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DISCUSSIONS ON THE CONDUCT OF WAR

FEATURING

CLINT ANCKER

JOHN WILSON

BRETT FRIEDMAN

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A NOTE FROM THE EDITOR

It is now more than a decade since Coalition forces entered Afghanistan, and almost 10 years since the beginning of warfighting operations in Iraq. Many very experienced servicemen and women have never known anything else. It is clearly important that we capture what they have learnt. But it is equally important that we look ahead, to whatever fate brings next.

I attend, and sometimes chair, a number of conferences each year. I have seen issues such as Mine-Resistant Ambush Protected (MRAP) vehicles come and go. A few years ago the discussion centred on the need for MRAPs; then production; introduction into service; and finally experience from employing them. Dismounted soldier modernisation programmes are another example. What I notice most clearly at the moment is the number of armed forces that are consciously taking stock of their experiences. Several of them are looking at the capabilities they have rushed into service using their national emergency requirement procedures, and considering whether to take them into their mainstream, or 'core', programmes for the future. Their responses are sometimes surprising. 'No' is sometimes the answer, for good reasons.

However, that process highlights the issues of how armed forces do, or should, plan for the future; and what the role of 'traditional' capabilities should be. Those questions form the theme of most of this second edition of *Military Operations*.

In his article 'Whither Armor?', Clint Ancker addresses one of the major (and most expensive) issues head on. He discusses some of the reasons why critics deny a future for armoured forces. His conclusion seems convincing. A cynic would do well to consider the converse of his argument. Where would the land forces of developed countries be if they didn't retain armoured forces?

In looking at the future of field artillery, however, John Wilson sees a subtly different picture. His reasons are compelling, although his findings might horrify traditionalists. In this case, the relevant question might be how an army might subsequently *restore* a major field artillery capability, should the need arise. Reflection suggests that that might not be particularly difficult.

Brett Friedman's article considers the future of amphibious *operations*, and to some extent amphibious *capabilities*. He highlights the versatility of amphibious forces, reminding us that (at best) they are not just land forces deployed from the sea but truly integrated air-land forces, using both rotary and fixed wing aircraft. In a recent article on piracy Professor Chris Bellamy, of Greenwich University in England, pointed out that in the long run the solution to piracy is always found on land. Not least, Brett Friedman's article gives some insight as to how some of the capabilities needed to do that might be found.

A dozen years ago the problem of vehicle movement in high-threat environments was almost entirely a question of VIP security against terrorist attacks. American experience in Somalia in the 1990s was fleeting. British experience in Northern Ireland was far more extensive but, for the most part, even further in the past. Mark Richards' article, written largely from first-hand experience, captures a lot of hard-learned lessons from the last decade. It tells us, surely, that here is a new capability that *does* need to be taken forward in some practical manner.

The origins of my own article lie in observations made over many years. Perhaps the most significant (and not directly reflected in the article) is that we don't tend to really think through what our infantry schools train us to do. Add to that observations from history, such as those by (the now partly discredited) S L A Marshall, and research and field trials. In simple terms, it is hard to think of any future land conflict which will not involve dismounted combat. That is not really in question. A far more important question is whether we could do it better than we currently do.

Eado Hecht's article is, in effect, an intellectual overview of much of this process. How do, or should, armies learn from experience: their own and others'? In reading his conclusions one is reminded of the notion that military doctrine is, at best, our current best guess as to how to fight the first battle of the next war. It is probably dangerous to think that it can be more than that.

The first edition of *Military Operations* provoked a world-wide response. We've received positive feedback from Australia, the Middle East, Europe and North America. We do seem to be doing something right. We received several very good articles, some of which are published in this edition and some of which will appear later. As I wrote in the first edition, a publication like this is

only as good as the articles it receives. So, if you have an article for us, or an idea for one, please get in touch. The guidelines for publishing in *Military Operations* can be found at <https://www.tjomo.com/submission-guidelines/>.

We are also keen to foster discussion and debate in a less structured, but still measured, way. We will happily publish that sort of material in the form of letters to the Editor. Again, guidelines on format are on the website.

Peer review is an important part of our process. All articles are subject to peer review, by up to four reviewers. Our panel members do not always agree with each other. That is where the fun starts! We have already had cases of significant disagreement between reviewers. That generally means that the article is quite good, but has important shortcomings. Resolving that means going back to the author and suggesting some important changes. Where the author is prepared to do that, we can move forward quickly and without difficulty. The process is intended to harness our reviewers' knowledge and experience to ensure high-quality content.

You, the readers, have a wealth of knowledge, ideas and experience. *Military Operations* is designed to let you share that with a wider audience. I look forward to hearing from you.

Jim Storr
Editor, *Military Operations*
November 2012

DISCUSSIONS ON THE CONDUCT OF WAR

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WHITHER ARMOR?



Clint Ancker

Periodically since its introduction in World War I defense analysts (military and civilian) announce the death of the tank, or wax eloquent on the unsuitability of the tank in various conditions. It has continued to the present day. The argument against the tank usually takes one of three forms. First, the tank is obsolete because an effective counter has been found. Second, the tank cannot be used in certain physical environments (usually the ones declared the most important for warfare at the time). Third, the tank is useless in some form of warfare (the one declared the wave of the future). Yet the tank endures in almost all modern armies today. So the question is: why? In reality, the existence of the tank is not predicated on a stand-alone weapon system, - a large, tracked, turreted, heavily armored and armed system employed in large quantities - but rather a broader concept of warfare. Here I am using Colin Gray's distinction between war - 'the use of violence to solve political problems' - and warfare - 'the methods by which war is prosecuted'. It is not the tank *per se* that persists (although they do); but the concept of combined arms using mobile protected firepower as the base.

Mobility, protection and firepower

While there are other forms of conflict (economic, political, informational), it is armed conflict, combat, that distinguishes war from the other forms. Since the early days of recorded combat, there are three essential capabilities for land combat - the ability to move around the battlefield to gain a position of advantage (mobility), the ability to deliver a blow sufficient to kill or psychologically demoralize an enemy (shock or firepower), and the ability to defeat such blows by the enemy (protection)[i]. Much of warfare's

evolution consists of attempts to gain a significant advantage in one or more of these capabilities. Over time, the proportion of these three has varied greatly, with one or more gaining ascendancy; while doctrine, technology, training, and leadership worked out ways to restore balance or tip the balance in favor of one to gain an advantage over the others.

The search to restore movement on the Western Front in World War I led to the development of the tank, which combined mobility (using the internal combustion engine and caterpillar tracks), firepower (machineguns and cannons), and protection (armor). It was the only system that combined all three into a single platform, even if the execution was marginal. By World War II the tank had been refined sufficiently to be a significant element in a war of movement and a major factor in warfare.

THROUGHOUT ITS HISTORY, THE TANK HAS PERIODICALLY BEEN CRITICIZED AS OBSOLETE

As mentioned above, throughout its history, the tank has periodically been criticized as obsolete. Terrain for which the tank was deemed unsuitable included forests, jungles, and urban terrain (which hindered mobility and severely limited its effective range, rendering it vulnerable). The types of forces that were deemed invulnerable to tanks were dispersed, highly mobile light infantry operating among the people (insurgents and terrorists). The weapons that made the tank irrelevant were nuclear weapons, air-delivered ordnance, and effective, long-range anti-tank guided missiles.

Yet the tank still survives among the armies of the world, and has actually seen a resurgence of interest and a widening of its utility.

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The answer to this seeming contradiction lies in the continued need for a combination of mobility, firepower, and protection, even if the form is not a conventional turreted heavy metal system riding on continuous tracks, although it may. It is not the tank by itself that endures, but rather the combined arms team that is built around mobile, protected firepower, whether built around a conventional tank or some other platform.

**IT IS NOT THE TANK BY ITSELF THAT
ENDURES, BUT RATHER THE COMBINED
ARMS TEAM THAT IS BUILT AROUND
MOBILE, PROTECTED FIREPOWER**

Failures and military revolutions

When the tank has failed, it has usually failed for two reasons. First, a lack of imagination by those using it (the French in 1940). Second, a failure to employ it as part of a combined arms team that took advantage of the inherent utility of mobile protected firepower while providing means to overcome the real, but not crippling vulnerabilities, of such a system. The most notable failure of a tank-only force is probably the initial stages of the 1973 Arab-Israeli War. Based on their success in 1967, the Israeli Defense Force (IDF) focused their efforts on their air force and armored corps. This had two negative effects in 1973. First, it made their enemies' task much easier. Instead of having to find solutions to a combined arms force, they concentrated on only two major capabilities – airpower and tanks. For both, the Arabs found technological and doctrinal solutions. Second, because the IDF had focused on only two capabilities, once these were effectively neutralized, the IDF had no readymade solution to the problem. The end result was a near disaster for the IDF, a disaster that was only averted by reintroducing a combined arms approach to combat.[ii]

In the aftermath of the 1973 war, some mistakenly drew the conclusion that the anti-tank guided missile (ATGM) meant the end of the tank. The New York Times of 2 January 1974 featured an article that stated 'Infantry armed with modern antitank missiles can fight armor to a standstill and is on its way to restoration as the queen of battle....The effectiveness of such infantry against tanks and the steady development of mobile, accurate surface-to air missiles offer a second important weapons lesson: The tank-and-fighter bomber team, which has ruled most battlefields since 1940 has been eclipsed as the decisive tactical formation.'[iii] Actually, few tanks were destroyed by Sagger in 1973. It was the psychological shock and the lack of combined arms response that impacted the IDF so profoundly.[iv] Far from heralding the death of the tank, it was simply a wake-up call for a return to a combined arms solution approach to warfare.

The so-called Revolution in Military Affairs, sparked primarily by the overwhelming success of Desert Storm, also resulted in calls for the reduction or elimination of armored forces. Typical of this was *The Ghosts of Omdurman*, an article in the U.S. Army War College's journal, *Parameters*. The author argued that 'Lacking the allure of the victorious march through France, sticky counterinsurgencies and messy contingencies have been handed off to the light infantry and special operations forces, leaving the mainstream Army free to indulge in AirLand Battle in all its blitzkrieg spectacle'. Further on he states 'Tactically, armored pursuits are exotic and exquisite things, but infantry legions on patrol are the stuff of superpower

interventions.'[v]

The clear implication was that the time of armor was over and the time of light infantry had arrived. If ever there was a time to prove this, it was the aftermath of Operation Iraqi Freedom and the ensuing counterinsurgency campaign. Leaving aside the fact that the march to Baghdad that toppled Saddam Hussein's regime was spearheaded by a combined arms armor heavy force, the 3rd Infantry Division (Mechanized) and several other heavy combined arms teams of the U.S. Marine Corps and our coalition partners, the subsequent fight would seem to fit the mold that the author described: a fight optimized for light infantry and special operations. But what happened was almost the opposite. Light infantry units quickly demanded greater mobility, protection, and firepower. The High Mobility Multipurpose Wheeled Vehicle (HMMWV) was quickly modified by putting armor packages on it for greater protection and mounting weapons with greater firepower.[vi] It became, in essence, a very light armored vehicle, combining mobility, protection and firepower.

**THE CLEAR IMPLICATION WAS THAT THE
TIME OF ARMOR WAS OVER AND THE TIME
OF LIGHT INFANTRY HAD ARRIVED.**

Another adaptation was the employment of the Stryker medium weight wheeled armored vehicle. Its great on road speed allowed it to move from one area to another rapidly and arrive with more protection and firepower than the HMMWV. As the enemy became adept at attacking these vehicles, both were provided with increased armor protection. As the growth potential of the HMMWV was limited, it became too vulnerable to be the primary mover along routes threatened by improvised explosive devices. To address this, the U.S. Army adopted the Mine Resistant Ambush Protected (MRAP) vehicle. This large wheeled vehicle was designed specifically to balance mobility, firepower and protection for the environment in Iraq. And the tank?

Originally considered of little value against insurgents and in urban areas, the tank soon became invaluable. As one division commander put it 'No one wants to go downtown without tanks.'[vii] Tanks were not only useful in open desert terrain, they were increasingly of great value in urban fighting.[viii] The Marines in Fallujah asked for U.S. Army tank units to supplement their own armor, as the Marine Commander believed that 'Based on intelligence that revealed the formidable strength of the insurgent defenses in Fallujah, the Marines believed they did not have enough tanks and heavy fighting vehicles to quickly penetrate the outer defenses and spearhead the assault.'[ix] Units that at first deployed without tanks requested they be sent to Iraq because the combination of mobility, firepower, and protection proved to be invaluable when required to close with a competent enemy.

The diverse utility of armor

Urban fighting is not the only close environment where tanks in combined arms teams have proved useful. The idea that the tank is useless in jungle terrain has been demonstrated to be a fallacy many times over. The Japanese used them effectively in the capture of Singapore.[x] Field Marshall Slim's Defeat Into Victory has several references to the utility of tanks in jungle warfare.



'Tanks can be used in almost any country except swamp. In close country they always have infantry with them to defend and reconnoitre.'[xi]

And also:

'The Dismal Jimmies who had prophesied, one, that the tanks would never get to the line, two, that they could never climb the hills and, three, if the did the trees would so slow them up that the Japanese antitank guns would bump them off as sitting targets, were confounded. The tanks, lots of them...crashed up the slopes and ground over the dug-in antitank guns....It was the old problem of World War I – how to get the infantryman on to his enemy without a pause in the covering fire that kept his enemy's head down. It was solved in Arakan – and copied throughout the Fourteenth Army—by the tanks...'[xii]

A similar note was struck in Vietnam. The utility of armored forces was clearly evident. General Donn A Starry in his work, *Mounted Combat in Vietnam*, reinforces the idea that combined arms forces built around armor and mechanized infantry were effective in an area originally thought to be inappropriate for them.

'It was widely believed that Vietnam's monsoon climate together with its jungle and rice paddies constituted an environment too hostile for mechanized equipment: it was further agreed that armored forces could not cope with an elusive enemy that operated from jungle ambush....It was not until 1967, however, when a study titled *Mechanized and Armor Combat Operations, Vietnam...that the potential of armored forces was fully described....the study's findings [were] that armored cavalry was probably the most cost-effective force on the Vietnam battlefield....From early March 1965 until the cease-fire in January 1973, U.S. armored units participated in virtually every large-scale offensive operation....After eight years of fighting over land on which tanks were once thought to be incapable of moving, in weather that was supposed to prohibit armored operations, and dealing with an elusive enemy against whom armored units were thought to be at a considerable disadvantage, armored forces emerged as powerful, flexible, and essential battle forces....When redeployment began in early 1969, armored units were not included in the first forces scheduled for redeployment, and indeed planners moved armored units down the scale time and again, holding off their redeployment until the very end.'*

[xiii]

WHEN REDEPLOYMENT BEGAN IN EARLY 1969, ARMORED UNITS WERE NOT INCLUDED IN THE FIRST FORCES SCHEDULED FOR REDEPLOYMENT

While the examples above relate to the use of armor in jungles, its use in urban operations has also evolved over time. Probably the best example of this is the recently published Combat Studies Institute study *Breaking the Mold: Tanks in Cities*. From the forward:

'Few lessons are as prevalent in military history as is the adage that tanks don't perform well in cities. The notion of deliberately committing tanks to urban combat is anathema to

most. In *Breaking the Mold: Tanks in the Cities*, Mr. Ken Gott disproves that notion with a timely series of five case studies from World War II to the present war in Iraq....These cases demonstrate that tanks must do more than merely 'arrive' on the battlefield to be successful in urban combat. From Aachen in 1944 to Fallujah in 2004, the absolute need for specialized training and the use of combined arms at the lowest tactical levels are two of the most salient lessons that emerge from this study. When properly employed, well-trained and well-supported units led by tanks are decisive in urban combat...'

[xiv]

The utility of armor in cities is further demonstrated by the October 2003 fight in Mogadishu, Somalia ('Blackhawk Down'). In that densely crowded city it was only a tank force that was able to rescue the embattled Rangers, after other attempts had failed. Similarly, in Iraq, Navy SEAL sniper Chris Kyle said "'They [the enemy] were all around you, everywhere,'" he soon realized, and the only safe way to enter [the city] was aboard armored vehicles.'

[xv]

Doctrinal disputes

The use of armor in Iraq's cities caused a change in U.S Army urban operations doctrine, via the 2003 edition of the field manual on urban operations (UO). The following summed up the approach to armor in cities: 'Although masses of heavy force are not normally required, successful UO require all the combined arms capabilities of all Army forces.'[xvi] Further, 'Other type forces – such as armor, artillery, and chemical – have essential roles in specific types of urban operations but are less applicable across the range of Army operations.'[xvii] And finally, 'UO requires an increased proportion of dismounted infantry and engineer capabilities. Armor is not required in the same high numbers.'[xviii] Three years later, in the next edition of the manual, experience in Iraq had changed the Army's position significantly. It now stated 'One tactic, effective combined arms task organization, includes an increased dismounted maneuver capability, **combined with armor** and combat engineers, continuous operations, and technological enhancement' (emphasis added).[xix] 'Armored forces and attack helicopters also can facilitate maneuver through shock action that can have a psychological effect, particularly against less well-trained threats and, in discrete instances, hostile crowds.'[xx]

What comes through in all of these examples is that the combined arms team that employs mobile protected firepower is useful in almost any environment.

A more recent attack on these systems comes from a consistent and long standing critic of the U.S. military and its conduct of operations, William S. Lind. Writing in the online journal, *The American Conservative*[xxi] he states: 'Each year, the Marine Corps picks a lucky city to host [Marine Week]...Public Square was full of tanks, artillery pieces, and Light Armored Vehicles....But against non-state opponents, those Marines are 0-4. They, along with the rest of our armed services, lost in Lebanon, Somalia, Iraq, and Afghanistan....' The clear implication is that these systems, tanks, artillery, and light armor, are irrelevant in what he calls 4th Generation Warfare. He further states 'Real wars with important outcomes are now fought and won by ragtag militias, gangs, and tribes...In a fair fight, the U.S. Marines would beat any of them, except perhaps Hezbollah. But what we think of as fair fights are jousting contests, tank against tank, fighter plane against fighter plane...Of course we want jousting contests [but] the forces of the Fourth Generation avoid them. We are left to tilt at windmills.'[xxii]



But his critique misses the point. While one can argue endlessly about the best approach to conduct a counterinsurgency, it is not war if there is no fighting. Without fighting it is not a role for the military. The fighting in counterinsurgency has different rules, but it is fighting nonetheless. And when fighting, tanks and armored personnel carriers are useful, because, when you do fight, you need mobility, protection, and firepower. The firepower may be employed more discriminately, but it still must move around the battlefield and be protected. That is why in both Iraq and Afghanistan, there has been a resurgence in the use of armor.

One example is the Canadians in Afghanistan. In 2003, the Canadian army planned to do away with heavy armor, replacing their tanks with the Light Armored Vehicle (LAV). But circumstances in Afghanistan dictated the need for armor in this environment. When the decision to acquire and use tanks was made, a political science professor at the University of British Columbia trotted out the arguments that the tank was simply too vulnerable in that terrain against that enemy.[xxiii] However, the Canadian experience was the opposite.

'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.... 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.'[xxiv]

THE CANADIAN EXPERIENCE WAS THAT ARMOR BECAME AN INTEGRAL PART OF A COMBINED ARMS TEAM THAT WAS NEEDED TO DEFEAT A DETERMINED ENEMY.

The Canadian experience was that armor became an integral part of a combined arms team that was needed to defeat a determined enemy. While killing Taliban was not the only thing needed to succeed against the insurgents in Afghanistan, without the ability to do so, the rest of the efforts would amount to nothing. Appeals to 'a better narrative' and reforming the Afghan government and security forces, would all be for naught if the ability to close with and destroy an fighting force were not present. This is something that the proponents of '4th Generation Warfare' seem to omit from their calculus. An enemy that only has to face light infantry has a much simpler task than one that has to face a multi-faceted combined arms team.

This Canadian experience was mirrored by the U.S. forces which began deploying armor to Afghanistan in 2010 for the same reasons: the ability to deliver mobile, protected, firepower against an enemy that was increasingly able to fight light infantry effectively.

[xxvi]

Additional evidence that armor is valuable in urban operations is that both the U.S. and Germany have modified armor systems to improve their survivability in urban fighting. The U.S has two upgrade programs, one each for the tank and the Bradley fighting vehicle. Called Urban Survivability Kits (BUSK for the Bradley and TUSK for the tank), they provide increased protection for the crews against blast. The Stryker was also provided with increased protection against RPGs in the form of slat armor. The Germans have produced a version of the Leopard A6 designed specifically for urban combat which features increase crew survivability and a shorter gun tube for better maneuverability in restricted terrain.[xxvii]

Factoring in airpower

The final argument against tanks is that they have outlived their usefulness because they are designed for tank on tank engagements and airpower has rendered these fights untenable. Some have argued that no county will take on a modern Western force in conventional combat when Western forces are so good at this kind of fight. This was part of the reasoning behind the lack of preparedness of the IDF in Lebanon in 2006. The Air Force had assured the IDF that they didn't need massed armor because any enemy massed forces would be dealt with by the Air Force. While the IDF did not face a massed army that provided lucrative targets for the air force, they did face an opponent that could only be defeated by capable battalion and brigade armored and mechanized combined arms teams. They concluded that combined arms forces, including mobile protected firepower, were essential even against irregular forces in urban and densely compartmented terrain.

COMBINED ARMS FORCES, INCLUDING MOBILE PROTECTED FIREPOWER, WERE ESSENTIAL EVEN AGAINST IRREGULAR FORCES IN URBAN AND DENSELY COMPARTMENTED TERRAIN

Partly as a result of this experience, the IDF has created the worlds heaviest armored personnel carrier, the Namer. It is built on the Merkava tank chassis and weighs nearly as much – but it provides a very high level of crew protection and is an integral part of their modernized ground-air combined arms team. Brigadier General Yigal Slovik, former commander of the IDF armored corps, in a recent Jerusalem Post article had this to say: 'Anyone who thinks you can win a war without tanks doesn't appreciate the power of an armored vehicle and what it can do with its armor and firepower on the battlefield.'[xxviii]

Conclusion

While the tank has been the subject of criticism since its inception, it remains a key component of any effective, modern, combined arms team. There are armies that do not have mobile, protected, firepower. Some have been successful against armies which do (Hezbollah in Lebanon in 2006). But that does not mean that the tank is useless, any more than an insurgent's lack of space capability



means that space capabilities are useless. In fact, the tank, as part of a combined arms team, has proven itself quite flexible and adaptable and a significant contributor to tactical success in widely disparate circumstances. I shall close with some observations:

1. Mobile protected firepower is useful, even necessary, if a force has to close with and destroy a determined enemy.
2. Armor can be adapted to almost any environment and any threat.
3. The battle of tank versus anti-tank will probably not be solved to the complete advantage of one over the other.
4. It is not a single system, the tank, that is useful; it is combined arms that wins in combat. Mobile protected firepower is a critical element of combined arms.
5. Do away with armor and the enemy's problem is much simpler, allowing the enemy to concentrate its limited resources on what is left of the combined arms team.
6. While enemies may decide not to take a Western army on in a conventional fight, Western armies may decide to take on significant conventional forces in some circumstances (Operations Desert Storm and Iraqi Freedom). In these cases mobile protected firepower is often a dominant force, even if air power has destroyed much of the opposing forces' strength.

Clinton J. Ancker, III, Colonel (Retired), U.S. Army, is Director, Combined Arms Doctrine Directorate, US Army Combined Arms Center. He is also a member of Military Operations' Editorial Advisory Panel.

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[i] See for example, Army Doctrine Primer, Development, Concepts and Doctrine Center, Shrivenham, UK, May 2011, p. P-22.

[ii] See Finkel, Meir, *On Flexibility: Recovery from Technological and Doctrine Surprise on the Battlefield*, Stanford, California, Stanford University Press, 2011, Chapter 8, *The Israeli Recovery from the Egyptian Sagger Missile Surprise*, pp. 150-163.

[iii] The memo, with the attached excerpt from the newspaper, is in my personal files. The extract was only a few column inches of the article, without the page number or title of the article attached.

[iv] Finkel, *ibid.*

[v] Bolger, Daniel P, *The Ghosts of Omdurman. Parameters*, U.S. Army War College, Autumn 1991, p. 33 and p. 39.

[vi] Wright, Donald P. and Reese, Colonel Timothy R, *On Point II: The Transition to the New Campaign: The United States Army in Operations IRAQI FREEDOM* May 2003-January 2005, Combat Studies Institute Press, U.S. Army Combined Arms Center, Fort Leavenworth, Kansas, 2008, p. 504 on increasing the firepower of the HMMWV so they could act as guntrucks, and pp. 510-5-12 on the U.S. Army's project to provide increased armor protection for both HMMWVs and other wheeled vehicles.

[vii] Comment by a former division commander in Iraq during a counterinsurgency seminar at Fort Leavenworth attended by the author.

[viii] *On Point II*, op cit., p. 40 for an example of tanks being used to rescue a less well armored force in an urban environment, pp. 341-342 for another example of a true combined arms team with both light infantry, tanks and Bradleys used for urban fighting.

[ix] *Ibid*, p. 351

[x] *Understanding*, Joint Doctrine Publication 4, Development, Concepts and Doctrine Centre, Shrivenham, UK, December 2010, p. 3B-6.

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[xii] *Ibid*, p. 199-200.

[xiii] Starry, General Donn A. *Mounted Combat in Vietnam*, Vietnam Studies, Washington D.C., Department of the Army, 1978, pp. v-vi.

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DOWN THE TUBES: A VIEW ON THE FUTURE OF FIELD GUNS USING UNITED KINGDOM ARTILLERY AS THE EXAMPLE



John Wilson

At its height in both World Wars, the Royal Artillery represented nearly 30% of the British Army. When I first joined in 1966 the Regiment had 23 surface-to-surface artillery regiments.[i] That figure will soon be 7. Even that number may be hard to justify.

The future of British field artillery is obviously bound up with that of the Army it supports. We seem little nearer to reaching a measured position on defence in the UK. The last time we had a clear, coherent position was during the Cold War. Today, the British Army has no such measuring stick; Northern Ireland has gone as a background activity, let alone as an occasional force driver. The policing of the Empire has long gone, as has the clearing up of post-colonial detritus. Britain is an island and can largely rely on policing the skies and seas, together with the work of the security and intelligence services and the civil police, to provide security. The Army's tasks are almost entirely discretionary, and there is almost no bottom limit on how small the Army could get. Small army, even fewer guns.

THE ARMY'S TASKS ARE ALMOST ENTIRELY DISCRETIONARY, AND THERE IS ALMOST NO BOTTOM LIMIT ON HOW SMALL THE ARMY COULD GET.

Now add in the changed nature of the warfare to which the government might commit forces. Since the Berlin Wall came down we have seen artillery used in the Balkans, Iraq and Afghanistan.

There were a few minor engagements in Bosnia, largely in a counter-battery role – and some deterrent effect was achieved. In Iraq, in the invasion AS-90 was an effective part of the mix and played its conventional role well. At first in Afghanistan the 105mm light gun fired regularly in support of an often-beleaguered infantry, but much less now.

We are discussing British artillery – and guns only. Is there a future? Take the AS-90 as used in the invasion of Iraq. Will that sort of operation recur? Will we be asked to take on a relatively conventional force providing the conventional ground targets that artillery has traditionally engaged? Well, as ever, it is a political decision and looking at the evidence of the last couple of years it seems unlikely that we will do that; this government shows little appetite for foreign adventures – I will come back to Libya later. As far as one can tell there is no intention of forming a national contingency force at divisional level – that is, a force to rival that of Gulf Wars 1 and 2. So straightaway one could argue for an artillery force of not more than 24 guns and some MLRS launchers as the maximum requirement. We are clearly unwilling to provide more than a token force of, say, a brigade as our contribution to a coalition operation.

The most this brigade could do conventionally is remove a battle group in defence. Success in war usually comes in combinations, so any intervention force might initially face a relatively conventional enemy. The force could sit back and blast away from a distance with precision weapons, but there is merit in having an all-arms manoeuvre force as part of the force mix. A UK contribution that could not deal with a single battle group in defence would not be much of a force. And one of the future reaction force brigades has that capability, of which the AS-90 regiment is a vital element.

A large conventional force in defence (more than, say, one division) provides targets for technologically advanced Western forces; it does not present a challenge. Yes, I could point to Korea and see

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that guns might have their day in the sun there, but if the government would like to play in that fixture it shows little sign of providing a test match team; it prefers to spend our billions on obscure Olympic sports for a medal tally. And that is not a cheap shot: spending money on Olympic teams is more popular than spending it on defence. The government is reflecting a popular view, and, to some extent, leading it.

SPENDING MONEY ON OLYMPIC TEAMS IS MORE POPULAR THAN SPENDING IT ON DEFENCE

So, however galling it may be for those who point to possible theatres and threats, the government prefers not to get involved in that sort of warfare again. I agree that this seems odd when we have high-end weaponry like Type 45 Destroyers and new submarines, and F-35s and huge carriers in the offing – but that is the dysfunctional nature of modern politics. It does not alter the fact that we will not have ground forces of the type and numbers for a Korea scenario.

To Afghanistan. The early deployments of artillery in Helmand Province fired thousands of rounds per tour. That is now down to hundreds, and every engagement will have been analysed for the collateral damage effects. It is slowly dawning on us that killing and damaging the wrong (and sometimes the right people) people is counter-productive in the most damning way. One mistake wipes out so many positives. The nature of the enemy does not favour the use of conventional field artillery. Direct-fire weapons are preferred. Yes, artillery is still a 24-hour, all-weather system, but two things hinder greater use. First, it is insufficiently accurate. For years we have argued that it is an area system, but today we want a specific target attack, not a general area attack. And second, we have insufficient coverage. If the system could truly cover all areas where infantry operate in Helmand, then the case for artillery would be stronger. But the artillery coverage is only a bonus and the infantry have routinely to expect to operate without artillery and so the investment and confidence in the system is low.

There was one interesting minor departure: the use of the light gun in the direct fire role. With astute use of range tables (I assume we still have them in book form which is the effective way to use them for a specific target) and with a good layer using a good optical dial sight, it can be a surprisingly accurate weapon. One such gun was deployed for this purpose with good results. Selecting the right charge is important, which gives it the edge over conventional direct fire weapons. And the detachment is used to working with a spotter [that is, forward observer. See below – Ed].

The case for Guided MLRS (GMLRS) has been made; but it is expensive, and cost matters. At the moment of use pitting an expensive rocket against saving a soldier's life is an easy decision. However, arguing the case in the abstract at resource planning meetings and justifying its deployment to sceptical and ignorant officials (in or out of uniform) is less clear-cut. That seems to argue for more precision from tube artillery and much greater range. The Light Gun has a range of 17,500m, FH-70 has a range of 24Km – a 40% increase in range over Light Gun – but:

- Area covered by Light Gun fire: 962 sq km.
- Area covered by FH-70 fire: 1916 sq km.

So, for a 40% increase in range, FH-70 doubles the coverage. (In both cases I am ignoring the minimum range.)

A PAIR OF FH-70S CAN CHEERFULLY PUT 30 ROUNDS OF 155MM HE ONTO THE TARGET IN ONE MINUTE: 1320KG OF AMMUNITION.

In 1982 137 (Java) Battery, equipped with 105mm Light gun, found itself at Fitzroy Settlement at the end of Operation Corporate (the Falklands War). An FH-70 firing from Fitzroy could have engaged every target fired by Light Gun during that war, without moving. And FH-70 has a burst fire capability; it has a flick rammer. A pair of FH-70s can cheerfully put 30 rounds of 155mm HE onto the target in one minute: 1320kg of ammunition.

It seems obvious that a 155mm round will always be preferred to 105mm calibre for a precision round. The casing can carry the guidance without over-much prejudice to the HE filling. Indeed a reduction in the explosive capacity and consequent reduction in collateral damage is probably desirable. We seem unwilling to go down this obvious route. We have stayed with the 105mm light gun, which is getting old. The case for the lightweight 155mm howitzer seems clear. AS-90 is too heavy – it lacks strategic (movement to theatre: airlift) and operational mobility (movement within theatre: helicopter lift). With the poor infrastructure of somewhere like Helmand (weak roads and bridges), it also lacks tactical mobility (movement between gun positions and platforms). The ultra lightweight 155mm – British designed, and the gun chosen by a principal ally (the US, for both Army and Marine Corps) – would seem to be the only way to go. For reasons that only a fully-charged bureaucrat could explain, we persisted in examining options from France and South Africa which were manifestly non-starters. So much time and money was wasted when the solution was staring at us that the moment passed; the money dried up; and we got nothing from perhaps 20 years of futile analysis.

So we are stuck with the light gun and the undeployable AS-90. Curiously, FH-70 still sits in sheds in a depot at Donnington. We could have used them in Helmand because of the advantages given above, but FH-70 was perceived as a “difficult” gun, usually by people who had never properly worked on it, and so they languish. I wonder why we bother to keep them, if we are never going to use them.

Forward Observer Officers (FOOs), or Fire Support Teams, are part of the field gun system. Training artillery observers has never been easy. It is a demanding role which requires a good understanding of artillery, a thorough grasp of the techniques of spotting and allied skills such as observation, acquisition, and communications; all linked to a thorough grounding in manoeuvre tactics and procedures. Throw in a good eye for ground and the ability to control aircraft; a full knowledge of Rules of Engagement and weapon control orders; and the moral courage to abide by them. It is a tall order. A good understanding of artillery is only one of several attributes needed, which suggests that the FOO need not be a gunner. Not least because the modern artillery captain has probably not done a full 3 years on a gun position learning his craft. Indeed he may not have come from a field artillery background.[ii] Add in the demand for ever more FOOs, and it is beyond the capacity of the Royal Artillery



to meet it. The modern FOO may well be from the Army Air Corps, infantry or armour (or Royal Marines). There is no point in looking beyond those arms.

MAYBE WE WILL SEE ALL-GUN REGIMENTS, WITH OBSERVER PARTIES OF MAJORS AND CAPTAINS CONCENTRATED IN ANOTHER UNIT.

Quite where that leaves the Royal Artillery is up for debate. The traditional structure of a field regiment stems from the highly successful WW2 model: batteries split into troops each consisting of 3 guns, a reconnaissance and command post team and the FOO as the nominal troop commander. The battery commander, as ever, is deployed with the supported infantry or armour commanding officer (CO). The artillery CO is at brigade providing the artillery HQ. The trend is towards more skilled FOOs, which is unlikely to be achieved in the traditional model. Maybe we will see all-gun regiments, with observer parties of majors and captains concentrated in another unit. The model of 148 Forward Observation Battery (providing the specialist spotters for naval gunfire) and 4/73 Special OP Battery (originally a stay-behind unit, which has mutated to a specialist STA unit) looks more useful.

Army 2020 proposes a three-brigade model, plus commando and AH brigades, in the Reaction Force. The so-called brigades (seven of them) in the separate adaptable force element are not brigades at all. They are a sop to maintain command appointments and keep the various regions of Britain sweet. And an expensive sop, too.

Nor are the three brigades in the reaction forces part of a proper divisional force. Only one brigade will be at any reasonable level of readiness. So, soon, the argument will appear which asks why we need three brigades to maintain the one that will ever deploy operationally.

Brigades on sustained operations like Banner (Northern Ireland), Telic (Iraq 2003+) and Herrick (Afghanistan) should swiftly morph to the Northern Ireland theatre model: the 8th and 39th Brigades. Those brigade headquarters were permanent and units rotated through them on 6-month or 2-year cycles. We have not done this in Afghanistan, with all the disadvantages, especially a lack of continuity, that have showed themselves. This approach argues for one or two brigades and plenty of units. So, the automatic assumption that each brigade will continue to have an artillery

regiment is unlikely. Especially as the traditional regimental model is no longer valid. Do not expect the seven field regiments in Army 2020 to last long.

To see how far things have changed we need look no further than Major General Tomlinson's article in the *British Army Review* in 1983, entitled *Handling Artillery Within the Corps*:^[iii]

"There exists throughout the Army much misunderstanding of the use of artillery in battle. Thirty years of small wars since Korea have caused British artillery to be used in penny-packets and on no occasion until the Falklands (and, in artillery terms at least, this was also a small war) was it necessary to concentrate the fire of all guns in range. Nor have there been occasions when guns have had to fire round the clock for days or weeks on end, as was common in 1914-18, 1939-45 and in Korea. The result is that we now have a generation of commanders who do not understand the handling of artillery on a large scale. They therefore question many of the principles, procedures and structures involved. Some formation commanders, including artillerymen, question the number of gunners needed at all; they compare artillery fire with tank fire and the numbers of men required by each; they question the need for artillery observation parties and they question the need for an artillery command structure. They find difficulty in understanding the fundamental differences between armoured infantry command and artillery command. They tend to fail to realise the all pervasive and truly shattering effect that artillery fire can have upon the enemy if it is properly handled, and that our own artillery also has a significant and beneficial effect on the morale of our own troops. Commanders also find difficulty in understanding the principle that artillery is commanded at the highest level and, in the British Army, its fire is controlled at the lowest level."

Amongst other things, the author was making the case for BATES, a truly awful C2 system that was pursued long after the need had disappeared. Virtually none of the points he makes above (and he thought he was correcting heresies) now hold. Probably only the first sentence still applies.

I see no reason for a Western army to hold the traditionally large inventory of field guns, nor the ammunition stocks to support them. For Britain, that means six batteries of guns, plus GMLRS, are the way forward. Precision and control of the munitions is the key. And the full value will only be realised if the spotter/controller (FOO) is 'up to speed'. He does not have to be an artillery officer, and there are benefits from attracting infantry, armour or aviators into that world. The other key word is 'officer'. This is not a job for non-commissioned officers, irrespective of their spotting talents.

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BLOOD AND WATER: THE PRESENT AND FUTURE OF AMPHIBIOUS OPERATIONS



Brett Friedman

The 21st Century has thus far seen a variety of changes in warfare. The world's most powerful armed forces, prepared to fight a conventional struggle against a near-peer competitor, instead found themselves stymied by insurgents and terrorists in Afghanistan and Iraq. During operations in those two countries, unmanned aerial systems (UASs) found widespread use. UASs were so effective that they have become the center piece of the American counterterrorism strategy. Additionally, warfare is rapidly expanding into the cyber domain as the global computer network becomes more widespread and integrated with society. Despite these changes, the waterways of the world retain their strategic importance due to the commerce that crosses their waves and the access to land they provide. While amphibious operations have always been a critical part of any maritime nation's repertoire, they are now increasing in importance and utility.

THE WATERWAYS OF THE WORLD RETAIN THEIR STRATEGIC IMPORTANCE DUE TO THE COMMERCE THAT CROSSES THEIR WAVES AND THE ACCESS TO LAND THEY PROVIDE

In fact, amphibious operations will prove to be a vital investment as budgets of Western armed forces continue to shrink. Although the projection of naval power ashore will rarely take the form of

the amphibious assault which most are familiar with, amphibious operations and maritime-centric power projection will increasingly be the preferred weapon of choice for Western nations. In 1999, then Commandant of the US Marine Corps General Charles C. Krulak described the 'three block war' where major combat, humanitarian aid, and stability operations could coexist in a very small area. [i] While most military forces must be prepared to meet each of those operations in one location, amphibious forces are needed to meet these operations when they occur simultaneously in far flung corners of the globe. This very scenario occurred in September 2012 when a wave of protests at US and European embassies in Africa necessitated US Marine reinforcements in the region and US Navy ships to support them. Simultaneously to this, US Marine forces continued both combat operations in Afghanistan and security cooperation activities.[ii] It is no coincidence that amphibious power projection is being relied upon more frequently. This article will point out some of the trends that are currently affecting the operating environment, highlight major amphibious powers, and survey recent amphibious operations around the globe.

Trends

The Joint Operating Environment 2010 report, one of the last reports published by the now shuttered United States Joint Forces Command, accurately captures global trends that will affect the security environment. Urbanization, the movement of people to cities vice rural areas, continues.[iii] The vast majority of these urban centers will be along coastlines.[iv] The US defense budget will continue to shrink.[v] The world's largest and most important oil chokepoints are either straits or canals that provide passage between oceans.[vi] Sea lines of communication are increasingly important as globalization progresses. Lastly, the United States, stung by its desultory land operations in Afghanistan and Iraq, will lick its wounds and prefer to operate from the sea where it can, as Sir Francis Drake said, to 'take as much or as little of the war as he will.'[vii] The combination of

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strategic interests that hinge on the world's waterways, decreasing budgets, and reluctance to commit to open-ended land wars will make amphibious forces the most attractive option for crisis response in the coming years. An unpredictable operating environment where emergencies occur near the coasts demands forces that are flexible, rapidly employable, and easily withdrawn. Amphibious forces efficiently provide all of these capabilities.

A Maritime Moment

IT IS TELLING THAT THE UK RETAINED A SIGNIFICANT AMPHIBIOUS POWER PROJECTION CAPABILITY EVEN IN THE FACE OF DEEP BUDGET CUTS

Recently, the United States Marine Corps convened a group of senior officers, called the Amphibious Capabilities Working Group, to study the future of amphibious operations. Their report, issue in April of 2012, stated that the 'U.S. is entering a renewed maritime moment.'^[viii] It is difficult to argue with that conclusion. However, the maritime moment is not just limited to the United States. Nations with advanced, professional armed forces are beginning to realize this. The Australian Army is considering the adoption of an expeditionary mission and an expansion of the Australian Defence Force's amphibious capabilities.^[ix] This would be a wise decision considering the archipelagic nature of the seas around Australia. The UK has retired its fleet of Harrier Vertical Short Take-off and Landing (V-STOL) airframes and will rely on rotary-wing aircraft and the Royal Marines for amphibious power projection until the Joint Strike Fighter is fielded.^[x] While this decision raises concerns, it is telling that the UK retained a significant amphibious power projection capability even in the face of deep budget cuts. This capability was evident during operations off the coast of Libya.

To the Shores of Tripoli

The United Nations sanctioned intervention in Libya typifies the way that Western maritime powers will prefer to confront challenges in the future. Although the world supported the Libyan rebels in their quest to free themselves from the grip of Moammar Al-Qaddafi, direct intervention by Western military power in another Arab country was problematic. Maritime power, provided mostly by France, Great Britain, and the United States, gave world leaders another option to support the rebels. After United Nations sanction, the coalition positioned a variety of maritime assets in the Mediterranean Sea off the coast of Libya. These naval and amphibious assets, able to reach the area of operations in a very short time, effectively enforced a UN arms embargo, imposed a No-Fly Zone over Libya, conducted strike missions in support of Libyan rebels and allied Special Forces inside the country, and executed search and rescue of downed pilots.^[xi,xii,xiii,xiv] Aerial and indirect fire support, projected largely from the sea, enabled Libyan partners to succeed on the ground without a significant Coalition footprint. US forces were even able to relieve the Kearsarge Amphibious Ready Group (ARG) with the Bataan ARG 'in stride' without a loss of capability.^[xv] In the end, these efforts proved decisive and the coalition ensured regime change in Libya without a single NATO or allied casualty. The United States

is currently attempting to replicate this success in Yemen, this time in support of a host nation against a threat, where maritime forces offshore are in support of friendly Yemeni units and US Special Forces on the ground.^[xvi]

The Horn of Africa

Amphibious power projection is the key component in the United States' effort to fight both *Al-Shabaab*, the Al Qaeda aligned terrorist organization in Somalia, and the persistent piracy that exists in the Gulf of Aden and the Indian Ocean. Most novel, perhaps, is the use of naval assets as afloat detainee holding facilities, but US forces off shore have also conducted air and missile strikes as well as air assault functions, both independently and in support of African Union peacekeepers.^[xvii] The US had ample cover for these operations in the form of Combined Task Force-151, a multinational naval organization formed to combat piracy off the coast of Somalia. The existence of TF-151 is indicative of the willingness with which nations will deploy naval and amphibious assets as opposed to the higher threshold required to deploy ground forces. None of the 25 participants are willing to conduct ground operations or strikes on Somalia itself to combat piracy, despite the increasing threat.^[xviii]

In September of 2012, the Kenyan Defence Forces demonstrated the continued validity of amphibious operations at Kismayo, Somalia.^[xix] After months of stalemate around the Al-Shabaab controlled city, the Kenyan Navy used the sea as maneuver space to transport a company-sized element of Kenyan Army soldiers north of Kismayo, thereby preventing Al-Shabaab fighters from fleeing to Mogadishu and inducing them to abandon the city. Meanwhile the Kenyan Army coordinated close air support from Kenyan Air Force aircraft. The Kismayo operation shows that amphibious capabilities do not require advanced technologies or massive investment; but rather training, expertise, and coordination between branches of service.

THE KISMAYO OPERATION SHOWS THAT AMPHIBIOUS CAPABILITIES DO NOT REQUIRE ADVANCED TECHNOLOGIES OR MASSIVE INVESTMENT; BUT RATHER TRAINING, EXPERTISE, AND COORDINATION BETWEEN BRANCHES OF SERVICE.

Seabasing

While US and Filipino operations against *Jemaah Islamiyah*, *Abu Sayyaf*, and the *Moro Islamic Liberation Front* in the Philippines have received little attention, the ongoing effort offers significant lessons. US personnel from all four services and Special Operations Command as well as their Filipino partners have conducted over ten years of amphibious operations around the Sulu Archipelago region. US forces established an afloat forward staging base that provides a base of operations, refueling, rearming, supply, and command and control functions.^[xx] By utilizing maritime capabilities in an irregular warfare capacity, the US has succeeded in disrupting terrorist organizations with a minimal footprint in accordance with the desires of the government of the Philippines, thus minimizing the strain on the relationship between the two countries.



Utilizing afloat basing is not a new idea. During the 'Tanker War' in 1987 and 1988, Saudi Arabia and Kuwait refused to allow US bases ashore. The US utilized two oil field support barges to support armed forces in the Persian Gulf.[xxi] More recently, the US Navy is utilizing the USS Ponce, an *Austin*-class amphibious transport dock, as a seabase for US Special Forces in the Middle East.[xxii] Countries will increasingly turn to seabasing as an option as it has proven to be more amenable to both the country employing force and the host nation.

Humanitarian Aid and Disaster Relief (HA/DR)

Maritime forces are just as effective during HA/DR missions as they are in violent conflicts. No asset offers the speed, sustainability, and logistical capability that amphibious assets bring to a region struck by natural disaster. After Haiti was devastated by an earthquake in January of 2010, amphibious forces were amongst the first assets requested by US Southern Command.[xxiii] A litany of naval and amphibious units were mobilized in response to the earthquake and tsunami that struck Japan in March of 2011.[xxiv] Also in 2011, the US Navy's Peleliu Amphibious Ready Group, which included the 15th Marine Expeditionary Unit (MEU), supported flood relief operations in Pakistan.[xxv] Later, the 26th MEU simultaneously supported Pakistan flood relief operations and combat operations in Afghanistan.[xxvi]

Limitations

Although amphibious forces are a potent capability, they are not right for every situation and they can rarely be employed alone. Amphibious forces depend on strong naval and air forces to ensure air and sea superiority. Unless operating in completely permissive environments, amphibious troops require very specialized vehicles to act as a connector between the ship and the shore. Lastly, while amphibious forces can enhance and support large scale ground operations in a conventional war, they are usually not sufficient to bring victory by themselves.

Conclusion

Increasing use of amphibious operations is a natural extension of the advantages that maritime forces have always offered to the

nations that employ them. Power projection from the sea to the shore can almost instantaneously 'tip the scales' of warfare towards the assaulting force, as occurred with Operation Chromite in Korea in 1950. The insertion of US forces behind North Korean lines severed lines of communication and caused the entire North Korean war plan to collapse. Sea-based assets are more sustainable, flexible, and less intrusive than ground facilities. While effective amphibious operations require investment in dedicated professionals steeped in their art and the technology to support them, the investment pays dividends. Amphibious operations are demonstrably effective against both conventional and irregular threats. Despite the introduction of unmanned aerial vehicles and continued advances in air power, forward deployed amphibious forces remain the fastest and most flexible crisis response available to a maritime power. Amphibious ships that can both launch troops ashore and air support that are the single most flexible asset on the water, a fact often ignored in favor of more expensive aircraft carriers.

AMPHIBIOUS WARFARE HAS PROVEN ITSELF TO BE A VITALLY IMPORTANT CAPABILITY AND THE WEAPON OF CHOICE FOR THE DEFEAT OF IRREGULAR THREATS IN THE LITTORAL REGIONS

Amphibious warfare has proven itself to be a vitally important capability and the weapon of choice for the defeat of irregular threats in the littoral regions, for immediate crisis response and humanitarian aid, and the maintenance of peace and order around the globe. In 1939, the military theorist Captain B. H. Liddell Hart said that, 'It [landing on a foreign shore in the face of hostile troops] has now become almost impossible.'[xxvii] Although technology continues to advance, similar predictions will prove to be similarly false. The advent of unmanned aerial and undersea vehicles, as well as cyber warfare, will only enhance the utility and viability of amphibious forces. Meanwhile, the proliferation of irregular threats, and the desire of many countries to avoid establishing an inherently long-term onshore presence, will increase the need and desirability for amphibious forces. Far from a diminishing capability, amphibious operations are in the early stages of a 21st Century renaissance.

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VEHICLE MOVEMENT IN HIGH THREAT ENVIRONMENTS



Mark Richards

The purpose of this article is to overview tactics for light armored vehicle movement in high threat environments, such as the recent Iraq and Afghanistan conflicts. These observations will have continuing relevance in future conflicts where such movement will remain necessary. The type of light armored vehicle movement under discussion is that of small packets of perhaps three or four vehicles such as: site visits, reconnaissance, administrative runs, key leader engagements and the transport of personnel. The assumption is that if the convoy is attacked the intention will be to break contact and extract, rather than stay and fight. This applies to military small team moves as well as those in civilian-type armored vehicles, such as military close protection teams. It also applies to private security contractors acting as auxiliaries to military operations and conducting similar high threat movement.

The purpose is not to discuss specific vehicle types, but the high threat environment experienced, and therefore the threat to be mitigated. When considering vehicles, there is a balance between firepower, protection and mobility. Vehicles can be designed or modified to enhance or limit these factors. An example is a basic civilian close protection type armored vehicle, which may have no firing ports and therefore no ability to return fire from within the vehicle. The middle ground is a vehicle with designed firing ports that increase firepower potential, but which breach the armor and thus decrease the protection offered. Compare this to vehicles such as US Army 'Humvees' with, perhaps, an armored turret-mounted heavy machine-gun or grenade launcher type weapon, maximizing both protection and firepower.

The balance of these vehicle design factors will have a practical impact on the drills used by the teams, and this is a case of adapting response drills to available capabilities. For all these light armored

vehicle types, protection is minimal or non-existent against threats such as rocket propelled grenades and penetrator type improvised explosive devices (IEDs). They generally provide protection against small arms calibers up to 7.62 x 51 (NATO standard) and the effects of blast and shrapnel from small IEDs. Survivability is therefore limited, and following enemy contact extraction to a secured rally point is a priority. This would potentially be followed by the activation of quick reaction forces in support or casualty evacuation assets as required. It is true that if the desire exists, these vehicles can, and historically have, remained on the contact point to engage with the enemy. However, the key point here is that the mission of these small teams involves the intent to break contact.

SURVIVING AND REACTING TO ROADSIDE AND SITE AMBUSH AND ATTACK WERE KEY SKILL SETS.

Mobile vehicle and dismounted tactics is what much of operations and movement in Iraq and Afghanistan was about: escorting convoys, conducting missions and administrative moves, or carrying protected personnel. Surviving and reacting to roadside and site ambush and attack were key skill sets. In the early days, circa 2004, many operators had soft skinned vehicles. Small arms fire penetrates those 'like a knife through butter'. Effective protection is limited to the engine block and the metal part of the wheels. It was possible to add steel plate to vehicles to add protection, such as the 'hillbilly' or 'hobo' Humvee's used by the US military at the time. Armored vehicles became the norm later, and ultimately in a high threat environment such as Iraq armored vehicles are required for survivability.

Vehicle packets should consist of not less than three vehicles. However, this can change in locations which are safer and closer to assistance, an example being Kabul City, where it is not unusual

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to see one- or two-vehicle close protection packets. But this is not ideal and if something were to happen, they would be in trouble. Such small packets were more a function of resource issues, close proximity of reaction forces and a threat judgment that it was unlikely that something would happen. A two-vehicle packet only leaves one vehicle if one is hit or immobilized. Having more vehicles allows redundancy if one of the vehicles is lost. Importantly, it also allows a tactically sound convoy with an advance vehicle, a central or protected vehicle(s), and a rear chase or counter attack (CAT) vehicle. A larger convoy can add protected vehicles in the center and also beef up the front and rear security accordingly.

THREAT MITIGATION IS PRIMARY; AVOID CONTACT WITH THE ENEMY.

Threat mitigation is primary; avoid contact with the enemy. Think about advance planning and route selection: vary routes and routines; use back roads avoiding main routes and traffic, even using appropriate cross country routes. Move at a steady speed on the selected route, using sensible speeds appropriate to the roads and the visibility. Make the speed such that you don't get surprised going round a bend. Utilize stand-off distances and observation. If necessary turn around and go another way. It is likely that you will end up going a lot faster if you are on interstate-type desert highways like those seen in Iraq, but speed won't get you through the dangers and can contribute to a massive rollover crash if you do get hit by an IED. Even if you do end up going faster because the roads and flat terrain allow it, then ensure a reserve of speed to be able to accelerate out of an ambush. However, due to the constraints of mission and time, it may not always be possible to mitigate in this way. You may be forced to take main roads and be restricted by specific timings, due to the requirements of the mission or the client.

'Profile' is a big factor. This refers to the posture that you portray as you are moving around. It mainly refers to 'high' and 'low' profiles, but within that there are nuances of presentation and behavior, which also have implications for professionalism. Profile is also related to escalation of force or rules of engagement guidelines. For instance, it may have relevance to the ability to have weapons mounted on your vehicles, and the type; which may then have an impact on the relationship between firepower and protection. Given that armored vehicles are a balance of protection, mobility and firepower, for a protected vehicle you would not compromise the protection by making modifications to increase firepower. But for other vehicles you may need to modify the vehicle to increase the ability to generate fire, thus decreasing the protection. If you intend to maintain an Iraq-style one hundred meter high profile security bubble, you need the ability to escalate force as appropriate. This will depend on the relationship between 'escalation of force' guidelines and the threat. In the case of Iraq this was mainly a response to suicide vehicle IEDs. In the south of Iraq, explosively formed penetrators (EFPs) were more of a threat than the suicide vehicle bomb, and in this case alternative tactics were often adopted, such as mingling within traffic and dispensing with the security bubble. This was an attempt to mitigate against the initiation method primarily used with EFPs. If you are traveling low profile, then you may be in unarmored vehicles unless you have up-armored low profile covert vehicles. In this case, your protection is provided by your profile and you may have limited firepower, with the difference that you can generate fire from within unarmored vehicles if necessary.

When driving in a high threat environment scan the road ahead

for possible indicators of an IED or ambush. All the personnel in the vehicle should have assigned sectors and will report anything suspicious. Keep the vehicles away from the verge and the median, which is the most likely place for IEDs, though don't discount IEDs under the road or in potholes. If the suspicion is for IEDs under the road, the options are to continue and risk it, or go slowly and search. Stagger any protected vehicles in the center of the formation away from the assessed direction of greatest threat. If you see anything in the road ahead, then you should avoid it, passing back the information on the radio to the convoy. However, be aware of attempts to channel you and be prepared to make a judgment call. If it looks too suspicious, then don't even drive past or around it, but stop and consider taking an alternative route. Beware that stopping or diverting you may be the intention of the enemy. In the early days in Iraq, it was considered acceptable not to use seat belts. However, some casualties were due to the vehicle crash caused by roadside IEDs. These would have otherwise been survivable were it not for the crash, due to the high speed used as vehicles tried to avoid ambush. Later, it was considered safer to be strapped in. All loose equipment inside a vehicle must be lashed down with ratchet straps to strong points. This is so the occupants do not get injured by equipment flying around after a crash or rollover. All items such as jacks, ammo cans or other heavy equipment should be tied down.

The key thing in an ambush is to get off the contact point (the 'X') as soon as possible. If you are ambushed with no obstruction in the road, then speed up and drive through. Return fire from the vehicles against positively identified enemy. If the way out to the front is blocked, and there is no feasible way forward or around, then reverse out. If a route is blocked by light vehicles then you may be able to drive through it and ram vehicles out of the way. The technique is to slow down into low gear to approach the block, aiming to strike at the corners of the vehicles to move them off to the side. Gun the engine at the last minute and push the vehicles out the way. If one or more of your vehicles become immobilized on the X, then in simple terms you have two options: 1) a rescue vehicle comes back, or forward from the rear, and 'cross-decks' the crew or 2) the surviving vehicles transit the ambush site and dismount outside of the X. They take up positions of fire support while those in the immobilized vehicle(s) dismount and fight to them using fire and movement. A series of drills will be agreed and practiced over the variety of 'vehicle immobilized' situations, which will involve variations on 'cross decking', vehicle mounted and dismounted fire; and movement.

In Iraq and Afghanistan, various types of both high- and low-profile movement and operations were conducted. For low profile operations, local operators are trained to use advance vehicles to spot threats down the road. To successfully operate low profile, care has to be taken to reduce your noticeability. Note that however hard you try, unless you are from that region by ethnic descent, the locals will always spot you as westerners as soon as you get close. But a little disguise works most of the time, at a distance, and reduces attention. If you are operating low profile, remember that you cannot have stand-off distance and you cannot keep vehicles away from your convoy packet. This means mingling and merging with the traffic. A low profile may reduce your risk of insurgent attack, but I was once engaged by an Iraqi Police machine gunner at a police checkpoint, and another time by a National Guard turret gunner. However, a high profile will not always save you from friendly fire: our team was engaged in Fallujah by Coalition Forces while moving in high-profile armored sports utility type (SUV) vehicles.

The high profile version is exemplified by experiences during a year in Fallujah. The client was military and we operated in high profile



SUVs and also 'Reva' armored personnel carriers purchased from South Africa. The Reva had two turret guns on top and we mainly used them for moving around Fallujah itself. Elsewhere, we used SUVs. The vehicles were fully marked up with luminous tape on the windshield and the same warning signs that Coalition military convoys used: 'Stay back 100m'. Operating high profile like this allowed us to move as a self-contained packet and keep a one hundred meter bubble around us to keep the suicide vehicle IEDs back.

**HOWEVER, IF YOU ARE HIGH PROFILE
YOU ARE ASKING FOR INSURGENT
ATTENTION.**

However, if you are high profile you are asking for insurgent attention. As an example, our administrative runs back and forth to the Baghdad International Airport (BIAP) from Camp Fallujah along 'Route Mobile', which is like an Interstate highway, were notorious for enemy contact. Particularly dangerous was the area between Abu Ghraib and the 'strip wood' where a palm wooded area crossed the road. The main threat here seemed to be small arms fire, with teams battling it out with insurgent gun teams placed off to the flanks of the road. When in the Reva's, the double turrets made it easy to return fire. The armored SUVs were a different matter because you cannot fire out of them without modification. We had replaced the rear doors on the lead and chase vehicles with a metal door with a firing port. In the trunk was a rear facing seat where the rear gunner would sit. This would allow the front and rear vehicles to engage the enemy, but the sectors of fire were restricted to the rear and as far to the sides as the gunner could bring the weapon to bear. Other units had addressed this with modifications such as side firing ports and even gun turrets on the roof. The gunner was equipped with an M4 for legal firing of accurate warning shots (per escalation of force guidelines), but the weapon of choice in a contact was a squad automatic weapon (SAW - M249) with a box of 200 rounds. Once contact was initiated the SAW would attempt to get the angle on the enemy and suppress them as the convoy attempted to drive through the ambush.

Other times, complex ambushes would be experienced and survived, mainly due to the enemy's incompetence. Armored glass would routinely need replacing after hits and damage on missions. However, occasionally it would go wrong. There were a steady number of casualties. We took casualties and sustained fatalities, and friends were killed on other contracts elsewhere. A fair number of casualties were caused by EFPs, which often were survived by the victims who tended to suffer traumatic amputation of the lower limbs. A correctly sited EFP could put its strike right through the front cab of an armored vehicle, while leaving those in the back

unharmed. Mitigation here is primarily avoidance, which is not always achievable depending on the constraints of the mission.

Afghanistan is such a desolate and backwards place, especially Helmand Province, that it is hard to adopt anything but a high profile. Whatever you are doing you will stand out. Due to the nature of the rural terrain and fighting many protection operations had to be conducted in close cooperation with the military. Suicide bombers were a problem and armored vehicles were a necessity: on one occasion, a suicide bomber threw himself on the hood of one in Lashkar Gah but the vehicle armor was not breached. Movement in Helmand was a combination of ground moves in armored SUVs as well as movement in military vehicles and convoys, and also the use of military helicopters to reach some of the remote and outlying locations. Transport helicopters are vulnerable and were targeted by RPGs. Conditions in Afghanistan are so rudimentary that you are really camping out in buildings and compounds.

**A SENSIBLE APPROACH TO SUCH
MOVEMENT OPERATIONS WOULD
CONSIST IN ADVANCE OF GOOD
PLANNING, TO INCLUDE UP TO DATE
INTELLIGENCE, DECEPTION PLANNING
AND AVOIDANCE TYPE RISK MITIGATION.**

In conclusion, there are important lessons to be learned for small team movement in high threat environments. Suitable drills and tactics, techniques and procedures (TTPs) need to be developed by teams in order to mitigate threat and increase survivability. Such drills and responses will be determined by the threat, equipment and weapons available, and the political and legal framework of the operation. Those TTPs must be practiced to a high level so that they will work under the pressure of enemy contact, immobilized vehicles and casualties. A sensible approach to such movement operations would consist in advance of good planning, to include up to date intelligence, deception planning and avoidance type risk mitigation. Avoid pattern setting and routine. While on mission, good tactical movement, route selection and formations will reduce risk. Following enemy contact, the value of training and drills will prove invaluable. In case of contact or casualties, an effective communication system to an operations center which can deploy a timely quick reaction force and casualty evacuation assets in support can make all the difference to survivability. Small packet vehicle moves will not have the combat power to assault the enemy and following contact; they must break contact. They should then move to a rally point to consolidate, and treat and/or evacuate any casualties, before either returning to base or continuing with the mission.

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FIGHT ON FOOT, DEFEAT ON FOOT



Jim Storr

Man has fought on foot since time immemorial. Since then, whatever else he has done, he has always fought on foot. That fact is perhaps taken for granted so much that we may fail to think about how the infantry should fight. We may also fail to really consider how the infantry should be organised to fight. This article looks at the recent history of dismounted combat, in the light of developments in small arms, and makes recommendations. Its most significant conclusion is that, of itself, dismounted combat is typically protracted and often indecisive.

The recent history of infantry combat is dominated by four linked technological developments in the 19th Century. They were:

- the bolt-action breech, by the German Johan von Dreyse in 1824. This allowed small arms to be loaded and fired more quickly, and used lying down.
- the conoidal bullet, by Captain John Norton of the British 34th Regiment in 1832. This allowed bullets to carry much further and more accurately, particularly when allied to rifled barrels.
- the metal cartridge, normally made of brass, by French gunsmiths in the 1830s and 40s. This greatly simplified logistics, further enhanced the rate of fire, and also made for much more consistency between shots.
- the box magazine, by James Paris Lee (of Lee-Metford and Lee-Enfield fame) in 1879. This contributed to higher sustained rates of fire, and allowed the firer to fire repeatedly without disturbing his position during re-loading. That further enhanced accuracy and thus effective range.

Events in the later part of the 19th Century showed how effective those developments were. The Crimean, American Civil and Franco-Prussian Wars were all steps along a path of increasing small arms effectiveness. By 1900, small arms fire was greatly more lethal than in 1800. This was brought home dramatically in the first week of the South African War of 1899-1902. British infantry, already using reasonably well-dispersed formations, took considerable casualties from Boer soldiers using modern German Mauser bolt-action magazine-fed rifles.

The introduction of the machinegun automated the process still further. Gatling guns were available at or about the end of the American Civil War (1861-5). French Mitralleuses were used, although not well, in the Franco-Prussian War of 1871-2. Fortunately for the British, the Boers had no machineguns in South Africa. The effectiveness of the machinegun was demonstrated most convincingly in the Russo-Japanese War of 1904-5. That was repeated on a vast scale in the opening battles of the First World War. Dismounted infantry simply could not advance in the face of machinegun fire.

FORTUNATELY FOR THE BRITISH, THE BOERS HAD NO MACHINEGUNS IN SOUTH AFRICA.

The First World War is better known as an artillery war, but it should be remembered that suppressing enemy machinegun fire was an important function of the artillery barrage. Most of the field artillery in service was of about 75mm in calibre. Examples include the French 'Soixante Quinze', the German 77mm and the British 18 pounder.

In the Second World War (WW2) greater dispersion made it difficult for attackers to suppress defending mortars, machineguns and antitank guns. That dispersion was partly a response to the

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effectiveness of artillery in 1914-8. In North Africa in 1940-1 the British Army quickly found that all tanks needed to be able to fire high explosive (HE) of at least 75mm calibre.[i] (That explains the unconventional design of the American M3 Lee and Grant tanks, mounting a 75mm gun in the hull, and procured in considerable numbers by the British). Some German tanks already had 75mm guns. The Soviet T34, entering service at the time of the German invasion of Russia in 1941, had a 76mm gun.

By the end of the Second World War, many armies had developed successful minor unit tactics which coupled tanks firing HE (and occasionally flamethrowers) with dismounted infantry using small arms. In a sense, the history of the Arab-Israeli wars from 1948 to the present day is a series of snapshots which repeat almost the same picture. Other conflicts have rarely contradicted the pattern.

Troops generally responded to developments in small arms firepower in much the same way. Small arms fire is highly lethal, so troops take cover. The cover they choose is bullet-proof (naturally!) Ironically, this makes small-arms fire less effective, since when troops take cover they are extremely difficult to hit with small arms fire. In the extreme it is impossible to hit them because they are entirely hidden behind bullet-proof cover. To that extent, the more accurate the fire, the less effective it is. However, attackers have to move from cover to cover, which slows down the attack considerably. Additionally, the firers themselves choose bullet-proof cover to fire from, which makes them very hard to hit in turn.

By and large, dismounted troops cannot advance in the open. They have to disperse and use cover. Infantry schools make much of using manoeuvre coupled to the fire of section and platoon small arms. Conversely, higher-level tactics manuals implicitly or explicitly accept that infantry attacks generally need HE fire support; be it direct, indirect, or preferably both. Armies do not expect company- and battalion-level attacks to succeed without considerable fire support. Without that support, a small number of attackers can generally hold off a large number of attackers. Dismounted combat is, of itself, typically protracted and often indecisive.

DISMOUNTED COMBAT IS, OF ITSELF, TYPICALLY PROTRACTED AND OFTEN INDECISIVE.

There are exceptions. The biggest exception is the use of surprise; typically, but not exclusively at night. The Falklands Conflict of 1982 provides a good range of examples. The British fought six major engagements. All were battalion-sized battles. All started at night. Five batteries of 105mm artillery and naval gunfire, but no tanks, were in support. All of the attacks were eventually successful. Some were highly successful. But where British soldiers were caught out after dawn, relying largely on their own small arms and having lost the element of surprise, the fighting was slow and the casualties were high. Critically, the British had no integral projected HE weapons. In some cases they employed shoulder-fired antitank weapons, or 30mm cannon fire from reconnaissance vehicles, with some success. To repeat: dismounted combat is, of itself, typically protracted and often indecisive.

What dismounted infantry lacks, in effect, is a defeat mechanism. Small arms fire is largely ineffective against troops in cover. Small-calibre HE weapons bursting in front of, to the side of, or behind the

defender's position may suppress him temporarily but rarely disable or kill. Airburst weapons do have some effect, but most airburst projectiles have a radial burst pattern. So, whilst troops directly below the burst will be affected, much of the effect is spread up or sideways away from the point of burst. For relatively small calibres, the effect is limited. High Explosive, Anti-Tank (HEAT) rounds have been optimised for over 60 years to penetrate armour. Unsurprisingly, they are not optimised to defeat personnel behind cover.

WHAT DISMOUNTED INFANTRY LACKS, IN EFFECT, IS A DEFEAT MECHANISM.

Small projectiles which land *inside* the cover can be highly effective. This was discovered almost accidentally during WW1. Almost the only way to project HE using infantry weapons was to lob it, using a high trajectory. Therefore some projectiles actually fell inside the enemy's trenches. The key weapons were light mortars and rifle-projected grenades. They didn't have a long range and weren't particularly accurate. They were, however, used in very large numbers. From 1917, British and Dominion armies employed a complete section of rifle grenadiers in every platoon. German attacks and counterattacks were met with volleys of rifle grenades. It only took one or two grenades per volley to land in a section of trench being used to mount a counterattack to deter the defenders. The Canadian Army used this tactic with particular effect on Vimy Ridge in April 1917, and the method was widely copied elsewhere.

Between the two world wars many armies procured very small mortars for use at platoon level. In the British case the Two Inch ('2in') (51mm) mortar was an explicit replacement for rifle grenades. It was part of a move from four sections to three in each platoon. The light mortar was substituted for the section of rifle grenadiers, saving manpower for redeployment elsewhere. Several WW2 writers attested to the usefulness of the 2in mortar in that role. However, the lesson appears to have been lost. By the time of the Falklands Conflict the HE bomb had been withdrawn from service, and its replacement had not been introduced. There was a number incidents in the Falklands Conflict in which 2in HE bombs would have solved what were, otherwise, very difficult tactical problems.

A defeat mechanism is not necessarily a weapon or weapons system. Surprise can be devastating, if properly exploited. At Mount Harriet in the Falklands Conflict a British commando battalion destroyed an Argentinean battalion, killing 18 and capturing 300 for the loss of 2 dead, largely due to the use of a silent night attack from the rear. But, in the absence of surprise, a defeat mechanism often does depend on weapons systems. In WW1 it was typically very close coordination between attacking infantry and a creeping artillery barrage. In WW2 it was typically a combination of an initial barrage and very close tank-infantry cooperation.

A DEFEAT MECHANISM IS NOT NECESSARILY A WEAPON OR WEAPONS SYSTEM.

The infantry's defeat mechanism is often thought to be the close assault; using bayonets, grenades and close-range small arms fire.



That can be a significant aspect of infantry operations. It can be effective, but only when the attackers have got close enough. If the force-to-space density is low, the defenders can often withdraw before the attackers arrive. That is often the case in COIN. Where the force-to space density is high, the attackers often cannot get forward without fire support.

Much of what we observe in counterinsurgency (COIN) today is protracted and indecisive dismounted infantry combat. That tells us that little has changed. The attackers' small arms are typically semi- or fully automatic; but so are the defenders'. Tanks are rare in COIN, as are attack helicopters and fighter ground attack aircraft. They are often not available when needed. There are considerable limitations on the use of artillery and even mortars; not least because the mortars are often 81mm or even 120mm calibre.

The first weapon which the German Army brought into service after WW1 was a very compact 75mm field gun, issued to infantry battalions. Its performance was modest, but it could reliably place 4.4kg HE shells through a target the size of a window at a kilometre's range. The same gun was the main armament of the Panzer IV tank in 1939-41. The infantry version (the 7.5cm IeIG 18) was tiny, but quite heavy (about 400kg). It was also clearly effective: the Germans kept it in service with infantry battalions until the end of the war.

Today the Danish and Australian infantry employ the Swedish 84mm Carl Gustav weapon system, as do some US Special Forces. It will be familiar to many as a Cold-War crew-served, heavy, short-range anti-tank system firing HEAT. However, it is now a very capable, versatile dismounted weapon system. It has been coupled to with laser rangefinders, compact thermal and ballistic computing sights and a range of other ammunition natures. The weight of the gun has been reduced from about 16kg to about 7.8kg. Since it is a gun rather than a disposable launcher, the carried weight *per round fired* is quite reasonable: about 5.1kg per round compared with 6.7kg for the equivalent AT4 if four rounds are carried. That drops to 4.1kg per round if 8 are carried. (The AT4 is, effectively, the same munition repackaged in a disposable launcher.) The Carl Gustav has been used by Danish infantry in Afghanistan. Danish infantry battalions have one Carl Gustav per platoon *and* two per company. As one Danish company commander put it, when the Carl Gustavs start firing the engagement tends to finish quite quickly (and with the Taliban's defeat).

This is not the place to compare specific weapons in detail. Several other alternatives could be considered. Some are bulky and cumbersome. Some are susceptible to cross wind. Some are heavy. Some are hugely expensive: the Command Launch Unit of a Javelin missile costs about \$125,000. It is important to compare like with like: all things being equal, a 84mm round will carry an explosive charge more than twice as large as a 66mm round. That's twice as much blast and fragmentation at the target end. There are advantages and disadvantages with all weapons. The key is to work out, very clearly, what the requirement is and then evaluate alternatives.

THERE CAN BE LITTLE DOUBT THAT MANY INFANTRYMEN ON OPERATIONS TODAY ARE OVERLOADED.

There can be little doubt that many infantrymen on operations today

are overloaded. That is in part due to the weapons that they have been made to carry in addition to their assault rifles and LMGs or LSWs. Armies have issued them extra weapons with which to defeat the enemy. But most of those weapons are small arms or small-calibre HE weapons (such as underslung grenade launchers), which are unlikely to be sufficiently effective.

In simple terms, if a weapon is not issued to an infantry battalion, the battalion cannot rely on it being available when needed. In COIN such weapons may not be deployed in theatre, may be scarce, or may be subject to Rules of Engagement (ROE) which renders them largely unusable. In general war they may be (and often are) taken away for use on higher priority tasks. The argument is simple. Dismounted combat is, of itself, typically protracted and often indecisive. Infantry needs a defeat mechanism, and surprise alone cannot be relied upon. That means that infantry needs a weapons system which it owns and can use, within typical ROE, dismounted. A 120mm laser-guided mortar system, fired by someone else, simply would not meet the requirement.

'To defeat' typically means some combination of to find, to fix, to strike and to exploit. Dismounted infantry, unencumbered, should be extremely good at finding, fixing (with suppressive fire, indirect fire, or manoeuvre) and exploiting (in certain types of terrain). The key issue here is the lack of an infantry weapon with which to strike. The key would seem to be to remove the requirement for infantry sections, and perhaps platoons, to strike. To do that, battalions should be issued with a portable weapon system that can project HE of about 75mm calibre or greater, accurately, to battlefield ranges. Sections would find, fix and exploit. The striking would be done with direct-fire HE.

The necessary weapons system should be issued to battalions (essential); companies (highly desirable); and platoons (desirable). Issuing it to sections would merely add to the weight they already carry. But freeing sections from the need to defeat the enemy with their own weapons would help reduce the carried load. Furthermore, with a reduced role (finding, fixing and exploiting only) sections might be smaller, freeing up manpower for the crew-served weapons. A paper trial suggests that a current three-platoon, three-company battalion could easily provide enough manpower for either a four-platoon, three company structure or even a three-platoon, four company battalion.

IF EXCHANGES OF SMALL ARMS FIRE ARE TYPICALLY INDECISIVE, WHY DO ARMIES PERSIST IN ORGANISING AND EQUIPPING PLATOONS PRIMARILY FOR SMALL ARMS FIRE?

If exchanges of small arms fire are typically indecisive, why do armies persist in organising and equipping platoons primarily for small arms fire? And then overload them with other equipment, in the hope that something decisive will occur? That is a vain hope indeed. If you overload an infantryman his effectiveness goes down. It would be far better, surely, to reconsider how the infantry should fight, and be organised to fight.

To conclude: since the late 19th Century dismounted infantry combat has, of itself, generally been protracted and often indecisive. Infantry



battalions generally lack a defeat mechanism, other than surprise. When surprise is not achievable or has been lost, infantry combat tends to reduce to a protracted, attritional grind.

A highly mobile crew-served weapons system of about 75mm or greater, that can fire HE munitions accurately out to perhaps a kilometre, would appear to meet the requirement. The German LeIG 18 of WW2 was very good, although fairly heavy and needing a crew of four. The newer models of the Carl Gustav, lighter and with advanced sights, are probably even better. Several other weapon systems might also meet the requirement.

Other defeat mechanisms are possible. Smaller projected HE landing

directly in the enemy's position, such as rifle grenades or light mortar bombs, is one alternative. Surprise should always be the mechanism of choice. With such a mechanism, infantry can be highly effective.

Armies need do nothing. They can continue to overload their infantry soldiers, yet not provide them with an effective means of defeating enemy infantry. Alternatively, they can think through, simply and clearly, how they intend to defeat the enemy; and then develop organisations, and procure weapons, with which to do that.

The key is not the Carl Gustav, or any other particular weapon system. The key requirement is a defeat mechanism.

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LESSONS FROM THE LAST WAR — PREDICTING THE NEXT WAR



Eado Hecht

"Those who cannot remember the past are condemned to repeat it."

George Santayana

"Prediction is very difficult, especially about the future."

Niels Bohr

Introduction

One of the most important tools in preparing for war is the development of a theory of how that war will be fought, then the development of a doctrine to teach one's army how to fight it. This entails two separate but complimentary processes. The first is to study past wars to reveal the inner workings of the phenomenon and how various factors affect the result. Some of these factors are more or less stable; some are dynamic. The second requirement is therefore to predict how the dynamic factors will change in the future, and how these changes will affect the interplay between the relevant factors.

This article will recount, in brief, two tales of rival armies which conducted these processes and reached completely different conclusions; and then fought out those conclusions against each other. In each tale conventional wisdom is that one army got it right and the other got it wrong; one predicted the future, the other tried to fight the last war. I will endeavour to show, in the limited space available, that in each tale the true moral is more elusive.

A Tale Of Two Armies

Germany's victory over France in May and June 1940 gave birth to a myth. In one corner, the story goes, the progressive military thinkers of the German Army had studied the lessons of the First World War and correctly analyzed the development of emerging technologies. They then gradually dragged their colleagues, albeit screaming and kicking, in the right direction: producing the correct doctrine for future war. In the other corner, the hidebound military thinkers (or non-thinkers) of the French Army had not bothered to do the same, had ignored the sagacious few in their ranks who saw the future clearly, and therefore posited a future war no different than the last. On the victorious side a forward-looking army; on the other an army fighting the last war. The result of the confrontation was, ostensibly, pre-ordained.

GERMANY'S VICTORY OVER FRANCE IN MAY AND JUNE 1940 GAVE BIRTH TO A MYTH.

The truth is less clear-cut. Both the French and the Germans had trawled the history of the First World War for lessons applicable to the future. Both had studied emerging technologies and attempted to divine their effects on these lessons. Yet each had reached diametrically opposite conclusions.

The French had begun to study the use of armoured vehicles as a possible solution to modern firepower in 1903. They had pioneered the tank design that would become the basis for all tanks to this day, the Renault 1917. They had manufactured more tanks than any other combatant in the First World War, and had successfully operated them in a series of battles. They concluded that the heyday of this

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weapon was past.[i] This was not because they were fighting the last war. Tanks were considered to have been instrumental to achieving victory in that last war. It was because they were studying emerging anti-tank technologies and had concluded that the race between tanks and anti-tank weapons favoured the latter for the foreseeable future. Firepower had been the arbiter of First World War battles and tanks had provided only temporary relief from this grim fact. So, if tanks could no longer charge through fire-swept battlefields on their own, they, like the infantry before them, needed someone else to protect them as they attacked. The only solution was to lead the way with the huge creeping barrages that had enabled French infantry to cross no-man's land by suppressing enemy machine-gun fire. The same barrages would now be used to suppress enemy anti-tank gun fire. The 'fly in the ointment' was that dependence on artillery firepower meant tying the speed of attack to two factors. The first was the snail's pace of the rolling barrage during the day, the maximum advance being dictated by the range of the guns. The second was the similarly slow pace of forward displacement of the artillery every night and the clumsy, heavy chain of ammunition supply.

Only after the enemy's defences had been broken through could the armour and truck-mounted infantry dispense with most of the artillery and accelerate their advance to exploit success. In theory, if the enemy unwittingly left a gap in his defences, French forces could skip the breakthrough phase and go directly to the exploitation. However, given the multi-million armies that would be mobilized for the war, French doctrine developers assumed that such gaps would not exist until late in the war, when one side was worn down by continuous attrition. Alternatively, it would be an anomalous opportunity born of an unpredictable mistake, and therefore not something they could base their doctrine on. French offensive operational and tactical art was therefore deliberately sluggish. It was based on: gradually studying the enemy in order to determine the relative weak points in his defensive deployment ('relative' because even these points were expected to be strong); accumulating an overwhelming fire-superiority at those points; and then slowly grinding through the enemy with firepower. The attack, exclaimed French doctrinal manuals, is 'firepower that advances'[ii] and was possible only if firepower had broken the enemy's resistance[iii].

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In the opposite corner, the German Army, studying the very same information on the last war and emerging technologies, concluded that the arbiter of future warfare would not be firepower but rather speed of manoeuvre. Germany's only chance of achieving victory against the surrounding military powers was a short war. It could not win a long war of attrition. Breakthrough had been achieved successfully by the German army in 1918 by new tactics: a combination of new infantry assault-group techniques and new artillery techniques, not new technology. The new tactics had not produced an operational-level victory because the Germans had lacked a fast-moving force to exploit the breakthrough towards

the enemy's strategic rear before he had recovered and re-closed the front.[iv] The tank merged the capabilities of the assault-group and the artillery on one platform and provided the missing factor of speed. Anti-tank weapons would be defeated by swamping them numerically with fast-moving tanks firing during short halts. An armoured division would concentrate all its hundreds of tanks in some twenty waves on a front 2 to 4 kilometres wide at most. Given that the effective range of anti-tank guns was approximately only 500 meters the Germans assumed that the small number of guns facing the 300 to 400 tanks in each division would manage to destroy only a few tanks before being overrun. Meanwhile, the air force would delay enemy reinforcements and provide fire support if needed.[v] The armoured divisions would then rush to the enemy's operational or strategic rear, depending on the situation. They would surround the enemy army in preparation for a modern Cannae or causing its political leadership to 'throw in the towel' in order to save its political and economic infrastructure from harm.[vi]

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Ostensibly the conquest of France in 1940 proved the Germans right and the French terribly wrong. However, the continuation of the Second World War provides a slightly different picture. The German Army continued to accrue victories until 1942, by which time its opponents had gradually accumulated more and more anti-tank weapons and tanks, and had learned to recognize and plug the weak points that had previously beckoned German thrusts. The French had under-estimated the number of anti-tank guns needed per enemy tanks: they had placed only 2 to 10 anti-tank guns per kilometre of front. In 1943 the Russians placed 30 to 70 anti-tank guns and dug-in tanks per kilometre of front to a depth of some 20 to 30 kilometres. The German 'Citadel' offensive reverted into a First World War-style slogging match with Second World War technology: there were 50,000 German and 250,000 Russian casualties in 6 days.[vii] The Germans were not blind to battlefield trends. They tried to neutralize them by manufacturing better-protected tanks and by increasing the proportion of infantry and artillery units to tank units[viii], but strategically it was too late: their offensive strategy had lost steam. They were now locked into a long defensive war against enemies with superior resources. Now it was the turn of their enemies to find a way to pierce the German defences. Their solution looks familiar: fire-power. As long as the Germans managed to maintain continuous well-manned fronts, Allied breakthrough battles at El-Alamein, in Tunisia, in Italy, in Normandy and on the Russian front were all planned and conducted, as the French had predicted, at the pace set by the artillery; though using improved fire techniques and aided by airpower. Gradually, as the French had predicted, the German army was worn down in enormous battles of attrition; breakthrough battles became shorter; gaps were found, and sometimes exploited. A comparison of the tactics employed by the relevant armies with French pre-war doctrine reveals similarities regarding the dependence on firepower and attrition. Of course none of the Allied commanders declared that they were following French concepts, and it is very likely they were not aware of them. [ix]

To summarize this tale, both armies were right and both were wrong. The determining factor was context. The Germans had developed a doctrine suitable for a specific set of circumstances and, when applied in those circumstances, it had prevailed. The French had developed a doctrine suitable for a different set of circumstances, and when this was applied by other armies in those circumstances it had prevailed. It must be emphasized, however, that even when applied in its preferred situation neither doctrine was perfect. Each contained flaws and needed to be improved and updated. One should not allow the brilliant light of success to blind one to the flaws.

A Tale Of Two Other Armies

Let us jump ahead in time to the aftermath of the 1967 Six Day War. The Israeli Defence Forces (IDF) won a spectacular victory over its numerically superior rivals using blitzkrieg-like tactics. As the dust settled the various armies involved began to analyze the actions in order to prepare for the next round.

In 1967 the IDF had been organized in all-arms formations with an overall preponderance in infantry units.[x] Studying the relative involvement of the separate arms in that war convinced the Israelis that increasing the tank component at the expense of the infantry and artillery components of their army would provide a better return for their limited funds and manpower. Tanks had given 'a bigger bang for the buck'. Six years later, in 1973, the overall number of tank and infantry battalions in the IDF was roughly equal, but the projected participation of infantry and artillery in actual combat was deliberately reduced considerably.[xi] Infantry was to be used mostly on secondary fronts that did not warrant tank participation or in terrain where tanks were technically limited, such as the mountainous Hermon. Israeli artillery, though partially modernized with new weapons (such as self-propelled howitzers) had barely grown at all. In emergency mobilization plans it was accorded the lowest priority for transport. When the tank guns were insufficiently powerful, the IDF expected to receive support from its air force. This was despite Israeli Air Force warnings that such support would be available only after a few days' struggle for air superiority against rival air force and air defence systems.

THE EGYPTIANS HAD REACHED DRAMATICALLY DIFFERENT CONCLUSIONS.

The Egyptians had reached dramatically different conclusions. They understood that they were markedly inferior in mobile combat in general, and in tank-to-tank and air-to-air combat in particular. They believed they were incapable of closing those gaps in the foreseeable future. They therefore developed in a completely different direction. First, when preparing for the next war, they planned a limited offensive. It was designed to surprise the Israelis, catch them in a situation of numerical inferiority, advance a short distance and then dig-in behind greatly enhanced anti-tank and air defences based on the latest Russian technology. Their aircraft would be used sparingly in hit-and-run raids. Tanks would be used only in favourable circumstances, and then also cosseted by artillery, infantry and anti-tank units.[xii] In 1967 Egyptian anti-tank guns and tanks were deployed at a density of approximately 25 per kilometre of front to

a depth of 4 to 6 kilometres. In 1973 the anti-tank weapons and tanks were deployed at a density of approximately 20 per kilometre to a depth of 3 to 8 kilometres. Ostensibly this was a reduction in anti-tank firepower, but in 1967 the Egyptians had deployed 1945-era weapons against an Israeli mix of post-war tanks, whereas in 1973 the Egyptians deployed 1960s-era weapons against an Israeli arsenal that had grown in size but was technologically the same. The effective range of Egyptian weapons had nearly trebled, so that unengaged weapons located to the flank or farther in the rear could augment those in the path of the Israeli tanks. Furthermore, in 1967 the Egyptians had a very few outdated personal anti-tank rocket launchers. In 1973 they saturated their infantry units with up-to-date RPG-7 launchers, adding another 20 short-range anti-tank weapons per kilometre of front. Additionally, because the new anti-tank guided missiles were more portable than anti-tank guns, they could be moved quickly to concentrate them at the required location.

THE FIRST ARMoured DIVISION ON THE SCENE LOST TWO-THIRDS OF ITS TANKS IN THE FIRST 18 HOURS OF FIGHTING.

During the first few days of the 1973 war, Israeli tank units counter-attacking Egyptian forces that had crossed the Suez Canal were decimated. The first armoured division on the scene lost two-thirds of its tanks in the first 18 hours of fighting. Another armoured division, entering the fray on the third day, lost about a third of its tanks within a few hours. The third armoured division, attacking on the fourth day, lost nearly a quarter of its tanks. The Egyptian offensive was delayed but reached most of its initial territorial objectives.[xiii]

As with the Germans and the French, conventional wisdom is that the Egyptians had properly studied the future whereas the Israelis had tried to fight the last war. However, again, a closer look reveals this to be less than accurate. The Israelis were certainly guilty of hubris, expecting the Arab armies to flee when faced by almost any Israeli force, no matter how numerically inferior. In the initial counter-attacks on October 6th 1973, solitary Israeli tank companies attacked entire Egyptian brigades! On October 8th 1973 a single under-strength division was expected to defeat three reinforced Egyptian divisions. However, they did eventually defeat the enemy with a tank-heavy force as they had planned. Minor adjustments to battle drills proved sufficient to regain combat effectiveness. A tank-heavy counter-offensive broke through the Egyptian anti-tank defences, crossed the Suez Canal and forced Egypt to request a ceasefire. It was more a question of recovering from the initial surprise, mobilizing the entire force and conducting operations according to the IDF's official doctrine, as developed after the 1967 war, rather than requiring a new doctrine. For example, although tank battalions had both organic self-propelled mortar platoons and armoured-infantry companies, battalion commanders tended to ignore them.[xiv] Indeed, if the IDF had been constructed with more infantry units and fewer tank units, as some critics have argued, it is likely that Egyptian gains and Israeli casualties would have been greater. In manpower terms, one more battalion of infantry would have meant three fewer battalions of tanks. This would have entailed a massive reduction in mobility, firepower and area of control for a given number of men. IDF post-war analysis concluded that the days of the tank were not yet numbered, but it required more and closer combined-arms support. From 1973 to 1978 the IDF tank and infantry forces were roughly doubled in size (another lesson of the war was that the IDF was not big enough); but the artillery

arm was increased 2 ½ times. Mortar units in the tank battalions were better integrated in training. Tank protection was improved with reactive armour, and the new Israeli Merkava was designed with better protection. All these improvements were tested in the 1982 war in Lebanon. Once again the IDF conducted a tank-heavy operation, even though the terrain in Lebanon is mountainous and densely populated. There were faults and failures, but in general it was proven that even in this terrain the IDF's doctrine was workable. [xv]

Summary

This article has tried to show that indeed, as Niels Bohr argued, it is very difficult to predict the future; and the future is not a single pre-determined path. Therefore even a correct prediction can turn out to be wrong in a particular scenario. This is true especially in war, because the enemy is also predicting the future, studying your predictions and deliberately trying to foil your plans. It has also tried to show that studying the past, though essential for learning lessons and evading past failings (à la Santayana), is fraught with pitfalls.

Even assuming that all the relevant information is available, lessons are always contextual and the exact context in which a lesson is relevant must be defined if we are to apply it in the future. So perhaps the true lesson is the need for a flexible doctrine that enables one to prepare for multiple options.[xvi] The problem with this solution is that a jack of all trades is a master of none. No army, not even the richest, can fully prepare for every eventuality. However, an army well-trained in the basics of the military art and well-schooled in the experience of past wars and the writings of the theorists, can, even if it chooses a particular prediction to focus on, respond quicker when theory meets the hard wall of reality. It can adapt itself more rapidly to that reality as it is revealed on the battlefield.

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