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Master's Thesis

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The lightening of arsenals and implications for conventional warfare

Master's thesis

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Declaration

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2. I hereby declare that my thesis has not been used to gain any other academic title.
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In Prague on 7th of May 2018 Vít Krejčí

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Abstract

The thesis “The lightening of arsenals and implications for conventional warfare” examines the trend of equipping national ground forces with only light armaments and possible effects, that this trend might have on conventional clashes. The thesis works with hypothesis, that lighter ground forces are inherently disadvantaged, when they clash with heavier ground forces. While the thinkers of Revolution in Military Affairs (RMA) count on light ground forces to serve in concert with air power, the air superiority needed might not always be available. To determine possible outcomes of clashes between light and heavy forces, the paper examines seven historical case studies of clashes between opponents with great armament disparity, looking for importance of armament disparity inside the cases, as well as comparing them between the cases. The set of case studies largely confirmed the hypothesis, proving the value of heavy ground forces in combat. However, it also found that other effects, primarily air support and use of terrain, can mitigate or completely counter the effect of armament disparity. The role of technological advancement also changed the balance between the forces with infantry anti-armor weapons. The development of protective measures is though constantly keeping up with development of these weapons.

Abstrakt

Diplomová práce „Odlehčování výzbroje a implikace pro konvenční střety“ zkoumá trend vyzbrojování národních pozemních sil pouze lehkou výzbrojí a možné následky, které tento trend může přinést pro konvenční střety. Diplomová práce využívá hypotézu, že lehké pozemní síly jsou ve střetu s těžšími silami implicitně znevýhodněné. Ačkoli teoretici Revoluce ve vojenských záležitostech (RMA) počítají s operacemi lehkých pozemních sil v souladu se vzdušnými silami, vzdušná převaha nutná k těmto operacím nemusí být vždy dosažena. K prozkoumání možných výsledků střetů mezi lehkými a těžkými silami tato práce zkoumá sedm případových studií střetů mezi lehkými a těžkými protivníky, hledajíc důležitost nevyvážené výzbroje uvnitř případových studií, stejně jako mezi nimi. Sada případových studií ve velké míře potvrdila hypotézu, čímž dokázala hodnotu těžkých sil v boji. Na druhou stranu ale našla také další efekty, především vzdušnou podporu a využití terénu, které mohou zmírnit, či zcela zastínit, důležitost rozdílu v úrovni výzbroje. Technologický

vývoj také ovlivňuje efekt nevyvážené výzbroje skrze pěchotní protitankové zbraně. Vývoj obranných schopností těžkých sil ale drží krok s vývojem těchto zbraní.

Keywords

Arsenals, armament disparity, RMA, conventional warfare, heavy forces

Klíčová slova

Arzenály, disparita výzbroje, RMA, konvenční válka, těžké síly

Title

The lightening of arsenals and implications for conventional warfare

Název práce

Odlehčování výzbroje a implikace pro konvenční střety

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I would like to express my gratitude to my supervisor, for giving me plenty of writing freedom. Also to my wife, for being cute.

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1. Introduction

The distinction between heavy and light forces in war is as ancient as the invention of body armor allowing this distinction. While the advantage agelessly seemed to be possessed by heavier units, there have always been notable exceptions – defeat of Spartan hoplites by Athenian light troops on the island of Delos being first notable example that embedded itself into the Western military history. With the Burgundian wars and Hundred years war the trend of lighter infantry troops beating heavy cavalry gained momentum and became mainstream. With constant improvements of firearms and increasing size of the armies, the distinction between light and heavy forces changed. The modernization of artillery and the introduction of tanks reversed the flow for some time, with the end of the Cold war, the lightening of the armies reemerged with new power. While in the past the distinction could be seen between individual combatants, with time the armaments became almost identical between individuals and differed between the whole units. This means that while the individual soldiers of the most opposite corps (for example mechanized infantry and paratroopers) are equipped in similar fashion, the level of support and direct combat machinery is what makes the mark today.

However, in contemporary world, heavy forces are controversial issue with many divisive points of view. While some policy makers regard them as archaic and call for their replacement with forces like autonomous aerial systems (for example Czech president going as far as to comparing tanks to cavalry),[1] or disdain them for placing too much strain and vulnerability on the supply lines, which could be avoided by lighter and more mobile forces.[2] Ultimately, it is widely perceived that expeditionary and counterinsurgency operations are the main future of armed forces and lighter forces are better suited for such purposes.[3] Differing view can however be seen as well. Some countries have experienced usability of the armor in counterinsurgency

[1] “Drony Místo Tanků, Zopakoval Zeman Svou Mantru. Armáda Počítá s Obojím.”

[2] Talbot, “How Technology Failed in Iraq.”

[3] McGoffin, “The Lights and the Heavies.”

clashes,[4,5] while others now renew their heavy forces due to international tensions.[6] Nevertheless, with recurrence of conventional combat in Europe caused by Russian intervention in South Ossetia and war in Ukraine, we can watch the return of tank battles and clashes for positions. And as the 2006 clash between Israel and Hezbollah showed us,[7] even in area where the Western style forces are accustomed to face only guerilla type opponent, entrenched and disciplined foe fighting in a conventional manner can show himself instead to grave effects.

The aim of this work is to analyze the relative effectivity of heavy and light forces and to answer the question of how important factor is possession of heavier military hardware, in comparison to other factors influencing the outcome of combat. This can give us some understanding and insight not only to the battles of past, but can be even more useful in preparation for future possibilities.

The central hypothesis of this work is that when two forces of similar training and technology meet, *the side with less armor and firepower is inherently tactically disadvantaged.* This hypothesis will be tested by a qualitative analysis of selected combat clashes involving opponents with different levels of relevant equipment at their disposal. The qualitative analysis will be based on the following research questions:

1) *Is the level of armament disparity the most important factor in the outcome of combat?* The fact, that the level of armament disparity (i.e. difference between heavy/light force composition of the opposing forces) has great influence on the outcome of the combat seems undisputable. The question is, how important is this factor in comparison to other factors. Is the level of armament the most important, or is it just one of several equally important influencers?

2) *Is the influence of armament level on the outcome affected by systemic technological development in any way?* The temporal factor of the case selection gives us insight to almost 70 years of combat. It can be expected that the subjects with shorter straw of armament disparity would work towards the reduction of disparity

[4] "Tanks for the Lesson."

[5] Johnson, *Military Capabilities for Hybrid War*, 8.

[6] "Germany to Bring Back 100 Tanks."

[7] Black, Gilmore, and Prothero, "The Day Israel Realised That This Was a Real War."

influence, thus levelling the field. This should be directly reflected in changing importance of the disparity factor throughout the described time lapse.

3) *Can the disadvantaged side take any approach to equalize the field?* Apart from the technological development described in previous question, is there any “go-to” counter usable by lighter forces? This question aims to detect such counters in whatever form they can be found – terrain and weather selection, tactical moves etc.

2. Conventional wisdom

The debate about usability of light and heavy forces is often connected to debate concerning the importance of ground power in relation to air power. This connection is especially strong in the strain of Revolution in Military Affairs (RMA) debates, where the prevalent opinion seems to be that light ground forces with air superiority can fully substitute heavy forces. The notion of supreme efficiency of light ground forces in concert with air power in RMA thinking holds true especially when it comes to counterinsurgency (COIN) operations,[8] but does not stop there. For example Karl Mueller holds the idea, that the advent of Precision Guided Munitions (PMG) allows air power to destroy ground armies with only small allied ground force acting as anvil.[9]

The effectivity of air power was by many considered proven by the 1991 Gulf War. The proponents of air power viewed the swift victory as achieved primarily by aerial campaign and called for the US military to change accordingly, shedding "heavy divisions in favor of lighter ground forces, tactical aircraft, long-range bombers and cruise missiles".[10] Accordingly, the views of heavy forces obsoleteness have gained the upper hand. Swarming tactics, based on cooperation between air and sea elements on one hand, and light ground elements on the other, became arguably the most proposed view of future warfare. In this view, swarming light forces can defeat even the heaviest foes.[11]

However, there is also criticism of heavy forces' abandonment. Daryl G. Press for example rejects the notion of supreme efficiency of light ground troops supported by air power. He states, that the 1991 Gulf War was achieved primarily by prowess of Coalition Ground forces and their (especially in case of armored elements) superiority to Iraqi counterparts.[12] The criticism of RMA induced lightening of arsenals also

[8] Vick et al., *Air Power in the New Counterinsurgency Era*, 60.

[9] Muller, "Air Power," 4.

[10] Press, "The Myth of Air Power in the Persian Gulf War and the Future of Warfare," 8.

[11] Arquilla and Ronfeldt, "Swarming and the Future of Conflict," 57.

[12] Press, "The Myth of Air Power in the Persian Gulf War and the Future of Warfare," 35.

appears in connection to the 2003 Operation Iraqi Freedom[13], as well as contemporary criticism of campaign against ISIS relying solely on air power, special forces and local allies.[14]

In the realm of politics, the changing views of light and heavy forces in Western countries differ in time. The end of the Cold War brought deconstruction of big armies, with reductions both in old and new NATO partners. New NATO members, in particular, have significantly reduced their heavy armaments, from huge assault armies to very light forces. To illustrate, all members of Visegrad Group, except Poland, each operate only single tank battalion or less.[15] The heavy forces of V4 states are also in need of modernization, being composed of updated Cold War era technology (again, with the exception of Poland).

The neglect of heavy forces came due to faith given into light forces working with (US provided) air superiority. Second factor, and probably more important factor, was perception of low probability of interstate conflict and expected expeditionary nature of future Western combat missions. Finally, in times of budget cuts, the expensive and seldom used armored elements seemed impractical to maintain as well as politically costly. This trend continued until Ukraine conflict in 2014. As example of the trend, the Czech White Paper on Defense issued in 2011 called for sale of all reserve tanks and further consideration of the remaining T72-M4CZ tanks' usability, with option of not replacing them, when their service life ends.[16]

The trend of arsenal lightening seems to have reverted after the annexation of Crimea. The subsequent fighting in the eastern Ukraine has seen dramatic increases in the number of armored elements possessed by rebels. Contrary to early claims and assumptions, the armored elements are not only old pieces captured from Ukraine military, but also modernized versions of Russian military technology, for example the T72-B3 – fully modernized armored fighting vehicle that in some aspects surpasses

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[13] Frequent criticism of RMA in Iraq is centered around the use of small and mobile force. It is argued, that while the smaller ground force with air superiority was successful in defeating the Iraqi army, its size and composition hindered fight against subsequent insurgency. Schnaubelt, "Whither the RMA?," 102.

[14] Johnson, "Fighting the" Islamic State" the Case for US Ground Forces," 16.

[15] E.g. Miklós, "The Modernization of the Armored Combat Vehicle Fleet of the Hungarian Defense Forces in Terms of Mobility," 338.

[16] *Bílá kniha o obraně*, 17.

the Russian mainstay model, T90.[17] In light of high numbers of heavy forces in pro-Russian hands in Ukraine,[18] as well as emergence of new and highly developed heavy Armata platform,[19] many Western countries decided to stop the reductions of their heavy aspects.

Germany, Poland and France are forerunners of the heavy forces reintroduction. The French fleet of Leclerc tanks is undergoing refitting aimed at giving the tanks technological edge in tank on tank combat, while tests are being undertaken, to see the possibilities of completely new, massively up gunned systems.[20] Germany, while working together with France on development of new Main Ground Combat System, increased its tank fleet by 40% after the Ukraine conflict emergence by purchasing additional Leopard 2 tanks from the manufacturer's storage.[21] Poland also seeks new MBT to bolster its tank numbers, while still retaining large fleet composed of various Leopard 2 and T72 versions.[22]

Finally, the political discussion in Czech Republic have changed considerably in last seven years. Contrary to opinions of our current commander-in-chief, Miloš Zeman, the Ministry of Defense have backed the requests of military to modernize our tank fleet and artillery arsenal.[23] The Czech Armed Forces are thus now not in process of determining, whether the heavy armaments are still needed, but in choosing the best systems available.[24]

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[17] Boring, "This Tank Has Become an Icon of Russia's Secret War in Ukraine."

[18] "Ukraine Claims That Rebels Boast More Artillery and Tanks than Germany."

[19] Sutyagin, *Russia Confronts NATO*, 6:9.

[20] Roblin, "France Just Showed off a New Tank Sporting a Massive Main Gun."

[21] Sprenger, "Germany Beefs up Tank Fleet with $832M Acquisition."

[22] "Poland Seeks Next-Generation Main Battle Tank | RealClearDefense."

[23] "Tanky Nekončí, Přibudou Zbraně Za Desítky Miliard."

[24] "Armáda ČR se zajímá o španělské tanky Leopard 2A4."

3. Methodology

The key concepts for the purpose of this work are the light and heavy forces, armament disparity and victory on tactical (and in extension operational) level. The two military levels of victory – tactical and operational – differ in between the cases, since some cases cover longer campaigns, while others are battles lasting only few days. It should be thus remembered, that even victory on operational level can be stained by poor outcomes in many tactical clashes composing the campaign.

Since the goal of the work is to determine the importance of armament disparity on combat outcome, the main independent variable is armament disparity (represented by difference between units and their armaments on opposing sides, as illustrated above) and main dependent variable is Outcome of the combat.

3.1 Independent variables

The cases used in the thesis are chosen by the use of several factors. Main factor is the difference in the level of armament between the opposing forces. All military units can be placed somewhere on the scale of armament. While individual soldiers of contemporary national armies might be equipped almost identically, regardless of the unit they belong to, differences can be seen between the whole units. In this sense, the scale of armament goes from **very light** units (for example paratroopers or other infantry units carrying all their equipment by hand or on small vehicles/pack animals at best) by **middle tier** (i.e. motorized infantry carrying their equipment on vehicles, allowing them to boost more firepower with somewhat better protection) to **heavy units** (armored units composed of tanks, mechanized infantry and with support of artillery being the best example). When comparing adversary units, the comparison will try to adjust to the differing size of national units (e.g. in case of Chindits, the Japanese regiment with three battalions will only count as two battalions to adjust to the fact, that British battalions were bigger by half).[25,26] In some cases, the numbers of soldiers and their combat systems will be used instead of unit listing and

[25] "HyperWar: Handbook on Japanese Military Forces."

[26] McMichael, "A Historical Perspective on Light Infantry," 31.

description, since the overall numbers are in the end more exact measurement and will be used preferably, if such information is obtainable.

However, beside the classification of the combat unit, there are other factors that play the role in the perceived level of armament. Since units caught in longer campaign seldomly enter the fray with their full strength, their actual combat strength has to be mentioned whenever is such information at disposal.

The second factor in selection of the cases is similar quality of opposing forces. While the case of elite light units going against by great margin heavier, but inexperienced and disorganized troops can be illustrative, it will not have significant explanative power. All presented case studies thus feature only opponents perceived to be equal or nearly equal adversaries in terms of their basic tactical competency.

The third factor is temporal. Only cases set since Second World War (including) are considered to have overlapping significance. This is because the tactical aspects of combat has not significantly changed since the Second World War, to which it is possible to trace much of contemporary tactical thinking. Although it is true that much of difference between light and heavy forces have taken root before the Second World War, the timeframe is needed to keep the relevance as well as to ensure similar starting point of mindsets across the cases.

To assist in determination of armament disparity and related factors, methodology of situational force scoring (SFS)[27] is used for inspiration. Since the SFS is quantitative methodology while this thesis seeks qualitative results and interpretations, the factors and directions between them will be taken into account without the use of the computational model.

For the purpose of this study, the armament disparity is examined in each case individually. As stated above, every case includes lighter and heavier force on opposing sides. The armament disparity is thus independent variable in case examination. The armament disparity is always in favor to the heavier force, although individual cases differ in the margin of the favor.

[27] Allen, “Situational Force Scoring.”

The SFS model uses variable called Force Ratio (FR) in manner similar to how the armament disparity will be used in this work. To determine the armament disparity, the number of assets on both sides will be examined, as well as their types. The type of the assets is also one of the criterions for inclusion of cases - lighter force is not lighter only because of smaller number of heavy assets, but due to the lack of them.[28]

When analyzing the armament disparity in case studies, there is difference between whether the case is campaign, or a battle. In case of the former, the armament disparity is analyzed through the overall differences between the sides, but also by looking into the detail of the campaign's combat clashes, where armament disparity played some role.

3.2 Influencing factors

The factors influencing the outcome of the combat are various. They are connected to terrain, fatigue, morale, leadership, experience, climatic conditions and other causes. While it is not worthwhile to try account for all of them beforehand, there are several factors more important than others that should be mentioned.

As mentioned above, the terrain upon which the clash happens is of extreme importance. Actually, it can be presumed that many clashes examined in the case studies will be swayed due to the fact that certain types of terrain are favorable to different units. This is expected to be especially case of the urban or dense forest terrain, which is said to support lighter forces. On the other hand, open and mixed terrain types are expected to greatly favor heavy units.[29]

Factors of morale and leadership are difficult to they can be only hardly measured. However, since this thesis is qualitative analysis, they will be taken into account. Same goes with any other influencing factor that can appear during the evaluation of case studies.

Furthermore there are fortification actions that are such an, that change the armament level. Situational forces scoring makes differs three types of entrenchment

[28] Allen, 12.,

[29] Allen, 15.

and in the case of the highest level (fortified defense combined with urban or mountainous terrain) gives biggest advantage to defending light forces.[30]

For the purpose of this work, two additional factors considered were entrenchment and air power. Entrenchment being the advantage of having chosen the combat area and adjusting it by building defensive works like trenches, minefields, tank traps and establishing overlapping fields of fire. The air power considered in this work is of the tactical manner, e.g. direct fire support, tactical bombardment and supply drops.

3.3 Dependent variables

There are many possible outcomes of combat. Since the point of this thesis is to find pattern in unequal combats, the outcomes have to be simplified and set to comparable scales. The scale, that allows comparison between individual cases, show a value of victory and defeat. It is inspired by the scales and other ways of victory measurement used by Colin Gray[31] and J. Boone Bartholomees[32]. However, where these authors talk about strategic and political realm, the scale used in this thesis are centered on tactical and operational plane.

The scale of victory consists of seven points going from defeat to victory. Note the distinction drawn between victory and winning (and defeat and losing). The difference is same as the one used by J.B. Bartholomees: while Victory is total and probably final, Win is not complete. In tactical realm this can mean the distinction between one side completely obliterating enemy and achieving all objectives (victory), or just rendering enemy unable to fight in this clash anymore and achieving most of the objectives (win).

Three central scores describe the grey zone between victory and defeat. Upper value means that none, or almost none of the objectives have been achieved, but force is almost intact and fully capable of another engagement (not lose). The middle value is mainly on comparison with the enemy force and it means that both sides have taken

[30] Allen, 1.

[31] Gray, *Defining and Achieving Decisive Victory*.

[32] Bartholomees, “Theory of Victory.”

their blows alike and none of them achieved upper hand allowing it to claim victory (tie). Lower value points to situation where the force has taken severe beating, but still managed to achieve some (albeit limited) objectives and although the enemy is better off, the force still sustains some capability for rematch.

The values of defeat are the opposite of victory: Defeat is total and probably final, with the force being annihilated and unable to fight anymore. Lose is situation where the force still attains some strength and was not destroyed completely. The adversary's victory cannot be disputed, though.

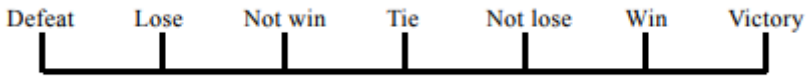

Figure 1: The scale of Victory[33]

The Loss-Exchange Ratio (LER) is a simple way to describe and compare the losses of combatants on each side. The LER is the number of defenders killed per attacker killed.[34] Combined with the balance of numbers, it speaks about the intensity of the clash and respective efficiency (side with higher losses can still win). It should be remembered, that not only fatalities are usually included in the losses, but wounded and missing personnel (simply any combatant put out of action in any way).

Breakthrough is an event, during which the attacker gets through the defensive lines of the attacker and gains access to the rear areas[35], which are not as heavily defended and are vital to maintain the fighting capability of the front. In the case studies examined in this text, the term will also apply more broadly to the tactical situation, where attackers successful breach of the front line forced defender to fall back, thus winning the engagement for the attacker.

[33] Bartholomees, 27.

[34] Biddle, *Military Power*, 22.

[35] Biddle, 40.

3.4 Data

The data sources used in this work vary between cases. Many sources are historical studies, personal accounts of the clashes, or analytical works. However, while the newer cases have more scientific literature written about them, classification and politicization can make the sources less reliable, the closer they are to the present.

For the Operation Market Garden, the two groups of primary sources were military studies of the operation like the works of William Green and Martin Middlebrook, or memoirs like *Bridge Too Far* by Ryan Cornelius and *It never snows in September* by Robert Kershaw. Wide array of sources has good mix of wide view and precision, with German perspective represented in Kershaw's work. The sources of course share lack of precise figures of the German manpower and equipment, since the memoirs cannot cover it and official figures were destroyed, or never existed.

For the Chindit and Galahad operations, the primary source was *A Historical Perspective on Light Infantry* by Scott R. McMichael with additional sources being focused solely on Chindits. The McMichael's book is an advocacy of light infantry and Chindits are used as prime example of ideal force and its usage. While it has incomparably precise figures on Chindit and Galahad equipment and organization, its main weakness can be lack of details on Japanese forces and its tendency to perhaps overemphasize successes of the Allied forces, while downplaying their failures.

The overlapping source for both Korean cases was *This Kind of War* by T. R. Fehrenbach. While Fehrenbach's book is not a scientific paper and lacks precision and detail, it is useful for generalization and continuous coverage. The additional main source for initial North Korean offensive was *South to the Naktong, North to the Yalu* by Roye Appleman. Being based solely on primary sources and written shortly after the war, this book contains many details as well as contextualization, and its impact on other works covering the same topic is palpable. The main detailed source for the Battle of The Heartbreak Ridge is *Heartbreak Ridge: Korea, 1951*, composition of personal interviews and resource books by A. L. Hinshaw.

Chief sources for the initial operation of Yom Kippur war were books were *The albatross of decisive victory* by G. C. Gawrych and *The crossing of the Suez* by Saad El Shazly. One of them is critique of Israeli military thinking, demonstrating the failures of Israeli response in the initial stage of the war, while the second is memoir from

Egyptian perspective. Additional sources were some American military studies. The main problem in the work with sources concerning The Yom Kippur War is the need to dissect information concerning the different stages of the war, since most of the figures are about the whole Sinai area of operations. Isolating the reports about only the first stage is thus tedious business.

The sources depicting Russo-Chechen clash in Grozny are all written by Western authors or by the Russians writing in English, which is due to the language barrier. Mainly tactical studies and historical summaries of the battle are included, with works by Timothy L. Thomas and Lester W. Grau being the main sources.

Finally, the most recent case of 2006 Lebanon conflict has the most colorful set of source. While the main sources are studies done by S. Biddle, J. A. Friedman, W. Arkin and A. Kober, many journalist pieces had to be used to get some detailed coverage of the combat, which may lead to some unreliability of the information used. The main source for casualties on the Israeli side is the report of commission presided by E. Winograd, written in Hebrew and translated automatically.

The language of the sources used is primarily English, with some Czech sources in the conventional wisdom section and introduction. Other languages, though seldom used, were processed through automatic translator. This language barrier is possible limitation in all of the cases, where most of the information is from the Western viewpoint and mainly revolving around Western forces.

3.5 Cases covered

Beside the three abovementioned factors, there were other criteria, that influenced the selection of cases. Among them were perceived relevance for contemporary situation, sufficient amount of data and endeavor to cover the whole time lapse since World War II. The need for sufficient amount of data has especially prevented some interesting cases from being covered.[36] The table below shows initial dataset of considered cases, where the y axis shows armament disparity for attacker (0 means that defender has much heavier forces than the attacker, 1 means parity and 3 means the armament disparity in favor of the attacker). From the initial dataset, seven cases have been chosen.

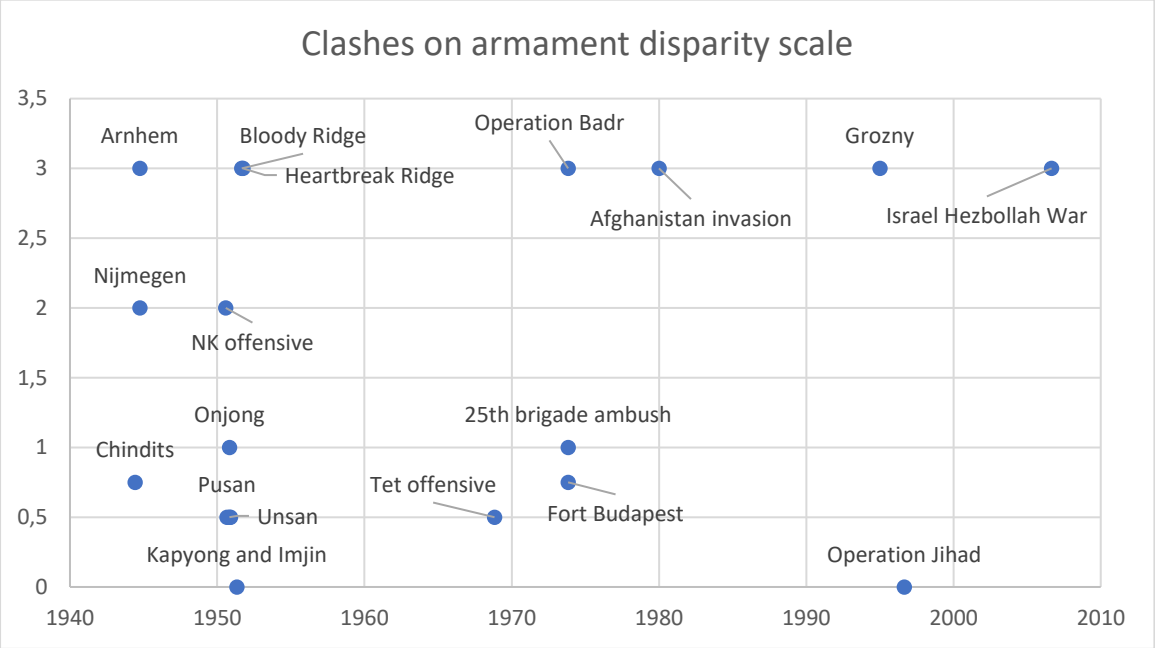

Table 1: Covered and possible cases, source: Author

The first two cases are from the World War II. They cover Allied operations in Burma based on light infantry and Operation Market Garden, one of the biggest airborne operations in the history. In the Burma case, the armament disparity was not as big, but case illustrates the ideal, purpose-built light force with strong aerial support. In case of Operation Market Garden, there is good example of direct impact, that

[36] Chief examples are the contemporary wars in Ukraine and Syria/Iraq.

German heavy counterattacking elements had on highly trained, but very light British force in the north, with clashes between similar foes but smaller armament disparity happening in the south, serving as sort of control.

Next two cases are from the Korean War. The initial North Korean offensive shows us two forces of similar quality and quantity, but the attacker is in possession of substantial tank force, which the defender lacks. The second case is Battle of the Heartbreak Ridge, which shows lighter entrenched force holding its own against foe superior in every aspect. Only after armored elements outmaneuver the entrenched infantry and cut its supply lines, stalemate is broken. This case illustrates both use of terrain and fortifications by light force and maneuver possibilities of armor.

The fifth case covers Yom Kippur War in 1973. Its initial phase pitted specially equipped infantry against heavy tank forces. The case is peculiar since it showed advent of infantry weapons fully capable to defeat the tanks even in the long range. The nullifying effect of anti air weapons on Israel's expected aerial superiority is notable as well.

The case of Grozny is a textbook example of infantry's use of urban terrain for successful defense. However, the latter development of Russian reaction is good example of tactical evolution as well and gives some insights into possible Russian urban tactics of the future.

Finally, the latest case of 2006 war in Lebanon is example of asymmetric conflict much closer to the conventional level, than was expected by Israeli military theoreticians. The Hezbollah's use of fortifications and armaments dealt embarrassing blows to the Israelis and stands as example of compared units' efficiency in war close to the conventional end of scale, as opposed to expected COIN operation.

4. The combat cases

The combat cases are ordered chronologically. They start with the clashes of the Second World War and end with the 2006 Israel – Hezbollah war. The following cases greatly differ in parameters of time of the fight, size of the battlefield, but also their very nature. While four of the cases (Operation Market Garden, Heartbreak Ridge, Operation Badr and Battle of Grozny) can be seen as battles with action concentrated into the specified time and place, three cases (Allied light infantry campaign in Burma, North Korean initial offensive in Korean War and 2006 conflict in Lebanon) are protracted campaigns where fighting was undertaken by many different units on separate occasions.

With this distinction in mind, there are differences when analyzing the effect of armament disparity on combat. In case of the battles, the effect can be seen in very concrete effects and moments. In case of the campaigns, the analysis lays more on the perceivable effects on separate clashes constituting the campaign, as well as overall estimated effects.

4.1 Second World War clashes

The Second World War was the biggest modern war, and as such it holds a variety of combat cases on different levels, that suit the desired classification. For the purposes of the text, two specialized light infantry operations undertaken by the Allies have been chosen.

The first case, Operations Galahad and Chindits, saw specialized light infantry fighting in jungle in a manner of long range penetration groups. While it was not facing armament disparity as dramatic as some of the other cases (most of the campaign), it gives us insight to various supporting factors, such as the role of the morale and air force, as well as cases of light infantry forced into defense and assault of fortified positions.

The second case, Operation Market Garden, was one of the largest airborne operations in history. Consisting of airborne and ground assault aspects, the battle was changing dramatically over the days of fighting and is an excellent opportunity for study of multiple clashes with localized armament disparity. It also has well

documented disparity effect on different locations of the battle as well as great changes in time.

4.1.1 Operations Galahad and Chindits

The Chindits were special British forces sent to operate in the enemy rear during Burma Campaign beginning in Spring of 1944. This operation was meant to support the main campaign of British war against Japan in Myanmar, which reached its peak in the simultaneous battles of Imphal and Kohima. Chindits were essentially special light troops trained for jungle combat and campaign. Depending on air transport to get to the theatre, as well as in getting any supply, the force was adapted to carry all of its equipment by hand, or on the muleback. While most of the clashes fought by allied forces during the Chindit operations (Galahad was name for American part of the campaign) were only small skirmishes, there were some bigger battles in the final phase. The bigger clashes consisted mostly of assaults on fortified Japanese positions, or defense of own Chindit strongpoints.

4.1.1.1 Armament disparity

Along the course of operation, the Chindits fought many clashes with similarly equipped opponents in jungle ambushes and trail blocks. During bigger offensive clashes, the armament disparity was much more palpable. Chindit firepower was based on precise and disciplined rifle fire (the American element is especially noted as greatly superior in marksmanship than the Japanese)[37], with all heavier weapons still limited by the requirement to be carried by hand. Heavier support weapons consisted of heavy machine guns (7 per battalion)[38], light machine guns (6 per battalion), 60 mm mortars (10 per battalion) and 81 mm mortars (7 per battalion)[39]. In the defensive battles of strongpoints, the Chindits had at their disposal additional armament flown in via air drops (for example anti-tank guns, howitzers and anti-aircraft

[37] McMichael, “A Historical Perspective on Light Infantry,” 28.

[38] When Comparing the Japanese and Chindit armament disparity, it should be remembered, that British and American battalions consisted of 950 men, while Japanese was smaller by third with 600 men. Bigger ratio of automatic weapons per battalion, that the Japanese enjoyed, is thus even bigger disparity than might be noticeable on the first sight.

[39] McMichael, “A Historical Perspective on Light Infantry,” 15.

weapons)[40]. However, during bigger fights, this seeming advantage was nulled, since the stationary nature of strongpoints allowed Japanese long and steady artillery shelling of the defensive positions.[41] As for the offensive battles (including Japanese counterattacks coming hours after the Chindit initial attack), the balance of firepower was almost always in favor of the Japanese, who in most clashes had at their disposal artillery and tanks, which Chindits lacked completely. They nevertheless had the advantage of air superiority with the artillery function being substituted by P51 fighter bombers of No.1 Air Commando.[42]

The primary enemy force fighting Chindits, was the Japanese 33rd Army in Burma, notably 18th division and 53rd division. Both were infantry divisions. By the book, the Japanese infantry division was composed of 3 infantry regiments (3 battalions each consisting of circa 600 riflemen, 40 light machine guns, 12 heavy machine guns and 2 70 mm artillery pieces),[43] one cavalry regiment (16 tankettes and two horse/motorcycle squadrons), one field artillery regiment (36 artillery pieces of 75 mm caliber) as well as supporting units (engineer and transport regiments; signals ordnance and sanitation companies).[44]

The main elements giving the Japanese units their armament advantage were the Type 92 70 mm battalion guns held by infantry units. Due to their design, they could be carried anywhere and were often providing direct fire role[45] that the Chindits lacked (and substituted by aerial support). During bigger clashes the Japanese also could use their light tanks as infantry support and shell the Chindits with their artillery (provided they had enough anti-aircraft weapons for their defense).

The two biggest clashes of the Chindit campaign were the Battle of Blackpool and Battle of Mogaung. In both cases, the armament disparity was in favor of the Japanese side.

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[40] Ibid.

[41] “Chindits 2nd Campaign 1944.”

[42] McMichael, “A Historical Perspective on Light Infantry,” 27.

[43] Diamond, *Chindit vs Japanese Infantryman*, 41.

[44] “HyperWar: Handbook on Japanese Military Forces.”

[45] Diamond, *Chindit vs Japanese Infantryman*, 39.

Blackpool was one of the Chindit strongholds – fortified airstrip intended to be a permanent base and resupply point. It was situated in a position denying Japanese the use of "Railway valley".[46] This placement was however the doom of the base, since it forced the Japanese to destroy the place in order to move through while allowing them to use the artillery and tanks to their full effect.[47] Deployment of anti-aircraft guns also allowed them to cut off the Allied air-support.[48] In the end, the Blackpool had to be evacuated after 20 days of heavy artillery fire and Japanese assaults.[49]

The battle of Mogaung placed the Chindit 77th brigade supported by Chinese expeditionary force into a role of attacker. With the absence of artillery and tanks, the Chindits faced well entrenched and numerically superior foe with nothing but infantry weapons and aerial support. Equally serious was their lack of sufficient soldiers to patrol around the besieged city.[50] Subsequently, the slow progress into the city and the destruction of enemy pillboxes and bunkers was possible only by use of P-51 fighter aircraft, or by close-quarter combat using hand grenades and flamethrowers.[51] After fierce fighting, the Chindit force managed to push the enemy out of the Mogaung, but suffered 50% casualties doing so.

4.1.1.2 Influencing factors

The factors of entrenchment, air support or surprise were not always present during the clashes. From the mentioned clashes of Mogaung and Blackpool, it seems that the factor of air support was extremely important, being the only factor capable of equalizing armament disparity. The factors that were constant during the operation were better morale of fresher allied force[52] and slightly superior training. The Chindit

[46] Diamond, 94.

[47] Calvert, *Prisoners Of Hope*, 162.

[48] McMichael, "A Historical Perspective on Light Infantry," 37.

[49] "Chindits 2nd Campaign 1944."

[50] Diamond, *Chindit vs Japanese Infantryman*, 99.

[51] Diamond, 106.

[52] McMichael, "A Historical Perspective on Light Infantry," 33.

force also gained much from the support of local Kachin tribesmen, who proved to be exceptional jungle fighters with great knowledge of terrain.[53]

As for the leadership, on the Chindit side there was a change in the final phase of the campaign (March 1944). Death of previous force commander Wingate brought a new commander of the British Chindits, Lt Col Lentaigne, who changed the modus of the Chindits from long range penetration to more traditional way of confronting the enemy.[54]

4.1.1.3 Outcome

Out of the many clashes fought between Japanese and Chindits, the majority ended favorably for the Allied force. There were some lost clashes, especially after modus operandi change in the final phase of the campaign (although this change brought also some victorious battles). Examples are failed attack of 111th brigade on Imphal[55], above mentioned Blackpool, or failure to follow the success of Galahad on Myitkyina airfield and getting bogged down in a long fight over Myitkyina.[56] Overall, most of the fights seem to have ended by tactical win for Chindits, with some victories and their operational outcome can be labeled as a Win.

As for the LER, the American force suffered 2,394 casualties, 424 of which battle related (80% and 14% battle related, out of initial force strength of 3,000).[57] The British forces suffered 3,628 casualties while inflicting up to 5,000 casualties upon the Japanese.[58] Since the exact amount of casualties caused by combat is hard to discern, the LER will not be calculated.

The Chindit operation, apart from is tactical and operational outcome, had important strategic impact on the war in Myanmar. Japanese center of gravity in the Burma theater can be identified in their attack on Imphal,[59] capture of which would

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[53] McMichael, 29.

[54] Diamond, *Chindit vs Japanese Infantryman*, 95.

[55] Badsey, *The Hutchinson Atlas of World War II Battle Plans*, 222.

[56] Lundin, “Slim’s Generalship in the 1944 India-Burma Campaign,” 20.

[57] McMichael, “A Historical Perspective on Light Infantry,” 39.

[58] Badsey, *The Hutchinson Atlas of World War II Battle Plans*, 223.

[59] Badsey, 217.

prevent the Allies from achieving their strategic objective.[60] The greatest successes of the Chindits and Galahad was perhaps the capture of the Myitkyina airfield, which was not the center of gravity, but indirectly affected the Japanese commitment to it, since it allowed Allies to achieve air superiority. Moreover, Chindit actions forced Japanese command to divert major forces from the army intended for Imphal. Additionally the enemy reserve force meant for reinforcement of the Imphal had to be dispersed to fight the Chindit intrusion, transport companies and air strength diverted by disorganization[61] and finally, the Japanese 18th division has "literally withered away" due to its cutoff by Chindit strongpoint built via airdrops.[62] The Japanese historians themselves view Chindit achievements as decisive in tipping the scales of the Kohima-Imphal battles.[63]

However, it should be noted that the success of Chindits was balanced by the great losses suffered (casualty rate of many units exceeded 90%) and after the end of Burma campaign, the force had to be disbanded. Moreover, it can be argued that many units composing the Chindit force might actually have been of bigger value if they operated in more conventional manner with the main British army.[64] Overall, the impact can be summarized as significant.

[60] McKeeman, "Unconventional Warfare at the Operational Level the Chindits in Burma in World 2," 23.

[61] Badsey, *The Hutchinson Atlas of World War II Battle Plans*, 217.

[62] McKeeman, "Unconventional Warfare at the Operational Level the Chindits in Burma in World 2," 31.

[63] Badsey, *The Hutchinson Atlas of World War II Battle Plans*, 217.

[64] McMichael, "A Historical Perspective on Light Infantry," 41.

4.1.2 Operation Market Garden

The Operation Market Garden was one of the biggest paratrooper deployment operations in the history. It was undertaken in 17-26 September 1944 with the aim of swiftly securing several successive bridges around the towns of Eindhoven, Nijmegen and Arnhem. Strategically, its success should have allowed quick capture of the Antwerp port and further advance into northern German plains. The operation was divided into two parts: *Market* was the mass airborne deployment of American, British and Polish troops near the bridges of Veghel, Grave, Nijmegen and Arnhem.[65] After swift defeat of presumably weak German defenders, the paratroopers were to wait for the heavier part of operation.

Garden was that heavier part. This part of the operation meant advance of the British XXX Corps from the south, to support and relieve the paratroopers all the way up to the northernmost Arnhem bridge. However, problems first arose when troops of the American 101st division failed to capture one of the bridges before it was demolished by its German defenders.[66] Subsequent delays of the XXX Corps advance left the British paratroopers in Arnhem stranded and without support for nine days, while the German forces regrouped and organized themselves. In the end, the British had to evacuate with significant losses.

The case armament disparity in Operation Market Garden is a peculiar one, since it needs to be examined day by day and count in the difference between locations. Since it was mainly the localized disparity that played the crucial role, the operation will be analyzed in two subdivisions. The Arnhem battlefield will account for the area surrounding the Arnhem bridge, the Arnhem city and nearby Rhine crossings. The second area will sum together the rest of the battlefield, encompassing Nijmegen and other objectives of the campaign.

4.1.2.1 Armament disparity

The first day of the operation (17th September), the in the area of Arnhem captured the northern end of the bridge unopposed, but on the southern side, the

[65] Natkiel, Sommer, and Mayer, *Atlas of World War II*, 182.

[66] Green, “Operation Market-Garden,” 12.

armament disparity was on the side of the defending German force, equipped with an armored personnel carriage (APC) and a pillbox with heavy machine guns.[67] The defenders were part of 9th and 10th SS Panzer Divisions, that were unexpectedly stationed in the area due to refitting.[68] This placed the disparity into the favor of the defender from the very first moment and it would only increase throughout the battle. The British 1st Airborne brigade was thus capable of holding only the northern side of the bridge thanks to quickly erected fortifications in buildings,[69] but were unable to advance and secure the whole bridge.

In the southern area, the armament disparity was in favor of the Allies. While the paratroopers of 82nd and 101st US Airborne divisions were equipped similarly as the German defenders in the area, the XXX Corps attacked with 350 pieces of artillery and scores of tanks.[70] In the beginning, the German defenders of the garrison units, as well as 9th and 10th SS divisions, faced them only with old light tank models, self propelled guns and anti-tank guns. While this equipment was enough to force the paratrooper units to fortify themselves,[71] in fight against the XXX Corps, it would serve only thanks to the favor of the terrain.[72] Nevertheless, heavy artillery advantage of the XXX Corps allowed it to (albeit very slowly) take out the German defensive positions and advance.

On the second and the third day, the situation in Arnhem was worsening for the Allies. The British were able to repel infantry and APC attacks, which led the Germans to increase the artillery bombardment of their areas, to which the British had no response.[73] The force holding the northern end of the bridge also could not be reached by units trying to support it, due to the inability of paratroopers to defeat even the old light German tanks in the area. This forced the bulk of the 1st British Airborne Division

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[67] Hibbert, *The Battle of Arnhem*, 108.

[68] "Operation Market Garden."

[69] Hibbert, *The Battle of Arnhem*. P 98

[70] Green, "Operation Market-Garden," 11.

[71] Hibbert, *The Battle of Arnhem*, 120.

[72] Green, "Operation Market-Garden," 16.

[73] Hibbert, *The Battle of Arnhem*, 142.

to fall back to Oosterbeek with only a narrow bridgehead to the Rhine.[74] The German knowledge of the landing zones also caused that parts of Polish Brigade finally getting into the combat became caught in the crossfire of the Germans and the British, causing great casualties and confusion to the Allies.[75]

The southern area of the battle meanwhile saw steady advance of XXX Corps and American Airborne Divisions up to Nijmegen, where it was stopped. The Nijmegen bridges were held by entrenched SS troops, who repelled the tanks by use of anti-tank guns and held their position until the end of the fourth day of the operation. Only after a light infantry maneuver encircled the defenders, the bridges were cleared up.[76] Further actions of the XXX Corps were divided in advancing to the Arnhem, defending against German counterattack on the supply line and artillery support of the British positions of the Oosterbeek. In all three directions, the heavy forces played crucial role.[77,78]

With the end of the third day the armament disparity in Arnhem worsened considerably for the British, with the arrival of the Tiger and King Tiger tanks from the north. These tanks were much more heavily armored, which in combination with dwindling anti-tank ammunition of the British allowed them to begin the destruction of the defensive positions from the point-blank range.[79] This led to the collapse of the Frost's position on the northern end of the bridge and much harder press of the Oosterbeek perimeter.

4.1.2.2 Influencing factors

The foremost influencing factor of the operation is the intelligence. Due to faulty intelligence, the allies assumed only weak resistance allowing the option of surprise attack.[80] However, the intelligence also suggested heavy anti-aircraft presence in the

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[74] Badsey, *The Hutchinson Atlas of World War II Battle Plans*, 211.

[75] Hibbert, *The Battle of Arnhem*, 157.

[76] Hibbert, 195.

[77] MacDonald, *The European Theater of Operations*, 187.

[78] Hibbert, *The Battle of Arnhem*, 201.

[79] Hibbert, 174.

[80] Hibbert, 41.

area of Arnhem, forcing the airborne drop of the 1st British brigade approximately 7 miles from the town. Intelligence played further role in the failure of the operation, when on the very first day, German soldiers retrieved detailed plans of the operation from a killed American officer.[81]

Factor of an aerial support played a role of differentiating significance throughout the battle. The direct fire support of the Allies was almost nonexistent most of the time due to the weather.[82,83] The impact of the weather itself was proclaimed by many, including Marshall Montgomery himself, to be the most important influencing factor of all.[84] The German side however gained much from their own aerial support.[85]

Factor of terrain was very important on both areas of battle. In Arnhem, Urban terrain allowed the British paratroopers to effectively fortify themselves, thus allowing them to hold a long time against more numerous and heavily equipped foe.[86] However, in southern area of the operation, the softness of the soil, as well as the fact, that the road was constructed on a high, steep dike, played an instrumental role in the delay of the XXX Corps. Tanks were forced to advance in a single column, allowing the German defenders to stop the whole column by single self-propelled gun.[87]

Another factor, that brought problems to the undertaking of the operation, was communications breakdown experienced by the Allied forces. The communication between units as well as with headquarters relied on portable wireless transmitters. However, various technical reasons meant that wireless transmitters were unusable and only communication possible was with wired telephones. Apart of unit cohesion and inability of commanders to guide their forces,[88] it also brought great problems

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[81] D'este, *Eisenhower*, 616.

[82] Green, "Operation Market-Garden," 16.

[83] Hibbert, *The Battle of Arnhem*, 247.

[84] Hibbert, 291.

[85] Badsey, *The Hutchinson Atlas of World War II Battle Plans*, 210.

[86] Harclerode, *Arnhem*, 95.

[87] Ryan, *A Bridge Too Far*, 491.

[88] Green, "Operation Market-Garden," 32.

when the messages of German advances did not reach London and subsequent airdrops were thus made into territory no longer suitable.[89]

The operation also gained from Dutch animosity towards their German occupants. Aid of the civilians to the paratroopers, as well as Dutch help in communications, were a positive factor for the allies.[90] Perhaps the most important boon, that the Dutch help provided, was warning of the advancing German force in the Allies rear, which allowed the American forces to prepare anti-tank guns and prepare their defenses against the enemy, which would otherwise be met only by surprised supply drivers.[91]

In Arnhem area, the British paratroopers – hard trained veterans – fought against garrison troops and SS forces of two Divisions, that have been decimated in previous clashes in France. It can thus be assumed, that the quality of British troops surpassed the quality of German combatants.

4.1.2.3 Outcome

The Arnhem battle has seen massive casualties of the Allies. Out of the twelve thousand men dropped in the area, only around 4 thousand have been safely withdrawn.[92] The German side never released official count. However, according to signal sent by II SS Panzer Corps day after the end of the operation, the defenders suffered 3,300 casualties around Arnhem and Oosterbeek[93], putting the LER in the area to 1.65:4. Due to this, as well as the failure to capture the bridge, the outcome of the battle can be described as Lose for allies.

In the southern area, the XXX Corps suffered around 1,500 casualties with losses of supporting units amounting to almost 4,000.[94] The American forces suffered

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[89] Hibbert, *The Battle of Arnhem*, 144.

[90] MacDonald, *The European Theater of Operations*, 184.

[91] MacDonald, 190.

[92] Middlebrook, *Arnhem 1944*, 439.

[93] Middlebrook, 439.

[94] Ryan, *A Bridge Too Far*, 457.

circa 3,600 casualties.[95] The estimates of the German losses in the south are on the lower side around 3,700[96] and up to 10 000,[97] putting the LER between 1.2 : 3.3 and 1.1 : 1. Since the objectives south of Arnhem have been captured and enemy pushed back, the outcome of southern battles is Win for Allies.

Overall, the operation captured most of its objectives, but the defenders managed to inflict heavy casualties and hold the last bridge, rendering the Allied gains almost useless. As a whole, the outcome of the operation should be viewed as Not Win for the Allies.

[95] MacDonald, *The European Theater of Operations*, 206.

[96] Kershaw, *It Never Snows in September*, 339–40.

[97] Ryan, *A Bridge Too Far*, 599.

4.2 Korean war cases

The Korean war offers great opportunity to examine unequal struggle in two stages. While the first stage showed swift advance of Democratic People's Republic of Korea (DPRK) forces spearheaded by armored force of T-34 tanks with artillery support against lightly armed Republic of Korea (ROK) forces, the end stage showed struggle between mainly massed infantry armies of China and DPRK against mixed force of United Nations (UN) expedition enjoying armored and air superiority.[98]

4.2.1 Initial offensive of DPRK

This case study covers the principal offensive of the North Korean forces, which started on June 25th 1950 and ended with the battle of the Pusan perimeter in August 4th-18th. During this campaign, the DPRK managed to capture almost whole Korean peninsula in approximately 10 days, with most of the ROK defensive battles being mere struggles of delay.

4.2.1.1 Armament disparity

On the beginning of the invasion, the DPRK forces possessed 120 T-34 tanks concentrated in 105th armored brigade (three regiments per 40 tanks) and another 30 tanks that joined 7th (12th) division just before the invasion.[99] Furthermore, each division had divisional artillery composed of "12 122-mm. howitzers, 24 76-mm. guns, 12 Su-76 self-propelled guns, 12 45-mm. antitank guns, and 36 14.5-mm. antitank rifles" and additional lighter artillery pieces on regimental and company levels.[100] Also, they had around 180-200 pieces of combat aircraft.[101]

ROK forces on the other hand possessed no tanks, only light artillery (five battalions equipped with discarded US M3 105mm howitzers), no combat aircraft and shortage of infantry weapons like mortars and recoilless rifles.[102] In *South to the*

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[98] "Korean War | Combatants, Summary, Facts, & Casualties - Invasion and Counterinvasion, 1950–51."

[99] APPLEMAN, *SOUTH TO THE NAKTONG, NORTH TO THE YALU.*, 10.

[100] APPLEMAN, 11.

[101] Fehrenbach, "This Kind of War," 13.

[102] Fehrenbach, 19.

Naktong, North to the Yalu, R. Appleman eloquently characterizes the armament disparity between both armies in the following quotation:

> The state of training of the ROK Army is reflected in the Chief of KMAG's report that a majority of the units of the South Korean Army had completed small unit training at company level and were engaged in battalion training. In summary, the North Korean Army in June 1950 was clearly superior to the South Korean in several respects: the North Koreans had 150 excellent medium tanks mounting 85-mm. guns, the South Koreans had no tanks; the North Koreans had three types of artillery-the 122-mm. howitzer, the 76-mm. self-propelled gun, and the 76-mm. divisional gun with a maximum range of more than 14,000 yards which greatly out-ranged the 105-mm. howitzer M3 of the ROK Army with its maximum range of about 8,200 yards. In number of divisional artillery pieces, the North Koreans exceeded the South Korean on an average of three to one. The North Koreans had a small tactical air force, the South Koreans had none.[103]

The first unequal clashes occurred within the first hours of the offensive, when the advancing DPRK 1st Division with 105th Armored Brigade clashed against 11th and 13th Regiments of the ROK 1st Division. The outcome of the combat was outright decided by inability of ROK soldiers to pierce the armor of T-34 tanks with their light artillery and 2.36 inch rocket launchers. In desperation, the ROK soldiers tried to disable the tanks by use of satchel charges, pole charges and other improvised close combat techniques. These attempts were nevertheless unsuccessful.[104]

Such was the general outcome of combat clashes everywhere along the 38th parallel. Notable exception was the town of Chuncheon, where the ROK force had time to prepare itself and was attacked by DPRK 2nd division unsupported by tanks. Defending ROK 6th division in fortified positions and with skilled artillery units managed to not only stop the DPRK 2nd division, but also cause almost 40% casualties in one day of fighting to it.[105] The defenders were only forced to evacuate the town after the collapse of their wings was imminent and the North Koreans diverted 7th division with tank regiment into the area.[106]

On the June 26th the ROK 7th division attempted partially successful counterattack, but had to abandon it later, since its flank was made vulnerable by

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[103] APPLEMAN, *SOUTH TO THE NAKTONG, NORTH TO THE YALU.*, 18.

[104] Fehrenbach, “This Kind of War,” 67.

[105] Fehrenbach, 70.

[106] APPLEMAN, *SOUTH TO THE NAKTONG, NORTH TO THE YALU.*, 27.

failure of 2nd division to defend the road to Uijongbu, just north of the Seoul. The defeat of 2nd division was due to inability to stop the DPRK tanks, which resisted even direct hits by ROK artillery.[107] With Uijongbu in the hands of the DPRK, the North Koreans advanced into the Seoul, where lack of anti-armor weapons, such as anti-tank mines, rendered defenders helpless. However, the urban terrain offered some sporadic opportunities for ROK engineers and police to take out lone tanks by improvised means.[108]

By the capture of the Seoul, the ROK was defeated in all areas north of Han river. According to Appleman, the decisive factor in quick defeat of the ROK was

> shock of fighting tanks for the first time. The North Koreans had never used tanks in any of the numerous border incidents, although they had possessed them since late 1949. It was on 25 June, therefore, that the ROK soldier had his first experience with tanks. The ROK soldier not only lacked experience with tanks, he also lacked weapons that were effective against the T34 except his own handmade demolition charge used in close attack.[109]

The American expectation was, that when the US Ground Forces enter the combat, the situation will change, due to better training and morale. However, the defeat of Task Force Smith, and inability of the US forces to hold the DPRK forces from taking Taejon disproved such assumption. From the view of armament disparity, the American forces were initially still losing due to having lighter forces. Although they have been equipped with M24 light tanks, these were no match against T-34.[110] The American artillery and close range bazooka teams were sometimes successful in defense against the DPRK tanks, but their success rate was not bigger than that of ROK.

In the battle of the Pusan Perimeter, the closing action of the North Korea's offensive south, the armament disparity started to be in favor of the UN forces. While there were reinforcements, including tanks and artillery, brought into Pusan continually, the DPRK army was nearing exhaustion. The constant aerial attrition reduced the DPRK tank corps to some 40 pieces on 5th August, while the artillery was

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[107] APPLEMAN, 43.

[108] APPLEMAN, 31.

[109] APPLEMAN, 35.

[110] Zaloga, *M24 Chaffee Light Tank 1943-85*, 77:19.

reduced to circa one third of the size, with which the invasion begun.[111] Both heavy elements of the DPRK force were reduced mainly due to intensive aerial action of the US Air Force and Navy, while it also suffered from overextended supply lines. By November 1950, the DPRK tank forces were destroyed completely.[112]

4.2.1.2 Influencing factors

The surprise and swiftness of the attack is one of the main influencing factors. The US advisors constantly overpraised ROK army, while declining its request for heavy armament.[113] This, in connection to lack of training for anti-tank battles, resulted in complete astonishment and inability to defend against blitzkrieg-type attack.

While the mountainous terrain could be expected to play a factor, it seems that it had no impeding effect on DPRK 105th Armored Brigade. While the tanks could not move in wide lines, the lack of anti-tank weapons disallowed the UN forces from exploiting their tight groupings.[114]

The decisive influencing factor was the UN air superiority. While it did not do much to help tactically and was constantly plagued by friendly fire incidents, the constant sorties tolled heavily on the DPRK heavy elements and played crucial role in equaling the armament disparity of the sides.[115]

4.1.2.3 Outcome

According to UN estimates and POW interrogations, the DPRK losses in the offensive were between 31,000 and 58,000. The UN (mainly ROK with few US) losses in the offensive were around 76,000.[116] This puts LER between 1 : 2.45 and 1 : 1.3 in the favor of the attacker.

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[111] APPLEMAN, *SOUTH TO THE NAKTONG, NORTH TO THE YALU.*, 264.

[112] Army, “IX Corps. G2 Section." Enemy Tactics, Techniques and Doctrine.",” 56.

[113] Johnston, *A War of Patrols*, 18.

[114] Army, “IX Corps. G2 Section." Enemy Tactics, Techniques and Doctrine.",” 56.

[115] Army, 56.

[116] APPLEMAN, *SOUTH TO THE NAKTONG, NORTH TO THE YALU.*, 263.

In almost every clash, with the exception of initial attack on Chuncheon, the DPRK achieved Win or Victory. This however came with increasing losses and ultimately painful overextension of the supply lines, which eventually led to swift retreat after the UN counterattack from Pusan and X Corps seaborn invasion of Incheon.

4.2.2 Battle of the Heartbreak ridge

Since the last year's DPRK offensive, the North Korean heavy forces were all but depleted and it had to resort to holding suitable terrain along the line set by the UN forces. After the escalation of the war since the Chinese intervention, the UN forces abstained from serious offensive actions in hopes of negotiating the end of the war. However, general of the US 8th Army, Van Fleet, sometimes ordered limited assaults to improve the defensive positions, as well as to prevent his soldiers from becoming "soft and dormant".[117] The last of these assaults was the Battle of the Heartbreak Ridge, which occurred between 13th September and 15th October 1951.

4.2.2.1 Armament disparity

The UN forces in the area consisted of reinforced US Army 2nd division, which had attached foreign battalions to its three infantry regiments (Thai to 9th, French to 23rd and Netherlands to 38th), changing them into the Regimental Combat Teams.[118] In addition to infantry regiments, the division possessed strong divisional artillery force equipped with 105mm, 155mm and 8in howitzers. Finally, in the UN force, there was 72nd tank regiment of 68 M4A3E8 Sherman tanks, which would prove decisive in the course of battle.[119]

Opposing them was North Korean 6th infantry division, reinforced by 12th infantry division. The force commanded by general Hong NM was prepared for UN attack and very well fortified in concrete bunkers. Although they lacked artillery of their own, entrenchment allowed them to cause serious casualties by use of mortars, machine guns and small arms.[120]

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[117] Hinshaw, "Heartbreak Ridge," 23.

[118] Sandler, *The Korean War*, 127.

[119] Freedman, "Tankers at Heartbreak," 26.

[120] Sandler, *The Korean War*, 127.

Throughout the first days of the battle, the armament disparity was not a decisive factor. The DPRK bunkers were sturdy enough to withstand UN barrages. Only after some advance of UN infantry, there was a possibility of precisely instructed artillery fire, that knocked out some bunkers by direct hits on 16th September.[121] However, after these initial gains, the DPRK 6th division heavily reinforced its frontline and the fighting changed into intensive, close-quarter fight over the crest. Even though the UN superiority in air power and artillery was undisputed, the DPRK managed to counter them by the use of terrain, bunkers and tunnels. For ten days, the ownership of the hills changed frequently, with whole units being decimated in close quarters and melee combat. On 27th September, the UN commanders stopped their offensive and decided on change of tactics[122]

Chosen tactic was now to cut off the DPRK forces on the Heartbreak Ridge by cutting their supply lines and destroying their rear. To this effect, infantry task force with aerial and artillery support was dispatched to soften the enemy resistance, while the engineers prepared the road for armored breakthrough.[123] On 10th October, the American tanks of 72nd battalion attacked through the neighboring valley onto the town of Mundungni in DPRK rear. This maneuver caught the North Koreans by surprise, since they did not deem crossing of the valley by tanks possible (US forces used Han river basin as a road) and therefore placed little to none anti-tank defenses,[124] although they mined the area with anti-personnel mines extensively.[125] The 72nd battalion launched its attacks twice in a day for five days, destroying the DPRK supply lines, 350 bunkers, machine gun positions and infantry units, while losing 8 tanks.[126] This maneuver, called operation Touchdown, together with simultaneous infantry attack along the ridge, won the battle for UN.

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[121] Hinshaw, “Heartbreak Ridge,” 35.

[122] Sandler, *The Korean War*, 128.

[123] Sandler, 128.

[124] Freedman, “Tankers at Heartbreak,” 27.

[125] Hinshaw, “Heartbreak Ridge,” 90.

[126] Fehrenbach, “This Kind of War,” 372.

4.2.2.2 Influencing factors

The factor of terrain played determining role in the battle. On one hand, it allowed DPRK forces sturdy entrenchment and forced UN to fight bulk of the battle with infantry forces and sometimes in very close combat manner, where DPRK was on the same or better level as UN. On the other hand, general Hong Nim erred when he perceived the adjoining valley as impervious to armor, thus leaving his rear almost unprotected to the Operation Touchdown.

The air superiority of the UN did not have such a direct impact on the outcome as in many other clashes of the same war. While the USAF and Navy pilots harassed the North Korean supply lines, bombarded bunkers and on one occasion sealed a mine used as a rear base by DPRK,[127] in direct tactical support, it was not decisive.

4.2.2.3 Outcome

The UN forces managed to capture the contested Ridge and force DPRK out of the area. It suffered 3,700 casualties (including 597 killed), while the estimated DPRK losses were around 25,000 (including 1,473 confirmed kills and 8,938 estimated kills).[128] This would put LER to 1:6.7. The outcome of the battle is Victory for the UN.

From operational point of view, the battle did not make much impact, since apart from taking the ridge, armored assault could not press the enemy all the way through the Mundung-ni valley and was stopped. It however gave the UN forces a position on the 38th parallel, which was in the end the border between the halves of the divided nation. Furthermore, the truce talks that ended on 22nd August have resumed, probably also thanks to DPRK losses received atop the ridge and in the valley.[129]

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[127] Sandler, *The Korean War*, 128.

[128] Hinshaw, “Heartbreak Ridge,” 127.

[129] Hinshaw, 121.

4.3 1973 Yom Kippur War: Operation Badr

In the 25 years since the creation of the state of Israel, the war with its Arabian neighbors went on with clear Israel superiority. Astonishing victories it attained in Suez crisis and Six Day War formed the Israeli doctrine based on three pillars: superior intelligence, air force and armored forces.[130] With the Arab forces utterly crushed in 1967, the Israelis counted on subsequent peace to last until the enemy losses in armor and air force can be rebuild, which they expected due in 1975. However, the Egyptian strategic planners were able to devise a plan overcoming all three pillars of Israel doctrine. This plan was to be undertaken in 1973, in order to achieve political goals as set by the Egyptian president, Anwar Sadat.

The first pillar of the Israeli doctrine, intelligence, counted on having at least 48 hour notice before the Arab attack, in order to mobilize reserves.[131] This was to be aided by Bar-Lev line, complex defensive network centered on Suez canal itself and adjoining 20-40m sand and gravel wall. However, the Egypt and Syria pulled off an exemplary level of operation security, preventing the Israeli intelligence from revealing the imminent attack, until the morning of the attack. Furthermore, the Egyptian army devised a plan to cut through the sand wall by use of water pumps, which reduced the time needed for breakthrough of the Bar-Lev Line to approximately 3 hours.[132]

In order to counter the Israeli air and armor superiority, the Egypt relied on doctrinal changes and technological advancement, rather than futile quest to match the Israel capabilities. Instead of developing long-range air force to destroy Israeli airfields, the Egypt acquired vast amount of Soviet surface-to-air missiles (SAMs), which it used to create defensive umbrella above its ground forces, thus denying Israel air superiority.[133] In countering the Israeli armor in the first crucial phase of the operation, until it was able to get its own armored forces across the canal, Egypt used

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[130] Gawrych, *The Albatross of Decisive Victory*, 5.

[131] Dunstan, *The Yom Kippur War 1973 (2)*, 68.

[132] Dunstan, 76.

[133] Buckwalter, “The 1973 Arab-Israeli War,” 121.

infantry equipped with arsenal of anti tank guided missiles (ATGMs) and rocket propelled grenades (RPGs).[134]

In these first crucial hours of the war, the combat on the Bar-Lev Line saw clashes between infantry without armored support on the Egyptian side, against armor without infantry support on the Israeli side. These clashes are the subject of this case study due to their value in terms of technological advancement effect on the armament disparity.

4.3.1 Armament disparity

The Egypt Army spearheaded The Crossing (as was the first phase of Operation Badr called),[135] with five infantry divisions, that were to hold the eastern bank bridgeheads up to 12 hours without armored support. The Egyptian command estimated losses around 10,000[136], thus sent sufficient numbers in order to defend after successful crossing. However, since the actual casualties numbered only around 200, the infantry force on the eastern bank between the dusk of October 6th and the morning of October 7th numbered around 32,000 infantrymen.[137] In the last waves of The Crossing, three mechanized divisions equipped with Soviet BTR APCs and BMP-1 IFVs started crossing the canal as well.[138] However, it is not clear, if they joined the initial fight, or were stationed in rear echelons.

The Israeli forces in the Sinai totaled 18,000 troops, 291 tanks and 48 artillery pieces. However, due to intelligence failure, the fortresses on Bar-Lev Line were garrisoned only by a battalion of reservists. The armored brigades were ordered to strengthen the defensive line only at October 6th 1600, which was two hours before the expected attack, but two hours after the actual attack.[139] The tactical blunder of late deployment was – aside the faulty intelligence - motivated politically, since Israel

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[134] Gawrych, *The Albatross of Decisive Victory*, 20.

[135] El Shazly, *The Crossing of the Suez*, 228.

[136] Buckwalter, “The 1973 Arab-Israeli War,” 126.

[137] Gawrych, *The Albatross of Decisive Victory*, 29.

[138] Gawrych, 29.

[139] Gawrych, 32.

wanted to prevent possible accusations of starting the war.[140] The three armored brigades thus, on their way to the Bar-Lev Line, clashed with the forward echelons of Egyptian infantry. Due to sheer density of the Egyptian anti-air defense, the Israeli Air Force (IAF) suffered many casualties and was forced to greatly limit its ground-support operations, effectively nullifying the Israeli air superiority.[141]

In the subsequent clashes, the three Israeli armored brigades (each of approximately 100 tanks), encountered lightly entrenched infantry with RPGs and ATGMs in unexpected places, without reconnaissance. Moreover, the Israeli Defense Force (IDF) did not succeed in identifying the main thrust of the Egyptian operation, moving the tank forces from place to place in order to find it (there was no main thrust, the Egyptians attacked in a broad front, in order to inflict maximum casualties).[142] The situation was the worst for the brigade commanded by Colonel Gaby Amir, which was sent to relief of forts Mifreket and Milano, in the northern area. The marshy nature of the soil slowed or stopped the tanks, exposing them even more to the enemy fire.[143]

The Israeli counterattacks continued throughout the night unsuccessfully. By the morning of the next day, the Egyptian army defended all the bridgeheads along the Bar-Lev Line, while capturing all strongpoints except Fort Budapest.[144] However, the IDF was successful in repealing the amphibious assault across the Great Bitter Lake further to the south,[145] as well as destroying most of the airborne commandos further to the east.[146]

4.3.2 Influencing factors

As mentioned above, the Egyptian success to mislead the Israeli intelligence was one of the most important factors. Sufficient preparation and operation security demonstrated the Egypt's ability not to prepare for the last war, but to set the course

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[140] Allen, *The Yom Kippur War*, 118.

[141] Gawrych, *The Albatross of Decisive Victory*, 33.

[142] Gawrych, 34.

[143] Allen, *The Yom Kippur War*, 124.

[144] Dunstan, *The Yom Kippur War 1973 (2)*, 87.

[145] Dunstan, 89.

[146] Gawrych, *The Albatross of Decisive Victory*, 37.

on its own terms. This resulted in Israeli counterattacks not being organized and synchronized adequately.

The technological advancement played serious role in this case. This is mainly concentrated in the means used by Egypt to counter the Israel armor and air superiority – the massive use of SAM and ATGM missiles. However, the factor of ATGMs seems to have been frequently exaggerated. While it was instrumental to give Egyptian light and medium infantry units any chance against the Israeli armor, throughout the whole war, when the IDF was no longer surprised, 85% of Israeli tank losses were caused by enemy tanks, with only 7-24% of losses caused by ATGMs and RPGs.[147] Nevertheless, it can be argued that the whole tactical premise of Egyptian attack would not be possible without ATGMs. Without any antitank weapon, the infantry could not withstand Israeli counterattack. Should they use towed or self-propelled antitank guns, they probably could not move them over the sand wall swiftly enough to ambush Israeli armor, while making themselves much more detectable and targetable.

4.3.3 Outcome

The fighting went on, but from the morning of the second day, the canal crossing of heavy Egyptian forces makes this combat clash no more interesting for the purposes of this study (while still great example of combined arms importance). In the aftermath of the clash, the Egypt bloodily repelled all subsequent Israel counterattacks up until 10th October, when it went into operational pause.[148] In the initial hours, the Egypt achieved breakthrough of the Bar-Lev line.

The Operation Badr was, without doubt, great success. The Egyptian plan of capturing the east bank of Suez canal was fulfilled, as well as establishment of eastward bridgeheads and preparation of defensive against the counterattack of the Israeli reserve. Total losses for the first 15-20 hours of the operation, when the armament disparity was the most unequal, are difficult to separate from the overall

[147] Bronfeld, “Fighting Outnumbered,” 478.

[148] Gawrych, *The Albatross of Decisive Victory*, 55.

records of the operation, LER will therefore not be calculated. Overall, the outcome can be described as Win for Egypt.

4.4 1994-1995 First Chechen War: The Battle of Grozny

The Chechen Republic in southwestern Russia faced a political conflict after the fall of the Soviet Union. After the withdrawal of Russian army, there was a strain between majority ethnic wanting to secede, while ethnic minorities (including Russians), wanted to stay part of the Russia. The conflict escalated by opposition forces mounting attack (with Russian support) against the capital of Grozny, in order to depose secessionist president Dudayev and his regime.

This attack, which happened in November 1994, failed. In the follow-up, the Russian army prepared new attack, this time resting on regular Russian army, instead of local ethnic minorities. The Russian army presumed swift victory allowed by quick armored assault and taking of the enemy centers by *coup de main* from the march, as was the case in 1968 Prague or 1979 Kabul.[149] However, the Russian assault met with determined resistance and was repulsed with heavy casualties. The city was finally captured only after two months of urban battle. The case is important due to its illustration of heavy forces operating in suboptimal tactical manner in urban warfare.

4.4.1 Armament disparity

The overall Russian forces around the city of Grozny on the eve of the attack numbered 38,000 men, with 230 tanks (mainly T-72 and T-80 models), 454 IFVs and APCs, 388 artillery pieces and mortars.[150] The opposing side had probably around 1200 organized fighting men with approximately 15 working tanks and 30 light or medium artillery pieces.[151] However, the role of all tanks and IFVs was apparently reduced to create static strong points of defense, while the bulk of fighting was done by purely infantry force.[152] In addition to organized Chechen force loyal to President Dudayev, more rebels took up arms during the battle in numbers impossible to determine.[153]

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[149] “Foreign Military Studies Office Publications - CHANGING RUSSIAN URBAN TACTICS.”

[150] Thomas, “The Caucasus Conflict and Russian Security.”

[151] Magnusson and Faurby, “The Battle (s) of Grozny.”

[152] Thomas, “The Battle of Grozny.”

[153] Magnusson and Faurby, “The Battle (s) of Grozny.”

The Russian forces enjoyed absolute air superiority, having destroyed the feeble Chechen air force during the first hours of the war. However, in countering the mobile infantry force inside urban area, the fixed wing air support was not very effective in Grozny itself, unlike the surrounding countryside and in indiscriminate destruction of the outskirts. The helicopters (mainly Mi-24 model) had to move from cover to cover behind tall buildings to avoid the Chechen AA fire, but their support was much more effective, when possible. All aircraft was also useful in destruction of roads, bridges and other forward targets.[154]

The lack of effective air support, as well as inability of Russian ground commanders to coordinate the artillery supports, played important role in the initial assault, in which the Russians expected effortless victory without resistance.. In this assault, the Russian forces were ordered not to open fire unless fired upon (which resulted in many weapons not even being loaded, while most of the troops knew nothing about the expected fight).[155] Thus, when the Chechen hunter-killer teams of 3-4 men (consisting of sniper, RPG gunner, machine gunner and optional ammunition carrier),[156] first opened fire, the Russians were not able to respond in any effective way.

After allowing the initial force - consisting of 131st Motorized Rifle Brigade, 81st Motorized Rifle Regiment and 20th Rifle Regiment[157] - into the city, the Chechen infantry quickly blocked exits of the Russian armored vehicles and opened RPG fire (using RPG-7 and RPG-18 launchers[158]). Since bulk of the RPG troops fired from positions on elevated building floors or from basements, they were safe from the retaliatory fire of the Russian tanks, due to their limitation in gun depression or elevation.[159] Finally, incomprehensible underestimation of Chechens by Russians caused that armored columns were not supported by any infantry force and moved in

[154] Grau, “Russian Urban Tactics,” 4.

[155] Thomas, “The Caucasus Conflict and Russian Security.”

[156] Rupe, “The Battle of Grozny,” 21.

[157] Thomas, “The Caucasus Conflict and Russian Security,” 56.

[158] Rupe, “The Battle of Grozny,” 21.

[159] Grau, “Changing Russian Urban Tactics.”

parallel, hence could not support each other neither.[160] The results were near obliteration of 131st Motorized Rifle Brigade. It was surrounded by the city's railway station, where it had to fight unsupported for sixty hours. According to Magnusson and Faurby, it "lost 20 of its 26 tanks and 102 of its 120 APCs. Its commander, Colonel Ivan Savin and almost 1000 officers and men died and 74 were taken prisoners."[161] The 81st Motorized Rifle Regiment was decimated in similar fashion.[162]

There were multiple reasons for destruction of initial Russian attack. Some tactical fallacies obviously stemmed from underestimation of the enemy (i.e. lack of mutual and infantry support of the armored columns) and expectation of little to no resistance. Some issues were those of technical inadequacy. For example the T-80 tank model's reloading mechanism made it extremely vulnerable to low-angle shaped charge hit from sides,[163] which were in urban area common. However, the Russian army withdrew its units after week of fighting and changed its tactics in accordance with the situation present.

In the operational pause, while reevaluating the tactical approach, the Russians received massive reinforcements, including marines from Baltic fleet, Spetsnaz units and Ministry of Interior (MVD) troops.[164] These troops were reorganized into smaller units, optimal for house to house fighting. The role heavy Russian forces changed from leaders of the maneuver to infantry support. The tanks were reequipped with wire mesh cages to protect them from RPG hits, while further protected by staying in the rear of the formations. The bulk of fighting was to be done with infantry, direct fire and mortar artillery. Curious is the widespread use of self propelled AA guns (ZSU23-4 "Shilka" and 2S6 "Tunguska") for suppressive fire against infantry in upper floors of the buildings.[165] Finally, the Russians learned to use the Chechen hunter-killer team organizations against the enemy, by sealing of approaches to the area by infantry and

[160] Magnusson and Faurby, "The Battle (s) of Grozny."

[161] Magnusson and Faurby.

[162] Dowling, *Russia at War*, 336.

[163] "The T-80 Is Russia's Most Overrated Tank."

[164] Magnusson and Faurby, "The Battle (s) of Grozny."

[165] Grau and Thomas, "'Soft Log'and Concrete Canyons."

than using the armor as bait, allowing infantry to mow down Chechen fireteams moving in to destroy the tanks.[166]

Reorganized Russian forces started house-to-house fighting, advancing by sectors. Each sector was covered by two IFVs and a tank closing the sector, while artillery, helicopters and AA guns provided fire support.[167] Use of tear gas and white phosphorus by mortars was widespread,[168] as well as that of flamethrowers.[169] The Russian army also finally completed the encirclement of the city. Fighting in this manner, the Russian forces were finally able to take the whole city by the end of January 1995, with paramilitary units mopping up the last Chechen fighters by 26th of February.[170]

4.4.2 Influencing factors

The preparation of Chechen resistance for battle, joined with lack of Russian adequate preparations, was the foremost influencing factor. In the time of 3-4 months before the battle, the Chechens were able to organize and train their forces. While the Russian media tried to portray the Chechen resistance as a loose set of bandits, the fighters were actually well trained and instructed. Furthermore, many of their members have formerly served in Soviet military and thus have known the strengths and weaknesses of the enemy.[171]

The factor of weather played a minor role in limitation of Russian air support. The Russian fixed wing aircraft support was thus limited mainly to Su-24M, ground attack aircraft with all-weather capabilities.[172] The Mi-24 helicopter were used in more coordinated manner, targeting the snipers on the top floors of the buildings.

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[166] Grau, “Changing Russian Urban Tactics.”

[167] Rupe, “The Battle of Grozny,” 21.

[168] Grau, “Changing Russian Urban Tactics.”

[169] Thomas, “The Battle of Grozny.”

[170] Dowling, *Russia at War*, 337.

[171] Oliker, *Russia’s Chechen Wars 1994-2000*, 17.

[172] Oliker, 15.

4.4.3 Outcome

Despite being very costly in terms of collateral damage and civilian deaths, the combatant losses are not as big, as would the length of combat suggest. The official Russian records state 1,376 killed and 408 missing, but the numbers were probably much higher.[173] The losses of the Chechen separatists are shrouded by even bigger cloud of obscurity, but Dalkhan Khozhaev (chief of Ahmed Zakhaev's HQ) claimed 800 dead between 11th December 1994 and the end of February 1995.[174] In view of this obscurity, the calculation of LER would be pointless.

The Russian fight for the city was two phased, with first phase being somewhat infamous. However, the modified tactics of the second phase brought success to the Russians, allowing them to hold the city (which would be retaken by Chechens one year later) and clear it of the Chechen fighters' presence. The Russian outcome can be described as Win, since it was not able to destroy the Chechen separatist forces, albeit pushing them out of the city.

Since the Chechens managed to pull out of the Grozny quite successfully and the same force was later able to fight elsewhere, their situation is Not Lose.

[173] Magnusson and Faurby, "The Battle (s) of Grozny."

[174] "K Hoz Hev Interview | Trench Warfare | Tanks."

4.5 2006 Israel – Hezbollah War

Conflict between the State of Israel and Lebanese Hezbollah started on 12th of July 2006, by the cross-border attack of Hezbollah fighters killing three IDF soldiers and abducting two.[175] In retaliation, the Israel launched previously prepared operation Specific Gravity, which targeted Hezbollah's missile launching capabilities, as well border observation posts, roads and bridges. The targets were located mainly in southern Lebanon, but also Beqaa valley near Syrian border and *Dahiya* sector in Beirut.[176]

While Hezbollah lost some of its long-range missile capabilities, the IAF operation was clearly not successful enough, since on the next day, missile campaign aimed at northern Israel started. During this campaign, lasting until 13th of August, approximately 4,000 missiles were launched.[177]

Seeing the survival of Hezbollah's offensive capabilities, the Israel decided to involve ground operations, which started with first major incursions on 19th July. However, instead of weak guerilla opponent the IDF expected, Hezbollah fought in semi-conventional manner from prepared defenses with overlapping fields of fire, as well as performing elaborate anti-tank ambushes, all while maintaining the rocket campaign against mainly civilian targets in northern Israel. Instead of melting away, the Hezbollah fighters stood their ground as long as possible, slowing the IDF advance significantly and allowing the rocket launchers to continue their work.[178]

The fluid defense succeeded in slowing the IDF advance, which had to go through many protracted firefights, in order to get a foothold in Lebanon. Only after twelve days, change of Israeli operation plans and involvement of some 10,000 troops, including reservists, started to give the IDF systematic control of the border region. On

[175] Matthews, *We Were Caught Unprepared*, 1.

[176] Friedman, *The 2006 Lebanon Campaign and the Future of Warfare*, 30.

[177] Rubin, *The Rocket Campaign against Israel during the 2006 Lebanon War*, 10.

[178] Matthews, *We Were Caught Unprepared*, 17.

14th of August, when UN brokered truce came into effect, the IDF held strip approximately 10 kilometers wide along the border.[179]

4.5.1 Armament disparity

The Hezbollah's offensive capability was constituted by its rocket units. These units, equipped and trained during the preceding 6 years, operated medium and long-range rocket systems. These rocket systems were mainly stationary 120mm Katyusha rockets, mobile Fajr, Nazeat and Zelzal 2 rockets.[180] This offensive arm was used predominantly to press the attack on civilian and military targets in northern Israel, instead of artillery support against advancing IDF units.

To protect the rocket units, Hezbollah infantry units based their operations on series of up to 600 concealed bunkers, built in advance. The build up of bunker network (done with assistance of Iran and North Korea) was done with great demands of security, allowing most of them to elude the Israeli intelligence.[181] The bunker system and its attachments was also build with presumed tactical aspects of IDF advance. This allowed Hezbollah to place many bunkers into villages, that were presumed to be the targets, while laying minefields and IEDs around the populated areas.[182] Finally, the placement of both bunkers and rocket sites into the Lebanese villages made civilian casualties by IAF strikes inevitable, which helped Hezbollah to use media coverage against Israel.[183]

While this bunker system served mainly to avoid the airpower of the IAF, it was also used in ground operations. Indeed, the Hezbollah fighters' stalwart defense of static locations was the most surprising factor for the IDF, which presumed the enemy to swiftly retreat after every attack. Instead, the Hezbollah units were willing and able to withstand protracted firefights lasting up to 12-24 hours, retreating only at the last possible moment, or not at all. Many of these clashes occurred at close range of 10-100 meters, indicating Hezbollah fighters' willingness to accept decisive

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[179] Friedman, *The 2006 Lebanon Campaign and the Future of Warfare*, 33.

[180] Matthews, *We Were Caught Unprepared*, 91.

[181] Matthews, 20.

[182] Arkin, *Divining Victory*, 47.

[183] Kreps, "The 2006 Lebanon War," 72.

engagements.[184] However, while most of the defense was static, it should be noted that Hezbollah did not just defend the terrain and bunkers, but also used "its small arms, mortars, rockets, and antitank weapons to successfully maneuver against the IDF".[185]

To counter the Israeli armor, the Hezbollah used different tactics, basically divided into two types – either it depended on surprise assaults with small arms fire against the tank crew with opened hatches,[186] or ambushes and defensive clashes with use of ATGMs and RPGs. The Hezbollah fighters were equipped with great assortment of these anti-tank weapons, including modern Kornet, Milan, Metis and TOW ATGMs, as well as RPG-29.[187] Mines and IEDs were used against the armor as well.

The estimates of Hezbollah combatant numbers in southern Lebanon are sometimes as low as few hundreds,[188] but usually vary between 2,000 and 5,000.[189]

The Israeli side entered the war under the doctrine of Effects Based Operations (EBO), which relied on precision use of airpower against critical enemy systems, with "little or no ground forces necessary, since it would not be necessary to destroy the enemy".[190] As result of priority to IAF, as well as years of fighting very low-intensity conflict against Palestinian intifada, the ground forces of IDF experienced decay in both equipment and training quality, which was especially evident with the tank force.[191]

For the first weeks of the war, the Israeli general staff believed in victory through EBO. This led to use of only very light land forces acting in commando manner, with extensive aerial support. The belief was, that rather than through territory control, the

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[184] Friedman, *The 2006 Lebanon Campaign and the Future of Warfare*, 38.

[185] Exum, "Hezbollah at War," 9.

[186] Friedman, *The 2006 Lebanon Campaign and the Future of Warfare*, 37.

[187] Matthews, *We Were Caught Unprepared*, 93.

[188] Harel and Issacharoff, *34 Days*, 172.

[189] Cordesman, *Lebanese Security and the Hezbollah*, 25.

[190] Matthews, *We Were Caught Unprepared*, 24.

[191] Kober, "The Israel Defense Forces in the Second Lebanon War," 23.

Israel could crush Hezbollah through targeted destruction of their military asset. This kind of thinking stemmed through dominance of IAF in general staff and, as mentioned above, reflected in bad condition of IDF heavy assets before the war. When the commando operations of light forces, which acted on experiences of totally different conflict, did not bring expected outcomes, IDF finally decided for bigger operations on the beginning of August. The IDF ground forces were, of course, not very well prepared for such a conventional kind of combat.[192]

Nevertheless, the IDF crossed the border with approximately 400 tanks (by the end of the conflict), mainly Merkava II, III and IV. Infantry accompanying them was carried with M113 and Achzarit APCs. Providing support fire were the air forces (approximately 100 F-15 and F-16 fighters; 48 AH-1 and AH-64 helicopters), navy ships and artillery.[193] As for the numbers, the IDF involvement gradually increased, but not in a massed manner. In the first phase of ground war, the IDF committed units piecemeal on battalion and brigade level, following the principles of EBO in doing isolated raids aimed at destruction of adversary's critical systems.[194] With the commencement of Operation Change of Direction 8, the IDF committed around 10,000 troops.[195] The final phase of Israel operations, just before the cease-fire, saw involvement of additional troop, bolstering the numbers to approximately 30,000 ground troops.[196]

4.5.2 Influencing factor

The defensive preparations, entrenchment and organization was the primary factor of Hezbollah's edge over the Israel. Combination of static defenses with mobile rocket launchers canceled much of the Israeli air-superiority effects.

Another important factor is role of media, which the Hezbollah mastered. The fear of medial backlash was one of the main reasons that ground action came so late

[192] Schiff, "The Foresight Saga."

[193] Arkin, *Divining Victory*, 63.

[194] Matthews, *We Were Caught Unprepared*, 61.

[195] Friedman, *The 2006 Lebanon Campaign and the Future of Warfare*, 32.

[196] Arkin, *Divining Victory*, 239.

in the war, as the Israeli leadership needed to build the case of legitimacy for ground action.[197]

4.5.3 Outcome

The IDF suffered during the 34 days of combat 119 fatalities, while claiming to inflict 650-750 losses to Hezbollah.[198] However, these claims seem to be exaggerated, "as it appears likely that only 184 Hezbollah fighters were killed in ground fighting in southern Lebanon during the entire war".[199] This would put LER (including only fatalities) to 1:6.3 or 1:1.5. However, IDF suffered further 1,244 casualties of wounded soldiers,[200] which would change LER to 1.87:1[201] or 7.4:1.

The aims of Israel, as the attacker, were to force the Hezbollah into releasing the captured soldiers, as well as to cease its rocket campaign aimed at northern Israel. It was not able to achieve any of the initial objectives (rockets fired until the truce commenced[202] and the deceased soldiers were returned only after two years[203]), it however managed to secure strip of territory alongside the border and suppress the Hezbollah activity there. The final outcome of the engagement for both sides can be thus seen as Tie.

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[197] Arkin, 134.

[198] Friedman, *The 2006 Lebanon Campaign and the Future of Warfare*, 33.

[199] Matthews, *We Were Caught Unprepared*, 51.

[200] Winograd, "Final Report of the Commission of Inquiry Into the Events of Military Engagement in Lebanon 2006," 598–610.

[201] This figure seems to be the closest to truth, since even if Hezbollah suffered only 184 fatalities, some of the losses estimated by IDF are bound to be wounded Hezbollah fighters.

[202] Rubin, *The Rocket Campaign against Israel during the 2006 Lebanon War*, 28.

[203] "Goldwasser, Regev to Be Laid to Rest after 2 Uncertain Years | Israel | Jerusalem Post."

5. Outcomes discussion

Case	Attacker/Defender	Heavier force	LER	Outcome Attacker	Outcome Defender
Chindits & Galahad	Allies / Japan	Defender	N/A	Win	Not Win
Market Garden (Arnhem)	Allies / Germany	Defender	4 : 1.65	Lose	Victory
Market Garden (Nijmegen)	Allies / Germany	Attacker	1.2 : 3.3	Win	Lose
DPRK offensive	DPRK / ROK	Attacker	1 : 1.3	Win	Lose
Heartbreak Ridge	UN / DPRK	Attacker	1 : 6.7	Victory	Defeat
Yom Kippur War	Israel / Egypt	Attacker	N/A	Not Win	Win
Battle for Grozny	Russia / Chechens	Attacker	N/A	Win	Not Lose
2006 Lebanon	Israel / Hezbollah	Attacker	N/A	Tie	Tie

Table 2: Case studies summary, source: Author

The central hypothesis of this work was, that when two forces of similar training and technology meet, *the side with less armor and firepower is inherently tactically disadvantaged.* This hypothesis was tested on seven case studies of historical battles and campaigns. In all combat cases, the principal attention was given to universal patterns occurring in clashes between opponents with high armament disparity. Three research questions of the thesis were about the 1) *possible status of armament disparity as the most important factor in combat outcome*, 2) *impact of systematic development upon armament disparity*, 3) *go-to possibilities of lighter force, to counter the armament disparity.*

The importance of armament disparity has been shown throughout the cases. However, if isolated, it is not as significant, as to guarantee a victory. This is the most visible in cases of Battle of Grozny and Operation Badr. In both cases, one side was based on infantry, lacking all, or almost all heavy forces.[204] In neither case, this meant victory for the heavier attacker. In Chechnya and in Suez, the heavier attacker based his attack on misguided expectations of the enemy. While IDF expected tank battle with massive aerial support, the Russians expected nothing less than automatic victory achieved by simply getting the tanks into the city center. In both cases, the lack of infantry support and properly directed artillery suppression meant destruction of armor, by prepared enemy possessing adequate means and positions.

In cases of DPRK offensive, Operation Market Garden and Heartbreak Ridge, the armament disparity proved to be the decisive factor. The North Koreans were unstoppable, since their tanks were indestructible by means at hand. As proved in the case of Chuncheon, if the ROK had sufficient anti-tank means, it had infantry and artillery skilled enough to at least defend for much longer time. In the case of Arnhem (Operation Market Garden), the Germans could overtake isolated British units in their fortified positions only when the strong armor reinforcements arrived, that could - together with artillery- level the fortifications and force the British out. Similar was the case of the Heartbreak Ridge, where the North Korean defenders could be dislodged from the crest only after armored action in the rear severed them from supplies and reinforcements. This action in the rear was also not possible by any other means, than armor.

Somewhat indecisive, in terms of armament disparity significance, is the case of Chindits. Their two most important engagements differed profusely in terms of heavy armament impact. While in Blackpool, combination of Japanese heavy armament and repulsion of Allied air support meant Chindit undoing, in Mogaung the light infantry Chindits managed to take out foe both heavier and fortified. In the end, the case of Chindits seem to prove the possibility of light infantry taking on heavier

[204] In case of Operation Badr, there was artillery and tanks stationed on the further side of the canal, which could provide support fire, if Israeli tanks got too close to the Bar-Lev Line. In Grozny, there was some amount of stationary tanks and self-propelled guns used as strongpoints of the defense. In neither case, the heavy forces seem to have played significant role, with the bulk of fighting being carried out by infantry.

foe, if light force enjoys massive aerial support, against which the heavy force cannot defend.

Finally, the most recent case of Israeli war against Hezbollah testifies best, when compared with the cases of the past. Similarly to the success of the Chindits, the Israeli EBO doctrine called for massive use of precision air delivered firepower, in combination with only swift raids into enemy territory. The preparation of Hezbollah to counter this doctrine by concealment and hardening however meant the requirement of heavier ground assault. In this assault, the heavy forces managed to repulse or destroy enemies, which neither artillery nor airpower could. Enemies, that through fortified positions with overlapping fields of fire meant grievous threat to the infantry. Simply said, only the use of heavy forces further in the campaign could manage what light forces with airpower failed to achieve. Moreover, the comparison with Operation Badr shows us, that the resistance of armor against ATGMs have improved significantly.[205] Finally, the IDF itself learned a lesson, that the heavy forces have place irreplaceable by other systems. So, the production of Merkava tanks and refitting of all tanks with Trophy active protection systems resumed, while production of Namer APC started.[206] These lessons learned are similar to those of Russia after Chechen wars, with development of Armata platforms including Terminator BMPT intended solely for urban warfare.[207].

The factor of systematic development once again showed itself throughout the cases. In the cases of Second World War, the edge was on side of heavy forces. As seen in the case of Arnhem, the Allied shoulder-fired PIATs and Bazookas could penetrate only armor of older tank models, but against the force of Tigers and King Tigers, the infantry was virtually defenseless. The situation in Korean war was essentially same, with infantry weapons unable to beat T-34 tanks in any sensible way, with only successes stemming from sheer luck or suicidal tactics.

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[205] The IDF recorded some 500 ATGMs attacks. Some 52 tanks have been hit by enemy fire (including ATGMs, RPGs and IEDs), with 21 of those tanks damaged enough to be pulled out of combat and 5 more destroyed completely. See Winograd, “Final Report of the Commission of Inquiry Into the Events of Military Engagement in Lebanon 2006,” 598–610.

[206] Johnson, *Military Capabilities for Hybrid War*, 4.

[207] Bartles and Grau, *A New System Preserves Armor Dominance of the Future Battlefield*.

The change came with 1973 Yom Kippur War, where the massive use of Sagger ATGMs and RPGs gave infantry effective means of defense against armor in range comparative with the tank guns. The success of the shoulder fired weapons then returned in case of the First Chechen War, where one Russian mechanized brigade and one mechanized regiment were cut down.

However, the technological advancement goes for the heavy forces, as well as for the light. After the lessons of Yom Kippur War, the IDF upgraded its armored forces significantly, with its most advanced models (Merkava IV and Merkava IIID) being essentially invulnerable to contemporary ATGMs from the front arc. Furthermore, the research of Trophy active protection system lend advanced protection to both tanks and APCs.[208]

As for the lighter forces' options to counter the adversary's edge in armament, there were two factors, already mentioned above, that resonated throughout the cases. These factors were terrain and airpower. Terrain, have been used in all cases either to hide the lighter force from the firepower of the heavy, or to increase hopes of successful defense through entrenchment. If the lighter force manages to achieve both ends – to fortify hidden positions unreachable by heavy forces – it has made significant step towards victory.

The cases have of course shown, that concealment itself is seldom enough. The heavy enemy still possesses the advantage and initiative to dissect the battlefield and clear it by sectors (as Russians in later phase of Battle of Grozny), or to bear with great strength on lighter force's position, once revealed (as Japanese did to Chindits at Blackpool). In the end, only those positions that do not get to bear the full force of adversary's attack survive, as seen in Arnhem and Lebanon opposed to Heartbreak Ridge (where even overwhelming firepower did not dislodge DPRK troops from the crest and they had to be cut off by tanks). The lighter force can always withdraw and lead more asymmetric kind of combat, but in defense of positions, it seems not able to withstand a heavier enemy.

Finally, there is the aspect of air power. Great amount of works have been written on account of relative importance of air power and ground power, but in this

[208] Head, "Protection System Completes a Successful Evaluation in the USA TROPHY–Rafael Active."

case we are interested in air power solely as a factor allowing the lighter force to face the heavier. Of the selected cases, in Burma campaign as well as in Korea, the superior Allied air power allowed the lighter force to wait out the destruction of adversary's heavy aspects, while using air power as highly effective artillery. Also, the absence of the airpower was hurtful for the forces that counted on it, as was the case of Operation Market Garden and IDF in Yom Kippur War.

In two cases of course, the preparation of lighter force to counter the advantages of the heavier countered air power as well. In case of Hezbollah in 2006 Lebanon war, the combination of target hardening and field camouflage was used. In case of Chechens, the fighters used the city as a jungle to hide from the sky and minimize air power's effect. In both cases also the fighters used air power's heightened possibility of collateral damage to their own propagandistic ends.

5.1 Policy implications

The role of heavy forces has long been neglected in the eyes of Western policy makers. However, the trend have reversed in the major countries of North Atlantic Treaty Organization (NATO), with heavy forces no longer being seemed as redundant or archaic.

For the minor countries of the Western community, the fate of heavy armaments still has its attached problems, primarily their expensive nature. The security of those minor countries rests in the NATO, but in order to carry their weight, the minor countries need to field sufficient number of heavy armaments. While the specialist units and light infantry might be needed and appreciated in expeditionary campaigns, they will not be able to defend outskirts of Europe from potential Russian attack. As shown in RAND corporation studies, the heavy forces, equipped with modern technologies and ready for quick deployment, are not only the best forces to deal with conventional and semi-conventional combat situations, but also the best deterrent against such.[209]

Czech Republic, being one of those minor countries, might feel safer due to its geographical location, thus lacking direct incentives for self-defense. The contribution of heavy forces to collective defense can however have more effects than "just"

[209] Shlapak and Johnson, "Reinforcing Deterrence on NATO's Eastern Flank," 8.

bolstering our defense and security. It can be argued, that additional effects could come in terms of prestige and improved partnership.[210]

The Czech commitment to expeditionary missions, such as Iraq, Afghanistan and Mali, has in the view of the author bigger effect in terms of proving our worth to the alliance, than in the terms of direct security impacts. This effect can be surely improved by fielding heavy forces in situations, that call for them. Moreover, the need for heavy forces would grow greatly, if the Czech Republic left NATO or lost its trust in it and had to defend on its own. This is reflected even by Czech general staff, which considers Czech tank battalion as sufficient only as part of the alliance.[211]

The effect of military cooperation can come around even today, in the time when Czech Republic chooses its new armored force. Czech Republic is, thanks chiefly to historical military aid, one of the few Western states on amicable terms with Israel. Our country thus could cooperate with Israel to create its new heavy force and bring the Israeli experiences with both hybrid and conventional war into the NATO. This would bolster both our security and standing in the alliance.

[210] Edmunds, “What Are Armed Forces For?,” 1075.

[211] “Česko Musí Sledovat Evropskou Renesanci Tanků | Téma.”

6. Conclusion

This thesis aimed to answer three research questions concerning influence of armament disparity on combat. Through the comparative case study it was seen, that the armament disparity *was extremely significant factor, but only when heavy forces were part of balanced joint arms force*. However, if used in such way, it can rival the importance of airpower, while surpassing the role of terrain; to mention two other most frequently demonstrated influencing factors. It should furthermore be remembered, that the level of armament disparity has different effect on defender and attacker, since the tactically proficient attacker can gain more from heavier force, than equally proficient defender.

Second research question revolved around possible technological development. The results of the case studies and further research say, technological development definitely has effect on armament disparity. Nevertheless, the effect changes through time constantly and development is not linear. To use examples, while in case of Arnhem British paratroopers could not do any harm to Tiger tanks, the Egyptian infantry repelled numerous Israeli tank attacks with their ATGMs. In the contemporary situation it seems, that the most advanced armor has caught up with the development of most advanced infantry operated anti-tank weapons. In this way, it can be said, that *while the advancement is possible, its effectivity is determined only by immediate impact on armament disparity, with protective capabilities of the heavy forces evolving on the similar rate.*

The final question concerned possible tactical moves by lighter force to counter disparity disadvantage. As seen in the case studies, the lighter forces can counter the advantage of heavier opponent by *the tactical use of terrain in terms of fortification, concealment, or ideally both. This can be used to avoid the full force of the heavy force, thus levelling the field. The air superiority can help the lighter force to destroy the heavy elements of the adversary.* However, use of terrain for cover and fortification renders the lighter force static, thus unable to go on operational offense. Heavier attacker can than circumvent the lighter forces and go on to the another operational targets, leaving only token units to continue the siege.

The findings of this paper support the notion of heavy forces' importance, as held by proponents of ground power. To this effect, the author takes similar position as Daryl G. Press, Stephen Biddle, Jeffrey Friedman or Edward Luttwak. While this does not mean in any way that light forces are not useful, the overreliance on untested technologies and tactics based on air power and light ground forces can bring grave effects on the future combat outcomes.

This work was limited by its sole use of qualitative methods and lack of contemporary data, as well as historical details. Having detailed and precise post-battle analyses from more cases could help find patterns with more confidence. The research could also gain much from quantified and detailed outcomes of military exercises based on the same topic. By this addition, more questions concerning present armament disparity effects, as well as their perception in military circles, could be answered.

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Diploma thesis Project

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Working title

The lightening of arsenals and implications for conventional warfare

Summary

Context: Every army is built to serve a purpose and the equipment of the army reflects this purpose. Throughout the history, the purposes of the armies have changed, which was in turn reflected in the change of their hardware. In the recent era, the armies of the Western world seem to trend towards lighter build, which is more suitable for foreign expeditionary purposes.

Goal of the work: This work seeks to research the capabilities of lighter armies in various situations, but mainly against heavier opponents. Next, it aims to check if the lightening trend really exists in chosen subjects. Final goal is to draw conclusions from case studies to the chosen modern subjects.

Methodology: The work will mainly consist of controlled comparison of several case studies compared through the method of difference. Second part will consist of armament research of chosen subjects with optional third part including the outcomes of interviews with armed forces officials.

Key words: arsenals, 4GW, armament policy, conventional warfare, RMA

Introduction

Since the end of the cold war, the armies of the world seem to have shrunk in size and lightened in their equipment. Heavy tank armies intended to wage battle with similar opponent in the war between East and West have gradually been replaced by professional high-tech armies whose main objective seems to be more on the side of

expeditionary missions than open war or border protection. Aside from this change, there seem to be growing belief that the technological superiority is the most important factor of modern war and lighter equipped modern army can easily defeat heavier opponent with outdated hardware.

However, the armies following this trend have never met opponent of similar quality but with arsenal built for open war with heavy opponent. There is hence no clear conclusion, how would the modern light armies fare against such opponents. This question is of course very important with regards to the European armies and Russia. Moreover, other contemporary examples (Ukraine war, 2006 Lebanon crisis and war with Islamic State) might show, that the technological superiority might not always give upper hand against bigger firepower and heavier armor.

Literature review

Daryl G. Press in his 2001 article casts doubt upon widespread conviction that air power was the single most important asset in The Persian Gulf War, winning the conflict essentially itself. Instead, his research suggests that better quality and armament of ground troops (mostly armored units) were more important to defeat the regime of Saddam Hussein.[212]

Avi Kober, while stating that the Israeli Defense Force would probably fare well against similar opponent (e.g. nation army), attacks the notions of Revolution in Military Affairs (RMA). Most importantly he criticizes the concept of diffused light army that IDF used in its 2006 clash with Hezbollah. According to Kober, the IDF's tactical and strategic blunders could have been prevented if the war was waged in more traditional manner, e.g. amassing the force and heavily hitting the opponents center of gravity.[213]

[212] Press, "The Myth of Air Power in the Persian Gulf War and the Future of Warfare."

[213] Kober, "The Israel Defense Forces in the Second Lebanon War."

In similar way to Avi Kober, David Johnson have criticized the coalition approach to the fight with Islamic State. According to him, the coalition states have been so demoralized by losses induced by Afghanistan and Iraq insurgencies, that they try to fight Islamic state with the greatest care possible / by using special forces and airpower only. Johnson instead calls for use of heavy ground forces, which are according to him best suited to defeating similar foes (and stating that the Islamic State was fighting in very conventional manner, thus being great target).[214]

An advocate of light force, Scott McMichael, in his work creates a historical overview of light infantry armies fighting in several different settings with various opponents and support. With the span of 40 years since the Second World War, he shows capabilities and weaknesses of light force which, in his view, can be extremely valuable asset, but cannot possibly provide all the tasks needed of modern military.[215]

Other literary sources will mainly comprise of historical accounts of the historical clashes casting light forces against heavier opponents. The historical scope begins with the Second World War and ends with present times. Apart from that, sources documenting military exercises and interviews on the topic will be used, if obtained.

Goals of the thesis

Hypotheses

1.) In fight with foe of similar quality (both of skill and technology), lighter forces will be disadvantaged.
2.) Many aspects of RMA and other modern concepts of war-waging, that do not revolve about delivery of direct damage to the enemy, have less weight in resolution than raw strength.
3.) By equipping themselves with lighter armament to perform better in specialized conflicts, the armies are getting disadvantaged should the open conventional conflict emerge.

[214] Johnson, “Fighting the" Islamic State" the Case for US Ground Forces.”

[215] McMichael, “A Historical Perspective on Light Infantry.”

Research questions

1.) How does lighter force fare in combat against heavier foe?
2.) Is there any historical change in the combat outcomes due to the technological innovation?
3.) Is there any approach that the lighter force can take to level the possible disadvantage?

Methodology

The first part of work will consist of series of case studies. Case studies will be chosen to detail a combat clash (or series of them) involving light forces[216] fighting against heavier force. The emphasis will be put on differences between outcomes of the clashes, as well as used tactics and type of enemy. Alternatively, case study will document outcome of a military exercise focused on similar topic. All case studies will be describing events that happened since (and including) Second World War.

The second part will document the trend of arsenal lightening through policy analysis of chosen subject (mostly European countries).

Finally, the third part will sum up the interviews with Czech army officers that I will carry out to get the perspective of professional combatants upon the topic.

Used and intended bibliography

1.) Badsey, Stephen. *The Hutchinson Atlas of World War II Battle Plans*. Routledge, 2016.

2.) Friedman, Jeffrey A. *The 2006 Lebanon Campaign and the Future of Warfare: Implications for Army and Defense Policy*. Lulu. com, 2011. https://www.google.com/books?hl=cs&lr=&id=dfZHAgAAQBAJ&oi=fnd&pg=PR7&dq=israel+lebanon+2006+briddle&ots=AN_VVgy9uP&sig=ouKDUvC77U1XlGZEyIfb6qp9kcI.

[216] The term light forces refers to units equipped and trained to emphasize speed and mobility over armor and firepower. These units in modern combat lack armored elements (tanks and infantry fighting vehicles) and support artillery. Most of their equipment is carriable by troops.

3.) Jenzen-Jones, N. R., and Jonathan Ferguson. *Raising Red Flags: An Examination of Arms & Munitions in the Ongoing Conflict in Ukraine*. Armament Research Services Pty. Ltd., 2014.

4.) Johnson, David E. “Fighting the" Islamic State" the Case for US Ground Forces.” *Parameters* 45, no. 1 (2015): 7.

5.) Katulis, Brian, Siwar al-Assad, and William Morris. “One Year Later: Assessing the Coalition Campaign against ISIS.” *Middle East Policy* 22, no. 4 (December 1, 2015): 1–21. https://doi.org/10.1111/mepo.12154.

6.) Kober, Avi. “The Israel Defense Forces in the Second Lebanon War: Why the Poor Performance?” *Journal of Strategic Studies* 31, no. 1 (2008): 3–40.

7.) McMichael, Scott R. “A Historical Perspective on Light Infantry.” ARMY COMMAND AND GENERAL STAFF COLL FORT LEAVENWORTH KS, 1987. http://www.dtic.mil/docs/citations/ADA211838.

8.) Press, Daryl G. “The Myth of Air Power in the Persian Gulf War and the Future of Warfare.” *International Security* 26, no. 2 (2001): 5–44.

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10.) Van Evera, Stephen. *Guide to Methods for Students of Political Science*. Cornell University Press, 1997. https://www.google.com/books?hl=cs&lr=&id=V3pSlccSRDAC&oi=fnd&pg=PA1&dq=guide+to+methods+van+evera&ots=5koNqX3D8B&sig=jTB4lu2yVOuJEiz5tgQZLZAQkWw.