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Position of Airpower in Contemporary Strategy

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Abstrakt

Tato diplomová práce pojednává o roli vzdušných sil v současném vojenství. Za posledních 100 let se z letectva stala nedíliná součást ozbrojených konfliktů. Cílem této práce je určit funkci letectva ve válkách a kriticky zhodnotit jeho výkony. Analyzované konflikty zahrnující Válku v Zálivu 1991, válku v Kosovo 1999, Útok na Afghanistán v roce 2003 a protipovstalecké boje v Afghanistánu a Iráku, poskytují diverzitu, která je potřeba k dosažení cílů této práce. Práce je rozděleno na tři části. První část sleduje vývoj vzdušných sil a teorií jejich využití. Tato část by měla poskytnout základní vědomosti a kontext důležitý pro analyze současného využití leteckých sil. Druhá část práce představuje teoretické concept a formy použití letectva a obecně je analyzuje. Třetí část této diplomové práce pak tyto poznatky aplikuje na konkrétní ozbrojené konflikty, čímž poskytuje i empirická data. Závěry práce podotýkají, že i přes tendenci zveličovat jeho důležitost, letectvo se na dnešních bojištích stalo zásadně důležitým elementem.

Abstract

This thesis deals with the current role of airpower in contemporary warfare. In last 100 years, the aircraft became an indisputable part of today´s armed conflict. The aim of this work is to determine the mechanics behind airpower´s functions in conflicts and to critically assess airpower´s performance. The analyzed conflicts – Persian Gulf 1991, Kosovo 1999, Afghanistan 2001 and U. S.-led counterinsurgency campaigns in Iraq and Afghanistan – provide the diversity that is needed to reveal the position of airpower in contemporary strategy. The thesis is divided in three parts. The first part follows the evolution of airpower and its theory, providing context to further analysis of contemporary environment. The

second part of the thesis identifies key theoretical concepts and modalities connected to airpower and analysis them on a general, theoretical basis. The third part of this thesis applies the concepts and modalities on the picked case studies in order to reach the suggested objectives by analyzing the conflicts and deriving empirical data. The conclusions of the thesis suggest that while slightly exaggerated, airpower grew to vital importance and became one of the key elements in today´s conflicts.

Klíčová slova

Vzdušné síly, politika nátlaku, přímá letecká podpora, protipovstalecký boj, Válka v Perském Zálivu, Válka v Kosovu, Válka v Iráku, Válka v Afghanistánu.

Keywords

Airpower, coercion, close air support, counterinsurgency, War in Persian Gulf, War in Kosovo, War in Iraq, War in Afhanistan.

Rozsah práce: 146 713 znaků

Prohlášení

Prohlašuji, že jsem předkládanou práci zpracoval samostatně a použil jen uvedené prameny a literaturu. Současně dávám svolení k tomu, aby tato práce byla zpřístupněna v příslušné knihovně UK a prostřednictvím elektronické databáze vysokoškolských kvalifikačních prací v repozitáři Univerzity Karlovy a používána ke studijním účelům v souladu s autorským právem.

V Praze dne 10. května 2013 Tomáš Černý

Poděkování

Na tomto místě bych rád poděkoval PhDr. Vítu Stříteckému, M. Phil., Ph.D. za vedení při tvorbě této práce a za jeho cenné rady.

Table of Contents

List of Abbreviations and Acronyms

AAF – Army Air Forces

ACTS – Air Corps Tactical School

AFM – Air Force Manual

CAS – close air support

COIN - counterinsurgency

FAC – forward air controller

FM – Field Manual

JDAM – Joint Direct Attack Munition

MACV – Military Assistance Command Vietnam

NATO – North Atlantic Treaty Organization

RAF – Royal Air Force

UAV – unmanned aerial vehicle

USAF – United States Air Force

WWI – World War I

WWII – World War II

Introduction

War has followed man throughout his history and is perceived as one of his distinguishing features from other living things on our planet. From a certain point of view, war can be seen as a mirror to evolution of our society. In earlier times, warfare mainly consisted of man to man combat, where numbers, skill and spirit were of utmost importance. Strategy had its place in these times of warfare, but war also had a philosophical dimension. Warriors had a distinguished place in their societies, the concepts such as honor and various codes were very much part of warfare. But how the humanity grew older, philosophy was gradually more and more replaced by technology. As the industrialization of society progressed, more sophisticated and efficient killing machines were built. One of the oldest dreams of men – the conquest of air – was fulfilled at the beginning of the 20th century. It did not even take 10 years from the first flight of Wright brother and the Italian army was already using airplanes to reconnoiter Ethiopian territory during their campaign. This moment can be recognized as birth of a phenomenon of modern battlefields – the airpower.

Today, airpower is by many considered as a pinnacle of warfare, a force capable of causing massive damage with surgical accuracy from unbelievable heights. This work´s aim is to bring up an objective view of airpower´s abilities and its role in today´s warfare. The author will try to look underneath the public perception of airpower, which might tend to overestimate its decisiveness, showing people images and stories evoking the feeling perfection and invincibility. The author of this work will not try to analyze whether airpower is able to win conflicts on its own as he considers this debate to be not relevant anymore in today´s environment. Airpower can operate on its own, which bears some advantages and disadvantages and it can also operate as a part of combined force. This thesis will try to analyze these options and their suitability.

One of the key features of modern conflicts is the inclination towards protracted armed struggle using asymmetry between the adversaries. The ability to lead a counterinsurgency

campaign (COIN[1]) became one of the seminal capabilities of United States´ and NATO´s militaries. Recent years proved that these conflicts follow specific rules that can be much different from conventional conflicts and that the normally dominant military forces of this world have not been quite prepared to fight these wars. The position of airpower in counterinsurgencies seems to be much less dominant that during conventional clashes. This work will try to analyze the position, its evolution and future. The work is exclusively focused on airpower used by United States or some of the NATO countries due to the availability of the data of both theoretical and empirical character.

To summarize, the main objective of this thesis is to determine airpower´s position in today´s strategy. Secondary tasks are to establish how exactly airpower influences the conflicts, whether its best used on its own or in synergy with other assets and finally airpower´s position in counterinsurgency operations.

The work is divided in two parts. The first part covers the evolution of airpower theory throughout its history and introduces the basic concepts and modalities that will help analyzing airpower and reaching the objectives of this work. The second part of the thesis analyzes airpower´s operation in concrete conflicts. There are 4 cases – Gulf War, Kosovo, Afghanistan and Iraqi and Afghani counterinsurgencies - that were picked to cover all the concepts and modalities from the first part and to reach the objectives of the thesis.

The first chapter of the theoretical part of this thesis summarizes the development of airpower and its theory throughout whole history of using airpower. The chapter should provide the reader with a context and previous experience with airpower that has largely influenced airpower in modern strategies and doctrines. This chapter should be able to provide the reader with knowledge of some of the first theorists and allow him to evaluate their relevancy in today´s wars.

[1] See Galula David*, Counterinsurgency Warfare: Theory and Practice*. New York: Praeger, 1966 or Calwell Charles, *Small Wars: Their Principles and Practices.* Lincoln: University of Nebraska Press, 1996 or more recent Metz Steven, Millen Raymond, *Insurgency and Counterinsurgency in the 21st Century: Reconceptualizing Threat and Responce.* Carlisle: United States Army War College, 2004

The first introduced concept is the one of strategic airpower. The word strategic keeps confusing war´s scholar and this particular chapter will try to analyze and explain its meaning concerning airpower. The chapter will mention, that its meaning has changed through the course of time, and that even this day some authors use the concept in a different way than others.

Next, the thesis will move on to coercion, which is one of the main modalities of today´s airpower. Since the first writings of Giulio Douhet, airpower had been attributed with considerable psychological effects that have followed airpower´s evolution to this day. Coercion, denial, compellence, deterrence, these effects are still depended upon by decision makers using airpower. This chapter will try to analyze each one of them, their merits, demerits and requirements.

These two previously mentioned concepts are connected with the use of airpower in a way that does not need cooperation with ground segment of the force, in the case ground units are part of the operation. The effects pursued by such use of airpower are not intentionally directed to support the ground forces either, although they often do so indirectly. The further concepts describe uses of airpower that aim to support ground forces and that rarely do not require coordination with them.

Close air support (CAS) and interdiction are such concepts. For objectives of this work, these concepts are very close. The main difference is in the proximity of enemy forces that are engaged by the air assets. When providing CAS, the allied ground forces are in contact with enemy and are predominantly responsible for initiation and coordination of the airstrike. During interdiction, aircraft are attacking enemy´s fielded forces that are not in contact with allied ground forces and therefore interdiction is mainly planned in advance or by the pilots themselves in the case of targets of opportunity.

Last chapter of the theoretical part is devoted to counterinsurgency (COIN). Counterinsurgency has registered an increased of importance due to the rise of insurgencies in aftermaths of conflicts in Afghanistan 2001 and Iraq 2003. In counterinsurgency, the focus of the counterinsurgent force is not physical destruction of the enemy, but rather winning over the population and isolating the insurgents from any support they might be given. This

chapter will try to find out how airpower fits in this process and how the technological leap can influence future relationship between airpower and COIN.

The empirical part of this thesis tries to apply the theoretical concepts and modalities at chosen conflicts. Author of this work picked the cases because of their relevance to the objectives of the work. At the end of each case study, the thesis will present a clear summary of successes and failures of airpower in the concrete conflict.

The first two cases, Persian Gulf War 1991 and Kosovo 1999, are mainly focused on the coercive airpower, operating on its own. The chapters will delineate the initial plans and objectives of the airpower users, follow their execution and eventually to evaluate the performance. The chapter will try to reveal the mechanics of coercion and its sub-modalities in real conflicts and determine how it is used most effectively.

The next chapter will focus on the initial phase of Operation Enduring Freedom, which took place in Afghanistan in the year 2001. This part of conflict is noted by the plan based on close cooperation between airpower and ground forces. The plan that would be later called "the Afghan Model" heavily depended on the cooperation of airpower in the air and the U.S. special forces and Afghan Northern Alliance army on the ground. The campaign was successful in seizing Afghan major cities and at the moment the model is perceived as one of the alternatives for future conflicts. Later, the chapter will turn to Operation Anaconda, which was the first deployment of American and NATO´s ground conventional forces in Afghanistan. The battle is known for the wide use of close air support and will serve as prime case that will allow to examine airpower´s role and performance in this task.

Last empirical chapter of this work is an analysis of airpower in COIN operations. Although counterinsurgencies in Iraq and Afghanistan are separate events, the role of airpower in these is identical and it is determined by the same doctrine, which allows a common analysis. The chapter will try to dissect the perks of using airpower against insurgents in Iraq and Afghanistan and its downfalls.

Last chapter of the thesis contains conclusions. It will present the reader with its findings relevant to the objectives that were established in one of the paragraphs above.

1 Evolution of Airpower

1.1 First generation of theorists

The first airpower thinker, who dealt with the airpower theory on strategic level, was Italian artillery officer Giulio Douhet[2]. Douhet's overall view of war emphasized its inevitability and total character, which derived from the experience of WWI. Although airpower partly contributed to produce the trench stalemate by removing the element of surprise, Douhet believed that it would be airpower to restore the mobility in the war by using the third dimension, allowing airplanes to fly over the trenches, mountains and rivers that slowed down ground armies. For Douhet, the main purpose of aircrafts would be bombardment of enemy's vital centers. Because the airplane can travel in any direction, at any altitude and at any time, it would be able to bypass the armies and fortresses defending these centers and use the tactical surprise to attack. Douhet believed that there would be nothing to stop and intercept a bomber from reaching the target and so the only defense against it would be a good offense using one's own bombers, creating a mutual deterrence situation arising from fear of enemy retaliation. Further, he maintained that this was such a new way of thinking that only trained airman should be allowed the command the effort and that independent air forces must be created.

One of the main Douhet's ideas was that the physical destruction would be just a side effect and decisive effect would be psychological. To intensify this effect, Douhet called for the use of incendiary bombs and gas bombs against major population centers. The created terror would make the population to force its government to end the war as soon as possible or to revolt against it.

The roots of American strategic bombing theory go back to WWI, when Edgar Gorrell, an officer of Air Service in France during the war, wrote a long memo in 1917 that proposed a

[2] Douhet Giulio, *The Command of the Air.* translated by Dino Ferrari, New York: Coward-McCann, 1942

theory of strategic bombing. The overlooked document foretold the later American doctrines. Later I. B. Holley in his work Ideas and Weapons[3] suggested that airmen are often so concerned with the technological side of airpower that they fail to elaborate more on what to do with the technology when obtained. Using WWI as a case study, Hoiley shows that the link between ideas and weapons was missing largely because there was no established process in the Air Service to gather and evaluate data in order to improve the effort. The foundation of Air Corps Tactical School (ACTS) was supposed to address these shortcomings. ACTS was an army branch school between the wars. Its attendance was required for any airmen aspiring for higher ranks and command. Virtually all of the American top airmen from WWII attended the school. The instructor of ACTS developed, perfected and preferred the doctrine of high attitude, daylight, formation, precision bombing of enemy's industrial infrastructure.[4] The doctrine looked at the enemy's society as an industrial web in which all major structural components were destroyed or neutralized, which affected or even paralyzed the whole system. To pursue this doctrine, it would be needed to build an air force consisting of heavy bombers and commanded by airmen. This doctrine was later brought by the Air Corps in the WWII.

The theory, which was developed by the Royal Air Force, was largely influenced by the psychological terror induced during WWI by German Zeppelins and Gotha bombers against British population.[5] The memory of public reaction stuck in the minds of British political and military elites, therefore the RAF put its faith in strategic bombing as a mean to brake the will of the enemy. The most influential person of RAF during the interwar period was Hugh Trenchard, who led the service from its foundation until 1929 and is considered as a "father of the RAF". Like Douhet or people from ACTS, Trenchard saw the airpower as being most effective in attacks against vital centers of the enemy's territory. Although Trenchard refused Douhet's ideas of attacks directly against populations, he accepted that the main

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[3] Holley I. B., *Ideas and Weapons: exploitation of the aerial weapon by the United States during World War I: a study in the relationship of technological advance, military doctrine, and the development of weapons.* Office of Air Force History, 1983

[4] Finney Robert T., *History of the Air Corps Tactical School, 1920 – 1940*. Washington D. C.: Center of Air Force History, 1992

[5] Morrow John H., *The Great War in the air.* Smithsonian Institution Press, 1993

target should be enemy's morale. He tried to resolve this paradox by adopting a similar approach as the ACTS. The only difference was that, while the ACTS championed the strategic bombing of industry in order to destroy the enemy's capability to fight, Trenchard advocated the bombing of enemy's industry would cause the loss of enemy's will to fight as the bombardment of industrial, communication and transport network and economy would disrupt the daily life of working population, causing unemployment, poverty and misery and eventual popular movement demanding the end of the war.[6] Both American and British approach also recognized the great importance of air superiority won by fighter aircrafts.

Less known but an interesting thinker of airpower was a Russian expatriate living and writing in France named Nikolai Golovine[7]. His continental European origin meant that his ideas differed to some extent from the other airpower theorists. Golovine was one of the technological determinists, who believed that airpower was all about technological advancement. Golovine was especially interested in speed. According to him, speed was the guarantor of surprise and also a solution against both ground based and airborne defenses. He predicted the ascendancy of air detection as well as anti-air artillery. He also, unlike Trenchard or Douhet, anticipated the existence of pure air battles and need for escort fighters to accompany the bombers[8].

One of the last influential airpower theorists to publish his major work before the climax of Allied combined strategic bombing campaign was Alexander de Seversky, a Russian fighter pilot from WWI, who emigrated in the United States. De Seversky was not just a theorist, his aircraft company developed some original and important airplane designs, like the P-35, the ancestor of P-47 Thunderbolt. De Seversky's book Victory through airpower[9] became, unlike any other book about airpower, a popular reading right after its publication in 1942. In the book, de Seversky strictly refuses any possibility of defeating the Axis powers by focusing on

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[6] Parton Neville, The Development of Early RAF Doctrine. *The Journal of Military History*, Volume 72, Number 4, October 2008

[7] Golovine Nikolai, *Air Strategy.* London: Gale and Polden, 1936

[8] Meillinger Philip S , The Historiography of Airpower: Theory and Doctrine, The *Journal of Military History*, Volume 64, Number 2, April 2000

[9] De Seversky Alexander P*., Victory through air power.* New York: Simon ans Schuster, 1942

ground or naval forces and considers this style of fighting as outmoded. Instead, he staunchly trusts that a long range strategic air force, based preferably on American territory, would bomb the Axis powers into submission far less costly, than a land campaign and far more quickly than a naval campaign.[10]

1.2 Airpower in WWII

As it showed, the terrible conflict of World War Two presented a great opportunity for all the promises made by the first airpower theorists in the interwar period. Although strategic bombing campaigns occurred right from the beginning of the war, these stages of war from 1939 to 1943 did not fully allow to develop a full scale strategic bombing efforts. The Luftwaffe's bombing of Great Britain was only limited as the successful campaign in France has turned German airmen's focus on air support of the Panzer divisions. Luftwaffe was therefore not equipped with a proper heavy strategic bomber that would carry a sufficient payload of bombs and the bombers that were in Luftwaffe's arsenal did not have the numbers. The British strategic bombing of German industry was reaching its limits especially because of the need for production of fighter's to defend British territory. Although the strategic bombing did not show its full potential in these years, the Douhet's idea of bomber's invincibility was already gone. Early in the war fighter planes proved that they were a deadly weapon against bombers on both sides, causing unacceptable losses. The development of radar also seriously damaged the strategic bombing efforts. Another surprising moment for all the airmen was the fact that it proved that destroying the targets of bomber was much more difficult than expected. It showed that Douhet seriously underestimated the amount of bombs needed to inflict serious damage. Although the factories were hit and damaged, they could not be hit often or badly enough to be permanently knocked out of action. In addition, fast and effective German repair, dispersion and adaptation lowered the efficiency of the Allied bombing. A third problem was intelligence. The airmen had difficulty not only to identify the targets but also to assess the

[10] Meillinger Philip S , The Historiography of Airpower: Theory and Doctrine, The *Journal of Military History*, Volume 64, Number 2, April 2000

damage inflicted on those targets. Therefore, targets written off as destroyed were often only damaged and quickly got back into action.[11]

To incontrovertibly analyze strategic bombing campaign against Germany, we have to focus on the years 1944 – 1945, when the strategic airpower was one of the primary consumers of Allied resources. To measure the effort and costs of the Allied strategic bombing offensive, we will have to look on the statistics. As much as 40 to 50 percent of the British war effort ran into the RAF, and approximately 30 percent in the bombing offensive. On the American side it was about 25 percent.[12] As for operational costs, the Bomber command lost 8 325 both bombers and almost 63 000 aircrew casualties during operations. *The AAF's strategic air forces, the 8th and the 15th lost 8 237 bombers, 3924 fighters, and in total 73 000 crew members, of whom 29 000 died – for comparison: Normandy campaign: 63 000 (16 000 dead), Ardennes: 69 000 (19 000), entire Pacific War: 170 000 (57 000).*[13] The campaign devastated many European cities, especially in Germany. Berlin and Hamburg lost more than 6000 acres, Cologne and Dusseldorf about 2000 acres and another 10 cities lost 1000 acres each.[14] The civilian casualties were also high. Allied bombs killed around 600 000 German civilians, which is about ten times more than the number of British civilians killed by German bombs and V-weapons.[15]

With these costs, what were the achievements? There were at least three: the defeat of Luftwaffe, diversion of German war machine and destruction of key elements of German industry. In order to engage the bombers, Luftwaffe was forced to take off and face not only the heavily armed B-17's but also the ever-increasing numbers of escort fighters. In early 1944 AAF won the daylight air superiority over Luftwaffe for its bombers and also contributed to weakening the air attacks against the Normandy invasion. The strategic bombing campaign forced Germany to divert her forces from the Eastern front. One to two

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[11] Werell Keneth P., The Strategic Bombing of Germany in World War II: Costs and Accomplishments, The *Journal of Military History*, Volume 73, No. 3, December 1986

[12] Hastings Max, Bomber Command. Pan Macmillan, 2012

[13] Howard Michael*, Studies in War and Peace*. New York, 1972

[14] Harris Arthur, *Bomber Offensive*, London, 1947

[15] Rumpf Hans, *The Bombing of Germany.* Translated by Edward Fitzgerald, New York, 1962

million personnel was drained from the battlefields in Soviet Union in order to provide air defense and also rescue and repair activities. In 1941 the Luftwaffe employed 65 percent of its forces on the eastern front, in 1944 it was only 32 percent. The German aircraft production was also affected. In 1941, the offensive-oriented German aircraft industry devoted only 17 percent to the production of single-engine fighters, in 1944 it was 76 percent.[16] In 1942, German industry was short on oil and German military was forced to make cutbacks on training. The bombing of German oil industry began in 1944 and quickly forced Germans to limit even their combat operations. The attacks on transportation system absorbed German efforts to disperse, hide and fortify the factories. It is estimated that the bombing destroyed 20 percent of German war production on the last 16 months of the war.[17] Nevertheless, the German industry still grew, which was caused by couple of reasons: The Allied airmen maintain that they were not allowed to hit the targets they wanted until the summer of 1944. Also, 72 percent of the bombs fell on Germany after July 1st 1944 and only 14 percent of that targeted specific factories. We have to note as well that Germany did not fully mobilize its economy until 1942 and therefore the bombing rather prevented the industrial increase from rising even higher. Bearing in mind all these numbers, however, we have to state that the Germans were never short of weapons, and in number of categories – tanks, submarines and jet aircraft, they employed superior equipment. They had enough equipment, but lacked fuel and numbers.[18]

Although the effect of the bombing on German morale is less well measurable, it is clear that it did not crack under the massive campaign. German workers went on to produce weapons and soldiers maintained fighting. The opinions of experts differ. Some argue that bombing caused merely apathy towards the Nazi regime, some authors go even further to state that the bombing eventually stimulated the German morale.[19]

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[16] Overy R. J., *The Air War, 1939 – 1945*. Potomac Books, 2005

[17] Speer Albert, *Inside the Third Reich*. Simon and Schuster, 1997

[18] Overy R. J., *The Air War, 1939 – 1945*. Potomac Books, 2005

[19] Rumpf Hans, The *Bombing of Germany.* Translated by Edward Fitzgerald, New York, 1962

To conclude the strategic airpower effort in WWII, it is safe to say that this conflict proved the interwar theorists wrong. Strategic airpower did not break German morale nor it deprived German soldier of weapons. The airmen's peacetime promises exceeded the wartime results. The strategic airpower was not clean, cheap, surgical or revolutionary force.

1.3 Postwar airpower theory

In the following years after WWII, airpower was perceived as a decisive factor behind Allied victory. The advent of nuclear weapons only supported this idea as heavy bombers were the only known delivery system. With emergence of Cold war, majority of military planners including airmen and airpower theorists recognized Soviet Union as the most probable opponent and nuclear airpower as one of the main protagonists of the potential conflict. Some experts pointed out the similarity between Giulio Douhet´s mentioning of deterring potential of strategic bombing and the developing body of nuclear deterrence. The main focus of doctrinal works of this era was in targeting. Various targeting theories were developed and targeting was recognized as a key to airpower. The experience from WWII showed that although all of the enemy´s country may be open to attack, not all targets can or should be hit. The prioritizing of targets was in the essence of the contemporary strategic airpower debate. The debate itself was, however, difficult as the air theorists strongly disagreed over even the fundamental issues such as prioritizing population-morale, industry, communications, fielded forces etc. Although the promises of nuclear power could not be empirically scrutinized as was the case of the first airpower thinkers, the importance of targeting would reappear in the age of precision weapons.

1.4 Airpower in Vietnam

The war in Vietnam meant the same sobering for strategic airpower as it did for the whole American military and political establishment. Strategic bombing in Vietnam War was almost exclusively executed in within the frame of Operation Rolling Thunder. The heart of this operation derived from a theory developed by Thomas C. Shelling, economist and nuclear strategy theorist. This theory of "gradual escalation" argued that a steadily increasing use of force – the metaphor of ratchet is often cited – can induce an adversary to modify his

behavior. If the force is effective, the enemy will cease whatever conduct had been thought objectionable. The user of the ratchet can temporarily ease off on the pressure to allow the opponent to think things over.[20] This principle was applied on bombing of North Vietnam despite the fact that WWII proved that the effects of strategic bombing on enemy´s morale and resolve are at least doubtful. The bombing was further limited by couple of factors. Despite the elaborated system of targeting, the actual choosing the targets was being dictated directly from Washington together with the days and hours of attack, numbers and types of aircraft used as well as the tonnages and types of ordnance. In order to maintain the gradual character "strategic persuasion", trivial targets were attacked, showing to North Vietnamese that the important targets were "held hostage". Therefore the targeting did not follow any logic of strategic bombing theory and the targets were approved randomly, even illogically. The North Vietnamese airports, for example, would be normally among the first targets to hit but in order to prevent possible Chinese or Russian intervention, the airports were off limits. The territorial limits of bombing were not unusual, airstrikes were strictly forbidden within 30 km radius around Hanoi, 20 km around the port Haiphong and there was a 60 km wide buffer zone along the Chinese borderline.[21]

Rolling Thunder also exposed problems in the command and control system. Although the Air Force was an independent component of American military and was apparently responsible for all the aerial operations in the theater, it was ultimately subordinate to MACV commander, U. S. Army general Westmoreland. Further, the Seventh/Thirteen Air Division had a dual command structure, referring its operational matters to the Seventh Air Force Division Command based in Thailand and its logistical and administrative concerns to Thirteen Air Force Division Command in Philippines. To add the confusion, there was also Navy´s air force which refused to integrate its own air operations with the USAF.[22] This system went completely against the well-proven single air manager concept that was sorely but successfully tested over North Africa during WWII.

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[20] Schelling Thomas C*., Arms and Influence.* New Haven, Connecticut: Yale University Press, 1966

[21] Tilford Earl H. Jr*., Setup: What the Air Force Did in Vietnam and Why*. University Press of the Pacific, 2002

[22] Thompson Wayne, *To Hanoi and Back*. Washington D. C.: Smithsonian Institution Press, 2002

Another problem was USAF´s unpreparedness for the operations executed over Vietnam. The aircraft design and pilot training was designed for strategic operations against Soviet Union using nuclear and not conventional ammunition. The campaign exposed the neglect in conventional tactics and the ill-suited character of aircrafts and armament. The only proper aircraft with an all-weather capability and, radar-guided bombing equipment and big enough payload was B-52 Stratofortress, whose utilization was, however, limited by the civilian administration, and was used only marginally in order to prevent escalation from China.

Overall, the USAF flew 153 784 sorties against North Vietnam and together with the Navy and Marine Corps dropped 863 000 tons of bombs. CIA estimated that the damage inflicted during the 44 month long campaign was worth 370 million dollars including 164 million dollars to capital assets like factories, bridges and power plants. The agency estimated that the North Vietnamese casualties totaled 90 000 people from which around 72 000 were civilians. The USAF lost 506 men.[23] The campaign ended up as failure, it did not force the North Vietnamese government to change its demands towards South Vietnam nor it prevented the flow of personnel and material to South Vietnam.

1.5 Modern age

The last big jump in airpower promises came with the introduction of high precision guided weapons, allowing truly surgical strikes from great, earlier unimaginable, attitudes. The most influential airman of this era was combat veteran Colonel James Warden.[24] His theory heavily influenced USAF as Warden worked in Pentagon when Saddam Hussein invaded Kuwait. Warden was tasked to design an air campaign that would focus on strategic attacks against Iraqi centers of gravity. The plan considered the enemy as a system of five concentric rings, with the leadership at the center – the most important and most fragile target – and armed forces as the least important target and the most hardened one. The key target was

[23] Clodfeter Mark, The Limits of Airpower: The American Bombing of North Vietnam. New York: The Free Press, 1983

[24] Warden John A. III, The Air Campaign: Planning for Combat. Washington D.C.: National Defense University Press, 1988

the enemy leadership. Killing, capturing or at least isolating the leadership would according to Warden incapacitate the whole country. It is clear that this theory turned away from the economic emphasis connected with strategic airpower as well as the morale damaging effects, which could of course occur by targeting the leadership but the primary purpose is destruction of the form and process of enemy leadership that would wreak chaos and cause paralysis of the enemy. The performance of strategic airpower in the First Persian Gulf War is widely considered as a showcase of this form of warfare. The consciousness about bombing Iraqi infrastructure was massively boosted by the publicity in the media and images of the Coalition planes hitting their targets with surgical accuracy.

The contribution of the 38-day strategic campaign is a source of controversy. It is clear that the Coalition aircrafts were able to seriously damage Iraqi infrastructure including power plants, radio and TV broadcasting and communication lines. Further, the airpower disrupted the Iraqi control and command ability and cut off the frontline forces from supplies. The attacks against Iraqi fielded forces destroyed 40 percent of Iraqi armored vehicles. The constant shock from air attacks resulted in mass desertion or instant surrender of Iraqi forces after encountering Coalition´s ground forces.[25] Despite these successes, the airpower did not win the war single handedly as is sometimes cited. The Iraqi command and control system was disrupted but it was not destroyed completely, as some of the frontline generals were still able to communicate and to adapt to the situation on the battlefield surprisingly quickly.[26] It also a fact that the decapitation campaign failed as none of the high-ranking political or military figures were killed during the bombing of Iraq. The air power, therefore, did not win the war but it allowed the war to be won so overwhelmingly.

1.6 Airpower in Kosovo

The NATO engagement in Kosovo presented airpower a great opportunity to prove itself to the world as there was no ground operation during the conflict. The center point of the

[25] Mann Edward C. III, *Thunder and Lightning: Desert Storm and Airpower Debates*. Maxwell Air Force Base: Air University Press, 1995

[26] Press Daryl G., The Myth of Air Power in the Persian Gulf War and the Future of Warfare. *International Security*, Volume 26, No. 2, 2001

performance of strategic airpower in Kosovo was its ability to coerce or compel enemies. Unlike in Iraq, the goal of the NATO air campaign against Slobodan Milošević´s regime was not eliminating the Serbian leadership but to compel it to stop the ethnic terror against Kosovar Albanians, to enforce withdrawal of Serbian forces from the province and acceptance of political settlement that would grant a high degree of autonomy to Kosovo. The campaign had two kinds of targets – strategic infrastructure and fielded Serbian forces. The campaign against Serbian infrastructure was designed to break Milošević´s will to go on in ethnic cleansing of Kosovo. The attacks hit key bridges, roads and oil refineries, military fuel installations and army bases. NATO also attacked targets in Belgrade, such as the headquarters of Milošević´s socialist party and radio and television broadcasting facilities. On May 24, the attacks disabled the national power grid. Some evidence suggests that this bombing really contributed to internal unrest that worried Milošević. As any other charismatic leader, Milošević was seriously concerned about his popularity. Initially the attacks bolstered his position but overtime some segments of Serbian society began to rest uneasy. The psychological impact was magnified towards the end of the bombing campaign as Serbia had no option for retaliation. Milošević had to shut down independent newspaper and television. Several of Serbian army top generals had to be placed under house arrest as the NATO bombing led dissatisfaction inside the Serbian army[27].

As we can see the threat of internal instability can sometimes be a critical element in enemy´s decision making. One important moment occurred for airpower as there was no combat casualty on the NATO side. The inability of Serbian forces to inflict any losses was definitely a factor in Milošević´s decisions and it also suggested that the use of airpower can be a safe way how to wage wars.

[27] Byman Daniel L., Matthew C. Waxman, Kosovo and the Great Air Power Debate. *International Security*, Volume 24, No. 4, 2000

2 Key concepts

One of the key features of airpower is its flexibility. One does not use the term tactical and strategic army or navy but we do talk about strategic and tactical airpower. Airpower can be used in parallel campaigns, with each campaign aiming on different targets, using different platforms.[28] To be further able to learn more about the role of airpower in today´s warfare, we must study these modes closer. The way of using airpower without cooperation of ground forces or without the aim to influence the ground campaign is called strategic airpower. The use of airpower in cooperation with ground forces is called close air support or interdiction. Both ways will be explained separately together with other main concepts and issues connected to them.

2.1 Stand-alone airpower

For purposes of this work, stand-alone airpower is the use of airpower, whose primary aim does not try to support the ground forces, although, in some cases, it might to do so in an indirect way. The aim of stand-alone airpower is to directly influence the course of the conflict, and it might overlap the term *strategic airpower*.

2.2 Concept of strategic airpower

Firstly, terminology has to be clarified. Strategic airpower contains various forms of use of airpower, which some authors would have put at the same level with the original term. The terms like strategic bombing or strategic air attack are surely valid and acceptable but too narrow and could be misleading.

[28] Meillinger Phillip S., *10 Propositions Regarding Air Power.* Air Force Historical Studies Office, Air Force Pentagon, Washington D. C., 1995

Clarifying the concept is not as straightforward as it would seem. Several criteria must be examined and still after that we will have to settle with more than one of "end products" that were developed by esteemed authors.

During the Cold war, strategic attack was a synonymous term to nuclear attack. The renaissance of conventional strategic airpower came with the end of the Cold war with operations Desert Storm and Deliberate Force but the contemporary discourse was still pretty much focused on strategic bombing carried out by long-range heavy bombers like B-1, B-2 or B-52.

It has shown by this time that the term strategic bombing was outdated and referred to something else than what was strategic airpower at the beginning of 1990´s. Due to the historical baggage of the term, authors tend to use it but fall short of reaching today´s criteria, theories and realities. Robert Pape still defines strategic airpower (or bombing) by target sets. *"Strategic bombing attacks fixed military, industrial and civilian targets in and near political or economic centers"*[29] he wrote. However, it could not be the target struck that dictates the nature of the attack to be strategic. We can move on to the work of Air Vice Marshal Tony Mason, who stipulates that *"the method of attack and specific nature of the target will be irrelevant to the definition"*[30]*.* A good example of the sensibility of this idea is the decision of President Bush and Gen. Schwartzkopf, who would target the units of Republican guard during the strategic air campaign of Desert Storm. The reason behind this was not the fighting potential of Republican guard but the dependence of Hussein regime upon it. In the past, these targets would be considered as rather "tactical" as their destruction would be primarily helping the surface operations. Attack against rear echelons of the enemy´s fielded units is perceived as interdiction and again its strategic or tactical importance is determined by the magnitude of the outcome. The USAF doctrine reacted to this situation and acknowledged the need to avoid the "one-size-fits-all" approach to targeting. The Air Force Manual 1-1, Basic Aerospace Doctrine of the United States Air Force,

[29] Meillinger Col. Phillip S., The Problem with Our Air Power. *Airpower Journal*, vol. 6, Spring 1992, p. 24-31

[30] Mason Tony, *Characteristics of Aerospace Power*. paper presented at „Air Power and Space – Future Perspectives" convened by the Chief of the Air Staff, Royal Air Force, Westminster, London, 12-13 September 1996, p. 10

says that it is *"the objective sought – an effect on the war as a whole – that determines if a target of attack is strategic".*[31]

Same approach was needed in the case of aircraft or weapon platforms chosen for the task. There are still some authors that refer to strategic bombers as a special type of aircraft. Certainly, we can refer to these by less controversial terms like heavy or long-range.[32] This inaccuracy can be explained in historical and technological terms. Earlier, strategic attacks were carried out by these heavy bombers, which possessed the required large payload as the accuracy of contemporary bombs was very low and it was important to assure that at least one of the bombs hit the target. With the technological development, a role reversal took place. The first sustained reversal case of "strategic" and "tactical" platforms was seen in Vietnam, where B-52s flew missions in support of ground forces while much more nimble F-4s and F-105s attacked targets in the North. Another example was two Israeli F-16s destroying Iraqi nuclear reactor at Osirak in 1981[33], surely a strategic target. This transformation is officially acknowledged in improved Air Force Manual from 1996, which says that *"strategic attack is not defined by the weapons or delivery system used – their type, range, or destructiveness – but by their effective contribution directly to achieving national or theater strategic objectives".*[34]

Now when we know that strategic airpower is defined by neither target nor the used aircraft, we should proceed to more positive definition. As noted in AFM 1-1, the strategic airpower seeks to achieve an effect on the war as a whole. Some other authors suggest effects that are "transformatory" and "game-changing" are those inherently strategic in nature.[35] As an example of this understanding or the term "strategic, we can use the concept of air superiority or even dominance. The side that wins the battle over the air superiority is given a huge advantage over its opponent. Surely such an advantage is "game-changing"

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[31] AFM 1-*1, Basic Aerospace Doctrine of United States Air Force.* Vol. 2, March 1992, p. 151

[32] Conversino Mark J., The Changed Nature of Strategic Air Attack. *Parameters*, Winter 1997-1998, p. 28-41

[33] Keaney Thomas A., Cohen Eliot, *Revolution in Warfare ? Air Power in the Persian Gulf*. Naval Institute Press, Annapolis, 1995

[34] *Air Force Doctrine Document 2-1. 2, Strategic Attack*. second draft, 10 October 1996, p. 11

[35] Builder Carl H., Keeping the Strategic Flame. *Joint Force Quarterly,* No. 34, Spring 2003

therefore can be a strategic objective. Not many analysts from the earlier days would agree to that. Air superiority or dominance is important for any further strategic attacks. *"In the absence of air superiority, an air force attempting to mount a sustained strategic attack, using large numbers of manned platforms, would be forced to endure significant levels of attrition. However, in the post-industrial era, when both pilots and aircraft are expensive, no modern air force could tolerate heavy losses such strategy would produce."*[36]

This brings us to the realization that strategic attack is not finding the strongest point in opponent´s forces but rather finding one´s own strength and aiming it towards the opponent´s weaknesses. Yes, Clausewitz still echoes in today´s theories and concepts[37]. It is strategic-level goals that define targets for strategic airpower. During the operation Deliberate Force in Bosnia, the strategic air campaign was only limited in order to assure the option of post-war reconciliation and reconstruction. It might have not destroyed all the military targets open to attack but it did succeed in putting the Allied negotiators in the spot where they wanted to be. From all of the presented examples, it is clear that type of aircraft or quality of target is not an issue, the effects of hitting or even not hitting the target is what matters and the link between these attacks and strategic objectives is what makes a mission strategic.

Some airmen still believe that "airpower can do it all". This can be true when the objectives are appropriate. Operation El Dorado Canyon against Libya in 1986 or the already mentioned strike against Osirak nuclear power plant can serve as good examples. However, as Air Vice Marshal Tony Mason has noted: *"The concept of strategic attack should be extended to include activities which can subsequently be exploited by ground forces in greatly reduced numbers, with greatly reduced casualties and greatly reduced costs."* [38] The current USAF doctrine shares this opinion and says that *"strategic air campaigns serve the overall war effort, seeking maximum leverage upon the opponent by using the most direct means*

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[36] Conversino Mark J., The Changed Nature of Strategic Air Attack. *Parameters*, Winter 1997-1998, p. 28-41

[37] Clausewitz Carl von, *On War*. Princeton: Princeton University Press, 1976

[38] Mason Tony, *Characteristics of Aerospace Power*. paper presented at „Air Power and Space – Future Perspectives" convened by the Chief of the Air Staff, Royal Air Force, Westminster, London, 12-13 September 1996, p. 13

available."[39] As was mentioned in the introduction of this paper, its aim is not to contribute to the debate whether strategic airpower can or cannot operate solely on its own. Such debate seems to the author pointless and without any importance at the moment.

As a part of joint operations though, strategic airpower is still a vital part. It provides synergy, which is defined in Joint Publication 3-0, Doctrine for Joint Operations, as applying *"force from different dimensions to shock, disrupt, and defeat opponents. It brings simultaneity and depth to a campaign by bringing force to bear on the opponent´s entire structure in near simultaneous manner to overwhelm and cripple enemy capabilities and enemy´s will to resist. Strategic attacks provide leverage – that is gaining, maintaining, and exploiting advantages in combat power across all dimensions. Depending on the nature of the enemy and our own goals, strategic airpower can fulfill these and characteristics of operational art by itself or as a part of a joint force."*[40]

M. Conversino offers quite simple and insightful definition of the modern strategic airpower:

"The offensive employment of airpower assets to allow the joint forces to achieve a decision with minimum contact between opposing military forces, by striking targets that most generally and directly relate to the opponents ability to maintain forces in the field as well as his will to resist. Such operations also directly fulfill national, multinational, or theater strategic-level objectives."[41]

2.3 Coercion

The concept of coercion using the airpower is of the same age as the theory of airpower itself. If you remember the thoughts of Giulio Douhet, as mentioned earlier in this work, the produced psychological effect was in the center of the idea of airpower. Although some authors consider Douhet´s theory as no longer relevant[42], coercion remains a central

[39] *AFM 1-1, Basic Aerospace Doctrine of United States Air Force.* Vol. 2, March 1992, p. 150

[40] *Joint Publication 3-0, Doctrine for Joint Operations.* 1 February 1995, p. xi

[41] Conversino Mark J., The Changed Nature of Strategic Air Attack. *Parameters*, Winter 1997-1998, p. 28-41

[42] Conversino Mark J., The Changed Nature of Strategic Air Attack. *Parameters*, Winter 1997-1998, p. 28-41

concept when dealing with strategic airpower and plans and doctrines are developed upon theoretical works on coercion. In this chapter, I will try to analyze the concept and focus on the possibilities how coercion can function in a conflict.

Coercion is defined as an action or practice of persuading someone to do something by using force or threats. This definition goes very well along with Clausewitz´s definition of war as "an act of force to compel our enemy to our will".[43] The similarity shows us that coercion was according to Clausewitz one of the essential phenomena in war and that mastering its use could be vital to success not only in war but in the international system as a whole. Coercion covers both deterrence and compellence. Deterrence is an action used to persuade the adversary not to take action he might do. Compellence is an action used to make the adversary to take action he otherwise would not. Some cases are not as clear, e. g. dissuading someone from launching an invasion, but the possible ambiguity is merely semantic.

2.3.1 Modern conflicts

Before further examining the concept we need to outline the environment where it is used ergo the conflicts. For purposes of this work, modern conflict, where modern strategy was used, is a post-cold war conflict, which tends to have specific features for the users of airpower.[44] Firstly, the modern conflicts are politically restrained. They tend to be restrained politically (in their aims) and militarily (restrains on military operations). The pattern shows that the most important trend is that *"the U. S. concern to minimize civilian casualties and other collateral damage has increased over time and will probably constrain severely both the methods and the targets of air attacks in future conflicts."*[45] Second, the aim of airpower user in wars is often limited which is strongly connected to the idea that *"the object in a war is a better state of peace and that it is essential to conduct the war with constant regard to*

[43] Clausewitz Carl von, *On War*. Princeton: Princeton University Press, 1976 p. 141

[44] For further characteristics of today´s conflicts compared with past see Van Creveld Martin. *Transformation of war.* Free Press, 2009 or Coker Christopher, *Ethics and War in the 21st Century.* Taylor and Francis, 2008

[45] Hosmer Steven T., *Psychological Effects of U. S. Air Operations in Four Wars, 1941 – 1991*. Santa Monica: RAND, 1996, p. xx

the peace you desire."[46] In the case of total war, there are no constraints or brakes, the victory is fought by total annihilation of the enemy´s military and the peace looks however the victor dictates it. That is not how the modern conflict looks though. Today´s limited wars (at least from one side´s point of view) have to be waged accordingly. Michael Howard put it elegantly: *"In a more real sense than ever before, one is making war and peace simultaneously."*[47] Overall, the modern conflicts put restraint on airpower due to user´s policy or ideology and due to increased emphasis on the better state of peace.

Second type of modern conflicts is a protracted counterinsurgency that aims to defeat an inside opposition forces, which largely depend upon support of the population or its part and guerilla warfare tactics, which derive from the asymmetry between the opponents. The role of airpower in these conflicts will be examined later in this work both theoretically and empirically.

Coming back to coercion, we can now analyze the forms and ways, how can it be used and the role of destruction. To successfully coerce the enemy, the coercer needs to have certain requirements. The most commonly listed items needed for coercion are "three C´s" – credibility, capability and communication.[48]

2.3.2 Credibility

The coercer can only be successful when the adversary believes that the coercer is truly willing to exercise the threatened action. The important thing is that the enemy´s ability to perceive threats is irrelevant, what matters is whether or not he believes it or how much. In general, the more severe a threatened action is, the less credible it needs to be.

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[46] Lidell Hart B. H.*, Strategy.* New York: Praeger, 1967, p. 338

[47] Howard Michael, *Strategy and Policy in Twentieth-Century Warfare. In The Harmon Memorial Lectures in Military History, 1959 – 1987.* Washington D. C.: Office of Air Force History, 1988, p. 354

[48] Mueller Karl, The Essence of Coercive Air Power: A Primer for Military Strategists. *Air & Space Power Journal*, September 2001

2.3.3 Capability

The enemy must believe that the coercer posses the ability to carry out the threatened action. The capability must be perceived as matching also because without capability, established credibility – coercer´s will to execute the action – is worthless. Although these two requirements are strongly connected, capability is often neglected part of coercion. This is caused by the fact that coercive strategies are predominantly used by USA or NATO with both subjects´ capability very well established. However, capability can be problematic when the coercer is a less powerful state.

2.3.4 Communication

The demands and threats of the coercer must be articulated effectively, which can be as simple as an official statement, but can become a real challenge when the communication is based on actions and not words.[49] This is especially important when exercising one of the forms of coercion that will be analyzed later – risk-based coercion. With the question of how to communicate the threat to the adversary, the question of who the adversary is, arises. The theory gives great importance to rationality of the adversary. In order to decide to coerce the enemy, one must assume that the coerced side possesses at least minimal degree of rationality, which means that once coercion is successful, the enemy will act upon it and comply with the demands in order to maximize his benefits or minimize his losses. The more irrational the opponent seems, the more severe the threat has to be in order to overcome the interference in perception. "*A state's behavior can fall short of the rational ideal for many reasons—including mentally defective leaders, organizations and interest groups pursuing parochial instead of national interests, inefficient government bureaucracies, imperfect information, motivated and cognitive biases—which may make coercion either easier or more difficult, depending on the details of the case.*"[50] Last variable that is of the theorist´s and strategist´s concern is the interest of the coerced party. It should be obvious

[49] Mueller Karl, The Essence of Coercive Air Power: A Primer for Military Strategists. *Air & Space Power Journal*, September 2001

[50] Ibid.

to those trying to coerce their enemies that probably almost nothing would persuade their opponents to give up their national sovereignty. On the other hand, an astute coercer could be able to minimize his effort and save some of his means in order to reach victory in case of only trivial interests are at stake.

2.3.5 Coercion and destruction

Before examining the forms of coercion, the relationship between destruction and coercion must be clarified as it is important to conclude airpower´s position in today´s warfare. One of the opponents can follow strategy of destruction. The aim is not to bend his will. The effect is purely physical and the goal is total annihilation or incapacitation of adversary´s forces. Although this approach can lead to a change in opponent´s behavior, it does so by removing certain capability to react as he normally would, not the will. The pure force approach is normally pursued at tactical level, while at strategic level such way of waging war would be almost always a very costly one. One of the few examples of a strategic result reached by pure force would be the aforementioned attack on nuclear plant at Osirac.

2.3.6 Coercion by punishment

The theory of using airpower to coerce a foe by punishment dates back to Gioulio Douhet himself. Its usefulness in contemporary conflicts is, however, contested by number of authors. Douhet and other theorists of his time were influenced by the character of their age, when one total war was over and another was building up. The essence of punishment-based coercion is in directly attacking his will to fight and to a large extent ignore his ability to fight. This is achieved by attacking his economy or as would Douhet prefer, directly the civilian population. The effect on enemy´s ability to actually fight is only collateral or, in case of attacks against the economy, long-term. While this approach could have been somewhat more defendable back then, modern conflicts lack the total[51] and protracted[52] character that would vindicate such a strategy. The anti–economic air campaign needs too much time to

[51] Douhet was a hard-liner, who thought that in total war, there were no non-combatants, see Douhet Giulio, The Command of the Air. translated by Dino Ferrari, New York: Coward-McCann, 1942 p. 5- 6

[52] Low-intensity conflicts or low-intensity phases of conflicts excluded

result in dissipation of opponent´s ability to fight for relatively quick air campaign´s of modern conflicts. Also Robert Pape talks about another downside of punishment coercion: *"Although bombing economic structures can weaken opponent´s military capabilities in long wars, the first effects are generally felt by civilians."*[53] That not only supports the first argument against the use of punishment coercion but makes another one.

Punishment-based coercion is at odds with the political and military restraints of modern conflicts. While Douhet´s idea to directly bomb civilian population is out of question, there were attempts to use a limited version of this form of coercion in a modern conflict. Excluding the intelligence and other unavoidable mistakes, the civilian population was severely affected indirectly. One of the studies directed on casualties from the Gulf War states that *"poor health caused by infrastructure damage killed thirty times more civilians than did the direct war effects."*[54] The experience also shows that even with precision guided ammunition, bombing infrastructure in urban areas still results in civilian casualties, which are in today´s political climate unacceptable and eventually can damage reputation of the user of airpower.

Third problem of contemporary use of coercion by punishment is the effect on the state of peace after the war. As was already told, in today´s war, a better state of peace is the desirable outcome. According to Liddell Hart, the best outcome of a limited war is minimal destruction of civilian targets accompanied by severe degradation of the enemy´s armed forces: *"The least possible permanent injury, for the enemy of today is the customer of tomorrow and the ally of the future."*[55] Connected to this problem is the fact that campaigns focused purely on punishment (economic infrastructure) tend to ignore enemy armed forces, which bears a great in risk in case the coercion fails. In such case the adversary can continue to resist and still remain a threat in the future. As a result of these characteristics, it seems that there is no place for coercion by punishment in today´s warfare, unless some of the militarily powerful states engage each other in a protracted high intensity or total war.

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[53] Pape Robert A., *Bombing to Win: Air Power and Coercion in War.* Ithaca: Cornell University Press, 1996, p. 68

[54] Daponte Beth O., *Iraqi Casualties from the Gulf War and Its Aftermath*. Cambridge, Mass.: Defense and Arms Control Program, Center for International Studies, Massachusetts Institute of Technology, p. 1

[55] Liddel Hart B. H.*, Strategy*. New York: Praeger, 1967, p. 351

Such conflict could however see punishment based coercion threats, where the means would not primarily be airpower but rather nuclear weapons.

2.3.7 Coercion by risk

While the U. S. Air Force was still focused on the total war scenarios after the WWII, some of the theorists went on a search for a concept of coercion suitable for limited conflicts. Such concept could also be more suitable for the modern conflicts as described above. The most influential work of that time was Thomas Schelling´s *Arms and Influence*.

Schelling introduced a theory that *"coercion depends more on the threat of what is yet to come than on damage already done."*[56] The core of the theory lies in gradually increasing attacks against the most valued part of the enemy´s system. Unlike the punishment-based coercion, such an approach would not need such a massive use of the air means and also the civilian infrastructure would be far less affected. The ever-escalating character of the attacks would keep the opponent without any doubt that the next attack will be more painful that the previous one and instill more fear by causing less physical destruction than in case of punishment strategy.

The theory is not flawless as it always seems to be the case. The coercion by risk can be prone to dwindle back to coercion by punishment in some cases. One of the cases occurs when the coercion fails and the coercer has to make good on the threats. In this case, the coercer can be often tempted to punish his opponent, which would, in the modern conflict we are talking about, result in doing the same mistakes as stated in the punishment-based coercion chapter. Another case of possible slide to punitive coercion is when the economic infrastructure is evaluated as most valued by the coerced party[57]. In both cases, the better state of peace would probably not be reached. On the other hand, if opponent´s armed forces are pointed out to be the most valued targets, the risk-based coercion can turn out to

[56] Schelling Thomas C*., Arms and Influence.* New Haven: Yale University Press, 1966, p. 172

[57] Hinman Ellwood IV, *The Politics of Coercion: Toward a Theory of Coercive Airpower for Post-Cold War* Conflict. Maxwell: Air University, School of Advanced Airpower Studies, 2001

denial-based coercion victory or victory through pure destruction, which are easier to reach in the conditions of today´s conflicts.

Schelling´s theory was applied during the Vietnam War. A discussion remains, whether the theory failed as a whole or it was rather misapplied by the Johnson Administration. It is a fact that Schelling´s gradual escalation was exchanged for rather escalation – de-escalation strategy during operation Rolling Thunder.[58] The targeting was considerably limited and after a period of escalation, the intensity was reversed. Such an approach could have undermined the North Vietnamese beliefs in the credibility of such an inconsistent and limited coercion technique. Nixon´s Linebacker I and Linebacker II follow Schelling´s form of coercion more closely but the operations did not lead to victory either. The Vietnam war shows that the inability to analyze the adversary and to commiserate with him could be a vital problem when using coercive strategy. Arguably, the North Vietnamese could not have been coerced by conventional means and only a protracted pure destruction campaign or nuclear strike was the solution. Due to America´s overall failure in Vietnam, the risk based coercion was, possibly unjustly, discredited.

2.3.8 Coercion by decapitation

One of the staunchest critics of Schelling´s risk based coercion was John Warden, who developed an alternative coercive strategy, which could be characterized as decapitation based coercion. In decapitation based air campaigns, the aim is incapacitate the enemy by destroying the political leadership, communication between armed forces and command structures, and certain economic targets in one swift strategic air attack. According to Warden, *"the relentless shock, surprise and simultaneity of the decapitation approach would coerce the enemy leader, who feared for his life and the legitimacy of his regime, to succumb the coercing nation´s demand."*[59]

[58] Clodfeter Mark, *The Limits of Airpower: The American Bombing of North Vietnam.* New York: The Free Press, 1983, p. 163-164

[59] Warden John A. III, The *Air Campaign: Planning for Combat.* Washington D.C.: National Defense University Press, 1988

Although decapitation based coercion might resemble punishment based coercion to some extent, the desired and even the actual effects are different. While coercion punishment aims mainly to punish the opponent for not complying, decapitation is focused on instilling fear among the enemy elites for their lives and position as well as severing their ability to run their effort and communicate with the fielded forces.

The approach of coercion by decapitation has some theoretical difficulties. Firstly, such a campaign could negatively influence the possibility of better state of peace. In the case that coercion is at least partly successful and opponent´s leaders agree to negotiations, it could prove difficult for them to objectively participate on the talks and put aside the fact that the coercer tried to kill specifically them. Collateral damage is another concern. Targets of decapitation campaigns are often to be found in urban areas and the leaders are often surrounded by their families. Although the targeted leaders are largely responsible, bombing of their wives and children is generally bad publicity and details could be easily exploited or twisted against the coercer. The alleged death of Kaddafi´s daughter during the operation El Dorado Canyon serves as prime example as the credibility of the story was of secondary importance at the time.[60] There is one more, rather practical than theoretical problem with decapitation – the empirical evidence shows that it does not work. As we will see in the case studies later, attacks that would kill or coerce the leaders by attacking them specifically (or coerce elites by killing some of their colleagues) do not have the results, which could be deemed as successful.[61] However, most of these studies focus on targeting state officials. Relatively new trend – targeting terrorist leaders – by airpower seems to be more successful, although credible statistics are not yet publicly available as these attacks are often executed under circumstances demanding high level of secrecy.

Evidence shows that decapitation based coercion does not lead to compliance of the opponent very often, the strategy´s secondary effects however contribute to denying the opponent´s control and communication abilities.

[60] Gaddafi´s daughter Hana´s death in 1986 all a hoax ? *The Washington Post*, 26. 8. 2011

[61] Pape Robert A., The True Worth of Air Power. *Foreign Affaires*, Vol. 83, Issue 2, Mar/Apr 2004, p. 116 - 130

2.3.9 Coercion by denial

To follow the tradition of downplaying previous theories of coercive airpower, Robert Pape developed the most recent theory – denial based theory. *"Denial strategies target the opponent´s military ability to achieve its territorial or other political objectives, thereby compelling concessions in order to avoid futile expenditure of further resources…Thus, denial campaigns focus on the target state´s military strategy"*[62]. It is important to state that by attacking enemy fielded forces airpower is not being made a servant to other services[63]. The primary goal is to compel the enemy. The opponent is compelled as he sees that his military is not up to the task of supporting his political goals in the conflict. Denial based coercion seem like a suitable approach in the environment of today´s conflict. The focus on fielded forces leaves out the civilian population from the physical and psychological effects of bombardment, which prevents unwanted collateral damage from happening and also can prove desirable by the international community and when trying to reach better state of peace as the social and economic infrastructure remains unharmed. Further, the degradation of opponent´s armed forces assures his inability to be aggressive in the area in the near future. Third advantage of Pape´s coercion strategy is the fact that from all the other theories of coercion, if coercion fails and the adversary´s will is unbroken, denial-based theory brings the coercer the closest to the victory through pure destruction. The will of the enemy to continue the fight can prove irrelevant as he will not simply have the means to go on with the actions. K. Mueller cited the added benefit: *"Denial offers an additional advantage over punishment, in that it fails gracefully if it does not work. The actions a coercer takes to convince the enemy that defeat is inevitable are basically the same as those required to make defeat actually occur, that prosecuting a denial strategy looks very much like pursuing a pure force victory. If it fails, the will not have been wasted"*[64]

Although coercion by denial seems to be well suited for modern conflicts, there are some shortcomings to it. First, highly capable air force is needed. The targets are generally well

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[62] Pape Robert A., *Bombing to Win: Air Power and Coercion in War.* Ithaca: Cornell University Press, 1996, p. 19

[63] Hinman Ellwood IV, *The Politics of Coercion: Toward a Theory of Coercive Airpower for Post-Cold War Conflict.* Maxwell: Air University, School of Advanced Airpower Studies, 2001

[64] Mueller Karl. Denial, Punishment and the Future of Air Power. *Security Studies*, Vol. 7, Issue 3, 1998

fortified and defended. Bearing in mind the costs of airpower assets, a war of attrition would be probably more beneficial for the coerced side. To lower the risk of high casualties, air dominance is of utmost importance during denial based strategy. Reaching air dominance itself can sometimes be perceived as pursuit of denial.

2.4 Airpower in joint operations

Airpower in join operations refers to the way of using airpower, where at least communication but rather cooperation with ground forces is needed. Usually, such use of airpower includes direct effects on ground operations or serves as support to them.

2.5 Close Air Support and Interdiction

Although as previously stated, interdiction can be in some cases understood as strategic attack, these two concepts share some common matters. Close Air Support (CAS) is another potentially lethal appointment of airpower that has been used since the Great War. It might not allow the airpower to shine on its own as much as the strategic air attack but it is all the more appreciated by the other services and joint commanders. In the American military, there are definitions made by each of the services, however, the core idea is not changing. They all stress that *"CAS is air action against hostile targets in close proximity to friendly forces. It needs to be timely and flexible and requires detailed integration of fire, movement and location of friendly ground forces."*[65] The focus is on tight cooperation of the airborne and ground forces as the proximity between one´s own and enemy forces makes friendly-fire a real danger. CAS proved to be essential in determining the outcome of some major battles such as Battle of the Bulge 1944, the breakout from the Pusan perimeter 1950, Khe Sanh siege 1965 or Operation Anaconda 2002.

Interdiction is a type of air attack that aims the enemy fielded forces that are out of range of friendly ground forces, the targets can be heading for the theater of operations, maintaining

[65] Unterreiner Ronald J., *Close Air Support (CAS) in 2025 „Computer, Lead´s in Hot".* A research paper presented to Air Force 2025, August 1996 p. 3

defensive positions or otherwise occupied except for engaging our friendly units. Although, depending on the situation, interdiction can be perceived either as strategic or tactical strike, most of the writers pair it with CAS as the effect of the attack is usually focused on relieving pressure on friendly ground forces and also the ground forces are first to be impacted by it. Although its usual aim is to support the ground operations, the main difference between interdiction and CAS is the absence of necessity to directly coordinate with ground forces.

Modern CAS is heavily dependent on Forward Air control, which ensures that the attack is on target and does not put friendly units in danger. The core is created by Forward Air Controller (FAC), who is responsible for the communication between the centralized air command in the theater and later the pilot himself. It is important that the FAC is on the ground with the troops engaged in the contact with the enemy. The mission requires a one-on-one relationship between the delivery platform aircraft and the ground tactical representative (trained FAC in ideal case). To produce this relationship in the right manner (timely and efficiently) requires a complex command and control network. CAS planners and operators must have a thorough understanding of joint and service operating procedures and must understand service communication requirements, delivery platform capabilities and weapon effects. Arguably the most experienced and effective CAS can be seen executed by U. S. Marines, whose airborne assets were from the very beginning created to provide CAS. One of the needed requirements for marine FAC´s is 2 year experience as military pilots.[66]

Throughout the history, CAS has been a centre point of inter-service disputes. In the American military environment, it is especially Air Force and Army, who disagree over several issues about how to conduct CAS. *"Mission allocation priorities, target tactics, timeliness, night and weather conditions – all constrain CAS effectiveness."*[67] Naturally, it is the army, who deems that the Air Force is too much focused on air superiority and strategic

[66] "United States Marine Corps (USMC) Officer Job Descriptions"

[67] Unterreiner Ronald J., *Close Air Support (CAS) in 2025 „Computer, Lead´s in Hot".* A research paper presented to Air Force 2025, August1996 p. 4

strikes.[68] The Army is also concerned with responsiveness of the Air Force and timeliness of the execution of the attacks itself. On the other hand, Air Force sees the strategic strikes as more effective and being more influential on the course of the campaign and therefore prefers to allocate its assets accordingly. The Army must also admit that with the increasing lethality of anti-aircraft weapons, the Air Force assets cannot linger in the area too long and expect to survive. The data from operation Desert Storm show that CAS aircraft suffered the highest number of combat losses.[69] These problems will be mitigated by the fast increasing use UAVs, which are smaller, cheaper and less prone to be hit by anti-air weapons and which can operate relatively safely and in sustained manner above the battlefield providing not only reconnaissance but also CAS.

2.6 Airpower and Counterinsurgency

Counterinsurgency became a major issue in military affairs at the start of the new millennia.[70] The world started to assume that due to technological leap, wars would continue to last months and would be waged by mainly stand-off weapons. The first American steps in Afghanistan supported the idea. Taliban with Al-Qaida were seemingly swept by the initial airpower onslaught and the combined forces of the Northern Alliance and American Special Operations Group. 2 years later, Saddam Hussein´s army was overwhelmed by the invasion of American and British troops, well trained, devoted and relatively sizable force could resist not even for three months. But the new enemies found new ways how to answer the technological asymmetry, ways that proved to be more than a nuisance. An astute scholar of recent history is aware of America´s difficulties in these two conflicts and their need to learn the lessons, which they have missed to learn 30 years ago.

The lessons gave birth to Field *Manual 3-24* that extracted the historical experience of counterinsurgency from history and put it to good use. The "softer" approach of FM 3-24 proved to be especially successful in Iraq and the main author, gen. David Petraeus, became

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[68] Archambault Raoul, Thomas M. Dean, *Ending the Close Air Support Controversy.* Newport, 1991, p. 8-11

[69] Correl John T., „More Data from Dessert Storm". *Air Force Magazine* 79, no. 1, January 1996

[70] Metz Steven, Millen Raymond*, Insurgency and Counterinsurgency in the 21st Century: Reconceptualizing Threat and Responce.* Carlisle: United States Army War College, 2004

a new hero. In this chapter, I will try to analyze, how the airpower was included into the process of defeating insurgency both in theory and in the field.

Although the FM 3-24 is a document developed mainly for U. S. Army and U. S. Marines, it soon became clear that its purpose is to serve as a handbook for all the services taking part in counterinsurgency. The main tenets described in the airpower annex include airpower in the strike role, intelligence collection, information operations and the logistics role.[71] However, the airpower annex takes only 5 pages from 249 pages of document, which shows that only general notions were made and that it indirectly suggests that airpower is merely suitable for Close Air Support to ground units. Nevertheless, years were to come have shown that airpower is at least equally important as other assets in COIN and that its importance might be increasing.

2.6.1 Advantages of using Airpower in COIN

The advantages of airpower in counterinsurgency were largely discovered by the British in the interwar period. Aircraft proved its value during the Great War and the Brits did not hesitate to use it to police their vast empire.[72] The aircraft replaced cavalry in reconnaissance missions and raids against rebellious elements. That allowed The Empire to save time, money and manpower. Although the bombings of insurgent villages were much less discriminating than today, the events were still less bloody than when the villages were burned down by ground forces and the population massacred.[73] The joint character was key to this effort and the lessons proved to be unforgotten in Iraq decades later, where the British forces handled counterinsurgency operations in much better fashion than their American colleagues. However, an important lesson learned was that *"Great Britain´s hope in airpower´s capability to psychologically affect the insurgent´s will to fight back-fired – in contrast it was taken as Western threat and often strengthened the will of the enemy to*

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[71] *U.S. Army. Counterinsurgency, Field Manual (FM) 3-24, Marine Corps Warfighting Publication (MCWP) 3-33.5.* Washington DC: Headquarters Department of the Army and Navy, 15 December 2006

[72] Corum James, Wray Johnson, *Airpower in Small Wars: Fighting Insurgents and Terrorists.* Lawrence: University Press of Kansas, 2003

[73] Corum James, Wray Johnson, *Airpower in Small Wars: Fighting Insurgents and Terrorists.* Lawrence: University Press of Kansas, 2003, p. 59

resist."[74] In the words of this work, coercion did not seem to work against small but devoted groups of insurgents during COIN and that seems to be the case even today.

What are the concrete advantages of using airpower in counterinsurgency? Thomas D. Barber presents a list of airpower´s missions with an important emphasis on non-lethal missions, the mission categories are: *Strike, support role, security, reconnaissance and intelligence, logistics.*[75]

The destructive potential of airpower has been mentioned in this work several times. Counterinsurgency is not different, however, the importance of avoiding collateral damage when striking the right targets and careful selection to avoid striking the wrong targets is of utmost importance in winning the hearts and minds. Cooperation with indigenous population is critical in order to obtain valuable intelligence that can be used in the process of target selection. The technological advance of precision weapons is yet another factor and will be mentioned later in the work. To specify the lethal missions carried out by airpower during COIN, we have to mention time-sensitive targeting, that provides lethal fires especially against insurgent and terrorist leadership. An example of such attack can be the death of Al-Qaida in Iraq leader Abu Musab al-Zarqawi[76] or UAV attacks in FATA.

The support of ground troops is a prevalent task of airpower in COIN. Close Air Support above all is what separates the abilities of insurgent and counterinsurgent forces during a battle. It is both defensive and offensive weapon that helps in terms of firepower and morale.

Airpower plays a major role in securing the theater for all subsequent COIN operations. *"While airpower cannot perform security missions alone, the ability to police large area of ungoverned space, provide information to police and military forces on the whereabouts of insurgents (to enable strike or support missions) and provide presence and security over*

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[74] Townsend Charles, *„The Civilization and Frightfulness": Air Control in the Middle East Between the Wars*. In *Warfare, Diplomacy and Politics: Essays in Honour of A. J. P. Taylor*. London: Hamish Hamilton, 1986, p. 156

[75] Barber Thomas D.*, Airpower in Counterinsurgency: The Search for Missing Doctrine.* Newport: Naval War College, 2007, p. 15-17

[76] Insurgent Leader Al-Zarqawi Killed in Iraq. *The Washington Post*, 8.6. 2006

infrastructure and friendly military positions increases general population support and undermines the insurgent´s cause."[77] These missions can be carried out by relatively cheaper low-tech platforms that are typically used by host nations in Iraq and Afghanistan.

Use of airpower to reconnaissance and intelligence collection purposes is the original task of airpower, known since World War One. Manned aircraft, UAVs, satellites and balloons provide the counterinsurgency forces with invaluable perspective. The sensors equipped on these platforms offer the use of a number of visual spectra, microphones to eavesdrop on conversation inside of buildings or antennas to intercept electronic signals, messages and phone calls. The increasing airpower´s capabilities in intelligence collection will be further examined in one of the subsequent parts of the work.

The logistical capability of airpower not only in COIN is undisputed. The ability to bring men, equipment and supplies quickly and safely is a great asset. The inter-theater transport provided by air units is practically unreachable by the insurgents while the intra-theater transport being more vulnerable but still much less vulnerable than use of ground transport convoys, which are popular targets among insurgents. Also in logistical sense, *"airpower can also serve as a force multiplier by allowing rapid concentration or distribution of forces with the added benefit of providing firepower support."*[78] Therefore airpower drastically improves mobility of counterinsurgent forces.

2.6.2 Airpower´s precision and persistence

Charles J. Dunlop pinpoints two important moments in evolution of airpower not only for COIN operations, both tightly connected to technological development. First is the emergence of precision guided weaponry in late 1980´s, second is the more recent massive deployment of UAVs (Unmanned Aerial Vehicles).[79]

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[77] Thomas D. Barber, *Airpower in Counterinsurgency: The Search for Missing Doctrine*. Newport: Naval War College, 2007, p. 16

[78]. Ibid. p. 17

[79] Dunlop Charles J., *Making Revolutionary Change: Airpower in COIN Today.* Carlisle: U. S. Army War College, 2008

The revolution of precision is one of the key features of modern airpower in modern conflicts. The ability to carry out surgical strikes in urban areas greatly enhances possible use of airpower in today´s conflict.[80] *"Television networks showed cockpit videos detailing the accuracy of these weapons so frequently that they became one of the defining images of that war: the public saw bombs going down chimneys, through doors, and into specific windows. Seemingly, "air-shaft accuracy" had become so routine that everyone expected it"*[81] states P. Meilinger about the Gulf War and indeed, the use of precision guided ammunition became a standard that went on to increase in later conflicts. Some author would go that far and talk about change of the modern battlefield and creation of a new American way of war.[82] Although such proclamations might not be too far from truth, even the most precise bomb still has its limits deriving from possible technical defects or human error during the actual attack or intelligence failure.

The persistence revolution strongly influences reconnaissance and intelligence gathering capabilities of airpower. The game-changer in ISR (intelligence, surveillance, reconnaissance,) is, according to many, the increased availability of various long-loiter UAV platforms. General McCaffrey praises and enumerates their advantages: *"We already made a 100-year war-fighting leap-ahead with MQ-1 Predator, MQ-9 Reaper and Global Hawk. Now we have loiter times in excess of 24 hours, persistent eyes on the target, micro-kill with Hellfire and 500 pound JDAM bombs, synthetic aperture radar, and host of ISR sensors and communications potential that have fundamentally changed the nature of warfare."*[83] This technological leap is especially beneficial for counterinsurgency operations, where the collected intelligence can often help in uncovering the structure of insurgency, one of the key goals in COIN. More specifically, the UAVs can be used to *"establish a "pattern of life" around potential targets-recording such things as the comings and goings of friends, school hours and market lines. Despite the distance, the real-time video feeds often give them a*

[80] See „Modern conflicts" in „Coercion" chapter of this work

[81] Meilinger Phillip, Precision, Aerospace Power, Discrimination and the Future of War. *Aerospace Journal*, Fall 2001

[82] Gillespie Paul G., „The Ultimate Weapon". *MHQ: The Quarterly Journal of Military History*, n. 20, Winter 2008

[83] McCaffrey Barry R., *„Memorandum for Colonel Mike Meese.* United States Military Academy, Subject: After Action Report, 15 October 2007, p. 5

better vantage point than an Army unit has just down the street from a group of insurgents."[84]

The non-stop presence can also be a way into heads of the insurgents. While the classic theory of coercion seems to have no effect on insurgencies as a whole, the psychological effect of being monitored by unmanned machines coupled with the possibility of being killed by them through the whole time, shows some potential. The airpower can inflict a similar disconcerting sense of vulnerability that the enemy sought to impose on US troops via improvised explosive devices, the deadliest weapon, which COIN forces face.[85]

2.6.3 Techno-COIN

The experience with FM 3-24 shows that while this theoretical "handbook" to COIN can provide invaluable information and functioning plan, there are some issues that need to be coped with. The most important issue for airpower is the character of today´s insurgent threat and the character of COIN operations that should address it. The insurgencies in 21st century became more complex, John R. Sutherland describes them as "the New Model Techno-Insurgent" who exploits technology in wide variety of ways.[86] According to Sutherland, the key lesson for the counterinsurgency commanders is that, while the population is could be to large extent influenced by the "soft" counterinsurgency techniques, the insurgents themselves *"cannot by swayed by logic or argument"*[87] and need to be killed or captured, missions where precision airpower excels. One suggested way how to defeat these technology-using insurgents is to accept technology as a centerpiece of the struggle for victory. *As Colin Gray puts it: "High technology is the American way in warfare. It has to be. A high technology society cannot possible prepare for, or attempt to fight, its wars*

[84] Mulrine Anna, „A Look Inside Air Force´s Control Center for Iraq and Afghanistan". *U. S. News and World Report*, 29. 5. 2008, http://www.usnews.com/articles/news/world/2008/05/29/a-look-inside-the-air-forces-control-center-for-iraq-and-afghanistan.html

[85] Barry John, Thomas Evan, „Up in the Sky , An Unblinking Eye". *Newsweek*, 9. 6. 2008

[86] Sutherland John R., „iGuerilla: The New Model Techno-Insurgent" *Armchair General*, May 2008

[87] Ibid. p. 62

in any other than a technology-led manner."[88] Such an approach could in future radically change counterinsurgency campaigns. Developing and using technology that could replace the "boots on the ground" could provide the decisionmakers with less costly and particularly less manpower-intensive COIN strategy.[89] Considering the costs, COIN is an immensely expensive undertaking. Classical COIN theorists consider 10:1 ratio in manpower in favor of counterinsurgent forces to insurgents as minimal prerequisite.[90] Looking at today´s insurgencies, such an approach in building military would lead to an army that would be too focused on COIN operations as neglecting other strategies would become a necessity. Also, deploying this army would be a considerable burden to the nation´s budget. In 2008, deployment of one US soldier to Iraq cost $390,000[91]. The hard time given by relatively cheap insurgencies to the USA is likely to encourage the future enemies to choose this style of fight and thus the COIN strategy must be not only effective but also efficient. Philip Meilinger advocates the approach of combining airpower´s precision strike and persistent ISR capabilities with US Special Forces and indigenous forces on the ground.[92] Such strategy was applied during the initial kinetic phase in Afghanistan with success and the suggestion is worth of considering.

To conclude the theoretical part of this work, it is important to mention that no theory or strategy is universally right or wrong or that its strengths and weaknesses can be perceived in the same fashion in context of every armed conflict. The complexity of war is virtually infinite and anyone trying to apply theory on real-life situations needs to embrace this idea. Theory can offer us some ideal types that can set the bar for further study of the reality of war. After the hours spent over the studies of theory of war, it seems that this "theoretical friction", which prevents us from reaching the end of our understanding, creates a circle that

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[88] Gray Colin S., The *Airpower Advantage in Future Warfare*. Maxwell AFB: Air University, Airpower Research Institute, 2007, p. 12

[89] Gentile Gian P., „Listen to the Airman". *Military Review*, Vol. 88, March-April 2008

[90] See Galula David, *Counterinsurgency Warfare: Theory and Practice*. New York: Praeger, 1966

[91] Belasco Amy, The Cost *of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11*. Washington D.C.: Library of Congress, Congressional Research Service, 11. 4. 2008.

[92] Meilinger Phillip S., *„Airpower in COIN: Verities, Legends, Surprises and Suggestions".* London: Royal Aeronautical Society, January 2008

gives birth to new theories that modify or replace the old ones in order to deepen our knowledge of war. The work will now move to case studies of real conflicts and help us to recognize which of the theoretical concepts are relevant in modern conflicts and how do they determine the position of airpower in the conflicts.

3 Case Studies

Airpower played a major role in all of the conflicts fought by US or NATO forces in the post-cold war era. The case studies were picked in order for the author to be able to determine the performance of airpower and identify the concepts and their character during stand-alone airpower operations as well as during joint operations, where airpower constituted only one of the fighting elements of employed force. A rather unique case is the War in Kosovo as the airpower was the only element of the NATO force[93].

3.1 Persian Gulf War

The conflict in Persian Gulf was a reaction on the Iraqi invasion of Kuwait in August 1990. The invasion was a culmination of a long-lasting dispute between the two states. Saddam Hussein, who has always considered Kuwait as a rightful Iraqi territory, accused Kuwait from exceeding the oil production quotas and also from slant-drilling across the border into Iraq´s Rumaila oil field.[94] Iraq demanded a compensation of $10 billion, which Kuwait refused to pay, followed by Iraqi military invasion. Despite the gathering Iraqi forces on the borders, Kuwaiti army was not on alert and was taken by surprise. Being able to inflict some casualties, the Kuwaiti army was overpowered in 12 hours and the whole territory seized by Iraq[95]. The United Nations reacted by passing several resolutions condemning the occupation of Kuwait. Finally, Resolution 678 was passed in November 1990 giving Saddam Hussein until 15 January 1991 to withdraw Iraqi military from Kuwait and allowing other states to use all necessary means to force Iraq out of Kuwait after the deadline have passed. The USA, already performing Operation Desert Shield to defend Saudi Arabian border, assembled a coalition of 34 countries that would participate on fulfilling UN Resolution 678.

[93] From strategic point of view, the Kosovo Liberation Army and Armed Forces of the Republic of Kosovo did not have any impact on the course of the war

[94] Cleveland William L., *A History of Modern Middle East*. Westview Press, 1999, p. 464

[95] Khadduri M., Ghareeb E., *War in the Gulf, 1990-1991: The Iraqi-Kuwait Conflict and Its Implications.* Oxford University Press, 1997

The Coalition started a massive air campaign that lasted 43 days and was aimed at targets in Iraq and Kuwait. On 24 February 1991, the ground offensive called Operation Desert Saber started with the objective of retaking Kuwait. After a failed counterattack ordered by Saddam Hussein which lasted for 3 days the Iraqi forces started to retreat. After liberating Kuwait, the Coalition forces entered Iraq in order to engage the encircled Iraqi troops, decimating them in the process. On 28 February 1991, President Bush declared a cease-fire.[96]

3.1.1 Character of the air campaign

The air attack against Iraq in 1991 was a first armed conflict involving US forces in the post-cold war world. The size of the Coalition was an echo of the old era as well as the force structure and theoretical background of the strategy employed. The conflict, however, became a model for the future use of airpower and the combination of media attention and the precision weaponry took the airpower into the spotlight. The destructive potential paired with the new weapons and their shocking accuracy set standards for future airpower´s performance.

The plan of the air campaign was named Instant Thunder. The name referred to another bombing campaign, Rolling Thunder, which took place during the Vietnam War. The plan´s principal creator James Warden chose the name to emphasize the fact that the attack will be a relentless onslaught that will keep the enemy in shock instead of the gradual escalation during Rolling Thunder. The plan was a consummation of the coercion by decapitation strategy. It´s supposed objective was to force Saddam Hussein to pull their forces from Kuwait by attacking the state apparatus and military command structures. After a revision of the plan by the Joint Force Air Component Commander of the Coalition forces, gen. Charles Horner, a more balanced approach was selected. The attacks would mainly focus on decapitation with part of the forces attacking economic infrastructure and fielded Iraqi forces in Kuwait. All of that was, however, preceded by seizing the air supremacy by destroying Iraqi air force and ground to air defenses. Although the campaign was partitioned

[96] Lowry Richard, The Gulf War Chronicles: *A Military History of the First War With Iraq*. Iuniverse Inc., 2003

into 4 phases, Horner later conceded that *"in reality, there were no distinct phases, all operations were going simultaneously."*[97] The whole campaign had two goals: 1. Expelling Iraqi forces out of Kuwait 2. Destruction of the Republican Guard.

3.1.2 Decapitation or Denial ?

The authors of the plan are adamant that the decapitation campaign against targets in Iraq was essential in persuading Hussein to order retreat from Kuwait. Even the general public might be influenced by the imagery of precision guided missiles hitting Baghdad with surgical accuracy to emphasize these precise features of the air attack. However, the later studies show that this might not be the case. In their detailed study, Thomas Keaney and Eliot A. Cohen state: *"Even though the U.S. – led Coalition managed to achieve one of the most lopsided and comparatively bloodless triumphs in modern history, Coalition air forces did not succeed in toppling the Saddam Hussein´s regime or completely severing his communications with the Kuwait theater or the Iraqi people during forty-three-day campaign . . . So accepting the ambitious aims of decapitation and destruction as measures of effectiveness against leadership and command, control and communication targets entails the paradoxical assessment of complete failure by Coalition airpower against two supposedly key target systems during one of the most successful campaigns in history."*[98] Other airpower scholars like Pape or Lambeth also agreed on the assertion that the decapitation segment of the campaign did only very little to influence the course of the actions of Iraqi leadership headed by Saddam Hussein.[99]

The inability to destroy the Republican Guard divisions and therefore severely reducing Iraqi military capabilities in the future proved to be another failure of the air campaign as a whole. The emphasis put on targeting Iraqi leadership left only low number of assets to

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[97] Lambeth Benjamin S., *The Transformation of American Airpower.* Ithaca: Cornell University Press, 2000, p. 147

[98] Keaney Thomas A., Cohen Elliot A., *Gulf War Airpower Survey, Volume II: Operations and Effects and Effectiveness.* Washington D.C.:U. S. Government Printing Office, 1993, p. 278-279

[99] Pape Robert A., „The Air Force Strikes Back: Reply to Watts and Warden". *Security Studies*, vol. 7, no. 2, Winter 1997 or Lambeth Benjamin S., *The Transformation of American Airpower.* Ithaca: Cornell University Press, 2000

attack the fielded Iraqi forces. U. S. Army general Robert Scales was very clear in his thoughts of completing the second objective of the campaign: "Despite 41 days of almost continuous aerial bombardment, the Republican Guard remained a cohesive and viable military force able to fight a vicious battle and survive to fight insurgents in northern and southern Iraq."[100]

Despite the failure in destroying the Republican Guard, the primary objective of the Coalition forces, forcing Iraq out of Kuwait, was fulfilled and there is no doubt about the airpower´s contribution. It seems, however, that it was rather the denial based segment of the air campaign that compelled Iraqi units to retreat. *"The air power that ultimately coerced Iraq was not the bombs directed to Baghdad, but those that smashed Iraq´s field army in Kuwaiti theater of operations"*[101] *states Pape* in his assessment of the conflict, while Lambeth goes further and states that the Gulf War allowed airpower to *"to demonstrate its real leverage of the greatest note, namely, the ability to, engage an enemy army wholesale, and with virtual impunity, by means of precision attacks. Appreciation of this point is crucial to a correct understanding of what air power showed itself, for the first time in Desert Storm, capable of doing if properly used".*[102]

Paradoxically, the denial part of the air attack resembled the Rolling Thunder more than James Warden intended as it started after the initial "strategic" strike against Iraqi political apparatus and gradually escalated until a full blown denial-based coercive strategy prior to the ground invasion. During the war, some of the commanders including gen. Schwartzkopf expressed their inclination towards a more denial based strategy that would also allow the destruction of the elite Republican Guard divisions. The Gulf War Airpower Survey later

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[100] Scales Robert H. Jr., *Certain Victory: The U. S. Army in the Gulf War*. Washington D. C.: Brassey´s, 1994, p. 358

[101] Pape Robert A., „The Air Force Strikes Back: Reply to Watts and Warden". *Security Studies*, vol. 7, no. 2, Winter 1997, p. 213-214

[102] Lambeth Benjamin S., *The Transformation of American Airpower*. Ithaca: Cornell University Press, 2000, p. 117

concluded that the air campaign could have been more effective and efficient by being less outstretched among too many target sets.[103]

3.1.3 Airlift

Another important task of the airpower was the strategic and inter-theater airlift that provided transport for both personnel and materiel. The U. S. strategic airlift, which was carried out by the military C-5 and C-141 transports and the Civil Reserve Air Fleet, could be considered as yet another irreplaceable asset to the Coalition´s war effort. At its peak the airlift reached 17 MTM[104]. For comparison, the Berlin airlift in 1948-1949 had a size of 2 MTM.[105] Such an effort could not be emulated by any other mean of transport in such a short time.

Overall, we can say that the Persian Gulf War in 1991 introduced modern airpower as we know it today to general public. The world got to know that the United States had a weapon that can destroy a single building from kilometers above without so much as scratching anything else. It was then, when the coercive airpower became a political tool and not just another military asset. While the public was amazed by the images shown in media, the insiders knew that the air campaign in Gulf War was not as flawless. The attempt to paralyze Iraqi political and military leadership failed despite the show that was put on by it. What was more promising was the airpower´s effect on fielded armed forces, both in physical and morale terms. The sheer destructive potential was more than obvious, giving name to places like the Highway of death.[106] The constant fear of the Iraqi tank crews often kept them off their vehicles or caused them the abandon the machines completely. Moreover, to amplify to fear, Coalition aircraft were dropping leaflets announcing that another attack was coming.

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[103] Keaney Thomas A., Elliot A. Cohen, *Gulf War Airpower Survey, Volume II: Operations and Effects and Effectiveness*. Washington D.C.:U. S. Government Printing Office, 1993, p. 96

[104] MTM – ton miles a day the product of aircraft cargo weight in tons and the distance flown

[105] Keaney Thomas A., Cohen Elliot A., *Gulf War Airpower Survey, Volume II: Operations and Effects and Effectiveness.* Washington D.C.:U. S. Government Printing Office, 1993, p. 235

[106] Chediac Joyce, *„The Massacre of Withdrawing Soldiers on the Highway of Death".* The Commission of Inquiry For The International War Crimes Tribunal, 1992

[107] At 160 00 from the 400 000 Iraqi soldiers deployed in Kuwaiti operations area deserted by the time of the coalition ground offensive with another 85 000 surrendering right away after their first contact with the enemy.[108]

Among the successes of airpower in Gulf War definitely belongs: Seizing air supremacy and thus allowing smooth progress of any other types of operations, destroying or severely demoralizing Iraqi ground forces that were not pulled back in time, partially disrupting Iraqi political apparatus and command and communication infrastructure and contributed to compelling Saddam Hussein to abandon Kuwait.

Airpower in the Gulf War failed to: Completely paralyze the political and military leadership of Iraq, threaten Hussein´s position as undisputed leader, sever connection between command structures and fielded forces, destroy the Republican guard and therefore decimate Iraqi military potential in the future.

3.2 The air campaign in Kosovo

The NATO´s air campaign against Serbia in 1999 was a reaction on the Serbian army´s raids against Kosovo-Albanians in Serbian province Kosovo. The conflict has its roots in 1995, when the Kosovo Liberation Army started armed attacks against Serbian law enforcement authorities in Kosovo. Serbian president Slobodan Milošević reacted with sending Serbian army to Kosovo. Unable to discover the KLA´s members the army took revenge on civilian population which disconcerted international community. After the diplomatic attempts failed, NATO mounted an air campaign that was supposed to force Serbian leadership to pull Serbian army from Kosovo and accept international peacekeeping presence in Kosovo. The bombing lasted from 24 March to 11 June 1999. All the NATO member states participated on the operations with the exception of Greece. On 3 June 1999, president Milošević accepted the terms offered by international negotiators and ordered Serbian army´s withdrawal from

[107] Lambert Andrew P. N., *The Psychology of Airpower*. London: Royal United Services Institute for Defense Studies, 1995, p. 22

[108] Hosmer Stephen T., Psychological *Effects of U. S. Air Operations in Four Wars, 1941 – 1991*. Santa Monica: RAND, 1996, p. 100

Kosovo. On 10 June, Milošević agreed on the arrival of NATO-led peacekeeping mission to Kosovo, ultimately ending the conflict.

3.2.1 Character of the air campaign

The air campaign over Kosovo and Serbia was fundamentally new as the air component was the only component of the NATO force, thoughts about ground operation surfaced only later, when the conflict neared its end. The conflict very much resembles the definition of modern conflicts as introduced in the *Coercion* chapter of the work. The limited objectives and political restrains significantly limited airpower´s destruction potential. With hindsight, most of the authors agree that NATO´s victory was an ugly victory and although airpower´s role in it was undisputable, it is also difficult to measure its contribution as the reason of Serbian surrender is still unclear[109].

Unlike Operation Desert Storm, Operation Allied Force did not start with a massive paralyzing air strike. NATO only tested the water by bombing several targets in and around Belgrade, possibly hoping for an over-reaction on Milošević´s side resulting in successful and quick victory of coercion. After the realization that it was going to take more than just a show of power to compel Milošević, the bombing intensified. Interestingly, the chosen strategy was a punishment based coercion targeting Serbian economic and administrative infrastructure together with military installations and the Serbian integrated air defense system in order to gain air dominance or supremacy, rather than directly bombing the raiding Serbian forces in Kosovo. The bombing also targeted Milošević´s personal business interests and economic assets. Three weeks after start of the campaign, 103 targets were hit.[110]

Although the bombing of Serbia was painful and hampered the already degraded economy, the ethnic cleansing in Kosovo continued undisturbed. The attacks against Serbian fielded forces in Kosovo were only of second importance. NATO managed to hit some barracks and

[109] Tilford Earl H. Jr., Operation Allied Force and the Role of Air Power. *Parameters*, Winter 1999-2000, p. 24-38

[110] Cordesman Anthony H., *The Lessons and Non-Lessons of the Air and Missile War in Kosovo.* Washington D. C.: Strategic and International Studies Institute, 1999, p. 45

police stations, mostly abandoned however. Several armored units were also destroyed during the first three weeks of the campaign, although that could not stop the raids against Kosovar civilians as targeting of a group of men armed with hand guns or rifles was from the self-imposed bombing attitude of 4,5 km rather difficult and risky.

After these 3 weeks of mainly punishment-based coercion, the tempo of operations picked up. The arrival of new aircraft allowed NATO to increase the average number of sorties from 150 per day to 450-500 per day.[111] It also meant a change of NATO´s direction in the conflict turning to denial coercion in order not to attack only the will of Serbian leadership and population but also the will and ability to fight of the Serbian forces in Kosovo.[112] *"By 19 May, after 56 days of bombing, NATO claimed to have destroyed 31 percent of all Serb heavy forces in Kosovo, including 11 battalion or brigade command posts; 312 tanks, heavy artillery pieces, and armored vehicles; and 244 other pieces of military equipment. Further reports stated that air strikes had destroyed 75 percent of the fixed surface-to-air missile (SAM) sites in Yugoslavia and 12 percent of its mobile SAMs."*[113] [114] It took another 3 weeks for Milošević to finally end to conflict by pulling the Serbian army from Kosovo and let the peacekeeping mission to begin. The frequency of the attacks was, however, decreasing as other possibilities were being considered by the Alliance.

3.2.2 A look inside

Much like the Desert Storm, during and right after the conflict, airpower was in the spotlight, this time praised for a clean victory without a single combat loss on NATO´s side. Much like the Desert Storm, a critical reader knows that war is far more complex and further analysis showed that the victory was indeed an ugly one and that airpower´s contribution is not as clear is might have seemed.

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[111] Tilford Earl H. Jr., Operation Allied Force and the Role of Air Power. *Parameters*, Winter 1999-2000, p. 24-38

[112] Fulgham David A., „Isolated Serbian Army Faces Aerial Barrage". *Aviation Week and Space Technology*, 12 April 1999, p. 26

[113] Cordesman Anthony H., *The Lessons and Non-Lessons of the Air and Missile War in Kosovo.* Washington D. C.: Strategic and International Studies Institute, 1999, p. 62

[114] These numbers are NATO´s claims made at the time, they will be contested later in the work

Firstly, the strategy was once again disputed by the commanders, resulting in a compromise. The debate between Wesley Clark, Supreme Allied Commander in Europe at the time, and Gen. Mike Short, his air component commander, is very well documented and turned into an anecdote by the generals themselves:[115]

Gen. Short (advocating decapitation and punishment): *"This is the jewel in the crown."*

Gen. Clark (advocating denial): *"To me, the jewel in the crown is when those B-52 rumble across Kosovo."*

Gen. Short: *"You and I have known for weeks that we have different jewelers."*

Gen. Clark: *"My jeweler outranks yours."*

Similar to operation Desert Storm, the result of this debate was an effort divided between two strategies and once again the division was due to different opinions of commanders and not a planned approach towards the operation at hand.

Second problem of airpower above Kosovo and Serbia was the political restraint imposed on the campaign. The timid start of the bombing marked the rest of the campaign. The deviation from the same massive opening as seen in the Gulf War was caused mainly by the NATO´s political leaders, who hoped for a quick show of power and consecutive Serbian withdrawal and most importantly who imposed strict targeting limitations on the punishment/decapitation campaign. As Elwood Hinman puts it: *"The few leadership and infrastructure targets that made their way through the political target selection process in the first few weeks could hardly pack the punch called for in these theories of coercion. Rather than compelling compliance, haphazard bombing initially only emblazoned resistance."*[116] In his *On War,* Clausewitz was very much aware of the possibility of policy restricting military operations: *"Thus policy converts the overwhelmingly destructive element of war into a mere instrument. The terrible two-handed sword that should be used with total*

[115] Priest Dana, Tension Grew with Divide over Strategy. *Washington Post*, 21 September 1999, p. 1

[116] Hinman Ellwood IV, *The Politics of Coercion: Toward a Theory of Coercive Airpower for Post-Cold War Conflict*. Maxwell: Air University, School of Advanced Airpower Studies, 2001, p. 49

strength to strike once and no more, becomes lightest rapier – sometimes even a harmless foil fit only for thrusts and feints and parries."[117] Clausewitz shows us that although for different reasons, the policy part of the trinity dominating the military part bears its advantages and disadvantages and that military commanders had to deal with it in his time as much as they have to nowadays. The restrictions did not hamper the air campaign due to the quantity of struck targets, it also disallowed NATO aircraft to bomb Serbia in an organized and coherent manner. This, however not only points out the disadvantages of political limits, but also the inability of military leaders such as gen. Clark or gen. Short to adapt to the limited warfare and come up with a back-up plan that would allow limited targeting but with a clear vision. According to Hinman, the plan *"evolved haphazardly on a daily basis in response to the ebb and flow of the international mood."*[118] An astute airpower scholar remembers the Vietnam lesson knowing that air campaign controlled by politicians without a coherent strategy is an invitation for a disaster. In Kosovo, the most embarrassing moments were the bombing of Chinese Embassy in Belgrade and the attack against a refugee campaign. However, the overall number of 500[119] killed civilians is relatively low and proves the presence of strict limits during the bombing.

3.2.3 Punishment or denial ?

In Desert Storm, it was the denial based attacks that proved to be most compelling, most destructive and overall – most successful. It seems that the bombing of Serbian army in Kosovo was not the case. There are three main reasons for that: 1. The absence of ground campaign 2. The ability of Serbian army 3. NATO´s self-imposed bombing altitude

Before analyzing the Serbian ability to relatively successfully evade the air attacks, we need to point out the reason, why this was even allowed to the Serbs. The reason for this was the NATO proclamation to use only airpower itself to reach their objectives. It was not until the

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[117] Clausewitz Carl von, *On War*. Princeton: Princeton University Press, 1976, p. 606

[118] Hinman Ellwood IV, *The Politics of Coercion: Toward a Theory of Coercive Airpower for Post-Cold War Conflict*. Maxwell: Air University, School of Advanced Airpower Studies, 2001, p. 50

[119] Pape Robert A., The True Worth of Air Power. *Foreign Affaires*, Vol. 83, Issue 2, Mar/Apr 2004, p. 116 - 130

late stage of the war, when the NATO showed some effort to stage a ground invasion. Seeing needless to defend against ground forces, the Serbian army could disperse and hide.

In fact, the Serbs proved to be quite effective in this way of combat. The absence of any armored ground vehicles against them, allowed them to use only small arms to execute their raids against Kosovo-Albanians. By moving in the dense forests and hilly countryside, they could reach the target villages with stealth, quickly attack and disappear before the airpower amassed sufficient intelligence and firepower. The Serbian army also used decoy armored vehicles in order to confuse and divert the air attacks.[120] The air attacks became more successful towards the end of the war, when the KLA developed a force suitable for concentrated attacks. Although KLA forces were no match for Serbian tanks, artillery and armored personnel vehicles, KLA managed to force Serbs to mass their forces out in the open, where they were much easier targets for NATO aircraft. The number of Serbian armor being present at this time, however, proved that previous attacks left the Serbian army relatively intact and the situation did not change dramatically throughout the rest of the conflict.[121]

The operational restrictions of NATO forces posed another problem. Bombing people, who move on foot, know the area and know how to move stealthy, from 4,5 km was a difficult task even for the arguably most powerful air force in the world. The question remains why would NATO restrict itself like that? Firstly, although the NATO aircraft were vulnerable to some of the ground-air guided missiles in those 4,5 km altitude, their capabilities to suppress these systems by electronic jammers[122] or stealth designs and there is no evidence that this situation would be different in lower altitude. Secondly, the Serbian integrated air defense system did not aggressively confront Alliance forces.

The only explanation that could be derived from the conduct of operations lies in the non-aggressive strategy of Serbian air defense. Aware of the radar targeting missiles (HARM), the

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[120] Tilford Earl H. Jr., Operation Allied Force and the Role of Air Power. *Parameters*, Winter 1999-2000, p. 24-38

[121] Ibid.

[122] Aircraft such as F-111 Raven or EA-6 Prowler were specially designed to carry powerful radar jamming systems in support of other strike aircraft

Serbs knew that trying to lock every incoming aircraft would probably result in utter destruction of their whole air defense system. Turning the system on and launching a missile only when the probability of interception was high had a confusing impact on NATO commanders, who overestimated the ability of Serbian defenses to hit their targets. This strategy proved successful for Serbs, keeping attacking planes in higher altitudes, rendering their attacks less effective. Even the weather was against NATO. The white cloud over the theater of operations limited the use of laser-guided missiles, while the stock of JDAM[123] still on the lower side. Therefore NATO often had to resort itself to the conventional "dumb" bombs, which were less precise and more prone to cause collateral damage.

To conclude this "inside look" into the air campaign against Serbia, we can state that evaluating NATO airpower´s contribution to Milošoveć´s decision to withdraw from Kosovo is problematic. There is simply no tool to reveal the Serbian president´s train of thought. The airpower advocates are positive that this time it was the punishment based coercion strategy that was decisive to NATO´s victory. Benjamin Lambeth even talks about a mismatch of strategies: "*…in contrast to Desert Storm, the* (Kosovo) *campaign´s attempts at denial did not bear much fruit…ironically, also in contrast to coalition´s ultimately unrequited efforts to coerce Saddam Hussein into submission, punishment did seem to work against Milošević in this case."*[124] Although this seems to be the most widespread opinion of airpower inclined authors, the most common opinion among historians is that Milošević decided to abandon Kosovo because he was afraid of the possible ground invasion. Even Robert Pape, respected and known advocate of airpower, conceded that the threat of ground invasion was decisive. In early June 1999, the Alliance was close to formalize the decision to invade Kosovo. The threat seemed credible even to former Russian Prime Minister Viktor Chernomyrdin, who consulted his situation with Milošević throughout the conflict, and who informed Milošević that Russia would not be able to prevent it.[125] The NATO contributed to credibility of the threat by deploying its forces on Kosovo borders.

[123] Joint Direct Attack Munition, ordnance guided by Global Positioning System, highly precise under any weather conditions

[124] Lambeth Benjamin S*., The Transformation of American Airpower.* Ithaca: Cornell University Press, 2000, p. 226

[125] Pape Robert A., The True Worth of Air Power. *Foreign Affaires*, Vol. 83, Issue 2, Mar/Apr 2004, p. 116 - 130

Slobodan Milošević was very well aware that such invasion would mean destruction of Serbian army and degradation of Serbia´s position in the international system, therefore he ordered the withdrawal in order to keep his still sizeable army operational for future. It seems that coercion won the war after all. Whether it was coercive airpower is not that sure.

Among the successes of NATO´s airpower in Kosovo belongs: Seizing air dominance, limiting collateral damage and civilian casualties to minimal degree, completing the campaign without a single combat loss (however limiting precision of some strikes), putting some degree of pressure towards Serbian leadership especially Slobodan Milošević to withdraw from Kosovo.

NATO airpower in Kosovo failed to: Prevent atrocities committed against Kosovo-Albanians, destroy Serbian army, unambiguously force Serbia to comply with NATO´s demands, influence Serbian population in order to shatter Milošević´s position.

3.3 War in Afghanistan

The American attack against Afghanistan was an aftermath of the terrorist attacks in New York and Washington D.C. committed by global terrorist network Al-Qaida. The organization was harbored by the Afghani governing political movement Taliban, which refused the American ultimatum to extradite Al-Qaida leader Osama bin Laden. The United States allied itself with Taliban´s armed opposition, the United Islamic Front for Salvation of Afghanistan known as the Northern Alliance, and launched an attack that was mainly carried out by The U.S. airpower supported on the ground by the Northern Alliance fighters and American special forces. After quickly removing Taliban from power, the American forces focused on hunting down the escaped Al-Qaida and Taliban members hiding in the mountainous terrain of Afghanistan. With the American and NATO forces unable to prevent it, Taliban was able to regroup and launch a widespread insurgency that has lasted to this day.

3.3.1 Airpower in Afghanistan

The objective of the American initial attack was destruction of Al-Qaida infrastructure on Afghan territory and removal of Taliban movement from its position as governing Afghani

body. The attacking force consisted of the Northern Alliance army that launched an attack at Taliban position from their territory in northern part of Afghanistan. The Northern Alliance ground army was supported by American special operations units, who carried out the most delicate operations and mainly operated as forward air controllers calling air attacks at Taliban fortified positions. Last component were American aircraft hitting Taliban and Al-Qaida infrastructure as well as Taliban fielded forces thus supporting the ground campaign.[126] The Taliban´s poor anti-air defenses allowed the American airpower to operate almost undisturbed and the Taliban´s standing forces, normally more than equal to Northern Alliance forces, were quickly destroyed or surrendered. Compared to previously analyzed conflicts, the attacks on Taliban´s infrastructure were much easier. Taliban´s and Al-Qaida´s training camps, government buildings and military bases were only lightly defended against air attacks and the number of such targets was not particularly high because of the economic situation of Afghanistan as a whole and the dependence on low-tech equipment both by Taliban and Al-Qaida. The targets that could have been hit were hit and destroyed with precision guided strikes. The task of stand-alone airpower in Afghanistan was to destroy its targets in order to simply disable their functions and not to coerce anyone. Considering that one of the main objectives was eradicating Taliban as a political entity, pure destruction strategy was the only possible way. The majority of air attacks in Afghanistan were, however, to provide support for the combined American and Northern Alliance forces.

[126] Pape Robert A., The True Worth of Air Power. *Foreign Affaires*, Vol. 83, Issue 2, Mar/Apr 2004, p. 116 - 130

3.3.2 CAS and interdiction in Afghanistan

The combination of allied indigenous forces with special forces teams working alongside them as spotters for airpower strikes gave birth to a new strategy often called the Afghan model[127]. Such model has its advantages for the United States, mainly it is the reduction of manpower and financial means needed to run the operation and also from the political perspective, this strategy could give the U. S. involvement a softer twist[128], as almost exclusively, the actual boots on the ground are those of indigenous men. In ideal scenario of such operation, the United States can be locally and internationally considered as mere "helpers" and not conquerors. The model, however, is only usable in a certain situation when there is an indigenous ally with suitable military power.

The ground campaign had an impressive start, surprising Taliban fielded army with the effectiveness of the combined force. All of the major Afghan cities were taken in matter of weeks. During the sieges, the airpower played a crucial role as main destruction dealer that either destroyed the enemy or shocked him enough to disable him or force him to surrender, allowing the rather poorly armed Northern Alliance army to gradually seize Taliban-held territory, an objective they would not be able to reach without the American airpower. A member of American special forces team explains the conduct of battles more concretely: *"At Bishqab on October 21, 2001, for example U. S. SOF pinpointed Taliban targets at ranges of more than 8 kilometers. Skeptical Northern Alliance commanders peered through their binoculars at Taliban positions that had stymied them for years and were astounded to see the defenses suddenly vaporized by direct hits from 2000-pound bombs."*[129] Such interdiction was used in several other battles using stand-off precision weapons or, in case of large enemy unit concentration, carpet bombing by B-52s.

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[127] Andres Richard B., Wills Craig, Griffith Thomas E. Jr., „Winning with Allies: The Strategic Value of the Afghan Model". *International Security*, 30. 3. 2006, p. 124-160

[128] Although the model is called „Afghan", it is an ideal case. The American plan in Afghanistan counted on surge of American troops in the later stages.

[129] U.S. Army Military History Institute Operation Enduring Freedom Research Collection, *tape 032802a*, Maj. D. interview; tape 032702a, Capt. T. (For security reasons, SOF personnel are identified by rank and First initial only; full identification is available in the archived source.)

The Taliban forces, however, managed to adapt in the process with help of more experienced soldiers and Al-Qaida´s well trained fighters that joined the combat. At Bai Beche on 5th November, the defending force mainly consisted of Al-Qaida personnel, who used an old, formerly Soviet system of entrenchments that prevented the SOF spotters to directly lock their position. The loss of effectiveness that comes with the accuracy is documented by the fact that after 2 days of indirect carpet bombing, the assault of Northern Alliance´s cavalry was driven back as enough defenders survived the bombing and were still effective force for a battle. The battle, which proved to be decisive in taking Mazar-e-Sharif, was won by accident, the SOF calling another airstrike gave signal to take cover, which was misunderstood by the cavalry as an order to second assault. The bombs hit the ground only tens of seconds before the cavalry reached the entrenchment leaving the still shocked Al-Qaida fighters exposed to an attack or confused into thinking that their defenses were already broken and not knowing that the Northern Alliance cavalry was almost as confused as the defenders[130]. The adaptation of Al-Qaida and Taliban fighter continued throughout the campaign, the biggest leap was in their ability to prevent being spotted before they opened fire on the attackers. With the ground forces in full contact with the enemy, the airstrikes´ character changed from mainly interdiction missions to close air support.

3.3.3 CAS during Operation Anaconda

Operation Anaconda took place in early march of the year 2002, its objective was to destroy Al-Qaida and Taliban forces fortified in the Shahi-Kot Valley. The battle became the first employment of American and NATO conventional troops in the war.[131] The battle consisted of series of hard close proximity firefights, NATO and Northern Alliance forces had to root out their opponents from their hidings. NATO soldiers often found themselves pinned down under heavy fire and forced to call airpower to provide CAS.

Airpower was firstly responsible for reconnaissance of the battlefield. Persistent reconnaissance drones were used as well satellites, thermal imaging and hypersensitive

[130] Ibid, *tape 032602p*, Capt. M. Interview

[131] Tanner Stephen, *Afghanistan: A military History from Alexander the Great to the Fall of the Taliban*. Cambridge: Da Capo Press, 2002

electronic eavesdropping equipment, finding around 100-200 Taliban fighters in their holes. Much to their surprise on the beginning of the operation, the inserted NATO soldiers found themselves under heavy fire right after being dropped by the helicopters from previously unseen and unanticipated defenders.[132] It appears that earth´s surface still remains to be too complex environment for airpower reconnaissance and surveillance. The mountainous terrain of Shahi-Kot Valley proved to be especially difficult due to its narrow ridges and overhanging rocks. Taliban and Al-Qaida defenders kept radio silence hiding in these cracks and caves, which made them hard to spot even from point blank ranges as the later firefights showed. *"In principle one might hope to observe resupply movement or Al-Qaida patrols into or out of such positions, or to overhear radio communications from their occupants. Al-Qaida fighters wearing the flowing robes of local herdsmen and traveling in small parties among the mountains, however, are nearly impossible to distinguish at a distance from the noncombatants who tend goats or travel through such areas routinely. And the defenders able to operate under radio silence by communicating using runners, landlines, or other non-broadcast means can reduce signal intercepts to a level that makes identifying specific fighting positions very difficult. Against such targets, it is far from clear that any surveillance technology coming anytime soon will ensure reliable targeting from standoff distances."*[133]

Although the airstrikes called upon Taliban forces caused heavy casualties to them, NATO´s and their indigenous allies were still forced to fight in close quarter firefights putting their soldier in harm´s way. As Stephen Biddle continues on concrete effects of CAS during operation Anaconda: *"During the operation, well-prepared Al-Qaida positions survived repeated aerial attack by U. S. precision munitions. On Objective Ginger on March 4, for example, American troops inadvertently disembarked from their assault helicopters almost on top of an unseen Al-Qaida position, after being pinned down for much of the day, they were extracted that night. They then spent much of the next day fighting their way back toward the Ginger hilltop from more secure landing zones well to the north. In the meantime, American aircraft pounded the hill. Yet in spite of more than a week of sustained heavy*

[132] Biddle Stephen, Afghanistan and the Future of Warfare. *Foreign Affaires,* 2003, p. 31-46

[133] Ibid. p. 37

bombing, Al-Qaida position on Ginger survived fire of U. S. infantry when the latter finally reached and overran the objective. One dug-in Al-Qaida command post was found surrounded by no fewer than five 2000-pound bomb craters. Still, its garrison survived and resisted until overrun."[134]

The conventional phase of the Operation Enduring Freedom showed airpower experts several lessons. The most important one is the creation of the Afghan model. Although the strategy is hardly universally applicable, it can be considered as an alternative approach to full-scale invasions or as a supplement of them. The model is based around existence of indigenous friendly force with certain capability and of certain size, depending on the realities of the concrete nation. In Afghanistan, the Northern Alliance with some other USA-friendly warlords fit into the model, the size of their force was comparable to Taliban and the US airpower tipped the balance to its favor. It managed to seize the Afghan main cities including the capital of Kabul and only after that, the US and NATO troops had to be deployed against the Taliban and Al-Qaida mountain strongholds, which proved to be tough places to conquer even for the arguably best trained and equipped soldier in the world. Within the model, the airpower proved to be absolutely devastating against defensive positions of armored units and larger clusters of troops. These types of defenses could be easily spotted from kilometers by the special forces and forward air controllers, allowing the airpower to deal enough damage to grant the ground indigenous force a much easier fight if any fight at all. However, in the rugged terrain of Afghan mountains, the airpower did not perform as well. The first disappointment seems to be the intelligence role of airpower. Although using the latest sensors, the imaginative approach of Al-Qaida trained soldiers towards concealment proved to be up to beating the technology. The surprising size and positioning of Al-Qaida defenses during the Operation Anaconda and the complications caused by it are proving this. To even bigger surprise, the fortitude of these defenses could not be belittled by their obscurity. Although the bombs dropped by the supporting aircraft were able to kill and shock many Al-Qaida and Taliban fighters, the rest of them were still able to put up a tough fight to the NATO´s ground units and cause casualties on their side.

[134] Biddle Stephen, Afghanistan and the Future of Warfare. *Foreign Affaires,* 2003, p. 40

In the initial phase of the war in Afghanistan, the airpower was successful in: Acting as a primary damage dealer in place of the ground forces, acting as precise support fire for the ground forces, performing strikes against fixed position of armor and large clusters of troops, being a military and political tool, deployable quickly and precisely.

At the same place, the airpower failed to: Cause enough damage to replace large contingents of troops, reconnoiter Afghan mountains sufficiently, provide CAS well enough to prevent intensive ground battles from unfolding.

3.4 Airpower and COIN in Iraq and Afghanistan

As the theoretical section of this work suggested, the role of airpower in counterinsurgencies may not be as clear and straightforward as in conventional wars, but it is still an important asset that would be shame to waste. The tales of lost lessons of counterinsurgency are today very well known to every student of war. It is true that it took some time for United States and their allies to adapt and modify their destruction based approach towards war and it is also true that we still do not know if the adaptation was successful. Both in Iraq and Afghanistan, it took some time to realize that an insurgency was indeed developing. The failure to differentiate between an enemy, who has lost, and an enemy, who is regrouping, deprived America of the best time to defeat an insurgency – its birth. The airpower is a favorite weapon of democracies for a reason – it is quick and direct, same as the wars that democracies like to fight. Sadly for democracies, insurgency counts on protracted warfare that wears down its opponents military or populations. So far it seems that although providing some unique capabilities, airpower cannot solve the problems democracies have with insurgencies.

3.4.1 Precision in the field

One of the clear messages of this work is the fact that precision is what makes today´s airpower such an asset. This is especially important for the COIN operations as any collateral damage can and it is used to be a direct support for the insurgency´s cause and every single

case has a disproportionate impact on the overall campaign.[135] Precision is what makes kinetic missions of airpower possible. Both in Iraq and Afghanistan, kinetic missions are dominated by CAS. Most commonly, fixed-wing and rotary-wing aircraft patrol reconstruction works and vital supply lanes or cover ground units sweeping areas with known enemy activity. The average number of planned patrols in Afghanistan in 2009 was between 40- 60 per day.[136] In COIN, CAS is often used only as a show of force, especially in situations, when the risk of collateral damage is high. *"The aircraft are called to fly over in target area in low altitude, becoming visible to the naked eye. Sometimes they also dispense flares with dual purpose: First, to become more prominent and second, to encourage obedience to security forces on ground by implying use of force. Airpower summaries for recent months (2009) show that the frequency of Show of Force is significantly higher that the application of lethal force."*[137] Airpower could be also used in similar way during special occasion, which is documented by the words of Gen. Metz, Commanding General III Corps, when advised by skeptical analysts to keep aircraft out of sight and mind during early nationwide elections in Iraq: *"Absolutely not, I want them low – I want them loud – and I want them everywhere, I don´t understand it but this population responds to airpower, both fixed and rotary-wing…so get air out there."*[138]

Many reports show that the type of mission, which is mostly responsible for collateral damage, is the unplanned employment of CAS. In these situations, the forward air controllers, under stress of being in full contact with the enemy, tend to invariably overreact and put in more than the required weapon loads.[139] CAS in Afghanistan and Iraq was carried out by three modes:

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[135] Freedber Sydney J. Jr., The Afghanistan Air War. *National Journal*, 25th September, 2010

[136] Irfan Ahmad, *Role of Airpower in Counterinsurgency in Afghanistan and FATA (Federally Administered Tribal Areas)*. Monterey: Naval Postgraduate School, June 2009, p. 51

[137] Ibid. p. 52

[138] Belote Howard D., Counterinsurgency Airpower: Air-Ground Integration for the Long War. *Air and Space Journal*, 20. 3. 2006, p. 55

[139] Dadkhah Lara M., Close Air Support and Civilian Casualties in Afghanistan. *Small Wars Journal*, December 2008

Type 1: The forward air controller (FAC) has visual identification of both the target and aircraft during the attack. FAC is ensuring the attacking aircraft is in oriented towards the correct target during the attack run-in.[140]

Type 2: The FAC is not required to see the target and /or acquire the aircraft during the run-in. The FAC can be obtaining the data from forward observer, overhead aircrew or aircraft sensor. FAC approves every individual attack. Type 2 is also used when attacking aircraft is unable to visually identify target prior to weapon release.[141]

Type 3: The requirements are the same as Type 2. The only difference is that the FAC relinquishes control of each individual attack and approves repeated engagement of the target only with appropriate restrictions to protect friendly and non-hostile elements.[142]

To further limit the possibility of collateral damage, a new type of ordnance has been developed. As Gen. Gary L. North explained regarding the small diameter bomb: *"The SDB is uniquely qualified for urban targets that call for precision accuracy and reduced collateral and in close-air support missions that our aircrews find themselves in Operation Enduring Freedom and Operation Iraqi Freedom. We now have the ability to put ordnance in places where collateral damage might be a concern."*[143]

3.4.2 Persistence in the field

COIN strategies are known to be heavily intelligence dependent and that is where airpower grew to excel. With the development of UAV´s and various sensors, the airpower´s ISR capabilities provide invaluable and irreplaceable asset in surveillance of the insurgents. Combination of airpower assets with quality intelligence from other sources like HUMINT gives could give the counterinsurgent forces that much needed information to gain an insight into the insurgent infrastructure. Journalist Mark Benjamin reports: *"The Air Force*

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[140] U*. S. Joint Chiefs of Staff, Close Air Support, Joint Publication 3-09.3.* Washington D. C.: CJCS, 8 July 2009, p. V-20

[141] Ibid, p. V-23

[142] *U. S. Joint Chiefs of Staff, Close Air Support, Joint Publication 3-09.3.* Washington D. C.: CJCS, 8July 2009, p. V-25

[143] USAF Unit Debut Small Diameter Bomb in Combat. Air Force Print News, 5 October 2006

recently watched one man in Iraq for more than five weeks, carefully recording his habits – where he lives, works, and worships, and whom he meets…The military may decide to have such man arrested, or to do nothing at all. Or, at any moment they could decide to blow him to smithereens."[144]

Another example from Afghanistan was reported by L. A. Times: *"NATO forces recently have had unusual success in tracking and targeting mid-level Taliban field commanders, killing scores of them in pinpoint airstrikes. Because the Taliban believed that cell phone signals were being used to target them, they began blowing up telecommunications tower. The result could hardly have been a worse public-relations move for the insurgency because ordinary Afghans were enraged, many had become dependent upon cell phones, and the system was a source of national pride."*[145] The story shows how paranoid can the insurgents become, when knowing that a drone or a plane can be above them at any time, seeing their movements and hearing their conversations.

To conclude the employment of airpower in COIN, we can state that throughout Operation Enduring Freedom and Operation Iraqi Freedom, airpower´s role kept increasing. Strong airpower is such an asset in conventional conflicts, that it would be a waste not to include it in counterinsurgency operations. Recent history proves that airpower has its position there. However, it seems that airpower is not the miraculous cure to USA´s and NATO´s inability to efficiently and effectively cope with insurgencies. In both lethal and non-lethal missions, airpower proved to be to invaluable asset that can turn around some of the asymmetries of counterinsurgency, providing the counterinsurgent side with a perspective that is simply not available to its opponents. Once again, it proves that airpower is heavily technology-based asset and in a conflict, where the hearts and minds are the objectives to win over, perhaps a more human-based approach is needed.

As a part of COIN in Iraq and Afghanistan, the airpower was successful in: Quickly boosting firepower during engagements and ambushes, operating as safe intra-theater transport,

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[144] Benjamin Mark, *Killing „Bubba" from the Skies*. Salon.com, 15 February 2008, http://www.salon.com/news/feature/2008/02/15/air_war

[145] Laura King, In Afghanistan, Insurgents Attacking Cellphone Network. *The Los Angeles Times*, 23 April 2008

demonstrating power, observing and spying on insurgents, function as kinetic segment of time-sensitive targeting missions.

As a part of COIN in Iraq and Afghanistan, the airpower was unsuccessful in: Compensating for the insufficient manpower, coercing insurgents or population from supporting them, lowering the possibility of collateral damage that would allow wider use of airpower´s destruction potential.

Conclusion

Imagining an armed conflict without airpower is a tough endeavor in today´s world. We probably could find some low-tech conflicts that do not include an actual use of airpower, but sooner or later, at least one participant of such a conflict will start to seek the advantages of air assets. Airpower is the face of modern warfare. Throughout the 100 year history, airpower´s importance has always increased. The role of ships, tanks or artillery seems to be almost the same as it was by the time of their invention. The role of airpower as a reconnaissance asset is still very much true, but it is the other uses of airpower that registered an unprecedented boom. At first being only a subordinate asset to ground forces, commanded by ground army´s generals, the airpower literally fought its way to independence. Today, independent air forces are the crown jewels of powerful armies.

Is purpose of today´s airpower in coercing the enemy or denying his abilities?

This thesis took this question very seriously and tried to answer it by analyzing both theoretical features and practical use of coercion strategies. It seems that although there are significant psychological effects of the use of airpower against one´s enemies, it also seems that these effects tend to be overestimated. There is no conflict, which we can safely say that was won by coercive airpower about. The only close case could be the bombing of Rotterdam by Luftwaffe in 1940, which accelerated the Dutch surrender or that was, however, certain in the face of the Wehrmacht invasion anyway.[146] To analyze the matter more concretely, we can use Clausewitz´s trinity. Targeting enemy´s government seems to be the trend of modern conflicts, although no evidence suggests that these, mainly decapitation or punishment strategies, work. The presented case studies suggest that the discomfort caused by bombing the leadership is not enough to force them to succumb to the coercer´s demands. Nor were these strategies able to hamper the state economies enough or to prevent the governments from leading and running the bombed countries. The contribution to the war effort is still, however, significant. The punishment and decapitation

[146] Foot Michael R. D., Neil Wigglesworth, *Holland at War Against Hitler: Anglo-Dutch Relations, 1940-1945.* Routledge, 1990

strategies wreak havoc into the organization of enemy states´ normal functions, slowing its war effort in the process and increasing attrition and fog of war effects on enemy armed forces. To conclude the airpower´s performance during punishment or decapitation operations, we must state that the primary effects of the operations are rarely reached and that the actual effects make airpower a force-multiplier, allowing especially ground forces to operate more effectively and efficiently.

The effects of coercive airpower on enemy´s population seem to have similar character as in the case of enemy leadership. The discomfort caused by the bombing does not seem to be cause of popular movements against the bombed state´s elites. As history including the presented case studies shows, the impact of bombing can rather lead to infuriating the population, which is then more supportive of its government and impenitent against the coercer, or it can lead to a apathetic sentiment among the population, which does not have any positive influence on the coercer´s struggle either.

The most successful mode of coercion seems to by coercion by denial. The case studies show that if the airpower is able to hit armed forces of the enemy, the coercion is likely to work. This seems to be possible for two reasons: Firstly, the armed forces are most likely the means through which the coerced side tries to reach its objectives. Without them, not only the objectives cannot be reached, but the country´s ability to defend against any other attack becomes degraded for the near future at best. Secondly, although the targets usually possess some degree of military training, the shock and fear of the unpleasant feeling of being bombed or the threat of being bomb seems to have a profound psychological impact. Defensive positions of conventional standing armies seem to ideal targets for denial based coercion. Both wars against Iraq showed that the bombed forces are much more prone to desertion, quick surrender when facing enemy ground forces or at least to be out of position when the ground attack comes due to shock and fear. Last but not least, the denial based coercion strongly contributes to the destruction of enemy´s armed forces, which, in the case of coercion´s failure, brings victory through pure force much closer.

Overall, airpower is better in denying enemy´s ability to fight than his will to fight. The physical destruction provided by the airpower is what matters in conflicts. Certainly, the

psychological effects are undeniable, but these effects seem to have only tactical consequences, on the course of battles, rather that strategic impact on the course of the whole conflict.

Does airpower work best on its own or in cooperation with other military assets?

Airpower´s best use is as a part of joint force. A well coordinated force of air, ground and potentially maritime assets is inherently very fine fighting force that stresses strengths and reduces weaknesses of each segment. Airpower provides important services to both ground and naval forces such as reconnaissance, transport or destruction of otherwise unreachable targets and many more. On the other hand, ground forces often serve to finish off the enemies hit from above or protect airfields. The presented case studies also showed that defending against airpower and ground attack at the same time is a difficult task. Effective defense of one´s territory demands amassing heavy units at defensive strong points, thus presenting much easier targets for airpower to hit. On the other hand, spreading out defending forces throughout the terrain hides them from air strikes but makes the nation vulnerable to focused ground attack. Combined attack therefore seems to be the wisest choice. The Naval forces are no less important for airpower. The aircraft carriers are vital for the airpower´s strategic ability to project power and to be a political tool of first choice.

The alpha and omega of helping the ground and naval forces underneath is the seizure of air dominance in the area of operations. As the case studies show, air dominance is absolutely vital to smooth running of the ground operations. Without it, one´s ground forces can be attacked at anytime from any direction by what proved to be a highly destructive asset – enemy airpower. Since the modern warfare did not see a clash of equal air forces, we can only discuss theoretically, how long and how costly could seizing air dominance be. In the presented case studies, the US Air Force or NATO air forces enjoyed both numerical and technological advantage and the result was appropriate to the gap. Both Serbian and Iraqi air forces were aware of their position and limited their operations to minimum and if they decided to take off and face their enemy, their aircraft were quickly shot down by technologically far superior interceptors. Although the ground-to-air systems were more successful in fighting the airpower, it was not nearly enough to prevent it from reaching air

dominance. The NATO guided missiles proved to be capable of destroying ground-to-air defense systems as well as the stealth aircraft proved to be able to evade them almost completely.

The case studies show that close air support to ground forces is an irreplaceable capability. In today´s world, the armies are getting smaller but more mobile and better equipped. Soldiers are no more the expendable conscripts. The trend is to produce highly trained professional warfighters, none of whom is to spare. The CAS air assets help to protect ground armies and significantly boost their performance in battle. The development of command and communication systems and precision guided weapons allows the soldiers on the ground to pinpoint the airpower attacks with accuracy never seen before. In today´s conflicts, CAS more than compensates for the smaller sizes of ground forces with its own firepower that even more destructive and, if properly used, can be as accurate.

Overall, the airpower is better used as a part of combined joint force. The combination of air, ground and possibly naval assets provides their user with variable and flexible force, making it hard for the enemy to adapt, which is to great benefit for airpower and the nation at war as a whole.

Is there a place for airpower in COIN operations? What is it?

The research conducted for this work showed that although not as prominent as in conventional conflicts, airpower became an important part of COIN strategy. The most valuable characteristic of airpower for counterinsurgency is its flexibility. In a country endangered by insurgency, the airpower´s logistical capabilities are often underappreciated and vital at the same time. In order to counter the insurgent´s ability to attack at unexpected time on unexpected location, the counterinsurgent forces require a mobile mean of transport that can help to amass sufficient force. This is where the airpower comes in. This advantage proved itself when coping with the Taliban and Al-Qaida insurgents in Afghanistan. The difficult terrain and ever-present threat of improvised explosive devices are only the biggest problems for ground transportation. Airpower overcomes these problems and also adds the possibility of CAS to ground units when needed.

The development of precision weapons helped to solidify the airpower´s position in COIN as it helped to transform airpower from a blunt instrument, almost worthless during kinetic mission of COIN, into a precise weapon that became widely used.

The ascendancy of UAV´s meant a small revolution in airpower´s ISR capabilities. Although specially equipped aircraft have had the ability to spy on insurgents long time before that, the UAV´s length of loiter above the area of operations allows the counterinsurgents to truly get to know their enemies, their behavior, habits, schedules etc.

The role of airpower in COIN is to support ground forces. Despite airpower´s flexibility, its characteristics do not allow it to influence the main task of COIN – winning the goodwill of population. And when the fighting occurs, an astute counterinsurgency commander must be aware that knowing when to use airpower is of same importance of knowing when not to use it. However, if used correctly, airpower can be a vital asset in COIN.

What is airpower´s position in modern warfare?

The debate about airpower´s superiority seems to be dwindling. Although, the studied conflicts show that airpower can bring results operating on its own, the main focus of American and NATO militaries is to integrate airpower together with other assets into a truly joint force, able to cooperate in a conflict as one subject. Airpower will continue to play the role of damage dealer, which tries to deny opponent´s ability to fight by attacking his center of gravity. Whether airpower will be able to coerce enemies is not clear and the results will change from case to case. Airpower will also continue to provide support to ground campaigns. This support will allow states to field smaller ground forces and to reduce casualties.

Most importantly, airpower will continue to be a political tool. After the end of Cold war, airpower´s position reached the position of nuclear weapons with the exception that airpower can actually be used in today´s world. It is engagement without full engagement. It is a show of power. It use of force but safe force. Here is why:

Airpower is destructive: The destruction that can one aircraft cause by using conventional weapons is astonishing. The state of some of the German cities after World War II showed us

that airpower does not need nuclear weapons. It might not be as spectacular but the result stays and paradoxically, the international community seems much more tolerant towards the same destruction by conventional bombs.

Airpower is flexible: Airpower can be used almost anywhere in the world and to almost any tasks. It can destroy targets. It can transport anything from tiny supplies to tanks. It can spy on people. It does not need roads. Since some time ago, it does not even need a pilot.

Airpower is safe: Compared to ground forces, airpower operates relatively uncontested. Aircraft can be shot down but the case studies showed that development of aircraft has outran the development air defense systems. The stealth technologies made aircraft invisible to the enemy. Furthermore, with UAV´s, the only loss registered is the loss of material, their pilots can sit thousands miles away.¨

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Position of Airpower in Contemporary Strategy

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Introduction

One of the basic definitions within the field of Strategic Studies is the definition of strategy itself. Strategy is the connection between means and ends. In today´s conflicts, airpower is certainly one of the most widely used means of all. It is also considered as one of the most important one´s – a unique combination of speed and firepower from a relative safety of high above. Attending one of his courses at University of Reading, I heard Professor Colin Gray to mention airpower as the most important Revolution in Military Affairs (RMA) of 20th century. The use of airplanes in military conflicts celebrates its 100 year jubilee. The airpower´s staggering progress has always closely followed the quick technological progress that humankind registered in the last century. From reconnaissance biplanes, strategic bombers, nuclear weapons carriers to stealth technology, high precision weaponry and Unmanned Aerial Vehicles (UAV). Throughout this journey, the theory and doctrine of airpower influenced the actual use of aerial assets in wars. Giulio Douhet, the first airpower thinker, saw the ascension of bombers as invincible and irresistible force with not only huge destructive but also psychological-based potential. The World War Two proved Douhet wrong, nevertheless airpower went to be a trusted way to go in developing and executing war plans.

If we look at contemporary conflicts, we can see that airpower enjoys an important role or even vital role in them and that military commanders and policy makers trust in it. We can also see that the highest-level strategic documents carry strong political messages and decisions. We have conflicts, which were by some of the actors waged exclusively by using airpower. In Kosovo, NATO launched a purely aerial bombing campaign in order to force its demands upon Serbian government. Although we are still waiting for data from the campaign against Gaddafi´s regime in 2011, we already know that airpower was very much involved. Another strategic issue of our time are the protracted conflicts and COIN operations. In these cases, we see the limits of purely airpower based strategies and must analyze how the airpower works with other military tools that are used on today´s battlefields. To analyze the position of airpower in contemporary strategy and conflicts we have to ask: What is the purpose of airpower in today´s military doctrine? How is it used in the actual conflicts? How is it used best?

Elaboration

- This work is a case study of 4 cases - Persian Gulf 1991 and Kosovo 1999 for strategic airpower and Afghanistan 2001 and Iraq 2003 as cases of protracted conflicts
- In the first part of the work I will summarize the evolution of airpower´s doctrine and the application of theories in conflicts.
- In the second part I will introduce the key theoretical concepts of current airpower theory as coercion, denial, strategic airpower, close air support, decapitation etc.
- In the third part I will focus on some grand-strategic attributes of airpower e. g. the state´s prestige coming from possession of airpower or airpower as a tool of policy
- In the fourth part I will focus on independent use of strategic airpower in Persian Gulf 1991 and Kosovo 1999, to accomplish this, I will consider the course of the conflict, combat statistics
- In the fifth part I will focus on airpower´s use in protracted conflicts of Iraq and Afghanistan and the relation towards other military means and services

In the cases of Persian Gulf War and Kosovo War in 1999, I will focus on the effects and impact of independent airpower campaigns during a conflict. The concepts such as coercion, deterrence, compellence or denial will help to discover the true role of airpower and clarify whether it is the actual material loss or morale and psychological effect that are the key product of the use of strategic airpower. The core of the analysis will be dependent on application of these modalities by analyzing their presence in the strategic documents and their actual exercise in the field. By examining the statistics and course of the conflicts, I will also evaluate the ability of airpower to cripple the enemy by attacking his economy, communications and leadership.

Later in the work, dealing with the protracted conflicts of Iraq and Afghanistan I will try to find out if these concepts are as well applicable and relevant in the type of conflict , where a synchronization with ground forces and population- centric approach is needed or if the only role of airpower is as supporting force dealing damage.

By the end of the work, I expect to be able to answer these questions:

- Is purpose of today´s airpower in coercing the enemy or denying his abilities?

- Does airpower work best on its own or in cooperation with other military assets?
- Is there a place for airpower in COIN operations? What is it?
- Does airpower fulfill the idea of the currently most important RMA and leading edge of strategic studies?
- How effective airpower was in actual conflicts?

Known weakness of the work is the fact that it is almost exclusively focused on the airpower use within the Western civilization, especially The Unites States. The reason for this is that this environment is the only one with suitable availability of data and suitable strategic culture for studying airpower.

Assumed structure

1. Introduction
2. Brief history of airpower
3. Key concepts
    - 3.1. Strategic airpower
    - 3.2. Close air support
    - 3.3. Coercion
    - 3.4. Denial
    - 3.5. Decapitation
4. Airpower in grand-strategy
    - 4.1. Prestige of airpower
    - 4.2. Airpower as political tool
5. Airpower In Persian Gulf
6. Airpower in Kosovo
7. Airpower in Afghanistan
8. Airpower in Iraq
9. Conclusion

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