti-tank guided munitions (ATGM) and IEDs, and their quickly evolving tactics. Although Wallace was correct to say, "…even the most modern and capable tanks are vulnerable to a variety of attacks,"[4] he evaded the obvious fact that there is not, nor has there ever been, a system on the battlefield that is immune to enemy assault. The Leopard tank is arguably the best-protected vehicle currently employed by coalition forces in Afghanistan. It has been sent there to shield our dismounted soldiers. Recoilless rifles, ATGMs and IEDs are capable of tearing much more easily through human flesh than rolled homogenous steel, and these systems feature prominently in the arsenal of Taliban weaponry in Afghanistan. When we possess the advantage of heavy armour, it would be reckless to purposely eliminate from our inventory this key enabler and confront symmetrically an insurgency that is accustomed to fighting in the harsh terrain and conditions of Afghanistan. Specialized weapons or concentrated attack may be capable of destroying tanks, but the survival rate of their crews is high and the protection they offer to dismounted infantry from fragmentation and blast weapons is unquestionable.

Photo courtesy of author

Mr. Wallace and others have also charged that collateral damage caused by Canadian tanks could turn locals against foreigners and isolate soldiers from the civilians they were sent to help. While it is true that the loss of innocent civilians and excessive damage to infrastructure from NATO military operations would impair our ability to achieve a mandate of reconstruction in Afghanistan, suggestions that the use of tanks has alienated the local populace more than other weapon systems have proven completely unfounded. Since commencing combat operations nine months ago, Canadian tanks have killed dozens of insurgents in battles throughout Kandahar Province, yet there has been no suggestion of civilian deaths attributed to tank fire during this entire period. Equipped with a fire control system that allows our soldiers to acquire and engage targets with precision and discrimination, by day and by night, the Leopard tank has in many instances reduced the requirement for aerial bombardment and indirect fire, which have proven to be blunt instruments. The deployment of armour to Afghanistan has also reinforced with the local populace the resolve of Canada and NATO to bring stability to the region, and it has sent to the Taliban a clear message that

we have the tools and determination to pursue them at a time and place of our choosing. A strong case can be made that Canadian tanks have actually reduced collateral damage in the Canadian AO. We know through experience that the more combat power we commit to a mission, the less kinetic that operation is likely to become.

Photo courtesy of author

While every effort must be made to minimize damage to local infrastructure, there have been and will continue to be occasions when we must be prepared to use the destructive capabilities of our armoured forces to dislodge insurgents from complex terrain. While we would want nothing more than to meet the enemy in the middle of an open desert, the Taliban find sanctuary amongst dense vineyards and urban compounds. They frequently use women and children to shield themselves from coalition attack, rendering the use of close air support, aerial bombardment and artillery fire risky. To mitigate collateral damage, the tank squadron leadership includes in all operational planning a collateral damage estimate and satellite imagery is relied upon heavily by break-in forces to avoid habitable structures. Rules of engagement (ROE) that protect our soldiers and innocent civilians are reviewed in orders, as is the open fire policy that delineates clearly the types of weapons to be used to engage enemy in urban terrain where a normal pattern of life has been observed. Manoeuvre damage caused by armoured vehicles to irrigation systems and croplands is repaired whenever possible by armoured engineers on exfiltration. Elements of the Kandahar PRT travel routinely with mechanized combat teams to determine the long-term needs of locals, and facilitate if required the funding and reconstruction of damaged fields and infrastructure.

The ability of the Army to generate, train and deploy a 15-tank squadron and armoured engineer troop across the globe within six weeks of receiving a warning order does not support the notion that armour cannot be rapidly deployed. Prior to acquiring the C-17 Globemaster the CF did not possess a strategic airlift capability, and all fleets of vehicles were impacted congruently. The LAV III, for example, is not strategically deployable by C-130 Hercules. This airframe can transport one LAV III for a short distance, but certainly not from Canada to Afghanistan. Accordingly, a Canadian LAV-equipped force is moved in the same manner as a tank fleet: either by sea or leased

strategic airlift. Canada's Leopard tanks were deployed to Afghanistan in October 2006 by a combination of leased Russian AN-124 Antonov and United States Air Force (USAF) C-17 Globemaster aircraft. The recent acquisition by the CF of four C-17 aircraft will enhance our ability to deploy tanks (and LAV IIIs for that matter), while reducing our current reliance on allies for heavy lift.

Doctrinal and Tactical Lessons Learned (and Re-learned)

Although tanks provide increased firepower, protection and mobility to the BG, they are extremely vulnerable when operating independently in a COIN environment. Lacking the ability to dismount soldiers without rendering turrets inoperable, tank crews without close infantry support cannot ensure security or force protection at the scene of an IED strike, casualty evacuation, enemy ambush or even a simple vehicle accident. What might normally be routine friction can become incapacitating or deadly when armoured forces are not capable of creating stand off between friendly and hostile forces. As important as infantry are to ensuring the security of armoured forces, so too are tanks vital to the protection of our dismounted troops. We should never plunge our dismounted soldiers into confrontation with the enemy without first taking every precaution to ensure their protection. The enemy in direct confrontation on the objective has killed very few Canadian soldiers in Afghanistan. It is on the way to the fight that our troops have been more regularly maimed and killed by mines, IEDs and fanatical suicide bombers. Tanks, with their superior armoured protection and mobility, have led as a default during all moves in both open and close terrain. We should rarely be in such a rush so as to prevent our engineers from conducting vulnerable point searches at defiles and chokepoints. The notion of grouping the different arms to benefit from their collective strengths is not new, but it has again been validated in combat.

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While few commanders today will argue the importance of armour in the COE, there is considerable debate on how best to group and employ tanks. Should the integrity of the tank squadron be maintained to allow the BG CO to mass his direct fires and breaching assets while ensuring their sustainability, or should armoured assets be decentralized and attached to infantry platoons to ensure more vulnerable, dismounted

soldiers can benefit from the capabilities of the tank in complex and urban terrain? The answer to this question lies somewhere in between the two extremes. Gone are the days we must consider the smallest tactical grouping of armour to be the squadron. Fighting through urban areas and the dense vineyards of Afghanistan requires the decentralization of forces that are difficult to control at even the lowest tactical level. Exposed routinely to intense hostile fire from unknown sources, dismounted infantry troops often lack sufficient firepower to destroy well-protected and camouflaged enemy positions. Tanks provide the punch required for breaching structures and they were deployed specifically to increase the protection of our dismounted soldiers, even if that means the division of resources.

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An individual tank might provide intimate support to infantry and engineer sections while advancing in canalizing terrain, but it would be a grave error to consider this grouping a miniature-combined arms team that is sufficiently led, equipped and sustained to achieve independently the destruction of a determined and experienced insurgency. There are obvious and unassailable logistical and tactical constraints that dictate the requirement to preserve at a minimum the integrity of the tank troop. The only guarantee when employing armour in the harsh environment of Afghanistan is that tanks will break. Their timely recovery from the battlefield is dependent on the immediate availability of other armoured assets mounted on the Leopard chassis. The extraction of a tank is a troop task: one tank, or one of the two armoured recovery vehicles (ARVs) in theatre, is required to tow the downed vehicle, while the remaining two tanks in the troop are required for mutual support and command and control. The tactical decisiveness of the combined arms team also diminishes when operating with anything less than a tank troop. The combat team commander is precluded from massing direct fires, and he will not have a credible breaching force if required to break into complex terrain (each tank troop is equipped with a dozer blade, plough and roller set). The division of the squadron into more than two elements creates other problems. With only two each of the Leopard-qualified technicians—vehicle, weapons, fire control systems (FCS) and land

communications information systems (LCIS)—in the tank squadron echelon, serviceability rates deteriorate notably when tanks are employed on multiple operations concurrently.

These observations are not hypothetical. B Squadron 1 RCR BG and A Squadron 2 RCR BG maintenance deficiencies skyrocketed when the sub-unit operated in more than two locations at once. Without qualified technicians available to provide timely and responsive support to all deployed elements, proactive maintenance was neglected and vehicle serviceability suffered as a result. Of greater concern was that tanks actually became a liability to infantry soldiers when this valuable resource was too thinly spread across the BG. Tasked to support multiple operations concurrently, and struggling to maintain the serviceability of the Leopard fleet of vehicles in the heat of the Afghan summer, A Squadron was challenged throughout June 2007 to generate sufficient armour for Quick Reaction Force (QRF) tasks. In one instance, A Squadron was tasked to detach to an infantry company two tanks for the reinforcement of an ANP checkpoint that had been ambushed by Taliban forces. With all mine ploughs and rollers deployed elsewhere in the AO, tank crews were forced to clear high threat routes that ANP refused to traverse by simply driving over them. The importance of maintaining troop integrity was reinforced further when one of the tanks became trapped in a deep wadi system. While attempting to extract the jammed Leopard, the second tank became incapacitated, requiring the infantry company to wait as last light approached for the deployment from a forward operating base (FOB) of additional recovery assets. Although the combat team was able to chalk this experience up as a near miss, the incident demonstrated clearly the risks of splitting armour.

Proponents of the piecemeal employment of armour might also be inclined to relegate tank squadron commanders to the role of support arms advisor to the CO, as they would not have troops to command. This would be a mistake. Since tanks first joined the Canadian BG in combat in December 2006, infantry company commanders acting in the capacity of combat team commander have left routinely the advance and break-in phases of combat operations under the control of the tank squadron commander. It is imperative that a leader who understands the intricacies of the tank implements and breaching in complex terrain control that part of the fight. Combat arms officers understand manoeuvre and are trained early in their careers to appreciate the collective strengths of the combined arms team. While either the tank squadron commander or infantry company commander will lead the combat team, assigned tasks or terrain might dictate that tactical control rotate several times in the execution of an operation.

Tanks, regardless of their vintage, are extremely maintenance-intensive and they possess an insatiable appetite for combat supplies and commodities. Recognizing the sustainment demands of the Leopard fleet of vehicles, the National Support Element (NSE) deployed to Afghanistan has allocated to the tank squadron a dedicated echelon. Commanded by the SSM, the tank squadron echelon is equipped with fuel, ammunition and commodities trucks, mobile recovery teams, recovery vehicles and a wheeled ambulance. 105 mm ammunition is frequently transported from KAF to manoeuvre elements via medium lift aviation, while other combat supplies are moved by road with combat logistics patrols. The tank SSM assumes responsibility for all combat supplies at the FOBs and deploys forward with Leopard qualified technicians as required to conduct routine and emergency replenishment of the squadron. Recovery and medical vehicles always travel with the combat team to ensure their immediate responsiveness to the needs of the soldiers. The echelon system has worked extremely well for the armoured corps for decades and it continues to be effective in combat today.

None of the other arms have been allocated a dedicated echelon in Afghanistan. Without integral maintenance resources, infantry companies have been incapable of

conducting proactive repairs requiring technical support to the LAV fleet of vehicles. Cognizant of the sustainment challenges confronting each of the infantry companies and other elements of the combined arms team, both the TF 3-06 and TF 1-07 tank squadrons sustained multiple sub-units over a continuum (up to four concurrently) without an increase in resources or qualified technicians. In the interests of training as we fight, building cohesive teams and addressing the intense sustainment demands of combat operations, the Chief of the Land Staff (CLS) has directed that integral echelons should be allocated to every sub unit in the BG, including the artillery battery and composite engineer squadron. It does not matter who technically owns the resources, whether it is the NSE or the sub-unit being supported. Sub units just need to know they will have continuous and uninterrupted integral support, without exception.

While armoured crewmen have traditionally filled driving and leadership positions in the tank squadron echelon, the NSE has directed they be replaced by truckers. The rationale for employing tankers in the echelon has only been reinforced in combat. As Leopard-qualified soldiers, the crewmen serving in the echelon are the only redundancy integral to the tank squadron deployed. Tankers are trained to work in an armoured squadron and they understand implicitly the support demands and tactical employment of this organization. While conducting emergency re-supply operations in December 2006, armoured crewmen in the echelon were able to break down and distribute different natures of 105 mm ammunition quickly. They assisted in emergency tank maintenance and were able to forecast the specific petroleum, oil and lubricants (POL) requirements of the Leopard fleet of vehicles. While the truckers serve an extremely important role in the sustainment concept of the BG, they simply do not have a congruent understanding of tank-specific requirements.

While coalition soldiers will as a default confront traditional hit and run insurgency tactics in Afghanistan, it is not inconceivable that the enemy might again mass and take a conventional stand against ISAF, as they did in Pashmul in September 2006. Pre-deployment training must therefore be progressive and prepare the BG to conduct both COIN and conventional combat operations, from the troop-platoon to the BG level. Individual training should focus on the perfection of basic soldiering skills to include physical fitness, marksmanship, combat casualty care and trade specific duties, such as driving, gunnery and the handling of implements in the case of armoured crewmen. Collective training must hone the ability of sub-unit commanders to synchronize battlefield enablers inclusive of the combined arms team. Training should start with a re-familiarization of tank-infantry cooperation to include a review of the capabilities and safety precautions of the Leopard tank, marry-up drills, tactical movement, communications and target designation. Collective training scenarios should validate the proficiency of the BG in conventional war fighting operations (offence including the attack in complex terrain, defence including counter-moves, advance to contact, deception operations), while getting troops accustomed to the friction of the COIN battle space (vehicle breakdown/recovery, mine and IED strikes, suicide attack, ambush, casualty evacuation). Deploying soldiers and leaders should be familiar with combined arms operations from the troop-platoon level to BG, by both day and night.

Theatre mission specific training (TMST) and battle procedure should provide the training audience an appreciation of the complexities of the Afghan culture. In addition to the cultural awareness and language familiarization lectures that are routinely incorporated in the TMST package, subject matter experts should be employed to indoctrinate our soldiers on the dynamics and relationship between the three main threat groups in Southern Afghanistan: Taliban/Opposing Military Forces (OMF), narcotics leaders/fighters, and tribal factions. Training scenarios should include both simulated or real ANSF (ANA/ANP) play and civilians in the battle space (women/children, media and

private security firms), as well as an introduction to operations with SOF and other coalition partners (who may or may not have specific national caveats that affect their ability to support Canadian ground operations). Training scenarios should be replete with the same friction soldiers will face while deployed to include the unavailability of enabler support and a routinely ambiguous intelligence picture augmented at times with questionable yet important human and signals intelligence (HUMINT and SIGINT) feeds.

Photo courtesy of author

While the ability of the Leopard tank fleet to restore tactical mobility in different types of complex terrain is the bread-and-butter of tank squadron operations in Afghanistan, pre-deployment collective training has included limited opportunities to plan for and perfect the use of the tank implements. Before unleashing the tanks to breach complex terrain in Afghanistan, all levels of command plan carefully with satellite imagery. War-gaming is conducted to maintain the element of surprise, remove the enemy's terrain advantage and minimize collateral damage. It is imperative that we institutionalize in training the same planning and battle procedure considerations that will be essential to mission success in operations and that the first time a dozer tank crew commander is seeing a deliberate grape field breach is not while conducting it under contact with the enemy. The complex terrain of Afghanistan should be replicated as much as possible in training at Canadian Manoeuvre Training Centre (CMTC), and combat teams should be afforded opportunities during force-on-force and live-fire training to conduct deliberate breaching operations with tank implements, while testing the effects of main gun ammunition on structures similar in composition to grape-drying huts and walled compounds. The replication of Afghan terrain and structures will cost money, but will save the lives of Canadian and coalition soldiers.

Immediately following the completion of pre-deployment training, all tanks and engineer vehicles were cleaned, brought to serviceable condition and suspensions were replaced. Following the application of MEXAS add-on-armour and completion of required maintenance, tanks were quarantined at 1 Service Battalion for shipment to theatre. Vehicles deployed from the Edmonton International Airport to an Intermediate Staging Base (ISB) at Manas, Kyrgyzstan via civilian AN 124 Antonov, where they were cross-loaded on to USAF C-17 Globemaster aircraft for the move to KAF. Leopard qualified drivers accompanied each chalk into theatre, while an armoured Master Warrant Officer (MWO) served in the capacity of Liaison Officer (LO) at Manas to facilitate the cross-loading and timely onward movement of vehicles. An ARV was positioned at the ISB, while the second recovery vehicle proceeded to Afghanistan on an early chalk. An advance party from the tank squadron and a tank activation team (TAT) met the 17 tanks and four AEVs at KAF. The TAT consisted of an EME MWO with previous experience in Afghanistan, one each of vehicle weapons and FCS Leopard-qualified technicians, and a handful of Leopard-qualified armoured crewmen. In the three weeks that followed the arrival of the first tank in Afghanistan, the advance party and TAT worked diligently to identify and establish a tank maintenance facility at KAF, receive and account for all vehicles, and prepare the tanks for combat operations. The tank squadron leadership took advantage of this time to influence the sustainment concept and collaborate with the 3 Close Support Group technical assist visit (TAV) to source sufficient spare parts, major assemblies and tooling holdings, while implementing an aggressive in-theatre training package and rehearsals for the remainder of the squadron.

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The successful deployment of the tank squadron in extremely compressed timelines was a testament to the competence and determination of countless soldiers, leaders and staff officers at all levels in the CF, both at home and abroad. The generation and early deployment of a LO to the ISB and a TAT into theatre to receive and kit tanks was vital to the timely introduction of this capability into combat. This TAT/TAV concept should be sustained and implemented again in the future; however, there are other considerations that should be assessed more carefully the next time we send armour into combat. Most important of these factors is the need to address early in the planning process the

consolidated sustainment requirements of the Leopard fleet of vehicles over a continuum in operations. While installing MEXAS add-on armour and effecting vehicle repairs in Canada, a great deal of tooling, crew and safety equipment went missing prior to the quarantine of vehicles. As spare parts, tooling and POL products were not scaled for properly in Canada, these critical supplies were late in arriving at KAF and the serviceability of the Leopard fleet of vehicles suffered early on as a result. It was not until late November 2006 that a complete upload of 105 mm ammunition had arrived at KAF, precluding the timely deployment of the entire squadron forward.

While the image of a Leopard tank rolling off the back of a C-17 is perhaps more appealing to the media, the first chalks into theatre should be filled with the armoured recovery assets, mobile repair team vehicles, specialty tooling and POLs, and sufficient spare parts for 30 days of operations. Without these critical parts and combat supplies identified, received and organized at KAF, the tanks are useless. In addition to generating a LO for the ISB, escorts for the vehicles and a TAT for reception of the vehicles, the generating formation should deploy a LO team to Ottawa to inform Canadian Expeditionary Force Command (CEFCOM) and Canadian Support Command (CANOSCOM) planning and battle procedure. The LO team should consist of an armoured officer and senior maintenance technician, ideally with previous experience in the deployment of armour on operations.

All moves outside the relative security of KAF or a FOB in Afghanistan are considered combat operations. Accordingly, orders are issued for all operations, using the standardized NATO orders format. When time was particularly constrained or when it was important leadership at all levels understood clearly the sub unit commander's intent and concept of operations, the A Company/B Squadron 1 RCR BG Combat Team Commander frequently issued orders to the crew and section commander level. Given the complexity of COIN operations and the need to minimize collateral damage during breaching operations, rehearsals were always conducted to include a rehearsal of concept (ROC) drill, review of actions-on and war game of potential "what-if" scenarios. Satellite imagery was used extensively to plan breaching routes through vineyards and dense terrain, while Information Management System for Mine Action (IMSMA) data provided current situational awareness on **known** minefields and historical IED locations. The battle captain submitted intelligence and terrain analysis requests, and products were normally pushed forward to the squadron within 24-48 hours of receipt of the request. The ANA with Operational Mentor and Liaison Team (OMLT) personnel attended routinely orders groups and were invited to participate early in the planning process. Representatives of higher-level enablers (tactical unmanned aerial vehicles [TUAV], close air support [CAS], aviation) were rarely available for orders, but unit and brigade operational staffs conducted extensive liaison to coordinate resource requirements when necessary. Immediately following the completion of a mission, either the officer commanding or battle captain consolidated feedback from each of the troops and platoons on areas to improve and sustain for future operations. These points were discussed at the squadron level, changes were institutionalized if pertinent, and reports were forwarded to the Army Lessons Learned Officer at KAF.

Since deploying to Afghanistan in October 2006, Leopard tank crews have fought alongside Canadian, American, British, Dutch and Afghan soldiers, and have relied extensively on critical enabler support provided by a multitude of other troop contributing nations. The issue of national caveats has received extensive media play in recent months, and there has even been speculation the initial deployment of the tank squadron forward to link up with the BG in contact was delayed in part by the pending Dutch general election in November 2006. While it is important to be cognizant of these caveats and sensitivities, troops at the tactical level only need to know what support they

can rely on in a fight with insurgents. Sub-units were normally required to submit to BG operations staff 48-72 hours in advance of requests for dedicated TUAV, aviation and intelligence support, while the CAS line-up was pushed on a daily basis. While TUAV support was generally accessible to the sub unit as required, attack aviation and CAS were normally held in reserve, responsive on short notice to the declaration of Troops in Contact (TIC). The sub unit forward observation officer (FOO)/ joint terminal attack controller (JTAC) team normally controlled the allocation of indirect fires, CAS and attack aviation; however, calls for gun and close combat attack (Apache) fire were routinely conducted by troops on the ground.

Photo courtesy of author

The risk of fratricide in a coalition environment requires commanders at all levels to plan operations carefully. Language barriers, tactical differences, battle fatigue and the fog of war all conspire to obscure the situational awareness of troops in close combat with the enemy. To mitigate the threat of 'blue-on-blue' fire, the Canadian BG has standardized vehicle and personal identification friendly force (IFF) markings and standard operating procedures (SOPs). IFF marking schemes are communicated to coalition partners during orders and rehearsals, and direction related to the open fire policy and authorized ROE is also reviewed to minimize the potential of collateral damage. It is imperative that communications information be exchanged during orders, and that radio checks are conducted during battle procedure prior to crossing the line of departure. American SOF and OMLT, for example, routinely reported as outstations on the tank squadron combat net when working with armour.

The Leopard C2 tank allows us to reach out and touch the enemy with precision direct fires to ranges of 4000 meters, nearly twice the effective range of the M242 25 mm chain gun mounted on our LAV fleet. The Taliban choose not to fight us in the open desert for obvious reasons. Rather, our enemy finds sanctuary in grape-drying huts and

compounds with concrete-like walls measuring over a meter in thickness. Prior to the deployment of the Leopard tank, massive volumes of 25 mm fire from the LAVs achieved limited results against these structures, often requiring the BG to resort to the use of aerial bombardment or risk the deployment of dismounted soldiers forward to affect a breach with anti-tank weapons or demolitions. One 105 mm HESH round from the Leopard C2 can punch a hole in excess of five by five meters through a grape-drying hut or compound wall, penetrating structures with reduced collateral damage to surrounding infrastructure and less risk to our dismounted soldiers. While the importance of infantry in the fight-through and deliberate clearance of objective areas is irrefutable, it makes little sense to send dismounted soldiers onto an enemy objective without first eliminating known resistance from a distance with 105 mm HESH. The tank squadrons attached to the TF 3-06 and TF 1-07 BGs have been able to kill numerous insurgents at ranges of 150-3800 meters while mitigating the exposure of our dismounted infantry soldiers to enemy direct fire. Both the coaxially mounted and anti-aircraft configured 7.62 mm C6 General Purpose Machine Guns (GPMGs) mounted on the Leopard C2 have been used to engage and suppress dismounted insurgents at close range. The wooden stock assembly on all anti-aircraft MGs has been replaced with a spade grip assembly to allow crews to bring the weapon to bear more quickly, while maintaining a lower profile in the turret.

A common misconception is that the tank is primarily an anti-armour platform. This is false, especially in the environment in which we currently find ourselves fighting. The Taliban seek tactical advantage in terrain impassable to wheeled vehicles and when able to predict ISAF avenues of approach, they have used, effectively, hit and run tactics that include the use of small arms/RPG ambush, suicide attacks and IEDs. Equipped with a dozer blade, mine roller and mine plough in each troop of four tanks, the Leopard fleet of vehicles has restored tactical mobility to the combined arms team in Afghanistan through its ability to penetrate grape and marijuana fields, clear mine and IED belts and breach mud walls and compounds that were previously impassable to the LAV III. The mobility options created by the tanks and armoured engineers afford the combat team commander additional ingress routes, making it more difficult for the enemy to sight defensive positions, while decreasing the risks to less protected coalition soldiers. Combat teams grouped with armour have created on numerous occasions throughout the past year improvised roads suitable for wheeled vehicle movement during cordon and search and offensive operations. The enemy was kept off-balance, constantly guessing from where the combat team would advance, and the tanks were able to form a “ring of steel” around the infantry as they conducted deliberate clearance operations in urban areas. Both tank squadrons have used the dozer blades and ploughs extensively to conduct hasty and deliberate minefield breaches and break into complex terrain in order to destroy the enemy and extract personnel and vehicle casualties.

The experience in Afghanistan has demonstrated that existing Canadian breaching doctrine works. By default, mechanized combat teams move in column, with tanks leading, unless extremely confident of the absence of mines and IEDs. When required to slice through complex terrain to close with and destroy insurgents or extract coalition casualties, combat teams always attempted two lanes to ensure freedom of movement. A breaching team consisting of a command and control element, tank troop, (armoured engineering vehicle) AEV Badger, field engineer section, infantry platoon and recovery and medical assets was assigned to each lane. Dozer tanks or AEVs led in close terrain in order to slice through vineyards and irrigation systems, and plough tanks were pushed forward in open/flat terrain to confirm routes for the presence of mines/IEDs. Run-up positions were dozed away from the lane every 50 meters, ensuring the route remained clear for recovery and medical vehicles to effect extraction, and to ensure the all-around

protection of the combat team as it advanced in complex terrain. The field engineer section with dismounted close protection conducted vulnerable point searches at all choke points and suspicious areas to confirm the presence of mines/IEDs. Unless the combat team could maintain observation on the entire lane throughout the duration of the operation, it would exfiltrate the area on another route or would confirm lanes with the plough tank leading. The tank squadron commanders controlled the move to and break into enemy objectives, while the infantry company commander naturally retained responsibility for the fight through and consolidation phases.

There are limitations to the tank implements. As discussed already in this paper, the collateral damage caused by tanks and the aggressive use of their implements can impair our ability to achieve mission success in Afghanistan, where reconstruction is the focus of our efforts. Equally important, there is no system on the battlefield that has the capacity to neutralize without exception all mine/IED threats. While tank ploughs have pushed countless anti-tank mines into their spoil, saving coalition soldiers' lives, IEDs have occasionally detonated on impact with the implement, rendering it ineffective. A Squadron 2 RCR BG has used effectively the tank rollers as an improvised route clearance package (RCP) to **mitigate** the impact of pressure plate detonated IEDs (PPIED); however, we should not gain a false sense of confidence that this implement can protect our soldiers from command detonated and remote-control detonated IEDs. Further, the rollers take considerable time to mount, they require a larger turning radius and they keep us on the tight, canalizing roads of Afghanistan—exactly where the Taliban prefer to plant mines and IEDs.

Leopard C2 tanks have saved Canadian and Afghan lives. While no vehicle on the battlefield is invincible, the Leopard C2 is equipped with add-on MEXAS composite armour panels and spall liner to increase crew protection from direct fire attacks. The Leopard 2A6M will also be prepared with additional turret protection and an improved belly blast protection package to reduce the threat of mines and IEDs. Leopard tanks and their crews deployed to Afghanistan have survived numerous IED and anti-tank mine strikes and recently recoilless rifle, RPG 7 and suicide attacks that may have been catastrophic to other fleets of vehicles. More important than the protection the Leopard offers to its crewmembers, however, is our ability to put 55 tonnes of steel between our dismounted soldiers and the enemy. The tank squadron in Afghanistan is routinely called upon to establish a cordon around objective areas and provide tanks in intimate support to dismounted infantry soldiers as they conduct fight-through and clearance operations in close combat.

The psychological value of the tank is well recognized. Knowledge of the increased firepower and protection offered by the Leopard tanks raised the morale and offensive spirit of the 1 RCR BG, a battle-tested unit that had sustained near continuous combat with the enemy for two months prior to the arrival of B Squadron. The enemy has been less enthusiastic with the capabilities of the tank and the synergies developed by the combined arms team. Numerous signals and HUMINT reports confirm that low-level Taliban fighters are terrified of the tanks and their ability to manoeuvre, and they are often reluctant to attack coalition forces equipped with integral armoured assets. While the tanks have clearly had a significant psychological impact on the insurgency, armoured leaders serving in combat are not so naïve to think the enemy will not work aggressively to find a way to kill Canadian tanks.

2 RCR BG tank operations have been impacted significantly by the heat of the Afghan summer, and a lack of air conditioning and the hydraulic turret drive systems on the Leopard C2 has exacerbated the situation. With external temperatures routinely approaching 50 degrees Celsius in the sun, armoured crews have endured temperatures in excess of 65 degrees Celsius inside the Leopard tank. Tank squadron leadership at all levels has been called upon to develop innovative solutions to minimize the impact of

the heat on the health of our soldiers and the serviceability of the tank fleet. Combat operations are routinely conducted at night or early in the morning to take advantage of cooler periods of the day, and leaders have been mandated to institutionalize in their battle rhythm forced hydration. Cooling suits have recently been introduced into theatre and feedback from the soldiers using them has been tremendous. These water-cooled vests have reduced significantly the core body temperatures of armoured crewmen, allowing them to sustain combat operations for longer periods. B Squadron 1 RCR soldiers also developed for each of the tanks improvised dust skirts to reduce the intake of dirt and debris into the tank exhausts. These modifications have increased several times over the operating range of the Leopard before it over-heats.

Photo courtesy of author

The Next Round: Recommendations on the Way Ahead

While the Leopard C2 has performed in combat exceptionally well, this platform is 30 years old and is starting to show its age. B Squadron 1 RCR BG soldiers submitted to the chain of command in November 2006 a summary of recommended modifications to make the Leopard C2 more suitable for COIN operations in the harsh environment of Afghanistan. Indicative of the tremendous support provided to our soldiers by both military and civilian leadership, the Government of Canada announced in April 2007 that it would not only address Leopard C2 deficiencies in the interim, but that it would authorize the lease for immediate combat operations of 20 Leopard 2A6M from the German Army and a subsequent purchase of 100 Leopard 2A4 and 2A6 from the Dutch. While this tank has not yet been tested in combat, many countries revere the Leopard 2 as one of the best in the world. Weighing in at over 60 tonnes, the Leopard 2 boasts an impressive 1500 horsepower engine (compared to the 830 horsepower of the Leopard C2), and it is equipped with the L55 120 mm smooth bore gun. An electric drive turret allows the gun to be traversed much more quickly, while reducing significantly the heat inside the vehicle. Most importantly, the Leopard 2A6M will provide to our soldiers unprecedented protection from the mine and IED threat in Afghanistan.

Unfortunately, the Leopard 2 is not yet equipped with the tank implements that have saved many lives in operations. An armoured engineer vehicle on a Leopard 2 chassis

(Kodiak) is employed by the Swiss Army; however, it is unarmed and not yet employed by other countries. In order to ensure our tactical battlefield mobility and protection is not impaired with the introduction of the Leopard 2, technical staff should seek to design and apply immediately a modification to the Leopard 2 that will allow implements to be mounted. Tests will need to be conducted on the impact of mounting implements on to this chassis, which is already 15 tonnes heavier than the Leopard C2. Consideration should be given to retaining a mixed fleet of Leopard C2 and Leopard 2 vehicles in theatre until this technical issue can be resolved. While the deployment of the Expedient Route Opening Capability (EROC)—Canada's version of the RCP—will reduce the risk to our soldiers while forced to move on routes and through canalizing terrain, this system does not have ploughs capable of conducting hasty minefield extractions, nor is it equipped with dozer blades to slice through complex terrain when required. Many of the protective advantages of the Leopard 2 will be negated with the absence of implements.

The 105 mm HESH round is the bread-and-butter munition for the tank squadron in theatre: each round knocks five-by-five meter holes into grape-drying huts and we have found it highly effective against dismounts at ranges of 150 to 3800 meters. Although the Swedish Army has apparently fielded a 120 mm high explosive round and experimentation in the United States is ongoing with a 120 mm Insensitive Munitions High Explosive—Tracer (IMHE-T) munition, Canadian Leopard 2A6M tanks will deploy initially without this capability. Until we are able to introduce to combat a tested 120 mm HE round, we should assess immediately the accuracy and breaching capability of different variants of 120 mm High Explosive Armour Piercing (HEAT) and practice ammunition, and we should consider the acquisition of a canister round for the anti-personnel role in close combat. Armoured Piercing Fin Stabilized Discarding Sabot (APFSDS or Sabot) will continue to have limited value in Afghanistan. This munition is most effective against other armoured vehicles, with which the Taliban are not equipped. The Sabot round offers minimal breaching capability, and it actually threatens increased collateral damage because it does not explode on contact with its intended target. Tests conducted by the Danish Army on the DM 12 HEAT round have shown positive breaching effects, and modifications to the DM 33 APFSDS round have also increased the fragmentation of the round on impact with the target.

Canada's role in Afghanistan is changing, and it will continue to evolve until the end of our current mandate in February 2009. Cognizant that our ticket out of that country will be the creation of a credible and effective military and police force, the Chief of the Defence Staff (CDS), General Rick Hillier, announced recently his priority now is to devote more energy to the capacity building of the ANSF.[5] Effective with the immediate deployment of the 3rd Battalion Royal 22e Régiment (3 R22eR) BG, one of the three infantry companies previously committed to combat operations in Kandahar Province will be tasked to assume the responsibilities of an OMLT. The OMLT, embedded with three Kandaks (battalions) will train and mentor Afghan soldiers and will maintain liaison with ISAF forces in order to facilitate enabling support for ANA operations. Two mechanized infantry companies, a tank squadron, a reconnaissance squadron, an artillery battery and a composite engineer squadron have been retained in the Canadian BG for continued security operations.

The Canadian BG will continue to buy time for the advancement of ANSF capacity building and reconstruction initiatives by keeping the Taliban off balance through aggressive security operations. With fewer than 1000 soldiers available for kinetic operations, we will be challenged to find an appropriate balance between holding key terrain in areas where the Taliban are most likely to undermine support for the Government of Afghanistan while being able to project devastating combat power throughout the entire AO. Assuming other countries will not in the near term contribute

additional ground forces for operations in Kandahar Province, the Canadian BG will likely have to task as a steady state one infantry company, augmented with key battlefield enablers, to seize and hold ground of strategic importance to ISAF. This company could retain two to three FOBs within the designated Canadian AO, in which steady state operations would be synchronized closely with ANSF and the PRT initiatives, while disrupting insurgents attempting to infiltrate the area.

Photo courtesy of author

The tank squadron and the remaining mechanized infantry company should form the basis of a mobile strike force, capable of surging rapidly and violently throughout Kandahar Province to locate and hammer Taliban cells. In order to promote the credibility of the ANA, all operations should be, or at least perceived to be, Afghan led. The mechanized combat team would serve as a very visible indicator of the combat power at the disposal of the ANA, and it could facilitate the transition and evolution of our commitment to Afghanistan. As conventional forces thin out in favour of bolstering the OMLT and PRT, the mechanized strike force could be retained as the Joint Task Force Afghanistan Reserve. We should avoid the temptation to re-deploy to Canada first the Task Force Afghanistan Enhancement Package simply because it was last on the ground and perceived to be of least importance to the continued success to our mission. By the time we are ready to declare the ANA capable of ensuring the security of Southern Afghanistan, this force will have sufficient dismounted soldiers in its ranks. It will not, however, have its own integral enablers provided currently by the coalition.

A reinforced Canadian mechanized combat team organized with a tank squadron, infantry company, armoured engineer troop, reconnaissance/Intelligence, surveillance, target acquisition and reconnaissance (ISTAR) troop, artillery battery (with FOO/JTAC team), integral echelon and PRT/civil-military cooperation(CIMIC)/psychological operations (PSYOPS) detachments should remain on the ground until another coalition partner is prepared to assume our responsibilities in Kandahar, or until the ANA is able to truly stand on its own. Although a combat team is normally commanded by a major,

a lieutenant-colonel should command this tactical grouping as it would be stacked with multiple enablers and to ensure the ability of this organization to influence JTF-AFG battle procedure.

Conclusion

Sustained combat in Afghanistan for the past 18 months has confirmed the effectiveness and professionalism of the Canadian Army; however, many of our observations from battle are not new. Perhaps most obvious of the lessons we have relearned is the importance of the combined arms team in full spectrum operations, and the continued significance of the tank and armoured engineers in the COE. While our understanding of the threat and the complexity of operations in the modern battle space is sound, we have been excessively optimistic about our ability to find the enemy and determine his intentions without having to fight for information. We will strive to achieve knowledge-based and sensor-led operations, but we are not there yet. Until we can deny the enemy a vote, it will be necessary to form and deploy flexible combined arms teams capable of advancing to contact, and crushing opposing forces with overwhelming combat power and manoeuvre in extremely complex terrain, by day and by night.

Many of the force developers and critics of armour that informed recent Army Transformation initiatives argued that tanks had become increasingly irrelevant in the COE for a multitude of reasons: they are expensive to maintain, they are not easily deployable and they can be vulnerable in complex and urban terrain. These observations are true, but they are self-evident and apply to most other elements of the combined arms team, all of which have their own weaknesses and deficiencies when operating independent of the other enablers. Providing increased firepower, protection, tactical battlefield mobility, and a definitive psychological impact, the tank will remain an invaluable tool in the arsenal of the Canadian Army for the foreseeable future.

About the Author...

Major Trevor Cadieu is serving as Second-In-Command Lord Strathcona's Horse (Royal Canadians). He returned recently from his second tour in Afghanistan, where he was honoured to command and serve with the great soldiers of B Squadron, a Leopard tank squadron, and 1st Battalion The Royal Canadian Regiment Battle Group, in combat operations.

Endnotes

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