Operation Iraqi Freedom
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1LT Sten Heinloo
General Jonas Žemaitis Military Academy of Lithuania
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1. Introduction

After the expiry of George W. Bush's announced 48-hour ultimatum, on the night of March 19 at 0300Z, 2003, Coalition Force Air Component Commander (CFACC) Lieutenant General T. Michael 'Buzz' Moseley and approximately 672 airmen forming the CAOC, situated at Prince Sultan Air Base in the Kingdom of Saudi Arabia, executed the 'D-Day' air tasking order (ATO) against the Ba'athist Party leadership [1]. This initiation, marked the formal beginning of the air power contribution to Operation Iraqi Freedom (OIF) "shock and awe" campaign, targeting the Ba'athist regime.

While OIF was confidently heralded by President Bush as the most swiftest and humane military campaigns in history, its questionable *casus belli* alienated US allies and divided US public support for the military action [2].

Rushed actions, with overconfident intelligence, regarding the whereabouts of Ba'athist leadership led to significant civilian casualties and collateral damage. In the *fog of war,* experienced in frictious urban ground combat, friendly mass-casualty cases occurred during close air support (CAS) missions.

Nevertheless, OIF exemplifies the validity of air power theories, such as Warden's Five Rings with parallel attack, Meilinger's Effects-Based Air Operations (EBAO), and Robert A. Pape's strategies for coercion and denial. The systematic identification of adversary

vulnerable key functions, coupled with the execution of aerial "manoeuvre warfare" mindset, and emphasis on joint ground force contribution, reflects the application of these theories in OIF [6].

Thus, this essay proposes that during OIF, ideas from Warden, Meilinger, and Pape proved essential in moulding the air campaign. The essay is organized into four parts: first, an overview of air operations; second, a description of relevant theories; third, a demonstration of how air activities align with the ideas of the chosen thinkers by highlighting some examples from widely broadcast events; finally, the author's assessment of the reflections and relevance of OIF.

2. Operation Iraqi Freedom

Between March 17 and 19, Combined Forces Special Operations Component Command (CFSOCC) teams deployed into western Iraqi deserts and northern Iraq. The elements in the north of Iraq acted as a force multiplier for local Kurdish militias by providing terminal guidance for nominated air interdiction (AI) and CAS targets. As a result, the Ba'athist military command was forced to divert a significant amount of combat power to those areas, instead of focusing on the south, where the Coalition Forces Land Component Command (CFLCC) main effort was staging and assembling available troops for a full-scale ground invasion into Iraq [4].

The Desert Storm experience demonstrated Iraqi leadership's tendency to scorched-earth tactics by igniting oil fields. Thus, some intelligence, surveillance, and reconnaissance (ISR) sorties were used to identify such attempts. Spectacularly, a confirmation through MQ-1 UAS full motion video broadcast instigated CFLCC movements 24 hours earlier than planned, to expedite the isolation of southern Iraq from Ba'athist reach, to avoid the destruction of Rumaila oil fields [5]. Despite these changes in synchronization, the air component proceeded with the original ATO for March 21 to 23, which marked an increase in the intensity of the air campaign. Over 1700 air sorties were executed, covering a wide range of aerial

missions, all over the Iraqi theatre of operations, such as offensive counter-air, strategic attack (SA), AI, and CAS [1]. From March 25 to 28, a sandstorm covered most of the theatre, significantly reducing visibility. Nonetheless, ISR platforms continued gathering intelligence with radars to continue interdictions against Iraqi troop formations. Adversaries at the receiving end, unaware of the all-weather capable ISR screening, mistakenly attempted to use weather as a masking tactic, yet still suffered attrition. Once the weather cleared, CFACC regained striking intensity and simultaneously influenced strategic, operational, and tactical targets, including Baghdad's critical infrastructure and the surrounding Republican Guard formations [5].

Starting from April, leveraging air supremacy, CFACC increased AI and CAS sorties to assist ground manoeuvre operations both operationally and tactically in the urban clearing efforts [5]. This facilitated the 3rd Infantry Division's (3ID) elements in synchronizing CAS and artillery strikes in support of high-risk "Thunder Runs" into Baghdad, which broke the Ba'athist resolve [5]

By April 9, the Ba'athist regime had fallen, and CFACC airlifts provided humanitarian aid for the population. Major combat operations were declared over by April 14. Throughout the campaign, the CFACC met no significant defensive counter-air effort, nor did Iraqi air defences achieve any notable success [1].

CFACC sorties continuously and nearly simultaneously delivered effects against Ba'athist regime targets throughout the Iraqi Theatre of Operations (ITO). Demonstrating both efficacy and flexibility during OIF. An attempt to explain the *raison d'être* behind such observations will be provided in the following section.

3. Relevant Airpower Theories

For planning air operations, USAF adheres to a Joint Planning postulate that emphasizes the importance of identifying the adversary's critical and targetable vulnerabilities. For identifying such vulnerabilities, AFDP advises the synthesized use of multiple

tools and techniques, such as CARVER methodology, models from Strange and Barlow, and Warden's Five Rings. Over-reliance on any single model should be avoided. Five Rings are praised for simplicity and are recommended for initial analysis, while others add nuance and prioritize critical vulnerabilities. For example, periodic reassessments through war gaming, particularly with the use of "red teams" were advised for avoiding static interpretations of the adversary [6]. Besides introducing a robust tool for mapping centres of gravity, Warden advocates for "parallel warfare", which aims to overwhelm the enemy as a system. This is achieved through simultaneous strikes across multiple vulnerabilities, each located in specific areas (Five Rings). With the advent of precision-guided munitions (PGMs), a parallel approach is a reality. With the capability to hit multiple times in a short period, the adversary can be denied recovery through dispersal, countermeasures, or repairs [7].

Additionally, Warden cautioned against the misleading focus on aggregate damage within the enemy system, emphasizing the importance of assessing the reaction to attacks. For instance, during Desert Storm, when 10 percent of all Iraqi power plants were destroyed, the ensuing blackout across Baghdad demonstrated that the desired operational outcome – disabling Iraq's power grid – was nearly 100 percent effective, rendering the planned destruction of the remaining power grid components unadvisable [8]. Therefore, assessment should be based on the achieved end state, from which adaptation of resources and tactics should fall in accordingly.

This approach was further developed by Meilinger, who coined this mindset as "effects-based air operations" (EBAO). This approach integrates mission planning, execution, and assessment into a unified process, ensuring flexibility and responsiveness to changing circumstances. For practicing the EBAO mindset, adaptation and reassessment must be continuous to ensure that each action is synchronized with the overall objectives. "Checklist mentality" of simply ticking off targeted objectives should be avoided, and vigilant anticipation of changes in battlefield conditions must be

professed. Therefore, mission-type orders, delegated decision-making to the lowest appropriate level of command to ensure timely execution, are encouraged [6].

In complement to Warden's and Meilinger's theories, Robert A. Pape's insight into denial strategies offers tangible solutions on how air power can contribute to ground-based fighting. Besides denial strategies, including strategic and operational interdiction and direct support, denial by decapitation is recommended for inflicting paralysis on national-level decision makers [9]. Every strategy can target all Warden's rings, besides the population.

Strategic interdiction is chosen when attrition is to be inflicted in a protracted war, aiming to indirectly influence the adversary's capabilities to maintain combat operations by striking at production or related economic fields [9]. Since OIF was pressured from the political level to be as swift as possible, there are no examples of strategic interdiction in practice. Therefore, CFACC provided sorties to assist CFLCC in defeating fielded forces, enabling the ground to be seized with minimal losses. To achieve this, Pape advised disrupting the ability to coordinate effectively and manoeuvre forces, or in other words, inflicting "operational paralysis" on the opponent. It is most effective when fronts are fluid, as it disrupts an adversary's ability to establish solid frontlines or launch counteroffensives [9]. While operational interdiction focuses on paralyzing an adversary's ability to manoeuvre. Pape also advocated for direct support, which can effectively weaken enemy frontlines by facilitating breakthroughs for ground forces.

Pape proposed that the purpose of the direct support strategy is to create a breach in the frontline, which the attacker's ground forces can exploit. Historically, breached areas tend to have concentrations of friendlies and hostiles facing one another, thus creating a situational proximity. When fronts are static, achieving breakthroughs is the only way to thwart the *status quo* without waging a costly war of attrition. In essence, adding extra firepower is a measure to create gaps or to decimate initial penetrations. In ideal

conditions, direct support is more flexible than a ground element to be concentrated in space and time, because of superior reach and better vantage point. For example, shifting effects between separate axes when supporting an offensive. From the defender's perspective, it's difficult to predict where the main effort will be breached. Once the front is penetrated and exploitation of rear areas follows, the front becomes fluid. Pape noticed a decrease in the effectiveness of CAS diverted to enable ground offensive efforts. Since rapid advances aggravate the distinction between friend and foe, which increases the risk of fratricide. Pape's suggestions to mitigate such situations are increased loitering time for synchronizing battle tracking between air and ground. In this case, if direct support is still being used, paradoxically, the intended operational paralysis will be suffered by the adversary and the friendly supported ground unit, since both sides are orienting toward stopping the effective movement of opposing reserve forces [9]. Since this situation happens in close proximity, it also impedes the attacker's momentum, because of increased coordination to differentiate friend from foe. Therefore, the priority should be to target the enemy's deep reserves. Because after a successful breakthrough, the defender seeks to exploit friendly force friction and re-establish a solid front with an operational reserve. Hence, the more advisable option is to switch back to operational interdiction.

Lastly, Pape highlighted the risks of decapitation strikes by stating that neutralizing enemy leaders is complex due to inherent security measures, which intensify during wartime. Attempts solely rely on timely and accurate intelligence. After the killing, decapitation rarely leads to significant policy shifts, as leadership succession is unpredictable. Additionally, modern telecommunications make it challenging to disrupt leadership communication because of possible backup measures. Nonetheless, Pape acknowledged that decapitation could weaken a regime's ability to communicate and monitor society [9]. This aspect can contribute as a cascade when the aim is to paralyse an enemy system through the denial of C2.

3.1. Key Theoretical Metrics

Theories chosen by CFACC were observable in their strategies for achieving a wide range of objectives, which were considered essential in collapsing organized resistance. The application of Warden's Five Rings and parallel attack, manifested in simultaneous and continuous strikes against the regime's "layers" is evident in publicized synchronization tables, which included cut-outs of air tasks [5]. Meilinger's EBAO mindset is encouraged in USAF doctrines and enabled through CFACC's C2 architecture, and the processes reflect adherence to it.

Pape's historical conclusions on the application of airstrikes for dealing with enemy leadership were nearly prophetic. Proof of valuing support to fielded forces on operational or tactical level is best reflected by the sheer volume of sorties diverted to targets nominated by CSOCC and CFLCC, which, depending on the situation, turned from strategic to operational or direct support roles. Pape's description of each role matches perfectly with current USAF doctrines for SA, AI, and CAS.

While these theories provide a robust conceptual framework for understanding modern airpower, their full utility can only be fully appreciated when examined in the context of real-world operations. The following section highlights OIF examples and how these strategies and principles were applied during the conflict.

4. OIF Case Studies: Theory in Practice

4.1. Decapitation Strikes

The CFACC task in suppressing the regime's ability to command and govern the defence of Iraq was organized by creating a time-sensitive target (TST) category; emerging TSTs were to be located from three target sectors. For managing TSTs, a whole cell was assembled to coordinate the re-roles of available sorties. TSTs were divided by CFACC operational objectives: WMDs, terrorists, and

leadership. Out of 156 TST executions, 50 were designated for neutralizing leadership [1].

Chief among them were done in the initial hours of OIF, follow-on strikes during and after Baghdad "Thunder Runs", all targeted at Saddam Hussein and his inner circle. Despite the lack of neutralizing effects, the decapitation strategy did disrupt Iraqi leadership and decision-making, contributing to the broader disarray of the Iraqi organized resistance. Also, Iraqi accounts confirm that these strikes did create psychological pressure on the regime. Ranging from Saddam doing excessive survivability movements, to the general erosion of fighting morale among Iraqi uniformed military personnel [12]. By April 6, the Ba'athist regime remained a patchwork of pockets of resistance, without effective coherence, with a dictator left to relocate after every 3 to 6 hours [12].

In Iraq's case, attempts to kill Saddam Hussein early in the campaign did not result in an immediate collapse of Iraqi military operations. Demonstrating Pape's point that decapitation strikes carry a significant level of uncertainty. In a way, that demonstrated certain resilience of the leadership structure and validated Pape's caution that decapitation might not usher in the immediate collapse of resistance. A severely degrading effect on Iraqi C2 cannot be denied.

4.2. Denial Strategy: Operational Interdiction

In OIF, a major contributing factor to the CFLCC ground invasion success was facilitated by AI. For CFACC, the established regional air campaign objectives were: facilitate advance for 3rd ID, protect eastern flanks of 1st Marine Expeditionary Force (MEF), and destroy Republican Guard divisions (RGD) in the vicinity of Baghdad [11].

Key targets for AI included Adnan, Al Nida, Baghdad, Hammurabi, Medina, and Nebuchadnezzar RGDs. Also, substantial AI effort was directed at regular Iraqi army units, such as the 6th, 10th armour divisions; the 1st, 5th, 15th, and 51st mechanized divisions; and the 11th, 15th, and 16th infantry divisions [14].

Starting from March 31, out of all the targets struck by CFACC sorties, 66 % were affecting Medina, Baghdad, and Hammurabi RGD-s. Hardest hit locations were at Karbala Gap, the AOR of Medina RGD southwest of Baghdad, and at Al Kut, the AOR of Baghdad RGD, all preparing to meet 5th Corps and 1st MEF. Within all those areas, all adversary formations were a part of the Baghdad defence belt. By April 1, a collective BDA concluded the following loss of effectiveness: Medina 35–65 %, Baghdad 20–40 %, and Hammurabi 10–30 %. Losses consisted primarily of command posts, armoured vehicles, and support equipment [14].

It was estimated that after a 7-day AI effort, all four RGDs close to the capital had been attrited to 30 % of their original strength. Lt. General Moseley described the outcome: "Republican Guard units outside of Baghdad are now dead… we're not softening them up, we're killing them" [14: 93]. Thus, this implies a lack of adversary potential for effective resistance against closing CFLCC elements.

The RGDs, Iraq's elite fighting formations, were decimated mostly through direct airstrikes without engaging the majority of CFLCC elements from prepared defensive positions [5]. In Pape's terms, since the frontlines were fluid because of significant distance, operational interdiction disrupted the adversary's ability to re-establish control over the frontline through blocking positions or counteroffensives, in some cases by inflicting catastrophic losses, and while the conditions for CFLCC's rapid advance towards Baghdad were maintained.

4.3. Denial Strategy: Direct Support

CAS provided assaulting CFLCC elements with the additional firepower needed for a breakthrough or suppression against Iraqi defensive positions. This need arose particularly in urban areas, such as Al Basrah, An Najaf, and An Nasiriyah, where the defenders had stalled frontlines. The exemplary effectiveness of CAS was demonstrated during the "Thunder Runs" into Baghdad, where CAS proved essential in targeting key defensive positions, destroying

Iraqi armour, and softening up enemy positions, enabling ground forces to bypass enemy positions.

The success of the "Thunder Runs" can be attributed in part to the coordination between air and ground forces, enhanced with air-delivered PGMs and blue force tracking. Those innovations enabled commanders to better control the fighting. Additionally, air-delivered PGM-s had a stand-off release distance, which permitted artillery and CAS support simultaneously, while minimizing collateral damage. Some aerial PGMs drops were time synchronized with infantry assaults, which instigated room clearing immediately after the blast. Therefore, it is safe to assume that PGMs significantly offset the advantages urban terrain conferred upon defenders [5]. Besides doctrinal and technical interoperability between components, multiple important CFLCC commanders appraised the embedded air liaison teams as a high-yield investment for creating actual relations between branches [5].

The CFACC CAS precision strikes, synchronized with CFLCC artillery, overwhelmed Iraqi defences and facilitated rapid armoured thrusts, eventually leading to the capture of the city [5]. Following the announcement of air superiority on April 6, CAS became available 24/7 over Baghdad, and this availability extended to CSOCC's western and northern elements the next day.

Besides the effective integration of air power, there was an instance where Pape's foresight of direct support hazards met real-life circumstances. On April 23, during the Battle of An Nasiriyah, a Marine battalion mounted on tracked amphibious APCs initiated a violent breakthrough through the defending paramilitary forces, and a company penetrated further into the northern boundaries of the town, across a major landmark named the Saddam Canal. The armoured element, although highly distinguishable from any of the local machinery, fell victim to friendly fire from CFACC A-10s. The CAS flight was rapidly re-tasked to answer the distress call from the same battalion. Generally, CAS aircrews are well-prepared for such missions, but such short notice isn't ideal for prudent SA, and not to mention fuel consumption. To make matters worse, the

ground staff constantly verified embedded CAS controllers to ensure that there were no friendlies across the dominating landmark, Saddam Canal.

Pape, in his descriptions, highlighted the potential for fratricide when the supported element advances at a rapid pace. Such frontline fluidity hampers the distinction between friendly and enemy forces. In the case of An Nasiriyah, the lack of loiter time for A-10s made fratricide risk mitigation impossible. Violating Pape's suggested rule of increasing loiter time to enhance SA, to ensure that air strikes were delivered accurately and in close synchronization with ground movements [11].

Ultimately, CAS provided all CFLCC and CFSOCC elements the upper hand over adversaries all across the ITO. Following USAF doctrine, CAS halted enemy attacks, created breakthroughs, covered movements and flanks of friendlies, and saturated defences [6: 8]. As the 5th Corps commander pointed out, "CAS proved decisive in assuring tactical victory and, on occasion, decisive in preventing tactical defeat" [5].

4.4. EBAO Enabled Parallel Warfare and Strategic Paralysis

During OIF, CFACC provided rapid and precise attacks in a seamless manner, by fighting at strategic, operational, and tactical levels. According to US Army analysts, this was the result of the maturation of jointness in doctrine and personnel [5]. While airborne, assets could change missions, ranging from engaging in decapitation strikes to attacking enemy formations in staging areas or close proximity to friendly forces. This inherent flexibility to change efforts under circumstances was noted by a Russian military observer, who specifically recognized the importance of appropriate technology behind this "new reality" of dynamic targeting [10].

Throughout the operation, CFACC provided a steady stream of sorties to achieve the Combined Forces Command's primary goals: defeat or compel the surrender of the Iraqi military and neutralize

regime leadership. Decapitation missions occurred from the "shock and awe" opening until the final hours of the regime, with a total of 50 executed by airstrikes [14]. Whilst, in parallel, adversary divisions were attrited before making contact with advancing CFLCC elements, and as soon as CFLCC was encroached in urban battles, the ever-increasing availability of CAS progressively manifested. Gradually, bringing forth the strategic paralysis needed for felling a regime.

According to OIF lessons identified, one of the technological pillars, yet not employed to its full potential, was the Joint Tactical Information Distribution System (JTIDS) data link, which connected decision makers and controllers in CAOC with the numerous flying air crews. This provided information exchange of aircraft positions, aircraft type, weapons loadout, playtime, and mission assignment [11: 161]. This facilitating networking technology influenced sortie planning and priority target execution in a manner that many ATOs had overlapping schedules, which provided continuous coverage of JDAM armed B-1s, for instigating effective re-tasking between SA, AI, or CAS missions [10].

For analysing all the appropriate data for targeting, dissemination, and coordination between ISR and attackers, the Time-sensitive targeting (TST) cell was used. This department of 25 handpicked personnel processed all available data for CAOC to make executive decisions [10: 20]. CFACC contribution was enhanced by a complex network of ISR and C2 technologies, chosen beforehand, to enable the EBAO approach. Once the infrastructure was prepared, it needed dedicated and well-prepared airmen, steered by mission command.

This characterization of seamless coordination between air and ground operations, ensuring that airpower was applied in all levels of warfare, was likely fostered by the EBAO mindset, which emphasizes the uniquely humane side of warfare, often involving unpredictable dynamics, where interactively complex and adaptive systems collide [6].

5. Conclusion

OIF demonstrated the efficacy of Warden's, Meilinger's, and Pape's foresight. Throughout OIF, the CFACC attempted to shape the conflict with decapitation via strategic strikes, operational interdiction via AI, and direct support via CAS. This simultaneous targeting of multiple critical vulnerabilities inflicted strategic paralysis on the regime's apparatus, additionally validating Warden's parallel attack across the Five Rings.

The imprint of the EBAO mindset is observable, from TST cell-assisted decision-making in CAOC to the exploitation of data links, such as JTIDS, when communicating with aircrews, ensuring continuous sortie adaptation to changing battlefield conditions.

Regardless of neutralization failures, adversary leadership experienced disruption in decision-making and morale loss due to the unpredictability of airstrikes, further illustrating Pape's and Warden's views on the ensuing paralysis that occurs when leadership is continuously targeted.

The attrition of RGDs, prior to CFLCC engagement, enabled a rapid advance towards Baghdad. For keeping momentum in urban battles, extra firepower from the sky was delivered "on-call". Ultimately, this was facilitated by the seamless coordination with airborne sorties, flexibly ready to conduct AI or CAS, regardless of their original missions. Rerolling decisions to change mission types based on frontline conditions showed the intrinsic value of the EBAO approach and Pape's considerations for balancing between tactical and operational striking.

In sum, OIF proved that modern airpower theories, when integrated with advanced technology and proper coordination, can swiftly defeat a targeted enemy system. Future leaders must study the technical details of OIF to master joint warfare, whether for prudent application or to devise countermeasures against it.

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