

Employing Armor in Low-intensity Conflicts: Some Lessons for the U.S. Armor Force

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Much has been written about low-intensity conflict (LIC) — what it is and what it is not — but there is very little literature on how to fight one. This is probably because no nation has done so successfully, except possibly the British in Northern Ireland.¹ Many countries fighting a guerrilla war have tried to use the weapons and tactics they know best to defeat an inferior enemy, and when these nations had modern, mechanized armies, those weapons have included tanks and armored vehicles.

On the surface, tanks would seem to be a good choice to fight guerrillas. Tanks carry a lot of firepower, are mobile, and are much better protected than infantry in the open. However, upon closer examination, tanks and other armored vehicles have not fared well against guerrillas, even lightly armed ones. One reason is that armor units have been unable to employ the decisive maneuver they enjoy in conventional war in the restricted terrain of low intensity fights. Moreover, they are vulnerable to well placed anti-tank rockets, anti-tank guided missiles (ATGMs), and mines, all of which are available to guerrilla forces. Finally, the high visibility of an armor operation, which includes the logistics sites, the road marches, and the combat operations themselves, make it hard to surprise guerrilla forces with armored units. Thus, armor struggles to gain the initiative in LIC.

A low-intensity conflict is not about quickly engaging the enemy's army, pinning him, and then using your reserve to flank him and decisively win. Rather, these conflicts tend to be long drawn-out affairs, where there are usually no front lines and nothing to decisively engage and flank. Moreover, the guerrilla enemy seeks to avoid being decisively engaged. Using terrain to mask his movements, the guerrilla will strike the stronger force before the stronger force can respond. In a LIC, the weaker force is not obligated to

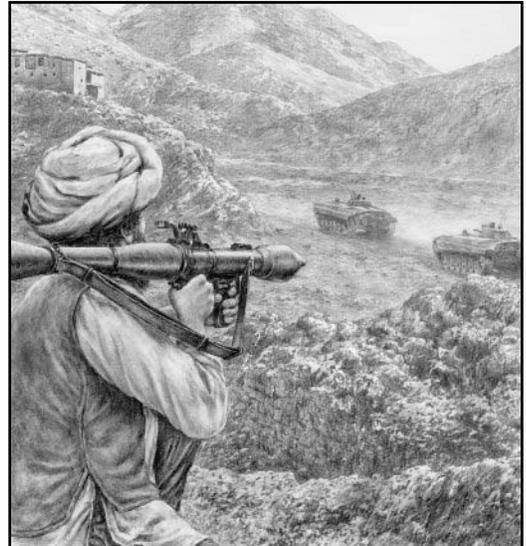
win; it must only keep from losing. The stronger force, on the other hand, will lose if it does not win. In that sense, the stronger force has a much tougher job than the weaker force. To right this balance, some armies have used mechanized forces to help them win.²

The Soviet invasion of Afghanistan and the Israeli invasion of Lebanon offer good examples of mechanized forces engaged against guerrillas. I have chosen these examples because both mechanized armies seemed militarily far superior to the guerrillas they engaged. In fact, they both were; however, both armies were ultimately forced to withdraw. Both armies made heavy use of tanks, armored personnel carriers (APCs), infantry fighting vehicles (IFVs), and mechanized infantry (infantry who ride to battle in APCs or IFVs).³ Yet, both armies seemed at a loss to effectively employ these awesome weapon systems in LIC conflict.

Let's examine how each army employed its mechanized forces in LIC, and analyze the problems they encountered and their more successful techniques against guerrillas. Then we can compare the lessons they learned with the U.S. Army's preparations for fighting a low-intensity conflict with its armored forces, arguably the best in the world. This comparison will reveal that the lessons learned by the Russians and the Israelis in Afghanistan and Lebanon suggest weaknesses in the U.S. concept for using its armored forces in similar battles.

Afghanistan: 1979-1980

On December 24, 1979, the Soviet Union invaded Afghanistan to "stabilize" the country for pro-Moscow forces. Afghanistan is a land-locked country in central Asia, bordered by the former Soviet Union, Pakistan, Iran,



and China. Most of the country is very mountainous, with the Hindu-Kush range covering about half the nation's territory. These mountains are steep, with peaks rising as high as 17,000 feet. In contrast, around Herat, in the western part of the country, the topography flattens out into a plain.

At the time of the Soviet invasion, Afghanistan had very few major roads, the few hardball roads having been built earlier with Soviet assistance. The climate is arid, with very hot summers and very cold winters. Most Afghans were engaged in agriculture and illiteracy ran as high as 90 percent.⁴

The Soviets invaded Afghanistan in two phases. First, an airlift of paratroopers from the 105th Airborne Division assaulted the Kabul Airport with their BMDs; their mission was to seize control of the capital and start securing the countryside.

Meanwhile, a two-pronged thrust of armored and motorized troops, about three divisions, thrust overland from the Soviet Union. One group moved south from Termez down the Salang Highway, while the second group moved southwest from Kushka.⁵ The

motorized force's mission was to take control of key cities and routes in order to secure supply lines. This invasion force eventually grew into the 40th Army Group, which included seven motorized rifle divisions, an airborne division, and five air assault brigades.⁶

Eventually, the Soviet Union had about 156,000 troops in Afghanistan.

Although the Soviets invaded with 1,200 tanks, and later peaked at 1,750 tanks, there were only about 320-460 tanks at the time of the Soviet withdrawal in 1989. The number of APCs and IFVs also rose and fell after a peak in about 1986.⁷ Overall, the Soviets committed only about two percent of their forces to the fight in Afghanistan, compared to the commitment of 20 percent of U.S. strength in the Vietnam conflict.

Moscow did not configure its invasion forces for specialized guerrilla or mountain warfare. Instead, it sent units equipped and trained for combat against NATO forces in Eastern and Western Europe. These troops lacked specialized mountain training because it was assumed that combat would be accomplished by prepping the area with massive artillery barrages supporting the advancing dismounted infantry while tanks provided close-in support. Airmobile troops would seize the high ground when mechanized troops could not.⁸ Rigidly adhering to the doctrine that had been tailored for a war with the West, the USSR deployed numerous support units with the invasion force simply because their parent units were deployed. These included chemical, air defense artillery, anti-tank, and surface-to-surface missile units. All of these units were recalled a short while later and replaced with more suitable units.

The quality and composition of Soviet units varied greatly. While the airborne unit was composed of Western Russians, the motorized invasion forces were composed mainly of Soviet Central-Asian reservists on 90-day call-up, troops of poor quality. Later, the Central-Asian troops were replaced by White Russians who were better trained and considered more politically reliable. Training remained an issue for the Soviet troops: until 1982, there was no specialized mountain training for conscripts prior to their arrival in Afghanistan. Also, at the start of the conflict, Soviet Army NCOs were not up to the challenge of small unit leadership. The conscript nature of the Soviet Army

meant that NCOs had, at most, a year or so more experience than the men they were supposed to be leading. The centralized nature of Soviet doctrine, coupled with ineffective small unit leaders, were also major hindrances that impacted the Soviet ability to fight a guerrilla enemy. After 1987, this shortfall was reflected in Soviet military literature, which started calling for an improvement in the quality of the NCO corps.⁹

The Soviets faced an irregular guerrilla force known as the *Mujahideen*. The majority of Afghans opposed Soviet rule, with about 90,000 in guerrilla groups, but of these 90,000, only about 20,000 were actively involved in resistance at any one time, with few of these actually engaged in fighting.¹⁰ Subdivided into opposing factions, the *Mujahideen* never fought effectively as a single unit; in fact, some of the *Mujahideen* factions were just as opposed to each other as to the Soviets and the Democratic Republic of Afghanistan (DRA). These factions differed in ethnicity and religious belief. Some were conservative Muslims, while others were more moderate. Some were ethnic Pushtuns, the majority, whereas some were Turkic ethnic minorities. Some were Sunni Muslims, others were Shiite. As a result, groups fought each other with the same fervor that they fought the Soviets.

An episode that illustrates their lack of cohesion and cooperation occurred when two DRA tank crews defected with their tanks, and two separate factions claimed the surrendered tanks. After several meetings, the compromise finally reached was that one faction would get the tanks' front halves, while the other faction got the tanks' back halves, thereby making it impossible to use the tanks in operations.¹¹

Equipment and ability also differed between groups. Most groups started out armed with antique rifles. As more outside aid reached the guerrillas in Afghanistan and as more weapons were captured or bought, the arsenal of *Mujahideen* arms expanded. However, throughout the war, the *Mujahideen* lacked anti-tank and anti-aircraft weapons. Many of their heavier weapons were Peoples' Republic of China (PRC) copies of Soviet weapons. These included SA-7 AA missiles, RPG-7s, 14.5mm AA guns, some light mortars, and some rockets. However, these weapons were few and far between.

The majority of engagements were fought with captured small arms and light anti-tank weapons.

While the overall style of guerrilla operations remained the same, there was a definite difference in the level of professionalism between factions. Some were merely bandits, looking to capture arms to sell for currency, while others were more professional. The unit lead by Ahmad Shah Maasud, for example, had standing cadres of guerrilla fighters. His units were divided into *motoraks*, which were mobile striking units of about company strength, and *sabets*, which were local defense forces of about platoon size or slightly larger.¹² Massud was one of the few guerrilla leaders possessing the organizational skills required to train and sustain combatants in the field, away from their homes. Most *Mujahideen* were poorly trained and haphazardly organized. Massud was able to create specialized units, which allowed him much greater tactical flexibility and striking range.

The Soviets did not come to Afghanistan with the intent of fighting a guerrilla war. The Soviet concept was to fight a war of attrition. The Soviets would cut off supply lines, remove incentives for villagers to provide food for the *Mujahideen* (or simply remove the villagers) and whittle away the Afghan ability and will to fight. While this may seem an inappropriate way to fight the war, the Soviets were able to control the main cities, though much of the country through which their supply routes traveled was never permanently under Soviet control.

In the early years of the occupation, the doctrine used by the Soviet Union was the same as that which was developed to fight NATO in Europe. The Soviets relied heavily on mechanized forces and consequently were road-bound. Artillery and air support were heavily centralized. Moreover, there was very poor integration of artillery and air support assets with ground forces.

Centralization of command was a recurrent theme in Soviet doctrine. Junior officers and NCOs were discouraged from independent action, and were merely expected to fight their units in the ways that their commanders had prescribed. Soviet tactical manuals proclaimed, "The lower the level, the greater must be the degree of centralized control."¹³ But the Soviets soon

discovered that counter-guerrilla warfare had to move faster than centralized control permitted.

Prior to 1982, the Soviets mainly used road-bound motorized forces to attack the Mujahideen, which led to immediate tactical problems. The roads in Afghanistan pass through valleys and gorges, so heights command either side of the road in terrain easily infiltrated by the guerrillas. When the Mujahideen attacked from these heights, the main guns on the BTRs and tanks did not have the elevation necessary to engage or suppress them. Most convoys consisted of T-55s or T-62s while the infantry rode in BTR-60s. While the vegetation was sparse, the rocks, draws, and wadis made perfect hiding places from which to ambush or snipe at the convoys.

Soviet doctrine was not entirely to blame. The Soviet soldiers were often reluctant to dismount from their BTRs, instead choosing to shoot from the firing ports of their vehicles, which provided inadequate visibility and range of motion to effectively engage guerrillas. More often than not, the guerrillas slipped away before the Soviets could hit them.

After 1982, the Soviets started employing more helicopter-borne troops. Helicopters allowed rapid insertion of Soviet troops onto the possible withdrawal routes of the Mujahideen. This allowed the Soviets to act as the ambushers and not the ones being ambushed. Soon, every third trooper was used in an air assault role, and by 1986, 70 percent of all Soviet operations were heliborne.¹⁴ Increased use was also made of *spetznaz* or Soviet Special Forces units. These soldiers had more training and were generally considered better fighters. They could lay counter-ambushes and operate more independently than other Soviet troops.¹⁵

The increase in the use of heliborne troops did not completely eliminate the role of armor, which was still used, but only in a support role. Armor was still restricted to valley floors, and moved at a slow rate of speed. Heavy armor (consisting of tanks and BMPs) was found to be effective in forcing the enemy to withdraw. A good tactic was to have the armor push the Mujahideen out of a main valley and into smaller valleys and draws to escape. These smaller escape routes would be the site of ambushes laid by troops who had been inserted by helicopter.

This tactic worked well in the Panjshar 6 campaign in August-September 1982. The operation consisted of the landing of a large heliborne force towards which a mechanized column moved. The mechanized column moved on the valley floor, but smaller attacks were conducted up the side valleys, where heliborne forces had laid ambushes. This pushed the guerrillas either out of the valley or into the waiting heliborne forces. However, the smaller, side-valley attacks were not conducted with heavy armor, only by lighter vehicles, dismounted infantry, and heliborne forces. The attack was successful in that it broke the infrastructure of the Mujahideen in the area.¹⁶ Five months later, the Mujahideen, led by Massoud, signed a truce in the valley.

Another effective tactic combining armor and heliborne troops was the tactic of airlifting BMDs behind the enemy. This combined the firepower of a mechanized unit with the rapid movement of an air assault unit. The BMD allowed large volumes of firepower¹⁷ to be brought to bear on a target. However, it was lightly armored, and therefore vulnerable to RPGs, so the Soviets would try to keep the Mujahideen at a distance from the BMDs while the Mujahideen would try to “hug” Soviet ve-

hicles.¹⁸ The 30mm autocannon of the later model BMDs proved very popular, as it was more appropriate than the 73mm anti-vehicle gun.

The Mujahideen were not without anti-tank weapons. The most popular methods for attacking tanks were RPGs and mines. The RPGs had a range of only about 300 meters, but proved very effective against Soviet armored forces. A Mujahideen anti-armor team might consist of as many as 15 RPG-7 gunners,¹⁹ although this was rare because RPGs were always in short supply.

Mines were also used, by both sides, as anti-tank weapons. The Mujahideen would acquire Italian mines or manufacture mines from dud Soviet bombs. The Soviets would search for mines by sending a mine roller-equipped T-55 ahead of their troop columns. To counter this, the Mujahideen employed mines rigged with pneumatic plungers, which gradually depressed a little more with each vehicle. Thus, the mine would explode in the middle of the column, well after the mine roller passed. However, the large size of anti-vehicle mines made them hard to hide. To discover mines made of plastic, the Soviets used search dogs.

Lessons Learned

The Soviets did not come to Afghanistan prepared to fight a guerrilla war. Their equipment was ill-suited, their doctrine was inflexible, and their command structure cumbersome. While the Soviets adapted to the situation, the adaptation was slow. They were slow to abandon their reliance on the armored formation. Even after a switch to primarily helicopter forces, they did not entirely get rid of the armor units. After 1987, when Stinger attacks made heliborne operations too risky, the Soviets reverted back to the slower, but more secure, armor tactics.

The Soviets could airlift lightweight BMDs and airborne troops behind mujahideen positions, creating what amounted to an armored air assault force. The BMDs shown here had the earlier anti-vehicle cannons, but the rapid-firing 30mm autocannons on later models proved very effective.



The command structure of the Soviet army worked well with large armor formations, but not so well at the small unit level. This was a shortcoming that seriously hampered their fighting in Afghanistan. The lack of initiative on the part of junior officers slowed down the tempo of operations, so guerrillas were able to escape before they could be decisively engaged. Moreover, coordination between the forward commanders (often junior officers) and indirect fire assets was poor, and the artillery was slow to react. Attaching a 120mm mortar carrier at a lower level allowed the junior commander quicker access to fire suppression. Another successful adaptation was the use of the AGS-17 automatic grenade launcher. This crew-portable weapon provided readily accessible indirect fire support.

The ability to saturate an area with fire seemed to be a successful Soviet tactic. The 73mm guns on BMPs and BMDs were replaced with 30mm autocannons, which were more effective in laying down large volumes of fire. The ability to generate long-range suppressive fire was more important to the Soviets than anti-armor capabilities. Another effective weapon was the tracked ZSU-23-4. Their four 23mm guns were used with great effectiveness against infantry, especially in cases where they were firing on infantry high above them. The Soviets suffered from the constant problem of not being able to elevate their guns enough to engage guerrillas on the high ground. One solution was to use the commander's roof-mounted machine gun, but this exposed the commander to small arms fire and distracted him from the job of leading the tank crew.

No matter what firepower was brought to bear, tanks never gained the initiative against the Mujahideen. There were no lines to smash through, no objectives to overrun. Even the principle of mass did not seem to apply. What worked against the guerrillas were weapons that robbed them of initiative and denied them movement. The anti-infantry systems of BMPs and BMDs, coupled with high volume weapons, such as the ZSU-23-4 or the AGS-17, were more effective in this type of conflict than the main gun of a T-55 or T-62. The Soviets found their heavy armor more of a liability than an asset, while they found their lighter armor much more effective.



The Soviets employed the ZSU-23 air defense weapon against guerrillas perched high along mountain passes because the four 23mm machine guns, designed to hit planes, could elevate sufficiently where tank guns could not. Recently, this weapon was also found useful in engaging snipers in tall buildings in Chechnya.

South Lebanon: 1985-2000

South Lebanon is a good place to be a guerrilla. The hills, wadis, draws, and forests allow for unobserved movement and quick escape routes. The PLO used this terrain to their advantage in escaping the IDF invasion in 1982,²⁰ and in 1985, after Israel had withdrawn from most of Lebanon, the Israelis created a "security zone" running across South Lebanon to keep PLO guerrillas from attacking settlements in northern Israel. The security zone was 1200 square kilometers in area, but not quite deep enough to put the northern towns of Israel out of Katushya rocket range. There were several towns in the security zone, the largest being Jezzine, in an area controlled by the South Lebanese Army.

At first, Israel garrisoned about 1,500 troops in Lebanon at any one time. This number increased to 2,000 in 1997,²¹ with troops spread out in outposts of various size throughout the zone. The guerrillas facing them were mainly from the Hizbullah (party of God) in South Lebanon. The Hizbullah, a Shiite Muslim group, was dedicated to removing Israel from South Lebanon and numbered about 1,500, with 200-300 active at any one time and the rest reservists. These guerrillas operated with a high degree of compartmentalization and independence, so that the Hizbullah leadership in Beirut, in some cases, would often be unaware of the operations of a particular Hizbullah cell until they read about it in the papers.²²

The Hizbullah operated on secure lines of communication, but also received outside help. Iran supplied both

weapons and training, thus Hizbullah did not suffer the traditional guerrilla problem of insufficient armament or supplies. Hizbullah units would mobilize, move across the border into the security zones, and then withdraw, making them hard to catch within the cities of the security zone.

The decision to use more tanks in the Lebanon occupation came in 1987.²³ The tanks' original mission was to seek out and kill the Hizbullah, and for about a year, this tactic was effective. They would accompany APCs on patrol, engaging the guerrillas with anti-personnel rounds, mainly flechette rounds. Additionally, the tanks would assume an overwatch position from Israeli encampments. Ground surveillance radars (GSR) and the thermal imaging and targeting system of the Merkava made it possible to track the guerrillas and direct dismounts or call for indirect fire. However, after about a year, the tanks were no longer succeeding against the guerrillas.²⁴ They had learned that the Merkava had a range of about 4,000 meters, so they would then move outside the firing arc of the stationary tanks. However, this was not a complete loss to the Israelis. Knowing that the Hizbullah would move only outside the firing arcs of the Merkavas, the IDF could canalize the movements of the Hizbullah by the placement of their tanks, and reduce the infiltration routes that the Hizbullah could use.²⁵

In addition to overwatching static Israeli outposts, tanks also overwatched mounted patrols. Usually, the Israelis would send out a patrol of an APC and a tank or perhaps two tanks. The tanks



Note the extent of modifications to this Israeli M113, which is hardly recognizable as such. An armored turret, extra machine guns, reactive armor, anti-RPG plates, and a battery of smoke grenade launchers were added for protection against guerrillas, but ultimately, even these changes proved inadequate, leading to the modification of obsolete tanks as a more survivable solution.

battle-carried flechette rounds, and took turns in overwatch positions. The APCs would dismount the infantry to secure the area. The terrain of South Lebanon made for short overwatch ranges of usually less than a kilometer.

The infantry patrolled in a number of vehicles. In 1982, when they entered Lebanon, Israeli mechanized infantry rode to battle in up-armored M113s, but Israel found the design lacking if not deadly because of vulnerability to shaped-charge weapons like the RPG-7. A new, more survivable vehicle was sought, and since Israel did not require the same deployability weight limits as the U.S., it was decided to convert obsolete tanks into armored personnel carriers. The Israelis also understood that these patrols would be road-bound. Moreover, the Israelis used their APCs to secure routes, and understood the road-bound nature of tracked vehicles in South Lebanon, thus Israel sought survivability over all else in the design of its APCs. Two designs emerged as suitable APCs, the *Nagmahon* and later, the *Nakpadon*, both based on a modified Centurion tank.

Both are heavy APCs, and both are armed with light machine guns, since the main targets were infantry, not light armored vehicles, and the main threats were mines, ATGMs, and RPGs. Therefore, protection, not speed or firepower, was the main operational requirement,²⁶ with heavier firepower provided by the tanks in the overwatch position. The design of the two APCs was based on the operational requirements of Lebanon, which meant short-distance patrols. The Hizbullah fought using hit-

and-run tactics, only presenting themselves long enough to fire at the Israelis with anti-tank weapons and then withdrawing, so Israel did feel the need for a traditional IFV, in the sense of a BMP or Bradley. Moreover, cross-country mobility was not seen as necessary. Israel used its armored patrols to secure routes and move troops, not assault the enemy. Therefore, the slow, heavily armored, but lightly armed APCs were more suitable than faster, more heavily armed, but more vulnerable, IFVs.

For the most part, Israeli armor was static. The role of the tank was surveillance and overwatch, since Hizbullah had no vehicle capable of facing a Merkava. Israel did conduct armored patrols, which tended to move along well-established routes, and this had two detrimental effects. The first was that Hizbullah could predict where Israeli forces were moving, and occasionally even when, which resulted in Israeli casualties, even on patrolled routes. For example, on the route from Marjayoun to Beaufort Castle, Hizbullah repeatedly set up Sagger ambushes. The other detrimental effect was that the patrolling was limited to established, predictable routes, so Hizbullah had great freedom of movement outside these areas. Thus, Hizbullah retained the initiative.

While Israel had uncontested control of the skies and made use of fixed and rotary wing aircraft, both weapons systems did little to stop guerrilla attacks on IDF positions.

In 1995, Israel started using a special heliborne unit called an *Egoz*, or wal-

nut.²⁷ These units operated by crossing over the border of the security zone and into Lebanon proper. The *Egoz* would be inserted by helicopter and then set up ambushes along probable infiltration routes. The *Egoz* did have some success, but they did not turn the tide of the war. The use of *Egoz* may have been a morale booster as much as an attempt to stop Hizbullah attacks.²⁸ Nevertheless, they did not completely prevent Hizbullah attacks and suffered losses of their own.

The enemy that the IDF faced was not an enemy in the traditional sense. Hizbullah did not have a division to encircle, it did not have a command center to destroy, and it did not have an air force to neutralize. However, they were still able to inflict losses on Israel, albeit not with impunity. The Hizbullah used the guerrilla tactics of raids and ambushes. There was a shift in the patterns of attack in 1990-91. In the late '80s, Hizbullah attempted human-wave style assaults, which brought high casualties.²⁹ After 1991, the attacks became more disciplined. Assaults were made with two units, an assault unit and fire support unit. The fire support units were able to zero in their 81mm mortars within two ranging rounds, and the planning that went into Hizbullah operations mirrored that of their adversaries, with dedicated staff work and intelligence collection.³⁰ While these were effective force multipliers for the Hizbullah, the fact that they constantly had the initiative is what allowed them to be so successful against the IDF.

Two types of attacks were used against armor units. The first was the ATGM or RPG attack. The ATGM was favored because of its obvious range advantage and destructive capability. The ATGM attack would take place at a significant range so as to minimize risks to the firing teams. The Hizbullah made widespread use of the AT-3 Sagger, but towards the end of the war, they also employed the AT-4 Spigot, which had the advantage of flying faster and being harder to spot than the slower-moving Sagger. Additionally, the Hizbullah also made limited use of U.S. TOW ATGMs.³¹ The ATGMs were used against armored units as well as command posts where the ATGMs could "literally be guided through the observation ports of heavily fortified and otherwise impregnable positions."³² The IDF countered the attacks on ob-

servation ports by installing fences over the ports.

Another tactic of the Hizbullah was the roadside bomb (RSB), essentially a form of mine, along with conventional anti-personnel and anti-vehicle mines. Some well-camouflaged claymore-style mines were hidden in a fiberglass shell that was painted to match the surrounding rocks. These mines could be command-detonated by wire, radio signal, or cell phone, the latter being preferred because wires could be spotted and radio signals jammed. The IDF also employed APCs equipped with jammers to neutralize the command-detonation frequencies.³³ Additionally, special anti-mine Centurions were used, as well as dogs, to ferret out mines. IDF sappers searched for mines wearing special shoes that distributed the weight of the sapper so as to reduce his ground pressure.³⁴

Roadside bombs were very effective. It is estimated that half of all such attacks succeeded, and 16 of the 24 IDF soldiers killed in 1998 were killed by RSB.³⁵

While Israel did have initial success in using its tanks to seek out and kill guerrillas, their effectiveness diminished as Hizbullah learned their adversaries' tactics. Nevertheless, Israelis did have some success in using the sensor suites of their tanks to help locate guerrillas. Moreover, tanks were the main firepower on patrol for the IDF.

The Merkava, the *Nagmahon*, and the *Nakpadon* were all heavily armored at the expense of speed. However, speed was not an issue; protection was. (I personally know an IDF platoon commander who was hit with a TOW missile while he was commanding his platoon of Merkavas.³⁶ A scorched eyebrow was the extent of his injuries.) IDF armor was meant to keep the crew alive above all else, but armor alone was not sufficient to stop the Hizbullah. The Egoz units attempted to attack the Hizbullah on their terms, but the military success of these units is debatable. In the end, the IDF was still required to withdraw.

A low-intensity conflict is a contest of wills. Hizbullah sought to sap Israeli resolve and demoralize them. Thus, the psychological boost of the Egoz successes was probably more effective than the number of Hizbullah they killed.

The use of mines and roadside bombs was a problem not unique to Lebanon. If anything, the South Lebanon fighting showed that a cheap, easy-to-use, readily available weapons system could cause a considerable amount of damage. The Israelis ran into the same problem as many other armies facing modern mines — detection. The use of plastics has made mines harder to detect. Mine clearing operations were not always effective. The use of highly trained sappers and dog teams helped, but these units are vulnerable and their use is time-consuming. They can turn into more of a liability than an asset.

Lessons Learned

Israel first decided to use tanks as a way of defeating the Hizbullah, but after a year of use, they found that the tank was not effective. This was not because the tanks became any more vulnerable, but because the Hizbullah became less so. The Hizbullah's learning curve, learning to defeat the firepower of the Merkava by staying out of its range, was much steeper than that of the IDF as it tried various tactics to employ its armor. Ultimately, you could say that the use of tanks led to a sort of Catch-22: the tanks were meant to protect more vulnerable targets, but required many units to support them. Thus, the use of tanks also increased the number of vulnerable targets in the theater of operations.

Finally, part of the reason Israel seemed unable to prevent attacks was that it never really gained the initiative. Tanks present a high-signature. In restricted terrain, it is difficult for tanks to capitalize on the element of surprise. Thus, IDF tanks were always reacting to what the Hizbullah had done, while the Hizbullah would decide when and where to attack.

Armor units were not without merit. The Merkava's protection is excellent. Certainly, more troops would have died had they not had the protection of heavy armor. However, the troops required to support the Merkava were also at risk. Israelis found that tanks were not undefeatable giants of the battlefield. Rather, the Israelis found that without initiative, tanks were neutered of their combat prowess.

Lessons for the U.S.

The U.S. won Desert Storm decisively. However, the occurrence of a similar war is not likely. Mechanized

armies are expensive. Moreover, no country would stand a realistic chance for victory against U.S. mechanized forces using mechanized forces of their own. U.S. tanks have killing ranges of almost four kilometers, and can shoot on the move at speeds of almost 100 km/hr. U.S. tanks can see in all types of weather, day or night. But U.S. tanks weigh 70 tons, get roughly ½ mile to gallon on good days, and have no ability to separate guerrilla from civilian. Moreover, they are big. The Abrams is almost 8 meters long, 3.6 meters wide, and 2.4 meters tall, with all the stealth of a rhinoceros.

In the two examples above, tanks never seemed able to gain the initiative. Granted, both Afghanistan and Lebanon were considered "restrictive terrain," but I think it is unfair to blame terrain. A guerrilla operation, by definition, requires that the terrain be favorable to defense and ambush-style operations, or the guerrilla movement is short-lived. Therefore, I believe that it is safe to assume that a future guerrilla conflict with the U.S. could very likely take place in an area which is not suited for tanks, or IFVs for that matter.

That said, nothing makes a statement like a tank. While the 70-tons of tank may be hard to move, it is also hard to kill. While killing an Abrams, even with modern ATGMs, is not easy, infiltrating past one may prove much easier. Therefore, you need infantry, and infantry require APCs, or IFVs. These are easy to kill, and are about as big and as noisy as tanks. Both the Bradley and the new LAV III can be disabled if not killed all-aspect by widely available improved RPGs. So, does armor belong in the U.S. LIC order of battle? I believe that it does, in a limited role.

The armor branch of the U.S. Army bills itself as "The Combat Arm of Decision," but because of the nature of LIC, the tank is not decisive. The traditional role of "close with and destroy the enemy" is not a role armor should play in LIC. The role of armor should be where it is most effective, in support. The Israelis had the most success with their armor using it in overwatch. Their sensors and machine guns were a great help in identifying and attriting the enemy, after the enemy attacked. Tanks are effective as reactionary forces. Except for certain weapons, they can absorb hits from small arms with no difficulty. Thus, infantry can be as-

sured of supporting fires against the small arms fire of the enemy. Additionally, they can use the tank as cover.

However, in a close-in fight, the advantages of a tank are more limited. When a tank receives small arms fire, the only weapons safely available are the main gun and the coax machine gun. The effectiveness of the main gun is further reduced as there are very few rounds that can be fired safely near supporting infantry. The U.S. does not yet field a 120mm flechette round, so the main antipersonnel weapons system that a tank provides is its 7.62mm machine gun. I do not wish to belittle this, as a mobile machine gun position is still a great boon to friendly infantry, but it is a 70-ton, four-person, 7.62mm machine gun. The Soviets found great success in using their auto-cannons and anti-aircraft guns to effectively "hose" an area. The Bradley has a 25mm cannon, but it is very vulnerable in a close-in fight, as it is susceptible to anti-tank rockets and grenades to a much greater extent than an Abrams is; quite a dilemma.

Thus, the overwatch position for tanks seems to be the best role. That way, the tank can engage with all of its weapons systems, and still be out of most small arms range. Moreover, the Abrams was not designed for close integration with infantry. The exhaust is hot enough to cause burns, so infantry cannot safely find cover behind it. Additionally, the tank has no integral phone to permit the infantry commander to talk to the tank commander. It may seem like a small thing, but trying to communicate through the depleted uranium shell of an operational tank is not an easy task.

The Soviets found that tanks would work if screened and supported by heliborne infantry. I would assume that the same would work for U.S. armored forces. They could be deployed if they were used in conjunction with light infantry. However, the most successful use the Soviets and the Israelis made of their tanks was when the infantry was used as the finding and fixing force, while tanks were used as either fire support or as an "anvil" in hammer-anvil style tactics, the infantry "hammer" pushing guerrillas towards the armor "anvil." The U.S. made use of this tactic in Vietnam in cordon and search raids.³⁷ However, using infantry to screen for tanks where the tanks are being used in the role of seeking contact with the enemy seems counterproductive. The paradox of LIC is that

an increase of troops is not necessarily a good thing. Usually, the stronger side already has dominant numbers of troops and firepower, so the marginal gain of combat strength (in this case, heliborne troops) is not so great. Rather, the increase in the number of troops increases the signature of the stronger side and increases the number of available targets for the guerrillas.

The U.S. seems to have addressed the problem of gun elevation which plagued the Soviets. The 25mm cannon of the Bradley can be elevated up to 60 degrees, but the main gun and coax of the Abrams can only be elevated to 30 degrees.³⁸ The LAV series of vehicles can be fitted with a 25mm auto-cannon which can also be elevated to 60 degrees. Additionally, the Soviets found that the AGS-17 automatic grenade launcher was a very good weapon for providing immediate suppression of guerrilla forces, making their escape harder. The U.S. does fit the Mk-19 automatic grenade launcher to HMMWVs, though the vehicle is not really heavy enough to support the kick of the weapon. The new family of LAVs, however, could easily mount a Mk-19, giving a local infantry commander organic, indirect fire against lightly armored targets, like withdrawing guerrillas. Both the Mk-19 and the 25mm auto-cannon have ranges of over 1000m. Nevertheless, it is conceivable that an enemy would try and "hug" U.S. forces and remain close enough to use RPGs against thinly skinned vehicles. More-

over, if a fight is taking place in restricted terrain, finding support-by-fire positions of over 300m (the range of the older RPG-7) will be a rare thing. Thus, the LAV is not a perfect solution. While it provides firepower, it could still prove a liability.

There is no real doctrine for using U.S. Armor in a low-intensity conflict. There is some indecision about how to use tanks and IFVs most effectively. Current Center for Army Lessons Learned (CALL) newsletters have tanks being used as both a finishing force and as a support force.³⁹ There is some assumption that the mere presence of tanks alone will be enough to scare the enemy into not making contact:

"An unconventional enemy may be quite willing to make contact with infantry, but will avoid contact with infantry accompanied by tanks, in many cases."⁴⁰

This is not a quote from a field manual, but rather a more current, though less official, take on tactics and techniques of light and heavy integration. Nevertheless, I think it shows the belief that the enemy's fear of tanks is innate and will keep them from targeting tanks, or even making contact with U.S. forces. While ATGMs are advanced weapons and difficult to obtain, they are not impossible to acquire. Both the Hizbullah and the Mujahideen were able to acquire wire-guided missiles, albeit the latter did so much less frequently than the Hizbullah.



Photo: Mike Green

The Bradley's cannon can elevate to 60 degrees, whereas U.S. tank guns can't elevate over 30 degrees, a drawback in mountain and city fighting.

Mines are much cheaper; a tank killed by a mine is as dead as a tank killed by a missile. Mines are a particular threat to the U.S. forces. First, their availability makes it almost certain that U.S. forces will face them in a future LIC. They are relatively cheap and easy to use, considering the damage they cause. Mines can also be made from dud artillery shells, bombs, or merely explosives bought in bulk.

Moreover, U.S. mechanized forces will be highly dependent on roads and road networks. The supply and logistics of keeping any vehicle operating in the field are enormous, and U.S. forces will require roads to keep the tanks and APCs running. While the tank may not be very vulnerable to mines, a truck will be. At Ft. Polk, the U.S. Army training center for low-to-mid intensity conflict, mines are the second largest casualty producer next to small arms.⁴¹ Both the Soviets and the Israelis faced huge problems with mines in their respective conflicts, and each developed usable anti-mine doctrine. Both countries used tanks with rollers to proof lanes of advance. The U.S. does the same thing, searching for mines with a plow tank. When contact with a mine is made, engineers move forward to clear the minefield, while light infantry take up overwatch positions to secure the flanks. Then the column of troops reassembles and moves on. I think this technique is counter-productive in LIC. While it seems to make sense that engineers would clear mines once found, and infantry would provide security, the clearance procedure provides a very large stationary target. A possible enemy scenario might involve a dummy minefield with one real mine, the one the tank plow triggers on the road. The U.S. units stop, engineers move forward, and infantry take up security positions. Suddenly, mortar shells rain down on the engineers and on the infantry in security positions. The targets, probable security positions, and the dummy minefield could be pre-registered targets. After firing off three to five rounds, the guerrillas withdraw, leaving the U.S. forces with casualties, their progress frustrated. This, of course, would not be enough to destroy a U.S. unit, but in LIC conflict, it doesn't have to be. Guerrilla efforts are not decisive, but slowly attriting.

I would propose that engineers be attached at as low a level as possible in LIC, possibly a section of sappers per platoon of mechanized infantry or ar-

mor. The idea would be to create a smaller overall unit capable of doing the same job, but offering a smaller signature. Beyond that, we need to improve mine detection techniques. Induction mine sweepers are fairly ineffective as most mines are encased in plastic nowadays. To overcome this, both the Soviets and the Israelis made use of dogs to search out mines, though the U.S. does not seem to do this. There is a gap in U.S. mine-detection ability. Mine detection, clearing, and security of routes is something we need to solve, if a solution exists.

The purpose of this paper was not to try to rewrite U.S. doctrine, since we have very little doctrine on tanks in LIC to begin with. This is not necessarily a bad thing. The nature of LIC is such that most preconceived doctrine is useless. However, the purpose has been to examine the major tactical lessons learned by two armies faced with LIC, and apply those to current U.S. thinking. My conclusion is that main battle tanks have little role in a low-intensity conflict. They are wonderful against other tanks and unsupported infantry, but against highly mobile, hit-and-run guerrillas, tanks are less effective. They offer great protection, but at the cost of initiative. Moreover, while the tank may be a difficult target, the support and logistical units necessary to keep a tank running bring many more, vulnerable troops into the kinds of conflicts where a low-signature is a great asset. Additionally, the weight and bulk of tanks is such that they are restricted mainly to roads. That said, I believe that a lighter, more mobile vehicle is more suitable, and I do not believe the Bradley or the M113 fits this description. Both are too heavy and suffer from many of the same mobility constraints of an Abrams. Instead, I am in favor of the LAV series of vehicles, currently used by the USMC and the Interim Brigade Combat Teams (IBCT) now training at Fort Lewis. LAVs are easily modified with a variety of weapons systems, making them easier to tailor to given combat situations.⁴² Moreover, the ability to carry nine soldiers, as opposed to the six of a Bradley or zero of an Abrams, allows for more flexible composition of platoons and squads, the meat and potatoes units of LIC.

I do not propose that we form a motorized army similar to that of the Soviets with their BTRs. These vehicles did not perform well in Afghanistan until

troops started dismounting. I would expect that U.S. troops would be more willing to dismount, as the LAV lacks the firing ports of the BTR series. However, I believe the use of a lighter, more flexible platform, such as the LAV, will help bring additional firepower to the fight, with overall less operational risk (albeit more vehicle risk than an Abrams). The LAV approach is different from the heavily armored approach of the Israelis, but, the U.S. does not have the ability to drive to its theater of operations, so the weight of armor does not serve us if we cannot get it to the fight. Also, their heavy APCs were meant for protection, not fighting.

The use of the LAV is not a cure-all. LAVs still require in-theater logistics and maintenance support, though not as much as an Abrams. Additionally, they offer much less protection than an Abrams and do not solve the U.S. weakness in counter-mine warfare. The fix to that problem will hopefully come through trial and error in training, as will effective methods for using the LAV in LIC. However, I believe the LAV more suited to the job of LIC, if the U.S. insists on using mechanized forces. Both the Soviets and the Israelis seem to have had more success with pro-active heliborne troops, versus reactionary armor troops. Still, politics, rather than military necessity, often determines who and what is sent to war. That said, no Army has come out of a LIC better off than when they went in. Yes, valuable lessons were learned, but at a terrible cost in institutional pride and, more importantly, lives lost. Ultimately, the most effective doctrine for low-intensity combat is to avoid it.

Notes

¹Professor Martin Van Creveld, *Defense of Israel*, Rothberg International School, Hebrew University, Jerusalem, 2000-2001.

²I will use the terms "armored forces" and "mechanized forces" interchangeably.

³The Soviets differentiated between mechanized infantry and motorized infantry. Mechanized infantry rode to battle in tracked IFVs like the BMP, whereas motorized infantry rode to battle in wheeled APCs, like the BTR-60. Unless otherwise noted, I will use the term mechanized infantry throughout to refer to both.

⁴Mark Urban, *War in Afghanistan* (London: MacMillan Press, 1988), p. 5.

⁵Anthony H. Cordesman and Abraham R. Wagner, *The Lessons of Modern War, Vol. III: The Afghan and Falklands Conflicts* (San Francisco: Westview Press, 1991), p. 4.

⁶Michael R. Matheny, "Armor in Low-Intensity Conflict: The Soviet Experience in Afghanistan, Part 2," *ARMOR*, September-October 1988, p. 6.

⁷A. Cordesman and A. Wagner, p. 11.

⁸M. Matheny, p. 7.

⁹Mark Galeotti, *Afghanistan: The Soviet Union's Last War* (London: Frank Cass, 1995), p. 202.

¹⁰A. Cordesman and A. Wagner, p. 8.

¹¹M. Urban, p. 125.

¹²M. Urban, p. 101.

¹³Lt. Gen. V. Reznichenko, as quoted by M. Urban, p. 65.

¹⁴A. Cordesman and A. Wagner, p. 62.

¹⁵M. Galeotti, p. 191.

¹⁶M. Urban, p. 109.

¹⁷The BMD-1 has three 7.62 MGs with a 73mm main gun. Later models had a BMP-2 turret with a 30mm cannon. This proved the more popular design. Source: Christopher F. Foss, *Jane's Tanks and Combat Vehicles Recognition Guide* (New York: Harper Collins, 2000), p. 178.

¹⁸Lester W. Grau, "The RPG on the Battlefields of Today and Tomorrow," *Infantry*, May-August 1998, retrieved from the Center for Army Lessons learned www.army.call.mil.

¹⁹*Ibid.*

²⁰Martin Van Creveld, *The Sword and the Olive* (New York: Public Affairs, 1998), pp. 292-293.

²¹Ed Blanche, "A bizarre yet bloody conflict drags on in South Lebanon: part 1 of 2," *Jane's Intelligence Review*, September 1997, p. 414.

²²*Ibid.*

²³Interview with Col. Shomel Nir (Semo) IDF, Intelligence Officer for S. Lebanese Forces 1993-1995. Conducted in his home on June 10, 2001.

²⁴*Ibid.*

²⁵*Ibid.*

²⁶Marsh Gelbart, "Achzarit, Israel's Assault Solution," *Jane's Intelligence Review*, July 1997, p. 317.

²⁷Ed Blanche, "A bizarre yet bloody conflict drags on in South Lebanon: Part 2 of 2," *Jane's Intelligence Review*, October 1997, p. 457.

²⁸*Ibid.*

²⁹E. Blanche, Part 1 of 2, p. 414.

³⁰E. Blanche, Part 1 of 2, p. 414 and Part 2 of 2, p. 462.

³¹Augustus Richard Norton, "Hizballah and the Israeli Withdrawal From Southern Lebanon," *Journal of Palestinian Studies*, August 2000, p. 30.

³²*Ibid.*

³³E. Blanche, Part 2 of 2, p. 460.

³⁴Col. Shomel, June 10, 2001.

³⁵Nicholas Blanford, "Hizbullah attacks force Israel to take hard look at Lebanon," *Jane's Intelligence Review*, April 1999, p. 34.

³⁶This incident was told to me by CPT Rely Margilit, IDF Armor Corps, who was the most recent manager of the Merkava project for the IDF and served as a platoon commander in Lebanon.

³⁷Michael R. Matheny, "Armor in Low-Intensity Conflict: The American Experience Vietnam, Part 1 of 2" *ARMOR*, July-August 1988, p. 15.

³⁸C. Foss, p. 212.

³⁹CALL newsletter on light-heavy integration, retrieved from Center For Army Lessons Learned website www.army.call.mil.

⁴⁰*Ibid.*

⁴¹Briefing on Route-Clearing, CTC Newsletter, CALL website.

⁴²Scott Gourley, "U.S. Army selects medium armored vehicle," *Jane's Defense Weekly*, 22 November 2000, p. 3.

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