KURSK AND THE TEN COMMANDMENTS OF ARMOURED WARFARE[1]

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1. INTRODUCTION

The Battle of Kursk 60 years ago in what is today the independent republic of the Ukraine was, from the German side, an abomination. Just about every rule of armoured warfare was broken by the attackers. They had by their actions advertised their intention to attack for weeks (although the Russians also got wind of it through their spy system). They made no attempt to hide their preparations, the points they were intending to attack, nor the approximate time it would take place. It was a brutal frontal attack on a heavily and cunningly fortified defence line, with very little attempt to mislead the Russians, to try outflanking manoeuvres, to follow the line of least expectation, to do it all at a time when it would not be expected. The *Luftwaffe*'s command of the air, while still more or less intact, was increasingly disputed by the Russians. And finally, at decisive stages of the battle the German tanks had no infantry to back them up.

It was not a question of not *knowing* what to do. After all, the Germans, building on the early work of British thinkers like major-general JFC Fuller and captain BH Liddell Hart,[3] were the fathers of what became known as the *Blitzkrieg*, the pioneers of armoured warfare based on principles they themselves had enunciated, and which had had unprecedented success in the early war years.

The idea of Operation *Zitadelle* (Citadel), as the offensive was called, was born after the successful *riposte* of field marshal Erich von Manstein at Kharkov following the disaster of Stalingrad. If it had taken place soon after that, before the Russians could prepare themselves, it could very well have succeeded.

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1 Paper delivered at the SA School of Armour on July 25th, 2003 at a conference about the Battle of Kursk in 1943.

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3 Cf. Anthony John Trythall, **'Boney' Fuller. The intellectual general** (London, Cassell, 1977), pp. 165, 203, 211; Brian Bond, **Liddell Hart. A study of his military thought** (London, Cassell, 1976), ch. 8; Alex Danchev, **Alchemist of war. The life of Basil Liddell Hart** (London, Phoenix Giant, 1999), pp. 223-39.

"It is an accepted fact that plans and preparations for an operation of such magnitude cannot be kept secret for any length of time," wrote major-general Friedrich von Mellenthin, a German armour specialist. He added: "If *Citadel* had been launched in April or May, it might have yielded a valuable harvest, but by June the conditions were totally different. The Russians were aware of what was coming, and had converted the Kursk front into another Verdun."[4] No wonder that colonel-general Heinz Guderian, the driving force behind the development of the German army's panzer divisions in the thirties, was against the attack, while Manstein, who probably had the finest operational mind in Germany, was at best dubious.[5]

That is why the attack at Kursk was an abomination.

But if this is the case, if all rules of armoured warfare were callously thrown overboard, what are these rules? What must a commander of armoured forces on the operational or even strategic level keep in mind when deciding how to use his armoured corps, divisions or brigades?

Tanks and other armoured vehicles, like all weapons, have their strong points, but they also have distinct drawbacks. When handled correctly in co-operation with other arms, they may excel and produce rapid and decisive results. If not, an operation may end in ignominy – like the German assault at Kursk. The trick is to know how to handle armour, to use it when circumstances are favourable, and to let them sit out when conditions are not. The military history of the 20th century provide ample material to distil the following ten commandments of armoured warfare.

2. FIRST COMMANDMENT: TANKS ARE NOT MERELY AN INFANTRY SUPPORT WEAPON

To any armour soldier this first rule today sounds so self-evident that it does not need to be said at all. If the infantry are the Queen of the battlefield, then armour surely is the King. Obviously, tanks or armoured cars may at times be employed as support for infantry, especially where circumstances are not advantageous for the use of armour in a concentrated, mailed fist. But this clearly is second best.

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4 FW von Mellenthin, **Panzer battles 1939-1945. A study of the employment of armour in the Second World War** (London, Cassell, 1955), p. 213.

5 Heinz Guderian, **Panzer leader** (London, Michael Joseph, 1952), p. 307; Erich von Manstein, **Verlorene Siege** (Bonn, Athenäum, 1955), pp. 494-5.

The realisation that tanks in principle should be the prime weapon of ground forces did not always exist. When the first primitive tanks made their appearance in 1916 on the western front in France, they were simply seen as an instrument to facilitate the infantry's attacks. Although they created panic among the German defenders, they were spread out among the attackers, so that their potential punch was largely dissipated.[6] This misuse of the tank weapon was understandable. It was spawned by the atrophied trench war into which WW I had degenerated after its initial mobile phase. It did not even dawn on commanders such as generals John French, Alexander Haig, Ferdinand Foch or Philippe Pétain before the end that there was a way out of the morass, provided they grasp the potential of this new weapon.

In vain, far-sighted British theorists, like lieutenant-colonel (later major-general) JFC Fuller and captain (later lieutenant-general) Giffard le Q Martel, challenged conventional wisdom. In a memorandum in 1916, entitled **A tank army**, Martel foresaw big tank armies manoeuvring across Europe in the future and taking the place of the infantry-dominated armies of the time. He was laughed out of court. Nevertheless, he greatly influenced Fuller, who tirelessly worked to gain acceptance for the tank.[7]

Towards the end of the war, Fuller made an impassioned plea for the adoption of tank units and using them in massed attacks. In his famous memorandum, **Plan 1919**, he wrote that mechanisation had revolutionised strategy (now known as operational art) in that it made it possible to affect a deep penetration of the enemy's lines. The primary objective would be the enemy's divisional and army headquarters with a view to paralyse the enemy.[8] However, before this could be implemented, the war ended.

After the war, theorists in three countries separately pursued the potential of armour. In Britain, Fuller, Martel and an infantry captain who was gassed in 1916 and invalided out of service, Basil Liddell Hart, fought an uphill battle, but gained only grudging and very slow acceptance. Liddell Hart, for instance, in 1925 emphasised that tanks should be used to attack the "communications and command centres which form its [the enemy army's] nerve system", and in 1937 that "one must use the rapidity of deep penetrating leverage to demoralize the enemy".[9] It would not be until well into WW II before they were finally vindicated.

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6 Kenneth Macksey, **Tank versus tank. The illustrated story of armoured battlefield conflict in the Twentieth Century** (London, Chancellor Press, 2001), pp. 16-7.

7 Trythall, pp. 47-8 and 52-3.

8 **Ibid.**, pp. 71-4; JFC Fuller, **The conduct of war 1789-1961. A study of the impact of the French, Industrial and Russian Revolutions on war and its conduct** (London, Eyre and Spottiswoode, 1961), pp. 243-4.

9 Bond, p. 42; Danchev, p. 239.

In the Soviet Union, marshal Mikhail Nikolayevich Tukhachevsky became the champion of the developing tank arm, preaching the religion of a rapid and deep penetration. He explained it thus:

> "The setting up of a deep battle - that is the simultaneous disruption of the enemy's tactical layout over its entire depth - requires two things of tanks. On the one hand they must help the infantry forward and accompany it; on the other they must penetrate into the enemy's rear, both to disorganise him and to isolate his forces from the reserves at his disposal. This deep penetration by tanks must create in the enemy's rear an obstacle for him, onto which he must be forced back and on which his main forces must be destroyed. At the same time this breakthrough must destroy the enemy's artillery, cut his communications and capture his headquarters."[10]

Tuchachevsky was, however, executed by Stalin during the Great Purge of 1936-'37, and his ideas fell into disrepute, only to be forcibly resurrected in 1941 through the German invasion.

The most lasting contribution was made by the Germans, and especially by colonel (later colonel-general) Heinz Guderian. Although the Germans were forbidden by the terms of the Versailles Treaty to possess tanks, they had a long tradition of mobile doctrine, which the Gin-C, colonel-general Hans von Seeckt, strongly encouraged after the war.[11] It was, therefore, an intellectual environment in which the new thinking had more scope to develop than in Britain or the Soviet Union, although the old school did not buckle under without a fight.

In a book first published in 1937, **Achtung - Panzer!**, Guderian wrote that many people wanted to split up tanks as an organic part of infantry divisions. This was just about the worst thing that could happen:

> "If we were to subordinate tanks to all of these [infantry] divisions as organic elements, we would end up with that many fewer tanks at the point where we seek the main decision, and where their intervention would be the most rewarding. This is when the infantry really need tanks, and if they are deprived of them by some organizational blunder they will have to pay for it - as always -

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10 Richard Simpkin and John Erickson, **Deep Battle. The brainchild of Marshal Tukhachevsky** (London, Brassey, 1987), p. 141.

11 Cf. Jehuda L Wallach, **Das Dogma der Vernichtungssclacht. Die Lehren von Clausewitz und Schlieffen und ihre Wirkungen in zwei Weltkriegen** (Frankfurt, Bernard and Graefe, 1967), pp. 342-4; Michael Geyer, "German strategy in the age of machine warfare, 1914-1945" in Peter Paret (ed.), **Makers of modern strategy from Macchiavelli to the nuclear age** (Oxford, Clarendon, 1986), p. 557; Matthew Cooper, **The German Army 1933-1945. Its political and military failure** (London, Macdonald's and Jane's, 1978), pp. 135-6.

> in their blood. A number of discerning officers of infantry are in full agreement on this point, and they urge that armour be concentrated in large formations."[12]

In other words, Guderian felt, tanks "must play the primary role, the other weapons being subordinated to the requirements of the armour".[13] In an article in 1935 he prophesied how the commander of an armoured force would wage war (note the remarkable similarities with Liddell Hart's and Tukhachevsky's ideas):

> "He will do his best to launch the great blow suddenly so as to take the enemy by surprise, rapidly concentrating his mobile troops and hurling his air force at the enemy. The armoured division will no longer stop when the first objectives have been reached; on the contrary, utilising their speed and their radius of action to the full, they will do their utmost to complete the breakthrough into the enemy lines of communication. Blow after blow will be launched ceaselessly in order to roll up the enemy font and carry the attack as far as possible into enemy territory. The air force will attack the enemy reserves and prevent their intervention."[14]

Although Guderian possessed a razor-sharp intellect, he was a fiery man – his German nickname was *Brausewetter* ("hothead")[15] – who did not believe in making his point softly and tactfully. He therefore had problems in convincing other high officers of his viewpoint, most notably the army Chief of Staff, colonel-general Ludwig Beck.[16] Nevertheless, Guderian's chance to prove that tanks were the primary ground force weapon was not far away.

3. SECOND COMMANDMENT: TANKS CANNOT OPERATE WITHOUT INFANTRY AND OTHER ARMS

If tanks are not an infantry support weapon, the opposite is equally true: Tanks cannot operate without infantry and other supporting arms. This was illustrated right from the beginning, in the first battle ever - at Cambrai, November 1917 - where tanks were used in a concentrated way. The British vehicles created panic among the Germans and achieved a breakthrough. But, inter alia, because there was no infantry to support the tanks, the breakthrough was not exploited, and the Germans got enough time to plug the hole in their lines.[17]

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12 Heinz Guderian, **Achtung - Panzer!** (English translation, London, Cassell, 1992), p. 196.
13 Guderian, **Panzer leader**, p. 24.
14 Cooper, pp. 143-4.
15 Kenneth Macksey, **Guderian, Panzer General** (London, Greenhill/California, Presidio, 1992), p. 133.
16 Cf. Guderian, **Panzer leader**, pp. 32-3.
17 Cf. Bryan Cooper, **The Ironclads of Cambrai** (London, Pan, 1967).

In the infant years of the debate, in the twenties, Fuller and Martel were of the opinion that the future belonged to all-tank armies, manoeuvring like fleets at sea. Liddell Hart, however, wrote of 'tank marines' - infantry, in other words - which would be necessary for prompt aid in overcoming defended strong points. He declared himself in favour of an "all-mechanized army in which all the supporting arms would be mounted in armoured vehicles, and would thus be able to accompany the tanks closely"[18] - much like the way modern armoured divisions are in fact organised, although his ideal armoured division had much less mechanised infantry than later became the accepted norm.

For his part, Guderian writes that he became convinced in 1929 "that tanks working on their own or in conjunction with infantry could never achieve decisive importance. My historical studies, the exercises carried out in England [of the Experimental Mechanised Force in 1927 and 1928] and our own experiences with mock-ups had persuaded me that tanks would never be able to produce their full effect until the other weapons on whose support they must inevitably rely were brought up to their standard of speed and of cross-country performance."[19]

In 1935, the first of three panzer divisions were set up, all being a mixture of armour, motorised infantry, artillery and other support troops. Although the Germans' ideal was to have their organic infantry being transported in armoured half-tracks, only a small percentage ever were properly mechanised in the modern sense of the word. Also, the vast majority of supply and transport vehicles remained soft-skinned and wheeled, something which would cause no end to their problems, especially in Russia.[20]

In this way, Guderian, more than anyone else, was the founder-father of the modern armoured division with its combination of arms, enabling it to fight a self-contained battle. As panzer general Hasso von Mantteuffel explained after the war to Liddell Hart:

> "Guderian favoured from the beginning the strategic use of panzer forces - a deep thrust into the enemy, without worrying about a possible threat to his own unprotected and far-extended flanks. That was why he planned to transport all supporting elements of the panzer forces (infantry, artillery and engineers) in a similar way - that is, on tracks - and why the supply services (petrol, ammunition, food) were organically incorporated with the fighting troops. This

[18] Bond, p. 29.
[19] Guderian, **Panzer leader**, p. 24.
[20] Kenneth Macksey, **Panzer division. The mailed fist** (London, Macdonald, 1968), p. 15.

enabled them to accompany, and keep up with, the tank core until fused with it – at the same time assuring Guderian's own supplies for three to five days.[21]

It was with this lethal combination that the German panzer divisions stormed over Poland, the Low Countries, France, the Balkan and the greater part of European Russia before eventually being forced on the defensive through the lack of strategic insight of Germany's dictator, Adolf Hitler.

The first real test for this combination on a tactical level was the Battle of Sedan on May 13th/14th, 1940, during the German invasion of France, when Guderian's panzer corps - consisting of three armoured divisions - crossed the Meuse, a very formidable obstacle. We shall look at the French campaign in more detail later on.

It seems that every generation has to invent the wheel all over again. One would think that, with the experiences of WW II behind them, all soldiers would see the advantages of either a mixed armoured division with all arms, or of the use of massed armour in the form of a mailed fist. Not so. While preparing to invade the Sinai in 1956, a rather intense disagreement broke out in the new Israeli Defence Force whether its tanks should be concentrated or dispersed among the infantry (shades of the 1920s and 30s!). As the Israeli publicist Zeev Schiff tells it, the tank officers, headed by major-general Chaim Laskov and colonel Uri Ben-Ari, as expected, wanted to concentrate the armour. IDF chief of staff, general Moshe Dayan, "who still viewed the infantry as the kingpin on the battlefield, demanded the dispersion of the armor as a support weapon for the infantry. The debate took place in the presence of [prime minister David] Ben-Gurion and the decision was made in Dayan's favor."[22]

When he drew up the orders for the invasion, Dayan, therefore, decreed that the infantry should lead the charge, followed by the tanks. In the event, some tank officers simply disobeyed orders and went in regardless, much to Dayan's chagrin.[23]

However, this was not the end of the story. During the Six Day War of June, 1967, the tank forces really performed superbly, but the much less mobile infantry sometimes held them back. The result was that the IDF began to neglect their

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21 BH Liddell Hart, **The other side of the hill** (London, Pan, 1961), p. 66.

22 Zeev Schiff, **A history of the Israeli Army 1874 to the Present** (London, Sidgwick and Jackson, 1987), p. 99. Cf. also Martin van Crefeld, **The sword and the olive. A critical history of the Israeli Defense Force** (New York, Public Affairs, 1998), p. 158.

23 Schiff, p. 99; Van Crefeld, pp. 158-9; Moshe Dayan, **Diary of the Sinai Campaign 1956** (London, Sphere Books, 1967), p. 43. However, Dayan mentions this altercation neither in this book nor in his memoirs, **Story of my life, an autobiography** (New York, Warner, 1976).

infantry. In fact, Israel's arguably ablest tank commander, major-general Israel Tal, called for less infantry - in the words of Patrick Wright - "arguing that Israel required an army that would operate by fast breakthroughs carried out by 'all-tank' brigades, supported by air but not hindered by armoured infantry in their half-tracks, which could be relegated to 'mopping-up' operations. Aware that funds were short, Tal argued that priority should be given to building an army of tanks rather than armoured personnel carriers."[24]

This was done, and the IDF suffered the consequences in the Yom Kippur War of October 1973. In the first days of the war, AJ Barker writes: "(T)he commanders in both Sinai and Golan were screaming for more artillery support and more infantry to stem the Arab tide. None was available because the money had been spent on tanks."[25] The same thing happened a few days later, when the Israeli tanks were ordered on Israel's first counteroffensive in the Sinai: While the tanks stormed the Egyptian positions head-on, they had no supporting infantry, and were beaten back with bad losses. In his thoughtful book on the 1973 war, major-general Chaim Herzog wrote of this attack: "Many of the principles of war were ignored and the conviction of many in the Israeli Armoured Command that armoured forces could operate freely without close infantry support was proved to be one of the most dangerous concepts that had entered Israeli military thinking since the Six Day War." Later in the book he came to a conclusion that had already been reached in Germany in the thirties and elsewhere soon after the start of WW II: "The lessons of the war dictate the conversion of the ground forces into one large interarm battle team controlled by one headquarters. There should be two types of team: armour being dominant in the one, infantry in the other."[26] No wonder that the all-tank doctrine was spontaneously abandoned by the commanders on the ground after a few days.[27]

4. THIRD COMMANDMENT: TANKS ARE USELESS WITHOUT COMMAND OF THE AIR

Just as tanks cannot operate properly without infantry, they also cannot operate without command of the air and prompt close air support (CAS).

Even before the war, Guderian foresaw a major role for the *Luftwaffe* in CAS and in battlefield isolation - that is, interdicting reinforcements and supplies before they

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24 Patrick Wright, **Tank. The progress of a monstrous war machine** (London, Faber and Faber, 2000), pp. 353-4.
25 AJ Barker, **The Yom Kippur War** (New York, Random House, 1974), pp. 58-9.
26 Chaim Herzog, **The war of atonement** (London, Weidenfeld and Nicolson, 1977), pp. 191 and 270.
27 Van Crefeld, p. 241.

can reach the front line.[28] During the Spanish Civil War in the thirties, the Germans sent an air force contingent, the Condor Legion, to fight with general Francisco Franco's Falangist forces in order to gain experience. Under the command of general Wolfram von Richthofen the Condor Legion learnt the enormous possibilities of CAS first-hand. Nevertheless, it was only during the invasion in Poland that the Germans integrated armoured formations and CAS into a coherent operational concept. Although all sorts of medium bombers were used tactically, it was especially the Stuka dive bomber (which could plant its bombs within a 30 metres' radius of the target - an unheard of accuracy at that time) which converted the CAS concept into a formidable weapon.[29]

The *Luftwaffe* at the time was almost totally geared for CAS and operational bombing. Strategic bombing almost did not figure at all - a gap which would bring about grave disadvantages for the Germans later on. But in the meantime, the organisation of the air force into *Luftflotten* - air fleets - more or less followed the example of the all-round panzer division, incorporating medium and dive bombers, light and heavy fighters, as well as reconnaissance and transport aircraft. These formations were placed under the operational command of an army group commander.[30]

Indeed, the *Luftwaffe* played an extremely important role in guaranteeing the panzer forces' success. During Guderian's famous breakthrough at Sedan and his subsequent deep penetrating march to the Channel, the air force not only provided decisive CAS in keeping the French's heads down during the crossing of the Meuse,[31] but also thwarted the admittedly half-hearted French attempts at attacking his flanks during his rapid advance to the English Channel. The air force also attacked deep into enemy territory, as far as Abbeville near the Channel on the very first day, in order to bring about the very envelopment from above throughout the depth of the battlefield which Fuller, Liddell Hart, Guderian and Tukhachevsky had been preaching years before.[32]

In the opening weeks of the Russian campaign, too, the *Luftwaffe* practically wiped out the Red Air Force on the ground and harried the ground forces in a way that greatly facilitated the initial stupendous advance on Minsk and Smolensk.[33]

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28 Cf. Guderian: **Achtung - Panzer!**, pp. 194-5.
29 Williamson Murray, **Strategy for defeat. The Luftwaffe 1933-1945** (London, Quintet, 1986), pp. 24, 90 and 257.
30 Telford Taylor, **The march of conquest. The German victories in Western Europe, 1940** (London, Edward Hulton, 1959), p. 28.
31 See several very interesting eyewitness accounts in Alistair Horne, **To lose a battle. France 1940** (London, Macmillan, 1969), pp. 237 and 248.
32 **Ibid.**, p. 66; Von Mellenthin, p. 18.
33 Bryan Perett, **Iron fist. Classic armoured warfare** (London, Cassell, 1995), pp. 79-81.

There are several other excellent examples of where the co-operation between mechanised ground forces and air forces produced decisive operational and tactical results on the battlefield. The Six Day War of June 1967, for instance, opened with a thunderclap, the Israeli Air Force's lightning attacks on Egyptian air bases, eliminating that country's air force on the ground within the first two or three hours of the war. Following that, the Israeli aircraft supported the tank thrusts through the Sinai all the way and facilitated this classic deep armoured thrust greatly.[34] Then there is the Gulf War of 1991, where the ground offensive by fifteen divisions was preceded by an air campaign of 39 days, which pulverised everything in their path.[35] And, of course, there is the recent Iraq War, where the US Air Force, Navy and Marines brought CAS to a new level of excellence and promptness. Especially the attacks on the Republican Guard divisions, sitting astride the southern approaches to Baghdad, completely destroyed the will of the Iraqis to resist. The Republican Guard, largely as a result of the air attacks, simply evaporated; the officers and soldiers threw away their weapons, put on civilian clothes and went home.[36] The importance that the Americans attached to battlefield support is shown by the fact that the vast majority of the targets struck from the air, 15 592 (or 82% of the total) were in terms of CAS.[37]

But it is not enough to illustrate the point by looking at successful examples. One should also look at the other side of the coin. A first example would be the Battle of Kursk, when the *Luftwaffe* did not possess the air superiority it had during the early days of the Russian campaign, but was actively challenged by the resurgent Red Air Force.[38]

An even better example would be the Allied campaign in Normandy, when the US and Royal air forces totally dominated the skies and made manoeuvring for the German panzer forces very difficult. Preceding the invasion of June, 1944, there was a heated debate within the German military establishment about how to counter the landing. Panzer specialists like general Leo *Freiherr* Geyr von Schweppenburg - and the great Guderian himself! - wanted to keep the panzer divisions well back from the front in order to defeat the invaders through manoeuvre warfare. While this was, in theory, a sound concept, it did not take into account the enormous

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34 Cf. Michael B Oren, **Six days of war, June 1967 and the making of the modern Middle East** (Novato, Presidio, 2003).

35 Cf. Rick Atkinson, **Crusade. The untold story of the Gulf War** (London, HarpersCollins, 1994).

36 Cf. Leopold Scholtz, "What price victory? The war in Iraq" (unpublished analysis, written on request of the Department of Military History at the Military Academy, Saldanha, and intended for publication).

37 Lt.-Gen. T Michael Mosely, "Operation Iraqi freedom - by the numbers" at www.globalsecurity.org/military/library/report/2003/uscentaf_oif_report_30apr2003.pdf.

38 Murray, pp. 118-20.

punch that the Allied air forces packed. Schweppenburg and Guderian were used to conditions on the eastern front, where air power was less important, firstly because of the vast empty spaces, but also because the Red Air Force had never achieved the same concentration of firepower that became their Western counterparts' hallmark.[39]

As CO of the German forces in Normandy, the renowned field marshal Erwin Rommel, however, had personal experience of the devastating power of his enemies' air capabilities during his last months in North Africa. He himself remarked: "Anyone who has to fight, even with the most modern weapons, against an enemy in complete command of the air, fights like a savage against modern European troops, under the same handicaps and with the same chances of success."[40]

Rommel, of course, was right. When the invasion came, down swooped thousands of American and British aircraft, destroying everything in sight, and forcing the Germans to move only at night. Even strategic bombers were employed to attack the German armoured formations, much in the same way that the giant American B-52 bombers carried out devastating carpet-bombing attacks during the wars of 1991 and 2003 against the Iraqi armoured and mechanised divisions. The CO of *Panzer Lehr* Division in Normandy, one of the most powerful formations on the German side, lieutenant-general Fritz Bayerlein, gave the following description of an American air attack on his division by several hundred bombers:

> "Units holding the front were almost completely wiped out, despite, in many cases, the best possible equipment of tanks, anti-tank guns and self-propelled guns. Back and forth the bomb carpets were laid, artillery positions were wiped out, tanks overturned and buried, infantry positions flattened and all roads and tracks destroyed. By midday the entire area resembled a moon landscape, with the bomb craters touching rim to rim, and there was no longer any hope of getting out any of our weapons. All signal communications had been cut and no command was possible. The shock effect on the troops was indescribable. Several of the men went mad and rushed dementedly round in the open until they were cut down by splinters. Simultaneous with the storm from the air, innumerable guns of the US artillery poured drum-fire into our field positions."[41]

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39 David Fraser, **Knight's Cross. A life of Field Marshal Erwin Rommel** (London, HarpersCollins, 1994), pp. 461-3.

40 Erwin Rommel, **The Rommel papers** (edited by BH Liddell Hart, New York, Harcourt, 1953), p, 285.

41 Fritz Bayerlein, "Invasion, 1944" in Liddell Hart (ed.), **The Rommel papers**, p. 489.

Again in December 1944, the Germans tried to resurrect their *Blitzkrieg* techniques by launching a counteroffensive through the Ardennes, and achieving excellent operational and tactical surprise. During the first week or two, heavy fog prevented the Allied air forces from intervening. But when the fog lifted, down came the Thunderbolts, the Typhoons, the Mitchells and the Marauders and converted the greater part of the panzer divisions with their formidable Mark IV, Panther and Tiger tanks into just so much useless scrap metal. Admittedly, this was not the only reason for the failure of the offensive, but it was an important one. Von Mellenthin witnessed the carnage: "[T]he ice-bound roads glittered in the sunshine and I witnessed the uninterrupted air attacks on our traffic routes and supply dumps. Not a single German plane was in the air, innumerable vehicles were shot up and their blackened wrecks littered the roads."[42]

Yet another good example is the first Israeli counteroffensive in the Sinai in 1973, after the Egyptian army had successfully crossed the Suez Canal and established itself on the eastern banks. The Egyptians had learnt much from their humiliating defeat in 1967, especially as far as the value of CAS is concerned. And while they realised that the Israeli Air Force would not easily be bested by them, they could neutralise the Israeli air attacks through a massive anti-aircraft gun and missile screen, the newest equipment on the cutting-edge of military technology being supplied by the Soviet Union. In fact, right from the beginning, the Israelis determinedly attacked the advancing Egyptian and Syrian armoured columns from the air, but they paid a very high price. Thus, when the counteroffensive took place, the air force had to hang back, and no CAS was possible. When coupled with the lack of infantry support, it is no wonder that the offensive was a dismal failure - the first time that Israeli soldiers failed against Arab forces.[43]

Conversely, when the Egyptians tried to enlargen their bridgehead on the eastern side of the Canal, their attack meant that they had to leave the protective umbrella of anti-aircraft missiles on the opposite side, which left them bereft of air cover. And so the Israeli Air Force once again got the opportunity to rain fire and death down on the Egyptians, stopping their attack dead in its tracks.[44]

It is, therefore, clear that although tanks and armour in general provide the punch for any conventional mobile operation, they cannot prevail in the face of enemy air supremacy.

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42 Von Mellenthin, p. 331. Cf. also Charles B MacDonald, **The battle of the bulge** (London, Weidenfeld and Nicolson, 1984), especially pp. 521 and 547.

43 Herzog, pp. 184-91; Barker, pp. 105-7.

44 Sunday Times Insight Team, **Insight on the Middle East War** (London, André Deutsch, 1974), pp. 143-7; Van Crefeld, p. 234. Cf. also Herzog, pp. 199-200.

5. FOURTH COMMANDMENT: CONCENTRATE, CONCENTRATE, CONCENTRATE!

This commandment actually flows logically forth from numbers one and two, so we do not need to explore it in great detail. Already in the 19th century the Prussian military philosopher Carl von Clausewitz opined that "there is no higher and simpler law of strategy [operational art] than that of *keeping one's forces concentrated*".[45]

Applying this to armoured warfare, Guderian wrote of "the principle of ***deployment en masse*** - the concentration of forces where we seek to gain the decision". He went on:

> "If we accept the principle of deployment *en masse* - the concentration of force on the decisive point - we must draw the necessary conclusions in terms of organization. Deployment *en masse* can be accomplished in actual warfare only if the tank forces and their commanders have learnt to fight in large formations in peacetime. In the case of mobile troops, and their leaders, it is very much more difficult to improvise from the ground upwards than it is with the infantry."[46]

There can be nothing wrong with a dispersed advance towards the enemy, if only to keep him guessing where your main blow will fall. But when it comes to the crunch, one should concentrate *at the decisive time* and *at the decisive place* in order to ensure a local preponderance over the enemy. Thus, although their mechanised panzer formations formed but a small part of their invasion forces in France and the Low Countries in May 1940 - only 10 out of 135 divisions (the others being infantry divisions, dependent on foot-slogging soldiers and horse-drawn carriages, as well as one completely obsolete cavalry division) - they concentrated seven of these in colonel-general Ewald von Kleist's *Panzergruppe* on their left flank. It was this powerful force which was to be used as the hammer, while Guderian's corps of three divisions would force the decisive breakthrough on a relatively narrow front at Sedan.[47]

This has ever since been the established practice with the Germans as well as the Western Allies in WW II. In 1967, the Israelis punched their way through the Egyptian front lines with three concentrated composite armoured divisions,[48] and in 1973 the counteroffensive which finally broke through the Suez Canal to surround

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45 C von Clausewitz, **On War**, III/11, (Princeton, 1966), p. 204.
46 Guderian, **Achtung - Panzer!**, p. 206.
47 Taylor, p. 182; Cooper, p. 214.
48 Liddell Hart called the Six Day War "a perfect Blitzkrieg" and said, exaggerating somewhat, that Israeli chief of staff general Yitshak Rabin was "an even better student than Guderian or Rommel".

the Egyptian Third Army, also moved in the form of a mailed fist. And finally, although the allies in 1991 had marshalled 15 divisions to evict the Iraqi invaders from Kuwait, it was VII Corps with its three US and one UK armoured divisions and one US mechanised infantry division which delivered the main blow, the famous "left hook" which cut the occupying Iraqi army off from their own country and won the war.

It is true that the classic principle of mass (and its twin brother, concentration) was much less in vogue during the Iraq War of 2003, to some extent being replaced by velocity - the extremely rapid march from the Kuwait border to Baghdad. The only two more or less heavy formations available, the 3rd (mechanised) Infantry Division and the 1st Marine Division, marched separately, the former through the western desert and through the Karbala Gap to Baghdad; the latter crossing the Euphrates and Tigris to the north and then onwards to Kut and Baghdad along the northern banks of the Tigris. But special circumstances applied here. Firstly, as the Americans had much less mass than in the past, they had to march separately in order to disperse the Iraqis. Secondly, the overwhelming coalition air supremacy ensured that the Iraqi forces were cut up whenever they tried to move in an organised fashion, and lastly the lightning pace of the US advance paralysed them to such an extent that the US could afford not to concentrate beyond brigade or divisional level.[49]

In one notable case, the principle of mass and concentration was dramatically deviated from, with equally dramatic consequences. While advancing through southern Russia in the summer of 1942, the German panzer forces stayed, as their doctrine demanded, more or less concentrated. But then Hitler intervened and divided the panzer armies to achieve two simultaneous goals, namely the capturing of Stalingrad (which, at first, was considered only a subsidiary goal) and the Caucasus. And so, as Liddell Hart puts it, "a subsidiary purpose [Stalingrad] had developed by degrees into a principal effort that drew away the land and air reserves needed to fulfil the primary aim". This fatal division, this disregardment of the basic principle of mass, brought about the catastrophe of Stalingrad.[50]

[49] Cf. Scholtz, "What price victory?" (unpublished analysis of the Iraq War).
[50] BH Liddell Hart, **The Second World War** (London Cassell, 1970), pp. 254-7. The quote is on p. 255.

6. FIFTH COMMANDMENT: TANKS ARE BEST SUITED FOR OFFENSIVE WARFARE

If we say that tanks are better suited for offensive than for defensive warfare we should be clear that we actually mean the tactical level. After all, a tactical counterattack may take place in an operationally or strategically defensive scenario.

Now tanks may, of course, be used defensively. When dug in a hull-down position, and deployed with other weapons and field fortifications such as artillery, antitank ditches, mines, and barbed wire, they can be useful in the defensive role. But this is a task well-armed and -trained infantry can perform at least equally well, probably better, especially where they have been able to build a strong defence line.

No, tanks were conceived and overwhelmingly used in the *offensive* role, precisely because they have a unique combination of qualities, namely *mobility*, *protection* and *firepower*, which together translates into *shock*. Other arms may have some of these qualities: artillery, for example, has even more firepower than tanks. But even a self-propelled gun is normally not as mobile as a tank, nor as well-protected, and not as able to fire quickly on the move and in any direction. Towed artillery, of course, lack these qualities even more.

These qualities are predominantly suited for the offensive. Attacking, whether tactically, operationally or strategically, means exploiting fire and movement, which is a kind of protection too. Coupled with the armour, this makes the tank a unique kind of animal whose talents are wasted in static defensive positions.

For instance, when constructing the so-called Bar-Lev defensive line along the Suez Canal after the war of 1967, the Israeli's put about 60 tanks into static positions. Almost all of them were destroyed when the Egyptians attacked in October 1973, and they did not succeed in slowing the Egyptians down, let alone repulsing them.[51] No wonder the main Israeli prophets of mobility, major-generals Israel Tal and Ariel Sharon, were dead set against the Bar-Lev Line and in favour of a mobile defence.[52]

Therefore, when strategically and operationally on the offensive, put your tanks in the van of the attacking force. When forced on the defensive, let the infantry and artillery form the front line to absorb the first enemy attack, while the tanks are kept in reserve for a powerful counterblow to hit the attackers hard when it seems that they could break through the infantry.

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[51] Sunday Times Insight Team, p. 85.
[52] Herzog, pp. 6 and 11; Van Crefeld, pp. 211-2.

This is how tanks have mostly been used. When on the offensive, the Germans, Russians, Americans, British and Israelis have always relied on tanks (of course, in co-operation with mechanised infantry and air support) to form the spearpoint, the mailed fist, to punch a gap in the enemy line and then exploit it by a rapid deep penetration into the enemy's rear areas.

During the second half of WW II, when on the defensive, the Germans used their best panzer and mechanised infantry formations as a kind of "fire brigade" in the counterattack mode to plug holes made by the enemy armoured fist. When he became Inspector-General of the Panzer Troops in 1943, Guderian issued new regulations regarding the use of armoured forces on the defensive, a new concept for the Germans, who hitherto had been on the offensive. Guderian's biographer, Kenneth Macksey, summarised this interesting document thus: "These units [the reconnaissance troops] would find and track each enemy thrust in co-operation with aircraft. When the strength of each threat was confirmed it would be for the infantry divisions, backed up by self-propelled guns, to hold vital points. Then the panzer divisions would move at speed to key, and preferably flanking, positions from which they initially blasted the enemy, as in an ambush, and next drive among the shattered remnants to deliver the *coup de grâce*. Finally the panzer divisions would withdraw in readiness to deal with the next threat as it developed."[53] It is a pity that Hitler's stupid strategy negated this excellent approach, which clearly illustrates how armoured formations may be used strategically and operationally defensively, but tactically mobile and offensively.

7. SIXTH COMMANDMENT: TRY AND AVOID FRONTAL ATTACKS AGAINST WELL-PREPARED POSITIONS

If it is true that tanks are wasted in the tactically defensive role, one should also be careful how to use them offensively. During the latter part of his life, the renowned strategist Basil Liddell Hart - arguably the most influential military theorist of the 20th century - summarised his contribution in the following two points: "The first is that in the face of the overwhelming evidence of history no general is justified in launching his troops into a direct attack upon an enemy firmly in position. The second, instead of seeking to upset the enemy's equilibrium *by* one's attack, it must be upset *before* a real attack is, or can be successfully, launched."[54]

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53 Macksey, **Guderian, ...**, pp. 177-8.
54 BH Liddell Hart, **Memoirs**, I (London, Cassell, 1965), p. 163.

The whole of WW I on the western front is an illustration of this truth. But, as tanks were only used sparingly there, we should, perhaps, look to other, more relevant examples. Probably the best example would be the battle that gave rise to this conference, Kursk. As we noted in the beginning, the postponement of the German offensive gave the Russians enough time to prepare one of the toughest and strongest defence lines of the entire war. It was built in great depth and in independent "hedge-hogs" which would hold out while the attackers flowed past them, therefore enable them to direct fire on them from the sides and the rear. The German offensive made only moderate progress, their forces being depleted by simply using them as a battering ram against an almost unbreakable defence line. Then, when the Russians launched a counter-offensive north and south of the battlefield and threatened to encircle the Germans, these had to pull back with grievous losses.[55]

Interestingly enough there is an example in South Africa's military history too, although by far not on the same dramatic scale as at Kursk. In March 1988, two squadrons of South African Olifant Mk1A tanks of the Regiment President Steyn found themselves eye to eye with Angolan troops, well entrenched in the so-called Tumpo triangle, just opposite from Cuito Cuanavale on the banks of the Cuito river. In violation of every military principle, they - together with mechanised South African and light Unita infantry - were required to make a full-frontal assault on the well-prepared, strong Angolan positions. According to Fred Bridgeland, commandant [lieutenant-colonel] - now colonel - Gerhard Louw, their commander, "was deeply sceptical about the wisdom of sending tank forces into open ground sown with minefields and enfiladed by a formidable array of heavy artillery overlooking the battleground".[56] No wonder they were beaten back and had to leave behind three disabled tanks on the battlefield.[57]

It may, of course, not be possible to avoid a frontal attack against an enemy expecting you. This happened, for instance, at El Alamein in October 1942, where field marshal Erwin Rommel's *Panzerarmee Afrika* was defeated by general Bernard Montgomery's Eighth Army. In that case, any idea of outflanking the

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55 Cf. Liddell Hart, **The Second World War**, pp. 486-92. Based on German sources, there is a good account by Heinz Magenheimer, **Hitler's war. Germany's key strategic decisions** (London, Cassell, 2002), pp. 202-14, while a very good job of opening up the Russian sources was done by John Erickson, **The road to Berlin. Stalin's war with Germany** (London, Cassell, 2003), pp. 97-116.

56 Fred Bridgeland, **The war for Africa. Twelve months that transformed a continent** (Gibraltar, Ashanti, 1990), p. 322.

57 See full description in **ibid.**, pp. 321-54; Helmoed-Römer Heitman, **War in Angola. The final South African phase** (Gibraltar, Ahanti, 1990), pp. 274-9. Cf. also my analysis of the campaign, Leopold Scholtz, "Cuito Cuanavale: Wie het werklik gewen?" *Scientia Militaria*, 28(1), 1998, pp.16-61.

defending Germans was made impossible by the steep Qattara Depression to the south, which left no option but a frontal attack. Therefore, Montgomery did his best to mislead the Germans by giving the impression that his main attack would be in the south, whereas it came in the north - and when the northern attack failed to break through, he again switched to the south. Even so, it was a protracted and bloody affair, a typical attrition battle where the Germans lost mainly because the British were so much stronger on the ground and in the air, and because the latter's supply situation was so much better than that of their enemy.[58]

8. SEVENTH COMMANDMENT: TANKS ARE BEST SUITED FOR MANOEUVRE WARFARE. SPEED KILLS!

This commandment naturally flows forth from the previous one. We have seen that the greatest potential of tanks is unlocked when they can use their mobility. And the capability to move is but the prerequisite for manoeuvre warfare.

On one level, there are theoretically two kinds of fighting, attrition and manoeuvre warfare. Richard E Simpkin defines attrition warfare as being "primarily about casualties … An adherent of this theory of war simply seeks to achieve a shift of relative strengths in his favour by imposing on the enemy a higher casualty rate, or more broadly 'attrition rate', than he himself suffers."[59] Robert Leonhard expounds this, saying that attritionists think "that the only way - or at least the preferred way - to defeat the enemy is to destroy the physical components of his army, especially the combat portions …"[60]

By contrast, Simpkin says, manoeuvre theory "draws its power mainly from opportunism - the calculated risk, and the exploitation both of chance circumstances and … of 'forced and unforced errors' by the opposition; still more on winning the battle of wills by surprise or, failing this, by speed and aptness of response. But on the physical level manoeuvre theory is a dynamic, three-dimensional system. One is now concerned not just with mass and time but with the interaction of mass, time and space … To oversimplify grossly, one now sometimes has to understand strength or combat worth not just as mass, but as momentum – mass times velocity."[61]

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58 Cf. Ronald Lewin, **Montgomery as military commander** (London, BT Batsford, 1971), ch. 4; Fraser, ch. 17.

59 Richard E Simpkin, **Race to the swift. Thoughts on Twenty-first Century warfare** (London, Brassey, 1985), p. 20.

60 Robert Leonhard, **The art of maneuver. Maneuver-warfare theory and airland battle** (Novato, Presidio, 1991), p.19.

61 Simpkin, p. 22.

Probably the best (and most tragic example) of an attrition war was WW I, where the western front in France atrophied after the initial mobile phase into a static trench warfare, the only operational and tactical movement being the mass infantry attacks on the other side's strongest points, brutal full-frontal attacks on extremely well-prepared defence lines in depth, and swallowing in the end about eight million military dead on the battlefield.[62] Another, less well-known example would be the Iran-Iraq War (1980-'88), when both sides expended megalitres of human blood by stupid, unintelligent frontal mass attacks that achieved very little.[63]

On the contrary, manoeuvre warfare has – at least from a pure military point of view - been very successful indeed. Already before the Second World War Guderian wrote in a German military journal, "Everything is therefore dependent on this: to be able to move faster than has hitherto been done: to keep moving despite the enemy's defensive fire and thus to make it harder for him to build up fresh defensive positions: and finally to carry the attack deep into the enemy's defences."[64] And the legendary Desert Fox himself, field marshal Erwin Rommel, wrote during the war: "Speed of movement and the organisational cohesion of one's own forces are decisive factors and require particular attention."[65]

One may only point at the Germans' successes in the first half of WW II, as well as the Israeli and American victories in the Middle East to prove the point.

As Fuller explained of the extremely rapid pace of the German invasion of France in May 1940: "It was to employ mobility as a psychological weapon: not to kill but to move; not to move to kill but to move to terrify, to bewilder, to perplex, to cause consternation, doubt and confusion in the rear of the enemy, which rumour would magnify until panic became monstrous. In short, its aim was to paralyse not only the enemy's command but also his government, and paralysis would be in direct proportion to velocity. To paraphrase Danton: 'Speed, and still more speed, and always speed' was the secret, and that demanded *'de l'audace, et encore de l'audace, et toujours de l'audace*'".[66]

Thus, the advance from the Vistula in Poland to the Oder, deep within Germany – some 500 km - took the Russians ten days and threw the Germans into total chaos. In the same vein, in 1967 major-general Israel Tal's armoured division reached the

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62 One of the best analyses of this war has been done by Niall Ferguson in **The pity of war** (London, Allan Lane The Penguin Press, 1998).
63 Cf. Marine Corps Historical Publication FMFRP 3-203, "Lessons learned: Iran-Iraq War", at www.fas.org/man/dod-101/ops/war/docs/3203.
64 Guderian, **Panzer leader**, p. 40.
65 Erwin Rommel, "Rules of desert warfare" in Liddell Hart (ed.), **The Rommel papers**, p. 200.
66 Fuller, pp. 256-7.

Suez Canal - a distance of 240 km - in just over 60 hours. The results were the same.[67] And during Operation Iraqi Freedom, speed became a sort of mantra, the coalition commanders edging on their forces continually to keep going as fast as possible to keep the Iraqis off balance and unable to react meaningfully.

9. EIGHTH COMMANDMENT: WHEN POSSIBLE, USE THE INDIRECT APPROACH

The indirect approach is an extention of the idea of manoeuvre and speed. One may, theoretically, manoeuvre into a bad position. The indirect approach is therefore actually to manoeuvre intelligently into a better position.

As an illustration, let us stay for the moment with the South African operation in Angola, 1987-'88: The costly frontal attack into which the South Africans were ordered at the Tumpo triangle was a direct result of operational decisions made several weeks before. The situation, shortly, was the following: For several years running, the Angolans had launched an offensive to neutralise Unita by following the same route from Cuito Cuanavale eastwards over the Cuito river and then going south, more or less parallel with the Cuito towards Mavinga on the Lomba river, which flows at about a 90 degree angle (east-west, in other words) into the north-south flowing Cuito. In 1987 they did this again, but with a much greater force than before. For this reason, Unita requested South African assistance.

Now, the South Africans had basically two choices. They could meet the Angolan advance in a direct head-on clash in the area east of the Cuito, or they could send their troops northwards along the *west* of the Cuito, thereby avoiding the main Angolan force, getting into the Angolan rear areas between Cuito Cuanavale on the river itself and their rear base at Menongue further westwards, and cutting off the supply lines. Some middle-ranking South African officers did press for the latter alternative, but for political reasons (the South African government had the strange idea that they could keep an invasion by an entire mechanised brigade secret!) the decision in Pretoria was in favour of the first.

Well, the head-on clash did come about, and in this battle on the Lomba the South Africans performed very well indeed, mauling the Angolans badly. Then, when the time came to follow up the success, the idea to advance west of the Cuito in a northward direction was again mooted and again rejected. Thus, the South Africans

[67] George Forty, **Tank commanders. Knights of the modern age** (London, Caxton, 2002), pp. 174-5.

were forced to drive the Angolans back in a series of frontal attacks, culminating in the Battle of Tumpo, where they were forced to pull back with a bloody nose.[68]

This was a perfect example of the difference between an indirect approach and a direct one. If one accepts that you should avoid full frontal attacks against well-prepared positions, it follows that you have to resort to other - more intelligent - means to defeat the enemy. We have already noted Liddell Hart's definition above, where he says that "instead of seeking to upset the enemy's equilibrium *by* one's attack, it must be upset *before* a real attack is, or can be successfully, launched". The "highest and purest application" of this approach, according to Robert Leonhard, "is to *preempt* the enemy, that is, to disarm or neutralize him before the fight." If that is not possible, one should seek "to *dislocate* the enemy forces, i.e. removing the enemy from the decisive point, or vice versa, thus rendering them useless and irrelevant to the fight".[69] It is clear that whoever took the decisions in Pretoria were not properly versed in operational military theory.

Perhaps the best example in all of modern military history (involving armour, that is) of an indirect approach was Operation *Sichelschnitt*, the German invasion of France and the Low Countries in May 1940.[70] As this campaign also illustrates several of the other rules of armoured warfare already mentioned, we will discuss it in some detail.

When the general staff of the army (*Oberkommando des Heeres* or OKH) came up with the first plan, it proved to be a very unimaginative push into France via the Netherlands and Belgium - exactly what the French and British high commands expected and planned for. Then general Erich von Manstein, chief of staff of colonel-general Gerd von Rundstedt, one of the field commanders entrusted with the invasion, came up with a brilliant plan. His idea was first of all to move the heaviest punch from the right flank (Army Group A under colonel-general Fedor von Bock) to Rundstedt's Army Group B on the left flank. Bock's forces would, indeed, invade the Netherlands and Belgium (using, by the way, paratroops and air-landing forces in gliders for the first time in history), but they had a very important misleading task: They would, so to speak, form the 'matador's cloak' (Liddell Hart's description)[71] to entice the French and British bulls northwards into Belgium. Meanwhile, Rundstedt's seven panzer divisions (three corps under generals

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68 Cf. Leopold Scholtz, "Cuito Cuanavale…", pp. 16-61.
69 Leonhard, pp. 19-20.
70 Unless explicitly stated otherwise, this reconstruction is based on the books by Alistair Horne, Telford Taylor and Liddell Hart, **The Second World War**, ch. 7. A very readable popular account is the one by Len Deighton, **Blitzkrieg. From the rise of Hitler to the fall of Dunkirk** (London, Jonathan Cape, 1979).
71 Liddell Hart, **The other side of the hill**, p. 159.

Guderian, Hermann Hoth and Georg-Hans Reinhardt, grouped together in colonel-general Ewald von Kleist's *Panzergruppe*) would move westwards through Luxemburg and the southern part of Belgium through the Ardenne, which was hitherto thought impassable for tanks. These forces would, therefore, slip through at the south-eastern hinge of the Allied advance into Belgium, exactly at the place where the Allies least expected it.

Guderian's forces crossed Luxemburg in a day and reached the Meuse at Sedan within three days. To their right, Hoth's corps also made rapid progress, especially the 7th Panzer Division under the command of an extremely able and energetic officer, major-general Erwin Rommel, who was destined for fame. The French responded lethargically. They thought, based on their own outdated military doctrine, that the Germans would now first halt on the Meuse to replenish, regroup, and to give the foot-bound infantry a chance to catch up. But apparently they did not read Guderian's book of 1937 - or else they thought it was a lot of nonsense. The Germans immediately started the crossing operation, aided by a massive air attack, and established a beach-head on the far side of the river. The next day, the 15th, the bridge-head was enlarged.

This was the decisive moment of the campaign. Would the Germans now stop to consolidate? The answer was touch and go. During the next few days Guderian's superiors - including Hitler himself - continually fretted about the danger to Guderian's flanks, and Guderian had several very heated exchanges with Kleist, who wanted to halt his advance. At one stage he even tendered his resignation, but it was turned down. Rundstedt then gave him permission for a "reconnaissance in force", upon which Guderian promptly got back into his command vehicle and continued his dash to the Channel. A good example of magnificent insubordination! His lead elements eventually reached the sea near Abbeville on the evening of May 20th – having advanced 300 km in five days, the fastest advance ever in history at that stage.[72] Although the French and British made several attempts (including one by a new armoured division under the leadership of major-general Charles de Gaulle) to launch counterattacks against the surging flanks of Guderian and Rommel, these were hastily organised and the forces thrown in piecemeal. Speed, it seemed, not only killed the enemy, but was a protection in itself to the invaders. Also, the *Luftwaffe* very efficiently took care of these attempts.

[72] One is aware of the attitude of Douglas Orgill in his **The tank. Studies in the development and use of a weapon** (London, Heinemann, 1970), p. 129, who calls Guderian's march "rash and arrogant". But in spite of having written an entire book about armoured warfare, he clearly does not have the foggiest idea of what it is all about.

This was not movement for its own sake. David Fraser, Rommel's biographer and himself a military man, writes very perceptively: "What should be aimed for, as Rommel perceived very plainly and at every level, was paralysis of the enemy's *will*, of his capacity for clear thought and measured response, not simply or even primarily by physical destruction of his communications and threat to his headquarters … but - and essentially - by the *threat* from actual and rapid manoeuvres: threat of encirclement, threat of annihilation. It was these threats, posed by the armoured forces with their speed and shock, which could really induce paralysis of the will, and lead to victory."[73] A better explanation of what armoured forces are all about would be hard to come by.

There were instances of Allied air bases being overrun so unexpectedly that the aircraft barely had time to take off. There was an instance where a British territorial battalion was surprised on the parade ground, armed only with blanks. Panic and chaos beset the Allied troops and headquarters. Generals were captured, looking in vain for their own troops. In modern American parlance, the Germans got inside the Allies' decision loop. In other words, by the time the Allies decided on a certain reaction to a German move, it was already out of date - and therefore irrelevant.

When Guderian's corps reached the sea, they not only had totally paralysed the Allies; they had also rent the French army asunder, which meant that the Germans could now defeat the French in detail. They, therefore, first turned northward and destroyed those forces which had been enticed into Belgium in the first place (although it was a bad mistake by Hitler to let the British escape at Dunkirk), and then southwards to occupy the rest of France.

It was, from a professional military point of view, a magnificent victory, marred only by the events at Dunkirk. It was a wonderful example of the indirect approach, of doing the unexpected, of catching the enemy flat-footed. It was a brilliant vindication of the tank as an instrument of war and of Guderian's views about how to use them. Panzer general Walter Nehring, who served as Guderian's chief of staff, wrote, quite accurately: "As exaggerated as this may sound, it was Guderian's revolutionary thought which was, amongst other factors, primarily responsible for the brilliant victory over the then great power France and the British Expeditionary Force - a victory which has no comparison in world history."[74]

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[73] Fraser, p.159.

[74] Walter Nehring, **Geschichte der deutschen Panzerwaffe** (Stuttgart, Motorbuch Verlag, 2nd edition, 2000), pp. 174-5.

Lastly, we may briefly look at Operation Desert Storm, the eviction of the Iraqi invaders from Kuwait in 1991.[75] There, too, the allies had two alternatives. They could have invaded Kuwait from their bases in Saudi-Arabia, driving directly into the Iraqis. This would, perhaps, have been politically preferable, but militarily unwise. This was, after all, exactly what the Iraqis expected, and it would entail a straight attack into the enemy's strong points. The indirect approach, however, demands that you do what the enemy does *not* expect and that you avoid his strong points and concentrate on his weak ones.

Therefore, the allies first launched a 39 days' air campaign, in which all Iraqi communications were destroyed, thus rendering them "deaf". Also, all their radar and other detection equipment was taken out, thus rendering them "blind". Then, without the Iraqis being able to see or hear what the allies were doing, the latter moved their spearpoint northward. When the ground war started, this developed into the famous "left hook" through the south of Iraq, in which the Iraqis in Kuwait were cut off from their hinterland, after which they simply collapsed. This resounding victory was, however, also marred by a bad decision by president George Bush sr. to stop the advancing US/UK armour while there was still a gap near Basra through which a considerable part of the élite Republican Guard could escape. Nevertheless, this war, too, was a very good example of how to use armoured forces in an indirect approach.

10. NINTH COMMANDMENT: TANKS AND CITIES/MOUNTAINS/ JUNGLES ARE NOT NATURAL FRIENDS

History learns us that tanks are best suited to open plains or undulating hills. This is where they really can bring their ability to move and shock to fruition. Before WW II, Guderian wrote that "tank forces should be committed only where there are no obstacles that exceed the capacity of their machines, otherwise the armoured attack will break on the terrain". Quite correctly, he points out that "[t]anks have a certain capacity, just like men and animals; when one's demands exceed that capacity, they will fail".[76] Every famous armoured campaign – whether the German invasions of France in May 1940, or of Russia, June 1941, the Desert War of 1941-'43, general George Patton's thrust into Germany at the beginning of 1945, the Six Day War of 1967, the Yom Kippur War of 1973, the Gulf War of 1991 or the Iraq War of 2003 - was fought in ideal tank country.

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[75] The best reconstruction of this war is that of Rick Atkinson, **Crusade. The untold story of the Gulf War**.

[76] Guderian, **Achtung - Panzer!**, p. 206.

Tanks were, of course, used elsewhere too. In the mountainous areas of Italy in 1943-'45, tanks were used on both sides. But the difficult terrain meant that they were never able to be used in a classic rapid outflanking march or in a deep penetration to paralyse the enemy's will to fight. Instead, this was a grinding infantry war, one where the circumstances forced the attrition approach on both sides. In this campaign, tanks were largely used as support for the infantry and as mobile artillery. Bryan Perrett even writes: "Of one stage in the war in Italy it has been written that the best weapon in the Allies' advance guard was not the armoured car or the tank but the bulldozer."[77]

Essentially, the same thing happened in the equally mountainous terrain of Korea, 1950-'53. Although mobile operations did take place during the first year or so, tanks could never play the same decisive role as in the cases named above.[78]

Jungles are another example of a terrain not really suited to tank warfare, and the same conclusion applies here. In the jungles of Malaya, Burma and the Philippines, there was almost no armoured warfare to speak of in WW II, and the Japanese had only lightly-armed, rather primitive tanks.[79]

In Vietnam armour played a bigger, though by far not decisive, role. Occasionally, the North Vietnamese rather cruelly surprised the Americans locally by attacking some of their jungle bases with light armour.[80] However, it was not until the very end of the war in 1975, when the North reverted to a conventional invasion of the South, that they used armoured formations in anything approaching the way they were handled during WW II or the Middle East wars.[81]

In some circles, urban areas are regarded as the biggest enemy of armour. The restricted areas and all the buildings, which act as natural obstacles, make it very difficult for tanks to exercise their unique capability of fire and movement. Also, this makes it possible for the enemy to approach tanks much nearer than would otherwise have been the case, thereby enabling their infantry anti-tank weapons to destroy the lumbering behemoths. The classic examples of this are, of course, the

77 Perrett, ch. 10. The quote is on page 128.
78 One of the best books about this war is Max Hastings, **The Korean war** (London, Michael Joseph, 1987).
79 Perrett, ch. 13.
80 Cf. David B Stockwell, **Tanks in the wire. The first use of enemy armor in Vietnam** (New York, Jove Books, 1990).
81 Mark W Woodruff, **Unheralded victory. Who won the Vietnam war?** (London, HarpersCollins, 1999), pp. 193-4.

legendary Battle of Stalingrad and the bloody Russian offensive to take Berlin in April 1945.[82]

As if Stalingrad and Berlin was not enough of a lesson, the Russians had to learn it all over again when they invaded Chechnya in 1994-'95 and tried to occupy the capital, Grozny, by sending in a strong armoured force, trained for orthodox warfare on the open plains. Altogether 230 tanks, 454 infantry fighting vehicles and 388 artillery pieces entered the city on December 31st, 1994. "Despite former Russian Defense Minister [Pavel] Grachev's claim that he could topple the Dudayev regime in a couple of hours with one parachute regiment", Robert M Cassidy writes, "the Chechen forces' skillfull resistance in Grozny compelled the Russian forces to fall back from the city center to regroup. Firing from all sides and from all floors, from city block to city block, Chechen anti-armor teams systematically destroyed a large number of Russian tanks with RPG-7s. In fact, during the New Year's Eve assault, one Russian regiment lost 102 out of 120 vehicles as well as most of its officers."[83] Therefore, when Grozny was again stormed in 2000, the Russians used mainly air power, artillery and infantry and kept its tanks far away from the battleground.[84]

It is probably too soon to come to a definitive conclusion, but the American invasion of Iraq and subsequent almost effortless capture of Baghdad appear to have ushered in a new era in urban warfare. After this event, lieutenant-general William Wallace, commander of V Corps (consisting of the 3rd mechanised Infantry Division and the 101st Airborne), in a newspaper interview referred to their experience in the cities of Nasiriyah and Najaf earlier in the war, and went on:

> "We learned that armor could fight in the city and survive, and that if you took heavy armored forces into the city - given the way Saddam was defending the city with technical vehicles [bakkies] and bunker positions – we could knock out all those defenses and survive. As a result of Najaf, I think our soldiers also gained an extraordinary appreciation for the surviveability of their equipment. So Najaf made decisions associated with being more aggressive when we got to Baghdad a hell of a lot easier. We didn't have to be as cautious as we had anticipated, because by the time we got to Baghdad, we had learned some important lessons along the way, and we applied them to the Baghdad fight …

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82 Anthony Beevor has written more or less the definitive accounts of these two battles. Cf. his **Stalingrad** (London, Penguin, 1998) and **Berlin. The Downfall 1945** (London, Viking, 2002).

83 Robert M Cassidy, "Russia in Afghanistan and Chechnya: Military strategic culture and the paradoxes of asymmetric conflict" at www.carlisle.army.mil/ssi/pubs/2003/rusafgan.pdf.

84 Timothy L Thomas, "Grozny 2000: Urban combat lessons learned", at fmso.leavenworth.army.mil/fmsopubs/issues/grozny/2000.htm.

> In fact, we found that the positioning of our forces around the palace downtown was actually more defensible than our positions on the outside of town, because the parks and broad plazas in the city gave us good fields of fire, and we were in a place where he couldn't mass his artillery on us because we were in the middle of his artillery forces. When you get right down to it, all of that added up to making our decision to stay in downtown Baghdad a good one. Third Infantry [Division] commander Maj.Gen. Buford Blount called me up and said, 'Well, we control all the intersections, and I recommend we stay, because if we stay, we have the city.' I agreed."[85]

It is clear that the Iraqi incompetence made things a lot easier for the Americans. Also, the broad highways, city parks and squares gave the tanks and other armoured vehicles space to exercise their firepower and mobility much more than in crowded cities such as Stalingrad and Grozny. It remains therefore to be seen whether the Americans have succeeded in opening a new chapter in the history of urban warfare, and if their success in Nasiriyah, Najaf and Baghdad can be repeated elsewhere.

11. TENTH COMMANDMENT: STAY ABREAST OF TECHNOLOGICAL IMPROVEMENTS

In most cases, a tank is only of any use if it can survive on the battlefield. If it is easily destroyed, it is not an asset, but a liability. Good tactics and obedience to the rules of warfare in general and of armoured warfare in particular may offset this disadvantage, depending on how incompetent the adversary is. For instance, most of the tanks with which the Germans invaded France in May, 1940, were obsolete Mark I and II tanks, inferior to the French Char B and H39 and the British Matilda,[86] but their superior tactics and operational art carried the day.

On the other hand, having good weapons may not only help to minimise losses, but also enable a commander to achieve success on the battlefield. After the Germans had invaded Russia, they got a very nasty surprise in the form of the T-34 tank, which at the time was superior to any of the German tanks. With its sloped front armour and 76 mm gun, this tank - in the words of Guderian - made a "considerable impression" on the German panzer crews. "[T]his was hardly surprising", Guderian wrote, since this was "a tank against which our guns at that time were hardly effective".[87]

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85 James Kitfield, "Attack always", *National Journal*, 6 May 2003.
86 Macksey, **Tank versus tank**, pp. 62-3.
87 Guderian, **Panzer leader**, p. 162.

It is true that the Germans reacted with the upgrading of their very useful Mark IV as well as the introduction of the highly successful Panther and formidable Tiger tanks, but they never lost their healthy respect for the T-34, which remained a formidable adversary right through the war. There can be no doubt that the survivability of the T-34 and its immediate successor, the JS-III, was an important factor in the series of Russian hammer-blows which culminated in the ruins of Berlin in April 1945.

After the war, there was a sort of technological see-saw between tank protection and tank-killing capacity. On the one hand, sloped armour was augmented by composite layers of steel and ceramics (Chobham), reactive armour (boxes with charges, exploding when hit by an anti-tank missile and dissipating the penetrating capacity), etc. Also, damage control has become much better. On the other hand, tank-killing weapons became immensely more powerful.[88] At the moment there are several very good modern tanks in service, most notably the German Leopard 2 and the French Leclerc - neither of which has, however, been tested in battle. Tanks which have proven themselves in warfare are, of course, the Russian T-80 (which was, however, badly mishandled in Afghanistan and Chechnya), the remarkable Israeli Merkava, as well as the British Challenger 2 and the incredibly tough American Abrams. (With its limited means, South Africa has also done well in upgrading and later completely reinventing the Centurion, now known as the Olifant Mk IA and IB. Still, the Olifant is by far not in the same league as the others mentioned.)

12. CONCLUSION: A WORD OF CAUTION

Having said all the above, where does armoured warfare stand today? After taking over the political leadership of the Pentagon, the new defence secretary, Donald Rumsfeld, announced his intention of transforming the US army into a much lighter, mobile force, with less emphasis on heavy tanks and artillery, and depending more on light infantry, airborne or not, special forces, high-tech precision weapons and massive air support.[89]

This was the background to some intense wrangling between him and his generals about the operational plan for the invasion of Iraq. Whereas the generals came up with plans for a traditional heavily-armed and armoured invasion force of at least

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88 A good analysis is that of Ian Hogg, **Tank killers. Anti-tank warfare by men and machines** (London, Pan, 1997).

89 See for instance Rumsfeld's speech on January 31st, 2002, at www.globalsecurity.org/military/library/news/2002/01/mil-020131-dod01.htm.

250 000 soldiers, Rumsfeld's first alternative was a light airborne and Marine force of no more than 10 000 troops in the ground force.[90]

The end result was a compromise. The ground invasion force was configured with two heavy US mechanised infantry divisions, one understrength composite UK armoured division, one medium heavy US marine division, one light US airborne division plus a light airborne brigade, and a light UK Royal Marine brigade. Actually, because of the Turkish parliament refusing to allow one US mechanised infantry division to invade Iraq from the north, that division fell away. Nevertheless, even this relatively small force stormed across Iraq in a manner that would have sent the hearts of commanders like Heinz Guderian, Erwin Rommel, George Patton and Israel Tal beating considerably faster. The combination of lightning speed and overwhelming firepower in the air as well as on the ground caused even the élite Republican Guard to melt away before the ferocity of the onslaught.

It would, therefore, appear that the indispensability of the tank in modern warfare has been proven once again. According to some reports, Rumsfeld has decided to reprieve the Abrams for the time being.[91]

After the war, the Americans were understandably cock-a-hoop about the magnificent tactical and operational success,[92] but one has to sound a note of caution. The American operational approach in Iraq has been an excellent implementation of the ideas of Guderian and Tukhachavsky of so many years ago - the headlong lightning advance, supported by air attacks, without really worrying about your flanks, knowing that the speed of the march will disrupt the enemy too much for him to cut off your deep penetration. But this is no sure formula for success, as it all depends on the circumstances.

After all, the German *Blitzkrieg* against Russia failed. The country's weak road and rail infrastructure made it much more difficult for the Germans to maintain the mobility that had been so astounding in Poland and France, the panzer and panzer grenadier divisions being largely dependent on wheeled vehicles, instead of being

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90 Leopold Scholtz, "What price victory?" (Unpublished analysis prepared for the department of military history at the Military Academy, Saldanha).

91 Michael A Lindenberger, "War may affect decision over replacing current tanks", **The Courier-Journal**, 7 April 2003; Lance Gay, "Battle tank still rolling", **Scripps Howard News Service**, 17 April 2003. Cf. also Anthony Cordesman, **The "instant" lessons" of the Iraq war: Main report, eighth working draft, May 14, 2003**, pp. 190-1 at www.csis.org/features/iraq_instantlessons.pdf.

92 See for instance two speeches by general Richard B Myers, chairman of the Joint Chiefs of Staff, at www.dtic.mil/jcs/chairman/new_american_way_of_war16apr03.htm and www.dtic.mil/jcs/chairman/myers_eaker_lecture_1may03.htm.

all-tracked.[93] Then there was Hitler's ill-advised decision in August, 1941 to halt the advance to Moscow and divert the panzer forces southwards in order to take Kiev first, so that, when the advance was resumed, autumn and winter intervened, and the German offensive ran out of steam in the outskirts of Moscow, with the towers of the Kremlin tantalisingly in sight in the distance.[94] However, one of the main reasons must be the doggedness with which the Russians refused to cave in (completely unlike the French a year before!) and their immense reserves.

The point is, as the ten commandments discussed previously suggest, that a classic armoured thrust can only work when the conditions are right. In his pre-war book, Guderian identified three conditions, namely surprise, deployment en masse, and a suitable terrain.[95] In the light of subsequent experience, one may add supremacy in the air and a more or less incompetent enemy. What would have happened if the French in 1940 had stood fast, refused to become flustered, actively countered the *Luftwaffe* in the air and pressed home their attacks against Guderian's flanks? The outcome, one suspects, would have been more or less the same as at Kursk and the 1944 Ardennes counteroffensive. The same applies to the Israeli march to the Suez Canal and - dare one say it? - Operations Desert Storm in 1991 and Iraqi Freedom in 2003.

93 See Liddell Hart's opinion in his **The other side of the hill**, p. 249.
94 Cf. Magenheimer, **Hitler's war**, pp. 86-9.
95 Guderian, **Achtung - Panzer!**, pp. 205-7.