

Building Military Doctrine based on History and Experience: 20th century examples from Germany, France, Israel and the US

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Abstract. The paper will address the role (or lack thereof) of military history and past experience in military doctrine building. The analysis will be based on four case studies: the Reichswehr/Wehrmacht 1919–1940, the French army 1919–1940, the IDF 1948–1973, and the US Army 1973–1991. In the synthesis, the author will present the role of military history in building efficient military doctrine on three levels of war: tactics, operational art, and strategy. Several kinds of abuses and misuses of military history will be singled out as a warning sign for contemporary policy and military decision makers.

No war game, exercise or training enables a soldier to practise war. There is no laboratory in which war could be researched or tested. The only guide we have is history. Unfortunately, it offers no clear answers, may be misused and cannot foresee the future. Armies also use their experience of current or already finished conflicts to mould their military doctrines. If correctly applied, militaries may benefit enormously from both types of experience.

The past is not history; what is more, we cannot be sure that we know everything about historical events. Quite the opposite. A good example is the impact of Terence Zuber's research on Schlieffen's plan,¹ which shook well-founded beliefs about German war planning before WWI. For the

¹ Terence Zuber, *Inventing the Schlieffen plan: German war planning, 1871–1914* (Oxford: Oxford University Press, 2002); Terence Zuber, *The Real German War Plan, 1904–14* (Stroud: History Press, 2011).

purposes of this article, it does not matter whether Zuber was right or not, but that historical events may be reinterpreted, sometimes radically. Additionally, the military history of mankind is so rich that one can almost always find an example to support one's views in an argument. As Michael Howard wrote, history is an "inexhaustible storehouse of events" that can be used "to prove anything or its contrary."²

There is also the matter of interpretation. The same events could be seen in radically different light by historians. In his letter to Liddell-Hart, Field Marshal Archibald Wavell wrote: "With your knowledge and brains and command of the pen, you could have written just as convincing a book called the 'Strategy of the Direct Approach.'"³ This was praise for the writing and intellectual skills of Liddell-Hart, but it clearly shows what an experienced soldier thought about the interpretation of military history.

If that is not enough, Clausewitz informs us that: "Instead of presenting a fully detailed case, critics are content merely to touch on three or four, which give semblance of strong proof. But there are occasions where nothing can be proved by a dozen examples (...) Obviously, this is no way to reach conclusion."⁴

There is also a matter of truth. Napoleon stated: "It is so hard to reach the truth. There are so many of them!" A similar conclusion was reached by General Max Hoffmann after WWI: "For the first time in my life I have seen 'History' at close quarters, and I know that its actual process is very different from what is presented to posterity."⁵

It seems, therefore, that simply quoting historical examples is not a way to prove anything, especially if it is taken out of a historical context, which is always unique. This very common error causes history to be abused in order to prove a predetermined conclusion, the correctness of the doctrine or the truth of the theory. On the other hand, as Goethe

² Michael Howard, "The Lessons of History: An Inaugural Lecture given in the University of Oxford, March 1981," – *The Lessons of History*, ed. Michael Howard (New Haven: Yale University Press, 1991), 11.

³ Jay Luvaas, "Military History: is it still practicable?," *Parameters* 25 (Summer 1995): 85–86.

⁴ Carl von Clausewitz, *On War* (Princeton: Princeton University Press, 1989), 172.

⁵ Luvaas, "Military History," 89.

wrote in one of his poems, one that is not using humankind's experience of 3000 years lives life only day to day.⁶

The real questions are: What do armies think about military history? How do they use it? What about real wartime experience? How quickly does this experience evaporate due to technological/doctrinal change? Are the generals always preparing for the last war?

Case study selection

In this article, four case studies from the period of the last 100 years are presented. All of them show armies preparing for high-intensity war. The top military establishments of all these armies were professional, patriotic, experienced and fully aware that the existence of their states was in their hands. Different approaches to military history and battlefield experience returned different results, although in none of the cases was there one and only reason for victory or defeat.

The first two focus on French and German military doctrines created in the interwar period (1919–1939). In both cases, military history was used as an educational tool but in different ways. The Reichsheer, and later the Wehrmacht, focused on tactical-operational efficiency and quality of the commanders, while the French army decided that strategic level preparations for a long, total war were much more important. Those two approaches show how military history and battlefield experience may impact militaries' short- and long-term ability to win wars.

The third case describes the military doctrine of the Israeli Defense Forces (IDF) during the Yom Kippur War. The doctrine was founded on battlefield experience of Israeli officers with military history having almost no influence at all. While the IDF succeeded in winning the war militarily, it came at a high cost and ended in a political stalemate at best. Israelis won due to tactical proficiency, talent for improvisation and very high

⁶ Johann Wolfgang v. Goethe, *West-Oestliche Divan*, sektion 5 (*Buch des Unmuts*): *Wer nicht von dreitausend Jahren / Sich weiß Rechenschaft zu geben, / Bleib im Dunkeln unerfahren, / Mag von Tag zu Tage leben.*

morale, which was not combined with understanding of operational and strategic dimensions of war that only study of military history can yield.

The fourth case is the US Army in the period of 1973–1991 and evolution of its doctrine from Active Defence to Air-Land Battle. This was a shift from a mechanistic view on warfare to a more balanced view – one that combined introduction of operational level of war, study of military history, new technology and serious tactical training. Such an evolution shows complex interactions between these factors and their impact on battlefield efficiency and ability to win wars.

German army military doctrine building after WWI

Just after the Great War ended, the Reichsheer started to prepare for the “second round”. In 1919 general Hans von Seeckt formed fifty-seven committees and subcommittees dealing with a multitude of topics – from weather service and flamethrowers to air war, in which more than 500 officers (130 from air arm) worked to extract experience from the war.⁷ What is important is that those committees were set up just after the war while the experience of war was still fresh. Additionally, the high participation rate among officers ensured the best possible result. After two years of research, in 1921, a new field regulation was published under the title of *Leadership and Combat with Combined Arms*.⁸ There is a direct link between the work of Seeckt’s committees and what was published in the tactical regulation. Although the proverb says that generals always study the last war, the truth is that they rarely do so. It is historically very rare for an army to delve deep into its experience of the last war. This is more probable on the losing side, but one seldom finds examples of such scrutiny as was Seeckt’s.

With its 100,000 troops, including 4,000 officers, the Reichsheer was fortunate in many ways. Due to long-term service of its soldiers, it could

⁷ James S. Corum, *The Roots of Blitzkrieg. Hans von Seeckt and German Military Reform* (Lawrence: University Press of Kansas, 1992), 37.

⁸ *Führung und Gefecht der verbundenen Waffen (F. u. G.) vom 1. September 1921*, D. V. Pl. Nr. 487 (Berlin: Verl. Offene Worte, 1921).

become genuinely professional and was able to practice and experiment on an unprecedented scale. The army did not have to deal with the mountains of rapidly aging weapons. In the late 1920s, when the process of (secret) remilitarization started, the Reichsheer, and later on the Wehrmacht, were able to receive well thought out and modern weapons thanks to the high-quality industrial base. What is more, that equipment was well adjusted to rehearsed doctrine. Thanks to the above, for some fifteen years Germany did not have to spend huge amounts of money on its armed forces, although spending per soldier was among the highest in the world. Of course, at that time, state and army elites did not perceive such a situation as advantageous for Germany – but in the long run, it was so.

Of the 4,000 officers selected for the Reichsheer – most of them were the intellectual elite of Kaiser Army, i.e. officers of the General Staff with the addition of some highly decorated heroes like Erwin Rommel. This was a good blend especially given that these officers had to be extremely efficient due to organizational restrictions resulting from the Versailles Treaty.⁹

Leadership and Combat with Combined Arms was based on the belief that fighting a war is an art founded on a rational foundation, but definitely not a science.¹⁰ First of all, starting from the title, the pressure was behind co-operation of all arms on the battlefield. There were principles of war present in the regulation but no ready-to-apply formulas built into the text. The doctrine was founded on decentralized leadership (*Auftrags-taktik*), which meant that all command levels had to display initiative and creative thinking. If there was one theme in *Leadership...*, it was the idea of manoeuvre warfare (*Bewegungskrieg*), which was deemed as the core of successful combat. It is interesting that in spite of WWI experience, firepower was treated seriously as an enabler of movement but not as the central pillar of doctrine. The real difference was that the German Army

⁹ Martin van Creveld, *Fighting Power. German and U.S. Army Performance, 1939–1945* (London: Arms and Armour, 1983), 49–53.

¹⁰ This notion was repeated in *Truppenführung* in 1933 which stated in its first paragraph: “The conduct of war is an art, depending upon free, creative activity, scientifically grounded.” US Army translation of *Truppenführung* (1936): *Truppenführung* = *Troop leading*, National government publication (Fort Leavenworth, Kan.: Command and General Staff School Press, 1936–).

understood and accepted the chaotic character of combat, which made the ambition of management-from-the rear futile.

What is obvious is that the army winning the war is not prone to revolutionize its way of doing things – it seems that only adjustments here and there are needed. This is the case for the Western Allies after WWI. Positional warfare and deliberate battle management – this was synonymous with a victory for French and British, but for Germans for the defeat. Doing the same thing once again and expecting different results would be unwise, so Reichsheer leaders decided that they had to avoid *Stellungskrieg* at all cost. Based on their historical background and experience gained during the last war, von Seeckt and his successor thought of positional warfare as an anomaly, not a rule. War of movement on an operational level (*Bewegungskrieg*) lay deep in the institutional history of the German army. It can be traced to the Great Elector in the mid-17th century through Frederic the Great, the Napoleonic Wars, and the wars of German unification up to WWI. One must remember that Kaiser's Army was exposed to many theatres of war and combatants – Russians on the Eastern Front, Serbia and Romania in the Balkans, Italians on the Isonzo or in Africa. That experience, as well as their own military history, gave them a safe distance to evaluate slaughter on the Western Front with a different perspective.

In the early 1930s, due to rapid technological advancements as well as a changing political situation in Europe, the German military establishment decided to reformulate their doctrine. They decided that lessons learned from WWI had been absorbed by the Reichsheer and that new, broader doctrine was needed. A new field regulation – *Truppenführung* – was introduced in 1933 used until the end of WWII, not giving guidelines for action and co-operation but rather constituting a philosophy for combat leadership. Although in 1933, the German army still did not possess tanks and aircraft, in a few years it was able to introduce and organize them in a very efficient way. At that time, the Reichsheer was an organization with huge potential and the entirety of the foundation it needed. The introduction of conscription in 1935, as well as the creation of panzer divisions and the Luftwaffe, was a milestone toward which military-political establishment had been struggling for years. After the Nazi Party

took over Germany, a very important dimension was added – ideology, or as Michael Howard put it: “The kind of war which Fascism glorified was not that fought by masses of hapless conscripts at the behest of generals far behind the lines. It was one which would be conducted by small teams of young heroes, airmen, tank-crews, stormtroops, ‘supermen’ who by daring and violence would wrest the destiny of mankind from the frock-coated old dodderers round their green baize tables and shape a cleaner, more glorious future. War would, they hoped, in future be a business for elites. They were not altogether wrong.”¹¹

The German command philosophy created after the defeat in WWI inspired by the stormtroop tactics is of extraordinary importance for military history. It has left its mark on all armies up to the present day. In 1967, militaries across the world were shocked by the Israeli Blitzkrieg, and in 1991 they were talking about the American version of it. The assiduousness with which Reichsheer commander Gen. Seeckt sought to read the lessons of WWI was extraordinary. A great deal of time and energy has been devoted to this. The most important thing, however, was that the Great War of 1914–1918 was first viewed from the perspective of history, and secondly, it was not limited only to the experiences from the Western front. Revolutionary changes in doctrine during WWI itself (i.e. elastic defence and stormtroop tactics¹²) had given German army full ability to build sound military doctrine.

The geographical characteristic of its central position in Europe led Germany to seek operationally based manoeuvre warfare targeted for quick and decisive victories. A long war of attrition was a death sentence, as was clearly shown during the Great War. The four pillars of German military doctrine were:

1. *Bewegungskrieg* – manoeuvre warfare on an operational level,
2. *Auftragstaktik* – an initiative based on mission tactics,

¹¹ Michael Howard, *War in European History* (Oxford: Oxford University Press, 1976), 119–120.

¹² For the process of creation and introduction of new doctrine in German army during WWI see: Timothy T. Lupfer, *The Dynamics of Doctrine. The changes in German tactical doctrine during First World War* (Fort Leavenworth: Combat Studies Institute, U.S. Army Command and General Staff College, 1981).

3. *Cannae* – as an idea of envelopment and decisive victory,
4. *Combined arms* – integration of arms on tactical and services on an operational level.

This doctrine was implemented by constant training on all levels of the hierarchy. The tools were: publications of the commander of the army,¹³ military schools of all levels including *Kriegsakademie*, field exercises, war games, and military press. It led to a clear emphasis on cadre quality rather than number. Due to the fact that there was almost no military procurement for more than ten years, Reichsheer commanders could focus on cadre selection and training – which they did and treated very seriously.¹⁴ Field exercises were amongst most important from the doctrinal point of view. They were not only a test for the soldiers and commanders but also a great tool for experimenting with new ideas or technology. In 1932 the Reichsheer took to the field almost 2,500 troops with 80 radio sets in what was called *Funkübung* – Communication Exercise, during which the idea of wireless communication was tested.¹⁵ Then, in 1937, the biggest summer field exercise since the Kaiser era took place.¹⁶ This time the concept of the panzer division was tested and it proved such a success that the shocked Commander in Chief decided to overrule the decision of umpires. Victory went to the side defending against the panzer division. What is interesting is that a scenario for the exercise was planned for seven days but the attack of mechanized troops annihilated the opposition on day three.¹⁷ Additionally, the discussion in the military press was lively and stimulating. It was not strictly controlled by higher authorities, and different points of view were presented.

¹³ E.g. Seeckt's *Bemerkungen des Chefs der Heeresleitung*.

¹⁴ In the early 1920s, the young company commander Capt. Erich von Manstein was spending four days a week outdoors, practicing with soldiers in the field. He also wanted all of his soldiers to be trained as leaders able to command at least a level above their current position. Erich von Manstein, *Aus einem Soldatenleben 1887–1939* (here, the Polish translation has been used: Erich von Manstein, *Żołnierskie życie. Moja służba w Reichswerze i Wehrmachcie 1919–1939* [Kraków: Wingert, 2013], 107–112).

¹⁵ Robert Citino, *The Path to Blitzkrieg. Doctrine and training in the German army 1920–1939* (Mechanicsburg: Stackpole, 2008), 234.

¹⁶ 160 thousand troops, 21 thousand vehicles, 830 tanks and 54 aircraft. Citino, *The Path*, 236.

¹⁷ Robert Citino, *Quest for Decisive Victory. From stalemate to Blitzkrieg in Europe, 1899–1940* (Lawrence: University Press of Kansas, 2002), 207–208.

The field in which the German army had critical deficiencies was strategy. The *Kriegsakademie* curriculum focused entirely on tactical-operational effectiveness up to the level of corps. The fundamentals of warfare were also strengthened by military history, which was treated as an important introduction to the art of command but also mostly on a tactical level; rarely did it touch on operational art.

Table 1. The curriculum of *Kriegsakademie* (hours in a week) 1934–1938

Course	Year 1	Year 2	Year 3
Tactics	6	6	6 + 1 additional whole day
Military History	4	4	4
Logistics	–	1	1
Engineering	1	1	–
Panzer forces	1	1	–
Luftwaffe	1	1	1

Source: Manfred Messerschmidt, “German Military Effectiveness between 1919 and 1939” – Allan R. Millet, Williamson Murray (Ed.), *Military Effectiveness*, vol. 2, *The Interwar Period* (Cambridge: Cambridge University Press, 2010), 244.

The American military attaché to Germany, Col. Conger, summed this up with unusual foresight: “I infer that in the next war the Germans will be tactically and technically a most formidable fighting force, but that the leaders of the army, as so far as they are trained in these schools, will suffer from the same defects which nullified to so great an extent the efforts of the German commanders in the field in the world war in that will again lack a correct understanding of the lessons taught by military history and also lack in understanding of the broader principles of modern strategy, including its political and economic, as well as its military, aspects, unless some self-made leader comes to the fore who... gains for himself in some way a correct understanding of war in its broader phases.”¹⁸

¹⁸ Citino, *The Path*, 100–101.

Fire kills¹⁹– French military doctrine in the interwar period

During the almost twenty-two years separating the end of WWI and the French defeat in 1940, the French army was planning for a war with Germany. First, this task was easy due to Versailles Treaty limitations on the size of the Reichsheer, but with time, especially after Adolf Hitler came to power, it became much more complex.

In the interwar period, French doctrine was stable. Government officials, military establishment as well as society believed it was right. Traumatized by WWI and the price in lives that was paid, the military wanted to be prepared for almost the same kind of conflict as in the past, but without errors committed during 1914–1918. Everyone believed that the next war would be long and total so the full commitment of society was needed. That is why the French government planned for total mobilization of industrial assets and introduced conscription for all able men during peacetime. This was the idea of “Nation at Arms” because: “the very life of citizenry is associated in an intimate fashion with that of the army, and thus the formula for the nation in arms is realized in every aspect... [This] greatly influences the eventualities of war and consequently the formulation of strategy.”²⁰

Based on WWI experience, it was believed that long military service was not really needed in order to have well-trained soldiers. During the war, a newly conscripted soldier of 1918 received only three months of training and in general was competent in his duties. That is why shortening of compulsory service to 18 months and then to one year was not seen as anything risky. What had worked during WWI did not work in peacetime and French army became a mass of poorly trained reservist citizen-soldiers. Only after the introduction of two years of compulsory service in 1936 did training standards improve. The French military was

¹⁹ *Le feu tue* – this is what Gen. Philippe Pétain was preaching.

²⁰ French provisional regulation of 1921 for tactical employment of grand units, see Robert A. Doughty, *The Seeds of Disaster. The development of French army doctrine, 1919–1939* (Hamden: Archon Books, 1985), 16.

not blind to those problems and knew that they would need time for thorough retraining of soldiers before real military operations could start. So, there was a need to buy time in case of war. Hence the idea of building the Great Wall called the Maginot Line.

An insufficiently trained army was not the only or even the main reason for building fortifications on the French-German border. A well thought out set of strategic assumptions was behind it. France would be shielded from a surprise attack; concrete fortifications would save the life of soldiers, and there would be an economy of force principle applied. After WWI, the alliance with Great Britain became much looser. France's aggressive military doctrine would increase the estrangement. Thus, building fortifications and defensive military doctrine made real sense. The Maginot Line was built on the French-German border and it was not built further to the West,²¹ Last but not least, French army would have time to mobilize and their best units could enter Belgium and fight Germans there rather than in France.

French military doctrine in the interwar period was moulded by the following assumptions:

1. Because the army was based on short-term conscription, there is a need to conduct battles and operations in a centralized, simple and planned manner. Additionally, the army needs time to retrain its reserves, so that they become fully operational.
2. On the battlefield, firepower rules over the movement.
3. Defence is easier than offense but, in the end, only offensive action can end the war with a victory.²²
4. Avoidance of chaotic meeting engagements.
5. Need to motorize army, though with certain limitations due to lack of oil sources in France itself.

²¹ The fortifications were not built there, apart from strategic considerations, due to: flat and muddy terrain, urbanization, population density and industrial centres (e.g. Lille) being too close to the border, see Judith H. Hughes, *To the Maginot Line: The politics of French military preparations in the 1920s* (Cambridge, Mass.: Harvard University Press, 2006), 202.

²² Mythical conviction that French army was not at all willing to attack, believing only in defence, cannot stand the detailed examination, R.A. Doughty, *The Seeds*, 96.



Somua S-35 tanks displayed during a military parade in the 1930s. Those very good tanks failed to make a difference in 1940 due to the poor doctrine of the French army. Copyright: Narodowe Archiwum Cyfrowe (public domain)

6. *Tactical usage of tanks is of great importance to the success in battle.*
7. *Low interest in the air force co-operation in the land battle.*
8. *Latest war experiences (Spanish Civil War) indicated that mechanized forces are very vulnerable to well-applied anti-tank gunnery and air force attacks.²³*

The French army wanted to defend their country at the start of hostilities; then, after total mobilization of the nation and its resources, the offensive would follow. The field regulation of 1936 clearly stated that such an offensive must be prepared exceptionally well when it comes to war material. Such an offensive would be based on artillery fire combined with a tank-infantry attack with limited goals. Such methodical battle was a reasonable compromise between the strength of defensive fire, mainly

²³ R. Citino, *Quest*, 245–250.

artillery, and the necessity of an offensive in the strategic dimension, which France had to take sooner or later. Its assumptions, i.e. very accurate planning, extensive communication and control system, were necessary instruments in an army of poorly trained reservists. The methodical battle concept ensured the confidence of the commanding staff of the French army that it would not fail in the future war, because the lessons from the previous one were learned.

Although the French army believed in technological progress, it was not very active in searching for new ideas. The air force was used to great effect in colonial warfare²⁴ but still, the most influential commanders of the army did not think of aircraft as a game changer. In the field regulation of 1936, only four pages out of 177 were devoted to the cooperation of land and air forces. The most interesting part is that the French Air Force ended the campaign in 1940 with more aircraft than on May 10 – at the time of the German attack. Technically, after the loss of about 500 aircraft – they could conduct further operations basically without a problem, having enough staff and material resources.²⁵ The same attitude can be seen toward tanks and independent tank units. While on the tactical level, armour was seen as a valuable tool, and motorization and mechanization of the army were thought beneficial, there was no effort to check for the utility of tank arm on the operational level in the future war. At the beginning of 1939, the French chief of staff stated: “Just because the Germans have committed an enormous error does not mean we must do likewise. Understand that there will never be a battlefield large enough for several armoured divisions. They can handle local operations, like reducing a pocket, but not an offensive action.”²⁶

French military doctrine was shaped by military history, but the French army never decided to study the Great War in depth. There was a multi-volume history of that conflict published – but a final synthesis

²⁴ Anthony C. Cain, *The Forgotten Air Force. French air doctrine in the 1930s* (Washington D.C.: Smithsonian Institution, 2002), 22.

²⁵ Faris R. Kirkland, “The French Air Force in 1940. Was it defeated by the Luftwaffe or by politics?”, *Air University Review* (September-October 1985): 101–118.

²⁶ Eugenia C. Kiesling, *Arming against Hitler: France and the limits of military planning* (Lawrence: University Press of Kansas, 1996), 162.

never followed. While preaching that the source of military doctrine is military history and principles of wars, the French army in reality studied only WWI tactics and operations. French doctrine not only universalized lessons it gathered from one quite short war but also totally shut down any possibility to discuss the founding assumptions. The military press was under the strict control of the Chief of Staff and any deviation from orthodoxy was punished.²⁷

The main French military innovation during the interwar period – i.e. the Maginot Line – shielded France, and military commanders were sure that they would have enough time to prepare for operations once the war started. Time was needed for two reasons, to retrain reservists and for mobilization of the nation and industry resources. Powerful allies were also within reach. The French military-political establishment did not see any need for changes in military doctrine.

The Battle of Sedan on 15 May 1940 – application of German and French doctrinal models

On 10 May 1940, armies with quite equal potential and equipment faced each other. If the Allies were able to achieve stabilization of the front, then that balance of forces would make Germany's strategic perspectives look bleak. There was a Soviet enigma in the east and the US, although not in alliance with France and Great Britain, had already started supplying them. If we consider that the Allies knew where the battle would take place, the Wehrmacht's prospects of winning seemed even fainter. However, the German command had a few advantages, which it used to the utmost effect. First, it held some element of surprise, because it could decide when the battle would start. Secondly, it had at its disposal a proven instrument of waging war in the form of armoured divisions and the Luftwaffe, with organizational parameters significantly exceeding similar Allied forces.

²⁷ Kiesling, *Arming against Hitler*, 122–123.

There are three main factors concerning the breakthrough at Sedan which decided the war in the West. First, in May 1940, the Allies blundered with their strategic deployment. Based on intercepted plans of the German invasion in the so-called “Mechelen Incident”²⁸ they decided to move their strategic reserve, which had been deployed in the area right behind Sedan, to their far-left wing with the mission of going as far as Breda and supporting the Dutch defence in case war started. Removal of the strategic reserve from the area behind Sedan created an operational void, which was the cause of German success after the breakthrough at Sedan, making their push to the Channel uninterrupted and relatively easy.²⁹ Second, the river crossing battle which decided the war, taking place on 15 May in the area of Sedan, was an infantry battle with the limited use of tanks on both sides. On that day superior tactical abilities, higher morale and the nearly suicidal combativeness of German infantry and engineers with extraordinary leadership and initiative on very low command level (sergeants and lieutenants) won the day for the Wehrmacht.³⁰ French troops in the Sedan area were of second reserve category (B class division), soldiers were old and insufficiently trained. 55th Infantry Division responsible for Sedan area was deployed in such a way which made efficient command impossible – battalions and even companies from different regiments were mixed among each other. If that was not enough, French soldiers were severely affected by constant Luftwaffe bombing that started in the morning and lasted for several hours.³¹ Third, after the breakthrough in Sedan area, after German panzer divisions entered operational space, their attack tempo was such that the

²⁸ On 10 January 1940, a German aircraft with an officer on board carrying the plans for Fall Gelb crash-landed in neutral Belgium near Mechelen. Belgians notified Allies of their discovery. Captured German documents were describing an operation, in which the main effort was behind an offensive through Belgium.

²⁹ Robert A. Doughty, *The Breaking Point. Sedan and the fall of France, 1940* (Mechanicsburg: Stackpole Books, 2014), 107–108.

³⁰ Karl-Heinz Frieser, *The Blitzkrieg Legend. The 1940 campaign in the West* (Annapolis: Naval Institute Press, 2005), 161–172.

³¹ French troops, when confronted by Germans in predictable environment, were fighting effectively during the campaign, see Jeffery A. Gunsburg, “Battle of Gembloux 14–15 May 1940. Blitzkrieg checked,” *Journal of Military History* (January 2000): 97–140.

French (and British) OODA³² loop was torn. Allied troops with operational tempo based on methodical battle procedures were simply not able to react quickly enough to changes on the battlefield.

This mix of causes that decided the Wehrmacht's success only partially depended on the German doctrine. In fact, both sides gambled. The Germans with their front-loaded offensive and lack of considerable reserves wanted to achieve victory quickly. The crossing at Sedan was a very narrowly run affair with large amounts of chance and luck. On the other hand, if only the French could stop the Germans and start the well-known game of attrition, then their preparation for a long war and full mobilization would pay off. In the end, the Wehrmacht won, and a new era of mechanized military operations begun. The German army harnessed armour, firepower, radio, and the internal combustion engine to a conception of war grounded firmly in historical experience.³³

Tankomania – the Israeli doctrinal model in 1967–1973

The foundations of Israeli strategy are still the same as they were in the late 1940s. Israel has to wage short wars as it lacks resources to fight a protracted conflict. The lack of territorial depth makes the IDF fight offensively – if possible, pre-empting the enemy. Due to a geographical characteristic of the Middle East, with its open terrain, air supremacy was extremely important for achieving victory. With demographic imbalance in the region, Israel numerical inferiority is guaranteed. That is why the quality rather than the quantity of soldiers and officers matters for the IDF. Israel cannot lose any war because Israelis are sure that this would mean a second Holocaust for them, so when it comes to state survival they are ready to do anything to save it. From a psychological point of

³² OODA stands for Observe–Orient–Decide–Act loop, see John R. Boyd, “Patterns of Conflict” (1986), http://www.d-n-i.net/boyd/patterns_ppt.pdf [accessed 15.02.2018].

³³ Williamson Murray, “May 1940: Contingency and fragility of the German RMA,” –*The Dynamics of Military Revolution, 1300–2050*, ed. MacGregor Knox and Williamson Murray (Kindle Edition), loc. 2141.

view, such attitude results in a very high morale and spirit of self-sacrifice in the military: “The prospect of the hangman’s noose makes for wonderful concentration of the mind.”³⁴

At its birth, the IDF lacked any coherent military doctrine and the highest level of training provided for officers were platoon and company courses. Some officers with a professional background came from the British, Soviet, Polish, US and even Austrian armies.³⁵ After the War of Independence (1947–1949) ended, the newly created army focused on managing the huge wave of immigrants, which hampered organizational and educational development.³⁶ Only during Yitzhak Rabin’s tenure as head of the Training Department in 1954–1956 did a full structure for military education crystallize.³⁷ In the 1950s and early 1960s, the intellectual life of the IDF was quite lively with focus on military doctrine, and history.³⁸ Many officers attended foreign general staff academies.

Israeli commanders decided to use a quality multiplier: the intellectual, cultural and educational superiority of Israel’s manpower over Arabs. General Laskov (Chief of Staff 1951–53) decided to introduce what he called “optional control”. It was not new, as the term is easily translated as the German *Auftragstaktik*. Tactical commanders (battalion, brigade) were fully entitled to make a tactical decision based on their knowledge of the end goal of the battle/campaign. Senior commanders (division, area command or GHQ) were of course there to control and guide or intervene in case of failure or changes in goals.³⁹

After the Sinai Campaign (1956), the IDF’s view on modern combat changed dramatically and transformed from air defence and infantry-based operations to air superiority, mechanized tank operations, and

³⁴ Martin van Creveld, *Sword and Olive: A critical history of the Israeli Defence Force* (New York: PublicAffairs, 2008), 167.

³⁵ Avi Kober, *Practical Soldiers. Israel’s Military Thought and Its Formative Factors* (Leiden: Brill, 2016), 129.

³⁶ Zeev Drory, *Israel’s Reprisal Policy 1953–1956. The dynamics of military retaliation* (London: Frank Cass, 2005).

³⁷ Creveld, *Sword*, 167.

³⁸ Measured by percentages of articles in *Maarachot*, the main IDF’s military journal, 43,5% of all articles were devoted to military history, Avi Kober, *Practical*, 59.

³⁹ Edward Luttwak, Dan Horowitz, *The Israeli Army* (London: A. Lane, 1975), 172–173.



Israeli paratroopers during manoeuvres using WWII-vintage M3 half-tracks. Due to IDF's "tankomania" and budget restraints infantry was unable to support modern tanks on the battlefield. Courtesy: Israeli Government Press Office, Moshe Milner

cooperation between the air force and tank units. Tank and supersonic fighter-bombers were seen as the main combat tools. This tendency was strengthened when Gen. Israel Tal was promoted to commander of armoured forces in 1964. Contrary to the well-established view on combined arms mechanized operations which were to include tanks, infantry, artillery, engineers etc. he insisted that due to Israel's opponents and main theatre of operation (Sinai Peninsula), such cooperation was not needed to achieve success in battle. While in Europe with its urbanized, rolling or hilly terrain with woods and rivers, tactical visibility was low and that is why support of other arms was needed. In the featureless, open desert of the Sinai, such support in breakthrough battle or meeting engagement is not a priority, and if one adds air force operating as flying artillery, it is even less needed. General Tal also opted for heavy, well-armoured tanks (such as British Centurion), believing that it was not mere speed that counted, but battlefield manoeuvrability under fire. During his tenure as

a commander of armoured forces, he insisted on excellent gunnery, tactical training, and initiative of leaders on all levels. Due to a high number of accidents, damaged equipment and maintenance problems, he introduced strict discipline and adherence to technical procedures.

In the Six Day War, Tal's concept was an enormous success. Tank battalions and brigades operating semi-independently as armoured fists and with co-operation with an air force (which replaced artillery) destroyed the opposing forces. Excellent gunnery, tactical skills and initiative gave Israelis a huge margin in battlefield effectiveness. In armoured operations, infantry was almost always delegated to mopping-up operations and keeping supply routes open. So not only Tal's concept was proven right, due to the magnitude of the victory, any criticism was easily rejected. Israelis, who tend to value more experience over ideas, were converted to an all-tank army organization. They had not thought such an overwhelming victory over the Arabs was possible due to circumstances not easily repeatable in the future war. Israeli doctrine not only universalized lessons that it gathered from one and short war but also saw no need to discuss its founding assumptions.

The Israeli army was preparing for the next round of hostilities with the Arab states, in such a way as to repeat the success of 1967. The characteristics of the armed forces, which yielded the largest dividend during the Six Day War, were emphasized. More than half of the military budget was allocated for the expansion and modernization of air force. Armoured forces were rapidly expanding but at the cost of the infantry and artillery. The IDF took for granted an intelligence advantage over the Arabs and surrendered to "tankomania". Battalions and armoured brigades became units almost completely devoid of infantry, engineers, and artillery (mortars) and were based only on tanks.⁴⁰ This was strange, as during the Six Day War, infantry and paratroopers showed their utility, either in conducting complex combined-arms breakthroughs (Abu-Geila, Golan Heights) or in urban fighting (Jerusalem). Partly this was because of military budget limitations but also suitable armoured fight-

⁴⁰ David Eshel, *Chariots of Desert. The story of Israeli Armored Corps* (London: Brassey's 1989, 1989), 88; interview with Brigadier General Zvi Kan-Tor, Latrun 19 September 2017.

ing vehicles for infantry were not available and artillery tasks were taken over by the air force. In such a situation, investment in even more tanks seemed most economical. At some point, Gen. Tal even tried to propose an all-tank brigade, consisting only of three pure tank battalions as a standard organizational pattern. This “ideal” was quite common in the Yom Kippur War when many Israeli armoured brigades fought with almost only tanks in their order of battle.⁴¹

Israelis did not pay attention to conducting a war at the operational level and underestimated the importance of this skill. There was an anti-intellectual attitude in the officer corps.⁴² General Tal once stated that Israeli officers were promoted by a natural selection process based on their battlefield achievements. The highest compulsory course for officers – the course for battalion commanders. Command and Staff Academy, which was supposed to educate officers from the rank of first lieutenant to lieutenant colonel – was held in low esteem.⁴³ Additionally, just before the Six Day War, the General Staff Academy, which was meant for colonels and generals as well as civilians dealing with military and security problems, was abolished by Prime Minister and Minister of Defense Levi Eshkol, who deemed it unnecessary.⁴⁴ General David “Dado” Elazar was promoted and eventually took over the position of the head of the General Staff without any additional education apart from the battalion commanders’ course.⁴⁵

Such attitude narrowed the intellectual horizon of the IDF. It almost stopped studying the theory of war or military history to such degree that Martin van Creveld after lecturing general staff members stated: “I have never met such a bunch of ignorant people in my entire life. In no other state or organization have I seen people who knew so little about their profession and its theory, including the history and doctrine of their

⁴¹ Interviews with General Major Haim Erez, Latrun 8 March 2018; General Major Jackie Even, Latrun 8 March 2018; Brigadier General Zvi Kan-Tor, Latrun 19 September 2017 and Brigadier General Avigdor Kahalani, Tel Aviv 16 September 2016.

⁴² Creveld, *Sword*, 168.

⁴³ Ibid.

⁴⁴ Interview with Rear Admiral Ze'ev Almog, Tel Aviv/Ramat Ha'Sharon, 16–19.09.2016.

⁴⁵ Creveld, *Sword*, 169.



Israeli reservists preparing to enter Golan Heights during the Yom Kippur War (6th October 1973, evening). Reservists were the cushion that mitigated doctrinal and strategic errors of the IDF General Staff. Courtesy: Israeli Government Press Office

own army.”⁴⁶ Lack of education and knowledge made the higher echelons of the IDF unimaginative, not ready to change their worldview, rehearsing once and again the Six Day War in their “sterile” field exercises,⁴⁷ not able to understand war as an instrument of policy or distinguish between tactical, operational and strategic levels of war.

Before the Yom Kippur War, Israeli strategy and military doctrine was based on a set of assumptions. Almost none of them materialized during the war (Table 1).

The Yom Kippur War was Israel’s last high-intensity conflict with its Arab neighbours. In the end, the IDF won militarily but not on the strategic/political level. The high number of casualties and lost equip-

⁴⁶ Kober, *Practical*, 44.

⁴⁷ Amiram Ezov, *Crossing Suez, 1973: New point of view* (Kindle Edition, Tel Aviv, 2016), loc. 974–977.

Table I. IDF's strategic-doctrinal assumption and the reality of the Yom Kippur War.

Israeli strategic assumption before the Yom Kippur War	Yom Kippur War
Intelligence superiority over Arabs. At least 48 hours warning, enabling mobilization before war erupts.	No intelligence superiority. Warning nine hours before the war, mobilization starts four hours before the war.
Pre-emptive attack.	Due to a relationship with the US and dependence on their military aid, pre-emptive attack not possible.
Israeli Air Force able to win air superiority over the battlefield.	Israeli Air Force not able to win air supremacy by its own effort over the battlefield due to SAMs and various defence measurement taken by Arabs (e.g. hardened shelters for aircraft).
No alliance between Arab countries probable.	A coalition between Syria and Egypt.
Israeli doctrinal assumption before Yom Kippur War	Yom Kippur War
Low morale of Arab armies.	High morale and cohesion of Arab armies.
The mediocre ability of Arab armies to defend tactically against tanks.	High ability of Arab armies to defend tactically against tanks through widespread use of portable anti-tank weapons and guided AT missiles augmented by tanks and artillery.
The inability of Arab armies to fight offensive mobile armoured operations.	The inability of Arab armies to fight offensive mobile armoured operations.
Availability of IAF to support ground troops.	The inability of IAF to support ground troops in the first phase of the war. Only after ground and/or air force destroyed enemy SAMs, support was given for ground operations.
The purely offensive character of operations. After a short period of defence, reserve divisions quickly counterattack the enemy.*	Protracted defensive operations, failure of reserves to successfully counterattack (Sinai). Even successful counteroffensive in Golan started after two days of defence.
Israeli armour has ability to survive on the battlefield without or with limited support from other arms (infantry, artillery, engineers etc.) in both defensive and offensive operations.	No or limited possibility to conduct offensive operations by armour alone. Medium to high ability to defend without supporting arms.
Utmost importance of tactical skills and mastery of gunnery.	Utmost importance of tactical skills and mastery of gunnery.
Tank divisions under Front (Area Command) command able to conduct operations.	Lack of intermediate level of command (corps HQ) disrupting operations.

* For the seven plans for the defence of Sinai created at the Southern Command in 1967–1973 as many as six ended with the crossing of the Canal by IDF and whatever the force structure (2 brigades or 2 divisions) only offensive on Syria was considered, Williamson Murray, *Military Adaptation in War. With fear of change* (Cambridge: Cambridge University Press, 2011), 272–273.

ment outstripped any Israeli expectation. Radical criticism of the the IDF's performance and commanders erupted in society. Egypt's war aims were accomplished: the Sinai Peninsula was returned by Israel; the Soviet patron was changed to the American one. Those accomplishments came at a price for Egypt as it had to recognize Israel. In Syria's case, nothing substantial was achieved by both sides; the northern border of Israel stayed a "hot" one.

But why did the IDF win militarily at all, given that almost all of its assumptions concerning future war were invalid? Almost all the answers consider the tactical level:

1. Israel's regular and reserve soldiers were experienced war veterans commanded by very able officers at platoon/company/battalion/brigade level.
2. Their tactical training was exceptional, including excellent gunnery among tank crews.
3. Spirit of adaptation, innovation, and improvisation based on the individual initiative were common across all army.
4. Among all troops, morale, will to fight and unit cohesion was high – this was manifested in many heroic actions and even acts of self-sacrifice.
5. Alliance with the US and their support both in supplying resources as well as in global politics.

Although classroom study of war is still not rated higher than practical experience in waging war, after the Yom Kippur War the IDF changed not only its force structure⁴⁸ but also educational policy. For the first time in the IDF's history, integrated officers' courses of different arms made an appearance.⁴⁹ The Command and Staff Academy was reformed. The National Defense College for study Israel's strategic and security environment was re-established. When the IDF invaded Lebanon in 1982 then CIC Israeli Navy, rear admiral Ze'ev Almog could: "just take my notes from Naval War College in the US. We studied different operational and

⁴⁸ Anthony H. Cordesman, *The Arab–Israeli Military Balance and the Art of Operations* (London: American Enterprise Institute, 1987), 45–53.

⁴⁹ Interview with Brigadier General Zvi Kan-Tor, Latrun 19 September 2017.

strategic case studies. I took one on the Inchon amphibious invasion in the Korean War. That was enough to start planning seaborne landing in Lebanon.”⁵⁰

Air-Land Battle – American military doctrine building 1973–1991

The long conflict in Vietnam ending in defeat had a disastrous impact on the American army.⁵¹ In addition to the problems with discipline and morale, there were signs that the American army might lose a conventional conflict in Europe. Such predictions were strengthened by the Yom Kippur War. The modern Soviet-made equipment used by Arabs proved to have very good technical characteristics and American equipment did not have a technological advantage which would suffice to fight the numerically much bigger Soviet forces.⁵²

The American political-military establishment had to quickly “fix” the armed forces. First, the conscription was suspended. Secondly, the structure of the armed forces changed – among others Training and Doctrine Command (TRADOC) was created.⁵³ Thirdly, it was decided to purchase new equipment. The most important change, however, was the change of doctrine. This was accomplished by General William E. DePuy, head of TRADOC, who in July 1976 introduced a new field regulation (FM 100-5 Operations).

The commander of TRADOC focused on a few issues, making a strict selection of priorities. DePuy was convinced that European Theatre of

⁵⁰ Interview with Rear Admiral Zéev Almog, Tel Aviv/Ramat Ha’Sharon 16–19 September 2016.

⁵¹ Robert H. Scales, *Certain Victory: The US Army in the Gulf War* (Fort Leavenworth: Combat Studies Institute, US Army Command and General Staff College Press, 1993), 6.

⁵² “Implication of the Middle East war on US Army tactics, doctrine and systems”, – *Selected Papers of General William E. DePuy*, ed. Robert M. Swain (Leavenworth: Combat Studies Institute, US Army Command and General Staff College Press, 1994), 75–112.

⁵³ The Training and Doctrine Command consolidated three logically connected functions under one command: 1) research on new fighting techniques combined with the evaluation of new technical solutions, 2) development of the doctrine and organization of the land army, 3) training of officers and non-commissioned officers.

Operations is the most important for the American army and because of increased tempo of operations and the lethality of modern weapons, the US Army must win the “first battle” through “active defence”. Acquisition of new weapons had to comply with doctrinal assumptions. If the new doctrine was to be successful it had to be coordinated with activities and in doctrinal agreement with the most important ally in NATO (Germany) and American air forces. Based on the recent experience from the Yom Kippur War tank was considered the main weapon system in land forces and the military doctrine was developed based on that assumption.

The first stage to change the military doctrine of the United States Army was to write new combat regulations and introduction of the Army Training and Evaluation Program (ARTEP) consisting of a list of tasks that any given unit (from the squad to the battalion) had to perform according to the appropriate standard.⁵⁴ This standard was based on Israeli experience of the Yom Kippur War backed up by the assumptions on how Soviet Army conducts war.

General DePuy entrusted writing of a new version of FM 100-5 Operations to General John Cushman – Chief of Combined Arms Centre at Fort Leavenworth. The first draft of the new regulations was rejected by General DePuy in December 1974, the second draft met the same fate in May 1975. General Cushman was considered a military intellectual and his draft of the new regulations of the FM 100-5 was based on the nine principles of war used by the US Army from 1922. He believed that the doctrine should not be authoritative but should help the commander in making the best decisions. Cushman wanted to *teach* officers to conduct a war based on their initiative and knowledge of what usually worked best over the centuries on the battlefield. In his own words: “[doctrine is] the best available thought that can be defended by reason ... [to] indicate and guide but ... not bind in practice...”⁵⁵

It was a concept totally contrary to what Gen. DePuy expected. The TRADOC commander wanted to quickly *train* US Army officers to con-

⁵⁴ Paul H. Herbert, *Deciding what has to be done: General William E. DePuy and the 1976 Edition of FM 100-5 Operations* (Fort Leavenworth: Combat Studies Institute, US Army Command and General Staff College Press, 1988), 48.

⁵⁵ Herbert, *Deciding*, 55–56.

duct mechanized operations on the lethal battlefield using the FM 100-5 regulations. The key to successful training had to be the authoritative war doctrine expressed, among others, by FM 100-5, written in a clear, simple and detailed manner. Gen. DePuy did not think that General Cushman's approach was wrong – only inappropriate at the time. There was no time to slowly teach the principles of war – it was necessary to train officers for a war that could start at any moment. DePuy with a small group of officers wrote the FM 100-5 regulation.

The critique of FM 100-5 started immediately after the document was published on 1st July 1976. It focused on three main areas:

1. Predominance of defensive operations.
2. Mechanistic vision of the battlefield.
3. Europe as one and only theatre of operations.⁵⁶

American officers perceived FM 100-5 as “how to physically destroy enemy forces” with the employment of mobility and attrition, not “how the American army should fight in order to win”. Quantitative and systemic analysis, which was the foundation of the FM 100-5, perfectly matched the computer models – it did not consider factors other than material, and these were the ones that most often decided victory in battle. Tactics were limited to the following process: recognize the enemy's main effort – withdraw, delay the attack – mass the reserves (achieve a favourable ratio of forces) – destroy the enemy with fire.⁵⁷ The features of the doctrinal document – to facilitate understanding and then its acceptance – turned against it. American officers read and understood the doctrine of “active defence” and then rejected it.

At the end of 1978, when the weaknesses of the FM 100-5 edition of 1976 had been identified, new TRADOC commander General Don Starry established the basic assumptions of the new doctrine in a planning document. Starry was a tank officer inspired by a Patton-like view of battle where DePuy was a classical, scientific battle manager. To increase the understanding of the new doctrine, General Starry called it Air-Land Battle, as it assumed a very strong interaction between

⁵⁶ Ibid., 96.

⁵⁷ Huba Wass de Czege, L.D. Holder, “The new FM 100-5,” *Military Review* (July 1982): 53–54.

land and air forces. This term was also intuitively understood by officers.

FM 100-5 Operations (1982), was based on two foundations: history and principles of war. The text of the regulation included two historical examples, the Vicksburg campaign (American Civil War) and the Battle of Tannenberg (WWI). The first illustrated the value of indirect strategy, the second was about the quick transition from defence to offensive operations. Abundant war quotes (from Sun Zi, through Napoleon and Clausewitz to Patton) were also presented, and the concept of Air-Land Battle was placed in the context of principles of war used by the United States Army. Such an accepted framing of the new doctrine made it universal, it could be used in any conflict – both in Europe and in other parts of the globe. At the same time, the authors did not hide the fact that they were preparing the US Army for a conflict with the Warsaw Pact forces, for a mechanized battle in which the combined arms (and services) played a key role.

Four years after the introduction of the Air-Land Battle doctrine, General William R. Richardson, the successor of General Starry as the head of TRADOC and another infantry officer, decided to introduce another version of FM-105 (1986). This time it was not a revolutionary change, but confirmation of the current doctrinal course and refining the concept in line with criticism of Starry's line.⁵⁸

The evolution of American military doctrine is one of constant evolution. It is interesting that the shock of defeat in Vietnam and the Yom Kippur War happened in the same time, enabling US Army to reengineer its doctrine based on a scientific conclusion drawn from the Arab–Israeli conflict. First iteration – Active Defence was too mechanistic, focusing solely on defensive operations. Second and third iterations – Air-Land Battle added more dimensions apart from material only and were more balanced. Military history, which was absent in Active Defence manual, was integrated directly into text of Air-Land Battle regulations, showing that US Army top commanders understood how important it could be in educating officers.

⁵⁸ William Richardson, "FM 100-5. The AirLand Battle in 1986," *Military Review* (March 1997).

Since the creation of TRADOC, one of the main questions posed by the commanders of this institution was how to pass the knowledge from the regulations to soldiers and officers – in such a way as to create a uniform intellectual discipline in the army. Several institutions were devised to do that, and some old ones were “fixed”. At the level of NCOs, the wages and living conditions improved, education was radically improved with Sergeants Major Academy as the final level of professional education.⁵⁹ National Training Centre was erected with its technical gadgets enabling testing not only units but commanders at the brigade level. Battle Command Training Program (BCTP) for corps and army level commanders and their staffs were introduced⁶⁰ and School of Advanced Military Studies (SAMS) supplied those staffs with officers understanding the operational level of war and complexities of the modern battlefield.⁶¹

TRADOC commander General William R. Richardson defined the role of TRADOC in the following terms: “[TRADOC] embraces three distinct elements of [officers’] preparation: intellectual, psychological and physical. Intellectual preparation begins with the textbook in the classroom but moves quickly to the map, to the sand table and then to the terrain. Intellectual preparation provides the mental basis for a broad perspective on warfare by thoroughly and systematically searching military history while simultaneously scanning the future for new technology and new concepts.”⁶²

Battle of 73 Easting, 26 February 1991

On 26 February 1991 during Operation Desert Storm, the 2nd Armored Cavalry Regiment (ACR) of the US Army was in the vanguard of the VII Corps on the axis of the main Allied attack. Its task was to find the main Iraqi forces, determine their size and the type of defenses so that the

⁵⁹ In 1991, 88% of NCOs from Sergeants Major Academy studied at civilian universities, Scales, *Certain*, 25.

⁶⁰ *Ibid.*, 22–23.

⁶¹ *Ibid.*, 27–28.

⁶² Richardson, “FM 100-5,” 5.

heavy divisions following behind could destroy them quickly. During this reconnaissance mission, three squadrons of the 2nd ACR came in contact with the Iraqi brigade from the Republican Guard division “Tawakalna”.⁶³ In less than 40 minutes, despite the raging sandstorm, captain H.R. McMasters’ squadron consisting of 9 Abrams (M1) and 12 Bradley (M3) tanks destroyed 37 T-72 and 32 IFVs. In an hour, after other squadrons joined the fight, the Iraqi brigade was destroyed. American losses were two Bradleys (including one destroyed by friendly fire) and one killed soldier. It was decided to digitalize the battle of 2nd ACR at 73 Easting. Each tank, combat vehicle or truck was virtualized, and all possible sources of information were used to feed the model.⁶⁴

While the outcome of the Gulf War of 1991 was almost predetermined, considering the superiority of resources the Allies had, but the level of casualties and swiftness of operations were a surprise. Official estimates of allied losses prepared before the campaign were more than 200 or 300 times higher than the real figure. A simple explanation of the low allied losses proved difficult due to various factors causing the linear combination of causes to have insufficient “power of explanation”. Iraqi morale and skills were at least at the level of the Arab army in 1967–1973–1982, there was no significant gap in terms of training and skills between the US Army and the IDF, but the proportion of American casualties was 10 times lower than Israel’s in 1967. Another problem hindering the explanation of low allied losses was the fact that technology on the Kuwait Theatre of Operations (KTO) differed significantly, and the level of losses was equally low everywhere. In addition, the battles with the Iraqi army took place without the significant numerical advantage of Allied forces, and often took the form of a frontal attack.

⁶³ 3rd *Tawakalna ala-Allah* Mechanised Division.

⁶⁴ Stephen Biddle, “Victory Misunderstood: What the Gulf War tells us about the future of conflict,” *International Security*, 21, no. 2 (Fall 1996): 139–179. This article is part of Stephen Biddle’s, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton: Princeton University Press, 2005). More popular version of events at 73 Easting is presented in Tom Clancy, *Armored Cav: A guided tour of an armoured cavalry regiment* (New York: Berkley Books, 1994).



Abrams tank from 2nd Cavalry, Gulf War 1991. Soldiers of this regiment were achieving 85% accuracy during training – 182 hits for 215 fired shots in the distance below 2000 m. Courtesy: DoD/Spc. David Faas

Stephen Biddle decided to conduct a series of scenario analysis based on the 73 Easting database. There were several strengths and weaknesses defined for both Iraqi and American forces – e.g. thermal sights on Abrams tanks, Iraqi tanks not in hull-down position, an air force advantage for the Allies, etc. During the Janus computer simulation, seven different scenarios were tested, and both Iraqi and American strengths and weaknesses were turned on and off. According to the explanation of the low level of American casualties during the Gulf War proposed by Stephan Biddle, the war saw synergy between most modern technology and the combat skills of US Army troops. It caused a radical reduction of the attacker's losses and exponential growth of losses for the defender, whose grasp of technology and knowledge how to apply it efficiently on the battlefield was lacking. One could argue that the difference in skills and technology created a “technological multiplier” effect.

The Battle of 73 Easting perfectly illustrates the effectiveness of the American “Air-Land Battle” doctrine. The victory of the 2nd ACR was

undoubtedly due to technological superiority, but the most important was the excellent training and combat skills. According to the scenario analysis of the Battle of Easting 73, these two elements are intertwined and created an extremely strong non-linear combination.

Conclusions

Military history's impact on the armed forces cannot be studied on a standalone basis. It is one of many "ingredients" of the mix that armies use for training, war planning and creation of doctrines. Very rapid technological advances make some soldiers think that history is becoming irrelevant, while at the same time, there are pundits who cry about new paradigms like hybrid warfare, the 4th generation of warfare, RMAs etc., which for a military historian are nothing new and sometimes seem like a pure marketing exercise or historically undisciplined theorizing.⁶⁵

All four case studies presented in this paper present a different approach to military history. German Reichsheer focused on the WWI experience at the tactical and operational level. The study of the Great War was very detailed, scientific and serious – something that is rarely seen in the annals of military history – but without including the political and strategic dimensions. Due to change in the military environment caused by technology, the Reichsheer framed those experiences in the broader paradigm of operational war of movement based on military history. But German military focused so much on rapidly winning campaigns against neighbours that it did not create any institutions for education of higher command echelons of the army in the area of grand strategy. Through WWII, the Wehrmacht was an extremely efficient organization on the tactical and operational field but seriously lacking in the strategy field. Whatever military success the German army achieved, Germany's unpreparedness for waging war on a grand strategic level made its downfall certain.

⁶⁵ Williamson Murray, Richard H. Sinnreich, ed. *The Past as Prologue. The importance of history to the military profession* (Cambridge: Cambridge University Press, 2006), 6.

The French army did exactly the opposite. After the carnage of WWI, French generals had thought they found the right formula for victory. They accepted the constraints of the strategic level of war, assuming that the next one would be long and total. Although they were right, it was not they who eventually fought it. The French military was also willing to harvest the dividend of peace, which was possible because Germany was disarmed, which meant a low level of investment in arms and shortened service times for conscripted soldiers. That undermined the army's ability to fight at the tactical level efficiently. French military doctrine was based on fighting techniques developed at the end of WWI, but no thorough examination of battlefield experience took place. Studies of military history turned into studies on WWI as no other campaign seemed relevant for the top military establishment. The French army decided to address its shortcomings by building the Maginot Line. Those fortifications were supposed to shield France from a surprise attack, enable mobilization of national resources and let the army prepare for an offensive. In the end, the Maginot Line held – but the army lost the crucial Battle of Sedan.

The Israelis are on the other side of the spectrum of how armies treat military history. IDF doctrine was almost totally based on battlefield experience, which doomed it to reinvent the wheel again and again. Optional control, i.e. *Auftragstaktik* or mission command; infantry assault techniques, i.e. stormtroop tactics; reforms of Armoured Corps, i.e. WWII experience – all of this was already on the table. When one adds racial prejudice toward Arabs and hubris after the Six Day War, it was a potentially disastrous cocktail. What saved Israel during the Yom Kippur War were the soldiers, their battlefield experience, high morale, and cohesion as well as the very high level of tactical training. This was the cushion that mitigated all of the IDF's intellectual, operational and strategic errors.

The US Army's doctrinal revolution in the 1970s and 1980s is a model example of how to employ battlefield experience, technology and military history in the creation of military doctrine. It is not an easy process and takes a great deal of time. As Brigadier General Barry B. McCaffrey, the commander of 24th Infantry Division during Operation Desert Storm, put

it: “The Gulf War was not won in 100 hours. It took 15 years.”⁶⁶ American military changed its doctrine three times during the period 1976–1986 with the pendulum swinging wildly from Active Defence to the concept of aggressive Air-Land Battle, finally settling on a more nuanced and balanced 1986 version. Serious research was conducted on Israeli battlefield experience in the Yom Kippur War and adjustments were made to training with a focus on tactical effectiveness and combined arms. New equipment was rapidly pressed into service. The operational level of war was introduced with FM 100-5 version of 1982, and a further iteration framed it around military history and redefined principles of war. No effort was spared to train armed forces in conducting war with the creation of TRADOC, the revival of the NCO Corps, ARTEP, National Training Centre, Battle Command Training Program and SAMS studies. While the result of the Gulf War was never in question, the speed and low cost of victory were a surprise for almost all military analysts.

Constant historical awareness and education of the officer corps with all width, depth, and context⁶⁷ and on the tactical, operational and strategic level is a must.⁶⁸ Armies are able to win wars without a high level of expertise in historical matters as the Israeli case study shows, but in the process they face much higher costs in lives and equipment. If armies decide to study military history only partially, as the French and German case study shows, it may radically impact their short- or long-term ability to win wars. Closest to the realization of the above mentioned aim of historical awareness of the officer corps was the US Army in the period 1982–1991, but it did so with an enormous investment into institutions and training.

As General Patton said, “to be a successful soldier you must *study* history,” and there is simply no other way. “Study” is a key word as studying of military history should primarily lead to knowledge of not only what happened but should also focus on why and how it happened. General Fuller stated: “The first fact to note is that the study of history possesses

⁶⁶ During Congressional hearing after the Gulf War, Scales, *Certain*, 35.

⁶⁷ Michael Howard, “The Use and Abuse of Military History,” *Parameters* 21, no. 1 (1981): 13–14.

⁶⁸ Robert H. Scales, “The Second Learning Revolution,” – *Rethinking the Principles of War*, ed. Antony D. Mc Ivor (Annapolis: Naval Institute Press, 2005), 56–57.

only one true value, the discovery of what may prove useful in the future. The object of the study of history is to prepare us for the next war, consequently, all the ephemeral details (...) should be passed over lightly, and attention concentrated on what is of permanent value in war. What is required is the ‘why’ and ‘how’ of success and failure in a series of campaigns, and not the microscopic knowledge of any one campaign.”⁶⁹

The key takeaway from this paper is that military history may be an “intellectual multiplier” for militaries. But for it to work, it has to multiply tangible and intangible assets – e.g. equipment; tactical proficiency; high initiative, morale, cohesion; and mastery of weapons. The more valuable the “military portfolio” is, the better leverage for “profit” one can achieve using military history. This may be the difference between winning or losing the next war.

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Rear Admiral Ze'ev Almog, Tel Aviv/Ramat Ha'Sharon, 16–19 September 2016.

Brigadier General Zvi Kan-Tor, Latrun 19 September 2017.

General Major Haim Erez, Latrun 8 March 2018.

General Major Jackie Even, Latrun 8 March 2018.

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