An Analysis of the Al Firdos Bunker Strike

A Monograph

by

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Abstract

An Analysis of the Al Firdos Bunker Strike, by MAJ Laneka A. West, 48 pages.

This monograph uses a case study approach to analyze the concepts of just war theory, the laws of armed conflict, airpower theory, and United States Air Force doctrine during the Gulf War. The case study focuses on the Al Firdos strike in downtown Baghdad, Iraq during Operation Desert Storm. This monograph seeks to answer the questions: how is war limited by considerations of collateral damage, just war theory, and the laws of war? How does the US account for these considerations? This monograph will test the theory that no matter how advanced weapons become, and how strictly states adhere to just war theory and LOAC, collateral damage can never be entirely eliminated. The answers to these questions will aid commanders and staffs in planning future operations with consideration to their impact on the civil environment.

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Abbreviations

AAF	Army Air Forces
AP1	Additional Protocol 1 of the Geneva Conventions
AP2	Additional Protocol 2 of the Geneva Conventions
C2	Command and Control
CDE	Collateral Damage Estimate
CENTAF	United States Central Command Air Forces
CENTAF/IN	United States Central Command Air Forces/Intelligence Section
CIA	Central Intelligence Agency
CNN	Cable News Network
COIN	Counterinsurgency
DDE	Doctrine of Double Effect
DDI	Doctrine of Double Intention
JSATRS	Joint Surveillance Target Attack Radar
HUMINT	Human Intelligence
IHL	International Humanitarian Law
LGB	Laser Guided Bomb
LOAC	Law of Armed Conflict
LSCO	Large Scale Combat Operations
PGM	Precision Guided Munition
RCS	Radar Cross Section
ROE	Rules of Engagement
UN	United Nations
UNSC	United Nations Security Council
US	United States
USAF	United States Air Force

Introduction

"American massacre in Baghdad," was the headline across the Arab world on the morning of February 13, 1991. [1] Earlier that day, in the pre-dawn hours of the morning, the United States Air Force (USAF) bombed a hardened facility in the Amiriyah neighborhood of Baghdad, Iraq. This targeted bombing was part of the Coalition strategic air campaign, aimed at compelling Saddam Hussein's forces to leave Kuwait. The USAF used newly developed F-117 Stealth bombers and precision-guided munitions (PGMs) to strike all targets in downtown Baghdad in an effort to avoid collateral damage. At the time of the strike, the Coalition was unaware that Iraqi civilians sheltered in the top floor of the bunker at night. According to United States (US) officials, the Al Firdos bunker was an Iraqi command and control facility whose wartime activity had been increasing in the weeks preceding the strike. Therefore, Al Firdos was a legitimate military target under the laws of armed conflict. The Iraqis disagreed, claiming the hardened facility was a civilian air raid shelter, the Amiriyah shelter, and that the US intentionally targeted noncombatants. Over 400 people died in the bombing, including women and children. A few short hours after the strike, reporters were on site as Iraqi emergency crews worked to remove their charred remains from the bunker.[2] Western media was transported to the site by the Iraqi Ministry of Information and for the first time during the conflict, were permitted to broadcast uncensored news reports. Since the war began, the Iraqis had been searching for a propaganda opportunity to turn world opinion to their favor. [3] What better opportunity than the charred remains of women and children? This was the first major collateral damage event of Operation Desert Storm.

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[1] Philip M. Taylor, *War and the Media: Propaganda and Persuasion in the Gulf War* (New York, NY: Manchester University Press, 1992), 188.

[2] Taylor, 169.

[3] Taylor, 169.

War causes immense human suffering and is, therefore, something that should be considered carefully from an ethical and moral perspective. War is inherently violent, and that violence is incredibly hard to limit or control. The just war tradition originated as a moral framework to guide ethical decision making in war.[4] Just war theory is divided into three categories: *jus ad bellum, jus in bello,* and *jus post bellum. Jus ad bellum* governs decisions to go to war. *Jus in bello* refers to a belligerent's conduct during the war.[5] *Jus post bellum* details ethical factors about how to end wars and post-conflict justice.[6] During combat, innocent civilians are often killed or maimed and civilian structures are destroyed. The US military defines collateral damage as "unintentional or incidental injury or damage to persons or objects that would not be lawful military targets in the circumstances ruling at the time."[7]

The Al Firdos bunker strike is a collateral damage event. It must be considered under the *jus in bello* criteria, as it occurred during war and military leaders made the targeting decision. *Jus in bello* criteria include discrimination and non-combatant immunity, proportionality, prohibited weapons, no means *mala in se*, and no reprisals.[8] Discrimination is the most crucial tenet and requires soldiers to distinguish between enemy combatants and non-combatants.[9] Though this idea seems very straightforward and easy to follow, it does not account for the real-world reality that legitimate military targets are often located in very close proximity to illegitimate civilian targets.[10] The Doctrines of Double Effect (DDE) and Double Intention (DDI)

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[4] David Fisher, *Morality and War: Can War Be Just in the Twenty-First Century?* (Oxford, UK: Oxford University Press, 2012), 4.

[5] Brian Orend, *The Morality of War* (Buffalo, NY: Broadview Press, 2013), 111.

[6] Orend, 185.

[7] Army Doctrine Publication (ADP) 1-02 US Department of the Army, *Terms and Military Symbols* (Washington, DC: Government Printing Office, 2016). p. 1-18.

[8] Orend and Martin, *The Morality of War*, 111–130.

[9] Orend, 112.

[10] Orend, 121.

aim to account for this reality by outlining criteria for targeting military objects that may cause foreseen civilian damage. According to DDE, military action can simultaneously have both a good effect and an adverse effect. The DDI requires not only that the good effect is achieved but also that the foreseeable adverse effect is reduced as much as possible.[11]

The laws of war, built from concepts of just war theory, aim to legally constrain the destructiveness of war. The conduct of war has always been constrained, whether internally or externally, which prevents its expression as Clausewitz's "absolute war."[12] According to him, increasing the moderation of violence inhibits a state's ability to achieve total war.[13] The contemporary laws of war are codified primarily through the Hague and Geneva Conventions. These, in conjunction with international norms, establish guidelines for conduct in war.

In an effort to fight just wars, states usually strive to limit collateral damage and noncombatant casualties because they are extraneous to the war effort. The United States goes to great lengths to avoid civilian casualties during war and is continually trying to improve its military execution, to make weapons more precise, cause fewer unintended consequences, and to limit unnecessary suffering. To this end, the United States has developed increasingly precise long-range weaponry. Though new technologies have significantly reduced the amount of collateral damage, they have failed to eliminate collateral damage events, as evidenced by the Al-Firdos bunker incident.

Methodology

This monograph uses a case study approach to analyze the concepts of just war theory, the Laws of Armed Conflict (LOAC), airpower theory, and United States Air Force doctrine

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[11] Michael Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, 4th ed (New York: Basic Books, 2006), 155.

[12] Carl von Clausewitz, Michael Eliot Howard, and Peter Paret, *On War* (Princeton, NJ: Princeton University Press, 1989), 373.

[13] Clausewitz, Howard, and Paret, 582.

during the Gulf War. The case study focuses on the Al Firdos strike in downtown Baghdad, Iraq during Operation Desert Storm. This monograph seeks to answer the questions: how is war limited by considerations of collateral damage, just war theory, and the laws of war? How does the United States account for these considerations? This monograph will test the theory that no matter how advanced weapons become, and how strictly states adhere to just war theory and LOAC, collateral damage can never be entirely eliminated. The answers to these questions will aid commanders and staffs in planning future operations with consideration to their impact on the civil environment.

Just War Theory and the Law of Armed Conflict

The morality of war and conflict has been deliberated for centuries. The concepts now considered just war theory originally evolved from the writings of religious scholars who were seeking reconciliation between the peace-loving ideals of religious dogma and the reality of armed conflict. Throughout history, just war theory has not been a fixed set of rules but is more of an ethical tradition that states use to guide decisions before, during, and after war.[14] It evolves to meet the current demands of warfare in the modern age, but the core principles remain the same.[15] The tradition acknowledges that armed force is sometimes necessary to gain a greater moral end, however, it seeks to limit human suffering in pursuit of that end.[16] War's violence nearly always causes unintended death or damage to civilians and their property. It is a widespread, long-standing belief that innocent people should be shielded from the horrors of war as much as possible.

The goals of just war theory are twofold: first, to limit the number of wars by restricting the reasons a state can go to war and second to limit the destructiveness of war.[17] Just war theory

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[14] Fisher, *Morality and War: Can War Be Just in the Twenty-First Century?*, 2.

[15] Fisher, 64.

[16] Fisher, 64.

[17] Orend, *The Morality of War*, 33.

considers all aspects of war: beginning, during, and after. Decisions to go to war are evaluated under *jus ad bellum* criteria. A belligerent's wartime behavior is considered under *jus in bello.* The newest addition to just war theory is *jus post bellum,* or just war termination. The three categories are morally linked but considered separately.[18] This distinction serves primarily to focus attention on the separate issues that arise when starting, conducting, and ending armed conflict. Since the categories are considered independently of each other, a just war can be fought unjustly, and an unjust war can be fought justly.[19] A state's aim should be to fight a just war, justly. If fighting an unjust war, the tradition encourages actors to conduct the war justly regardless.[20]

LOAC takes many of the principles of just war theory, mainly *jus in bello* criteria, from ethical guidelines and codifies them into international law. Military practitioners need to study just war theory because of this correlation with the laws of war.[21] LOAC is derived from these principle sources: international treaties, customary international law, and general principles. Sixteenth-century Spanish theologian Francisco de Victoria instructed Europeans on the ideological foundation of just war theory as a basis for LOAC's precursor, the Law of Nations. Those early writings caution against inflicting unnecessary harm in war by stating, "innocent folk must not be attacked if the object of the war can be attained without harming them; laborers should not be despoiled if victory can be attained without inflicting losses on them."[22]

In 1949, the Fourth Geneva Convention legally codified a belligerent's responsibilities to protect civilians and victims in war. This treaty also created requirements for occupying powers,

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[18] Orend, 111.

[19] Fisher, *Morality and War: Can War Be Just in the Twenty-First Century?*, 26.

[20] Fisher, 80.

[21] Orend, *The Morality of War*, 5.

[22] John Pawley Bate, "Translation of the Introduction by Ernest Nys," in *The Classics of International Law: Being Parts of Relectiones Theologicae XII By Franciscus de Victoria* (New York, NY: Oceana Publications, 1964), 93.

which include: ensuring civilians have sufficient sustenance and medical supplies, dictating rules for managing civilian internment camps, and prohibiting the mistreatment of occupied civilian populations.[23] At the time, the conventions did not address the ever-increasing firepower capabilities of militaries around the world and the correlating increased threat such firepower posed to civilians. There were unsuccessful attempts to control the indiscriminate nature of aerial bombing in international law.[24]

Since the implementation of the Geneva Conventions, International Humanitarian Law (IHL) has become even more focused on wartime civilian protection.[25] The Vietnam War increased the international appetite for increased civilian protection in war.[26] In 1977, two additional protocols were added to the Geneva Conventions. Additional Protocol I (API) expands the civilian protection requirements of the Fourth Geneva Convention.[27] Additional Protocol II (APII) applies to victims of non-international conflicts.[28] API has proven highly controversial due to the requirements it places on belligerents. API Article 52(2) defines a military object as an object "which by their nature, location, purpose, or use make an effective contribution to military action and whose total or partial destruction, capture, or neutralization, in the circumstances ruling at the time, offers a definite military advantage."[29] The United States additionally

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[23] Sahr Conway-Lanz, *Collateral Damage: Americans, Noncombatant Immunity, and Atrocity After World War II* (New York, NY: Routledge, 2006), 17.

[24] Conway-Lanz, 9.

[25] Tanisha M. Fazal, *Wars of Law: Unintended Consequences in the Regulation of Armed Conflict* (Ithaca, NY: Cornell University Press, 2018), 5.

[26] Hilaire McCoubrey and Nigel Dr. White, *International Law and Armed Conflict* (Brookfield, VT: Dartmouth Publishing Company, 1992), 222.

[27] H.L. Pohlman, *U.S. National Security Law: An International Perspective* (Lanham, MD: Rowman & Littlefield, 2019), 79.

[28] Pohlman, 79.

[29] "Article 52: General Protection of Civilian Objects," *Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977* (blog), 1977, accessed March 28,2020, https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/ART/470-750067?OpenDocument.

considers all war-sustaining objects to fit the category of military object.[30] API Article 57(2) requires belligerents to take increased precautions during attacks. These precautions include doing "everything feasible to verify that the objects to be attacked are neither civilian nor civilian objects" and refraining from "deciding to launch any attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof."[31] These are very strict and subjective precautions placed on a belligerent. Doing everything feasible can place unnecessary constraints on the attacker by excessively restricting his ability to target the enemy. Additionally, there is no clear metric to indicate when an attacker has met that threshold. Furthermore, incidental loss of life occurs in war and can be attributed to a mistake and not an intentional targeting. AP1 Article 58 implores belligerents to avoid locating military objects in the vicinity of civilian objects.[32] Protecting military objects by placing them near civilian objects to shield them from attack has long been a tactic of immoral belligerents. During Operation Desert Storm, the Iraqi Air Force parked military aircraft near historic sites and civilian neighborhoods in order to prevent Coalition targeting in those areas.[33]

At the time of this writing, neither the United States nor Iraq have ratified either protocol, but "many of the provisions of both protocols are binding on all states because they have achieved the status of customary international law."[34] The United States generally supports the

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[30] William H. Boothby and Wolff Heintschel von Heinegg, *The Law of War: A Detailed Assessment of the US Department of Defense Law of War Manual* (New York, NY: Cambridge University Press, 2018), 438.

[31] "Article 57: Precautions in Attack," *Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977* (blog), 1977, accessed March 28,2020, https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/Article.xsp?action=openDocument&documentId=50FB5579FB098FAAC12563CD0051DD7C.

[32] "Article 58: Precations Against the Effects of Attacks," *Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977* (blog), 1977, accessed March 28,2020, https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/ART/470-750067?OpenDocument.

[33] Fazal, *Wars of Law: Unintended Consequences in the Regulation of Armed Conflict*, 53.

[34] Pohlman, *U.S. National Security Law: An International Perspective*, 79.

principle on which API is based, but does not support the strict terminology in API.[35] For this reason, the United States has agreed to voluntarily adhere to the non-controversial provisions of AP1.[36] For civilian protection, the two most important tenets of just war theory and LOAC are the *jus in bello* concepts of distinction and proportionality.

Distinction is also known as non-combatant immunity. It requires combatants to distinguish between enemy combatants and non-combatants, targeting only the former and not the latter. Soldiers in war are judged on who gets killed and how.[37] This immunity is intended to relate to a person's wartime actions and protect the fundamental human rights of people in a conflict zone. Individuals who are directly engaged in military activities are targetable; those who are not direct participants do not deserve to be harmed by war's violence.[38] Humans have an inherent right not to be victims of unwarranted attack. That right is lost by those who bear arms effectively in the service of their state or cause but is retained by everyone else.[39] Categories of people who are historically in these protected classes include women and children; priests; old men; members of neutral tribes and states; and wounded or captured soldiers.[40] According to just war theorist Michael Walzer, soldiers who respect the tenet of distinction are not doing so from a contemporary humanitarian perspective, but rather from a traditional justness perspective.[41]

Combatants are required to make every reasonable effort to distinguish between legitimate and illegitimate persons and locations. Even if a civilian expresses statements of

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[35] Boothby and Heintschel von Heinegg, *The Law of War: A Detailed Assessment of the US Department of Defense Law of War Manual*, 439.

[36] McCoubrey and White, *International Law and Armed Conflict*, 257.

[37] Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, 22.

[38] Conway-Lanz, *Collateral Damage: Americans, Noncombatant Immunity, and Atrocity After World War II*, 4.

[39] Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, 145.

[40] Walzer, 43.

[41] Walzer, 135.

support for the adversary's side, they are not inherently dangerous to the opposing side. For this reason, no matter their internal attitude, they are protected from direct and intentional military attacks.[42] Enemy soldiers who have been taken as prisoners of war (POWs) and disarmed are also protected, as they no longer pose a threat to the opposing armed forces. Soldiers that deliberately kill civilian or surrendered enemy soldiers are acting immorally.[43]

Conceptually, the idea of distinction is easy to understand. A combatant targets only locations and people which have the ability to cause him harm. The reality of warfare makes distinction difficult in practice. In the real world, noncombatants are frequently endangered because they are near military battles or legitimate military targets. Rarely are wars fought in the middle of oceans or deserts. More often, wars are fought on land, where people live. Additionally, some belligerents intentionally locate legitimate military targets in close proximity to civilian areas. This proximity is intended to shield the legitimate military targets from the opposing side.

Proportionality is the second key *jus in bello* tenet related to civilian protection. This version of proportionality differs from the *jus ad bellum* version by mandating that combatants use only proportionate force against legitimate targets.[44] Rather than being about the war as a whole, this rule is about specific tactics used in war. Henry Sidgwick, a leading utilitarian theorist, concludes that it is not "permissible to do any mischief which does not tend materially to the end [of victory], not any mischief of which the conduciveness to the end is slight in comparison with the amount of the mischief."[45] In essence, the military must weigh the benefit to be gained by an action against the amount of "mischief" or damage that will result from it.

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[42] Orend, *The Morality of War*, 119.

[43] Orend, 114.

[44] Orend, 125.

[45] Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, 129.

Proportionality is a difficult concept to apply because it is very subjective. From Sidgwick's perspective, any action which leads more quickly to victory is likely permissible and, therefore, proportionate. It is, after all, a soldier's duty to do their utmost to win the wars they are sent to fight.[46] However, this duty does not entitle militaries to do anything necessary to win. Proportionality, in conjunction with discrimination, requires militaries to attempt to calculate the effects of their actions before taking those actions. Often, judgments that actions were not proportionate occur in the aftermath of especially destructive military actions, which result in a significant amount of collateral damage. States have increasingly turned towards relying on technology to meet their moral requirements of discrimination and proportionality.

Trying to reconcile these dilemmas gave rise to the Doctrine of Double Effect (DDE). The concept of DDE originated by Catholic theorists during the Middle Ages.[47] DDE provides militaries with an ethical way to continue to target legitimate military targets, even if they foresee causing civilian death or destruction in the process. Under DDE, a military action is considered ethical if it meets the following criteria according to Walzer:

> 1. The act is good in itself or at least indifferent, which means, that it is a legitimate act of war.
> 2. The direct effect is morally acceptable – the destruction of military supplies, for example, or the killing of enemy soldiers.
> 3. The intention of the actor is good, that is, he aims only at the acceptable effect; the evil effect is not one of his ends, not is it a means to his ends.
> 4. The good effect is sufficiently good to compensate for allowing the evil effect; it must be proportional.[48]

Therefore, DDE justifies military action insofar as it is governed by a single intention, directed at the military objective and not at civilians. The notable just war theorist, Michael Walzer, fears that DDE provides a "blanket justification" for militaries to do whatever they want in war, no

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[46] Walzer, 129.

[47] Walzer, 152.

[48] Walzer, 153.

matter the number of civilians they kill.[49] DDE only requires militaries to meet the requirement

of proportionality, which is extremely subjective and open to interpretation.

For this reason, Walzer further expanded the concept of DDE into the Doctrine of Double

Intention (DDI). Under this concept, militaries are not excused from reducing the foreseeable evil

effect at much as possible. Walzer's DDI modifies point three above to read:

> 3. The intention of the actor is good, that is, he aims narrowly at the acceptable
> effect; the evil effect is not one of his ends, not is it a means to his ends, and
> aware of the evil involved, he seeks to minimize it, accepting costs to himself.[50]

Walzer's statement that forces must "accept costs to [themselves]"[51] raises important

questions about the principle of risk and whether a military should put its soldiers or mission at

risk with the sole intention of protecting civilians. Critics of this notion argue that individual

soldiers cannot use risk as a guiding principle for their actions on the battlefield. To do so would

require soldiers to neglect their duties, oblige soldiers to go beyond what is required of their

position, and would inherently challenge and undermine the military chain of command.[52]

Soldiers have a duty to their comrades not to unduly jeopardize their safety.[53] Therefore, it stands

to reason that an individual soldier cannot purposefully deviate from a mission if to do so would

increase the risk to the military force. This is the case whether or not more civilians would be

spared due to the deviation. These decision-making constraints clearly exist at the tactical level of

war. For this reason, decisions about DDE and DDI must be made at the operational and strategic

level of war, at levels where commanders are empowered to make targeting decisions.

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[49] Walzer, 153.

[50] Walzer, 155.

[51] Walzer, 155.

[52] Cheryl Abbate, "Assuming Risk: A Critical Analysis of a Soldier's Duty to Prevent Collateral Casualties," *Journal of Military Ethics* 13, no. 1 (2014): 71.

[53] Abbate, 71.

DDI is closely related to Walzer's "due care" principle, which requires that "tactics and maneuvers must be carefully planned, in advance, with a keen eye towards minimizing casualties."[54] Due care places the moral burden on the targeting force to employ only well-trained personnel, to gather sufficient intelligence, and to plan carefully to prevent collateral damage as much as possible.[55] Other interpretations of the due care principle require a belligerent to provide advanced warning to civilians in a targeted area prior to hostilities. For example, an armed force might decide to target a location in a residential area, as what occurred at Al Firdos. The targeting force can publicly declare its intent to attack, stating that any civilians in the area after a specific time are accepting personal risk to stay. This warning would certainly alert the enemy forces as well. It may provide them time to relocate or escape with valuable military equipment, but it would also lower the probability of collateral damage in such a high probability area like a residential neighborhood.[56]

The Promise of Airpower

Airpower especially has promised the ability to minimize collateral damage while increasing the lethality and accuracy of military targeting. Airpower is a crucial technological development that has fundamentally changed the way states prosecute wars.[57] Giulio Douhet, an early airpower theorist, surmised that control of the air would be critical in future conflicts because the country which controlled the air would also control the ground.[58] Airpower would introduce a hugely destructive force on the battlefield, which would have the added benefit of

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[54] Orend, *The Morality of War*, 123.

[55] Orend, 123.

[56] Orend, 123.

[57] Phillip S. Meilinger, *Paths of Heaven: The Evolution of Airpower Theory* (Maxwell Air Force Base, AL: Air University Press, 1997). xi.

[58] Giulio Douhet, *The Command of the Air*, ed. Richard H. Kohn and Joseph P. Harahan, trans. Dino Ferrari, USAF Warrior Studies (Washington, DC: Office of Air Force History, 1983), 9–10.

psychologically affecting a nation's will to resist.[59] The ability to strike behind enemy lines, deep

in the heart of enemy territory, now subjects a state's whole population to the horrors of war.

Early bombing techniques were not very precise and often subjected noncombatants to death and

destruction. Military targets were located amid civilian areas, making aerial discrimination

difficult and sometimes impossible. Some people believed that it was acceptable to target

noncombatants precisely because they helped fuel a state's ability even to make war in the first

place.[60] Douhet implied that using these indiscriminate techniques was morally just because it

would make wars quicker and consequently less deadly and destructive.[61]

      During the interwar period, the concepts of strategic bombing began to emerge.[62] At the

US Army's Air Corps Tactical School in Maxwell Field, Alabama, airmen began developing

doctrine which emphasized high-altitude precision bombing on an enemy's industrial centers.[63]

Though they considered strategic bombing to be precision bombing, it was not very precise and

would cause massive destruction in the vicinity of the intended target.[64] Army Air Force (AAF)

planners knew that civilians would fall victim to these attacks, but felt the strategic bombing

concept was justified as long as civilians were not the direct target.[65] They also believed strategic

bombing was a more efficient way to conduct warfare, and like Douhet before them, they

believed it would speed an end to the war.[66] The AAF's plan coincided with the ethics of DDE,

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[59] Douhet, 20.

[60] Jean Bethke Elshtain and David E. DeCosse, eds., *But Was It Just? Reflections on the Morality of the Persian Gulf War* (New York, NY: Doubleday, 1992), 4.

[61] Douhet, *The Command of the Air*, 20.

[62] Meilinger, *Paths of Heaven: The Evolution of Airpower Theory*. xviii.

[63] Meilinger. xviii.

[64] Conway-Lanz, *Collateral Damage: Americans, Noncombatant Immunity, and Atrocity After World War II*, 11.

[65] Conway-Lanz, 10.

[66] Conway-Lanz, 10.

that foreseen civilian collateral damage is justified as long as the target is solely military in nature.

During the Second World War, British and American air strategies had differing but complementary Douhet-like air strategies in the European theater. The Royal Air Force primarily employed indiscriminate night area bombing aimed at destroying the enemy's will.[67] Indiscriminate bombing is not in accordance with just war theory and DDE because it inherently cannot distinguish between combatants and civilians. The AAF pursued daylight offensive bombing against military and industrial targets aimed at destroying the enemy's means to fight.[68] In the Pacific theater, the AAF's strategic bombing plan against military and industrial targets was not very effective.[69] These strategies were necessary given that bombers of the time were not very accurate and required more ordnance to ensure a target was destroyed.[70] As the war went on, the AAF used increasingly indiscriminate bombing methods as the Second World War went on, based on untested beliefs that targeting civilians would hasten the end of the war.[71] There is evidence that though leadership in Washington desired so-called "terror bombing," AAF leaders on the ground resisted this method of warfare as long as possible.[72] Towards the end of the war, American air power was demolishing cities and killing thousands of civilians in both the European and Pacific theaters with area bombing.[73]

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[67] Conrad C. Crane, *American Airpower Strategy in World War II: Bombs, Cities, Civilians, and Oil* (Lawrence, KS: University Press of Kansas, 2016), 1.

[68] Crane, 1.

[69] Crane, 4.

[70] Crane, 4.

[71] Conway-Lanz, *Collateral Damage: Americans, Noncombatant Immunity, and Atrocity After World War II*, 11; Crane, *American Airpower Strategy in World War II: Bombs, Cities, Civilians, and Oil*, 6.

[72] Crane, *American Airpower Strategy in World War II: Bombs, Cities, Civilians, and Oil*, 6.

[73] Conway-Lanz, *Collateral Damage: Americans, Noncombatant Immunity, and Atrocity After World War II*, 11.

In 1945, the United States firebombed several key Japanese cities with a combination of napalm and high explosives, causing unprecedented collateral damage.[74] Napalm was a new chemical incendiary which proved extraordinarily destructive and difficult to control. The goal of the bombing was to force Japan to surrender. As the American population became aware of the tactics that were used against the Japanese population, primarily women, babies, and the elderly, concerns were raised on how the military would be able to control the violence.[75] The firebombing was not enough to cause Japan to surrender. America then used atomic weapons at Hiroshima and Nagasaki. The destructiveness of the atomic weapons and the collateral damage they caused was impossible for Americans to ignore.[76]

Americans had to face the hard reality: US weapons were indiscriminately killing noncombatants. These actions contributed to a post-war reevaluation of the international norm of non-combatant immunity.[77] According to Harvard historian Sahr Conway-Lanz, challenging this norm brought international and domestic condemnation from segments of the population.[78] Others viewed these actions as necessary and the cost of going to war. These actions caused many Americans to question their perception of themselves as humane people from a humane nation.[79] America's international reputation was harmed, a reputation that was necessary to aid in gaining allies as the Cold War began.[80]

Following World War II, the United States attempted to reconcile the ideals of non-combatant immunity with the increasingly destructive weapons of war.[81] In the 1950s, with

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[74] Conway-Lanz, 1–2.

[75] Conway-Lanz, 2.

[76] Conway-Lanz, 92.

[77] Conway-Lanz, 2.

[78] Conway-Lanz, 211.

[79] Conway-Lanz, 2.

[80] Conway-Lanz, 2.

[81] Conway-Lanz, 19.

newly adopted international laws governing wartime civilian protection, the United States

decided to reinterpret traditional noncombatant immunity by focusing on an actor's intentions to

determine an action's legality and morality.[82] According to this interpretation, as long as

noncombatant death or damage was unintentional, it was merely a tragedy of war and not a

violation of international law.[83] Only planned, intentional harming of noncombatants was

condemned.[84]

This reinterpretation satisfied the American people, who were accepting of harm to

noncombatants, so long as it was not purposeful.[85] This reinterpretation also satisfied the

conditions of DDE. Americans also embraced the development of new technology as a way to

minimize and mitigate collateral damage. Modern technology allows armies to increasingly

discriminate on the battlefield.[86] For many, technology is considered a cure for the problems of

morality in war. Based on the idea that war can be refined and suffering in war can be limited,

new technology gives the promise of targeted, discriminate killings while mitigating collateral

damage.

With these goals in mind, in the early 1950s the USAF began developing precision

conventional munitions.[87] Traditional bombs are ballistic-drop weapons which follow a

mathematically probable course once dropped. Precision guided munitions (PGMs), whether

laser- or optically-guided, would have aerodynamic control surfaces and a sophisticated guidance

system intended to seek out a target as a high-speed homing weapon.[88]

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[82] Conway-Lanz, 20.

[83] Conway-Lanz, 20.

[84] Conway-Lanz, 20.

[85] Conway-Lanz, 22.

[86] Elshtain and DeCosse, *But Was It Just? Reflections on the Morality of the Persian Gulf War*, 4.

[87] Richard Hallion, *Storm Over Iraq: Air Power and the Gulf War*, Smithsonian History of Aviation Series (Washington, DC: Smithsonian Institution Press, 1992), 304.

[88] Hallion, 303.

In 1965, the USAF started the Paveway program to develop a laser-guided bomb (LGB). In 1968, the first LGBs went to Vietnam to help solve the challenge of destroying North Vietnamese bridges.[89] They were not available when the United States began its bombing campaign of North Vietnam in 1965, Operation Rolling Thunder, which aimed to put pressure on the communist government of the north to stop supplying Vietcong guerrillas in South Vietnam.[90] Rolling Thunder was a graduated-escalation air campaign. If the North Vietnamese supported the Vietcong, they would be bombed.[91] If they withheld support, the bombing would stop.[92] If they did not, the bombing would escalate until (theoretically) they did.[93]

During the Vietnam War, LGB operational testing results were mixed, yet more than 50 percent of the bombs dropped scored direct hits. Analysts determined that LGBs could consistently hit within 20ft of an aiming point.[94] This success rate was significantly higher and more accurate than conventional bombing. Afterward, the USAF sought to develop even more sophisticated and precise LGBs, which could achieve the goal of one bomb, one kill.[95]

In the late 1970s, USAF Colonel John A. Warden emerged as a leading airpower theorist. Following the US strategic defeat in the Vietnam War, Warden emphasized a refocusing of airpower usage on strategic targets and conventional war.[96] Warden was very critical of the graduated air campaign in Vietnam and instead advocated rapid, "shock and awe" campaigns to

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[89] Hallion, 303.

[90] Ivan Rendall, *Rolling Thunder: Jet Combat from World War II to the Gulf War* (New York, NY: The Free Press, n.d.), 127.

[91] Rendall, 130.

[92] Rendall, 130.

[93] Rendall, 130.

[94] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 304.

[95] Hallion, 305.

[96] Meilinger, *Paths of Heaven: The Evolution of Airpower Theory*. xxiv.

quickly gain air superiority.[97] He visualized society as a series of concentric rings with enemy leadership in the center.[98] Enemy leadership made the decisions for war or peace and targeting it would speed the conflict to an end.[99] These targeting priorities, when utilizing PGMs, would make air war more efficient and effective.[100] Operation Desert Storm allowed Warden to translate his theories into the strategic air campaign, which was employed in the war against Iraq.[101]

In addition to increasing a bomb's accuracy, the USAF sought to reduce the actual airframe's radar signature. Radar Cross Sections (RCS) are the "apparent size of an aircraft as it appears to search and fire control radars, and has absolutely no relationship to the actual physical cross section of an airplane."[102] If the USAF was able to drastically reduce an airplane's RCS, then an enemy's air defense network would be rendered useless.[103] A so-called "stealth" aircraft would generate such a low-radar signature that it would be impossible for an enemy to detect it until it was too late.[104] Such an aircraft would be able to deliver its ordnance without enemy interference, therefore increasing its ability to accurately strike its target with a single pass and minimize the chance for collateral damage.

In November 1978, Lockheed began developing a stealth bomber, designed to attack deep behind enemy lines.[105] The F-117 Stealth entered service in 1983 and had limited operational use in Panama.[106] The new bomber was really put to the test during the Gulf War.

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[97] Kenneth P. Werrell, *Death From the Heavens: A History of Strategic Bombing* (Annapolis, MD: Naval Institute Press, 2009), 286.

[98] Meilinger, *Paths of Heaven: The Evolution of Airpower Theory*. xxiv.

[99] Meilinger. xxiv.

[100] Werrell, *Death From the Heavens: A History of Strategic Bombing*, 286.

[101] Meilinger, *Paths of Heaven: The Evolution of Airpower Theory*. xxv.

[102] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 293.

[103] Hallion, 293.

[104] Hallion, 293.

[105] Hallion, 293.

[106] Hallion, 293.

The F-117 consistently achieved tactical surprise over the Iraqis and assured United States air superiority.[107] The F-117 used PGMs and fed the American belief that technological prowess would shorten wars and minimize the risks of ground combat.[108]

However, increasingly long-range weapons extend the battlefield well beyond the range that reliable and timely intelligence can be collected.[109] These deep targets can only be detected by air- and space-borne systems, which are customarily controlled at the theater or national level.[110] Additionally, supporting Human Intelligence (HUMINT) is usually not available for such deep targets. These limitations on deep targeting make precise rules of engagement (ROE) and targeting doctrine critical when attacking deep targets.

US Military Doctrine and Rules of Engagement

In the early 1980s, the US Army and USAF signed onto one of the most important strategic concepts of the Cold War – AirLand Battle.[111] This concept directed commanders to "look beyond the troops immediately to their front and influence the enemy's rear through the combination of ground and air power."[112] AirLand Battle was explicitly designed to combat the Cold War threat of a Warsaw Pact conventional invasion of Western Europe. Though the Chief of Staff of the Air Force committed to the new doctrine in 1983, the Air Force as a whole never fully embraced the ideas of AirLand Battle.[113] From their perspective, airpower should be employed

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[107] Department of the Air Force, "Air Force Performance in Desert Storm" (Department of the Air Force, April 1991), 3.

[108] Toshiyuki Tanaka and Marilyn Blatt Young, eds., *Bombing Civilians: A Twentieth-Century History* (New York, NY: New Press, 2009), 178.

[109] Alan D. Campen, ed., *The First Information War: The Story of Communications, Computers, and Intelligence Systems in the Persian Gulf War* (Fairfax, VA: AFCEA International Press, 1992), 52.

[110] Campen, 53.

[111] Raphael S. Cohen, *Air Force Strategic Planning: Past, Present, and Future*, Research Report, RR-1765-AF (Santa Monica, CA: RAND Corporation, 2017), 18.

[112] Cohen, 18.

[113] Cohen, 18.

for strategic, theater targets, not solely in support of ground force maneuver as recommended by AirLand Battle.[114] During the Gulf War, the US military fought under the doctrine of AirLand Battle. However, the USAF proved its value as an independent service, capable of creating strategic effects on its own, deep in enemy territory.

These strategic effects were achieved while adhering to strict Rules of Engagement (ROE). ROE are created for each military operation and are intended to balance the legal, operational, and political considerations of the use of military force.[115] ROE outline the authorized escalation of force procedures, the authorized weapons and ammunition which can be employed, and dictate which level of command withholds specific types of targeting authority. Political decision-makers first developed the concept of established ROE during the Cold War as a way to "restrict military efforts to avoid unnecessary provocation and to prevent escalation into nuclear confrontation with the Soviet Union."[116]

It is prevailing US policy that military forces will act in accordance with the LOAC. ROE adds to the United States's preexisting LOAC obligations and further restricts the use of force to prevent collateral damage incidents.[117] The ROE during the Gulf War was derived in conjunction with the targeting plan. The Central Command Air Forces (CENTAF) Commander, Lieutenant General Horner, established a strike cell comprised of planners, judge advocate lawyers, and logisticians.[118] The strike cell categorized targets into five categories: 1) command and control (C2) centers; 2) air defense systems; 3) military depots, chemical and biological weapons labs, factories, and other military infrastructure; 4) military airfields, military ports, and

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[114] Cohen, 19.

[115] Per Marius Frost-Nielsen, "Bringing Military Conduct Out of the Shadow of Law: Towards a Holistic Understanding of Rules of Engagement," *Journal of Military Ethics* 17, no. 1 (2018): 21.

[116] Frost-Nielsen, 23.

[117] Frost-Nielsen, 30.

[118] John Norton Moore, *Crisis in the Gulf: Enforcing the Rule of Law*, Terrorism, 2nd ser., 1st v (New York, NY: Oceana Publications, 1992), 161.

interconnecting bridges and roads; and 5) the Republican Guard.[119] After determining the military

necessity of each target, the team decided what level of damage was required for each target.[120]

The level of damage required then dictated the type of ordnance and aircraft which could be used

to affect each target.

It was an unprecedented air plan, focused on using technological advancements in air

power to conduct precision strikes aimed solely at military targets.[121] The bombs were "smart"

and the pilots were given strict orders to return to base with their bombs and missiles intact if they

were unable to get a clear fix on assigned targets.[122] This policy was in clear contrast to previous

wars in which it was common for pilots to drop all of their ordnance before returning to base.

Pilots were also not permitted to drop bombs in the general vicinity of targets but were instead

given precise targeting guidance which usually stipulated "not merely hitting particular buildings

or shelters, but a particular portion of a building or shelter – for example, a corner, a vent, or a

door."[123] If a pilot missed the designated location but still hit the targeted structure, the sortie

would count as a miss, not a hit.[124] Lastly, pilots were not permitted to aim freely at targets of

opportunity outside of specified battle zones; they were only allowed to hit planned targets.[125]

These measures were all created to limit civilian casualties and display clear distinction between

legitimate military targets and civilians. American officers who discussed the air war described it

in terms that emphasized how the technological innovations paired with the restricted ROE would

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[119] Moore, 161.

[120] Moore, 161.

[121] Elshtain and DeCosse, *But Was It Just? Reflections on the Morality of the Persian Gulf War*, 12.

[122] Elshtain and DeCosse, 12.

[123] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 177.

[124] Hallion, 177.

[125] Elshtain and DeCosse, *But Was It Just? Reflections on the Morality of the Persian Gulf War*, 12.

fulfill civilian protection requirements in accordance with just war theory and international law.[126]

Case Study of the Al Firdos Strike

Following the defeat in the Vietnam War, the United States wanted to distance itself as much as possible from counterinsurgency (COIN) and refocus on large scale combat operations (LSCO).[127] This same trend is occurring today following the protracted COIN-focused wars in Iraq and Afghanistan. At the time, military officials thought that the best way to avoid another defeat like Vietnam was to avoid any of the "mistakes" that they believed caused the U.S. to lose the war in the first place, namely military restrictions that prevented the full weight of the American military from being used against the enemy.[128] The Weinberger Doctrine, enacted in the early 1980s under President Reagan, codified these military restrictions into six principles to decide when and how to use military force in pursuit of national interests.[129] When General Colin Powell became the Chairman of the Joint Chiefs of Staff in October 1989, he reemphasized the Weinberger Doctrine principles and added the necessity for a plausible exit strategy and the requirement that all other non-violent policy means should be fully exhausted before employing military force.[130] In the future, America should only go to wars that involved vital US interests, when forces would be committed with the full intention of winning, and with the support of the American population and Congress.[131]

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[126] Elshtain and DeCosse, 12.

[127] Tanaka and Young, *Bombing Civilians: A Twentieth-Century History*, 168.

[128] Tanaka and Young, 168.

[129] Gail E. S. Yoshitani, *Reagan on War: A Reappraisal of the Weinberger Doctrine 1980-1984* (College Station, TX: Texas A&M University Press, 2012), 113.

[130] Luke Middup, *The Powell Doctrine and US Foreign Policy*, Military Strategy and Operational Art (Surrey, UK: Ashgate Publishing Limited, 2015).

[131] Tanaka and Young, *Bombing Civilians: A Twentieth-Century History*, 168.

The Gulf War presented this opportunity for the US military. In 1990, Iraqi forces invaded Kuwait. The world was outraged at this use of force of a strong military against a weak state. The United Nations (UN) responded with a series of increasingly potent resolutions, the tenth of which authorized the use of military force to expel Iraq from Kuwait.[132] An allied Coalition formed under the command of the United States to carry out this mandate. The UN authorization fulfilled the competent authority requirement of *jus ad bello* and Operation Desert Shield began. Operation Desert Shield was primarily a deterrence operation with the following military objectives:

> 1. Develop a defensive capability in the Gulf region to deter Saddam Hussein from further attacks;
> 2. Defend Saudi Arabia effectively if deterrence failed;
> 3. Build a militarily effective Coalition and integrate Coalition forces into operational plans; and, finally,
> 4. Enforce the economic sanctions prescribed by UNSC Resolutions 661 and 665.[133]

Operation Desert Shield lasted until January 17, 1991, at which point it became clear that the increased Coalition military presence in Saudi Arabia would not be enough to force Saddam to withdraw his forces from Kuwait. On January 17, Operation Desert Shield became Operation Desert Storm and the Coalition initiated war with an air attack. The United States sought to fight a quick and decisive campaign, aimed at rapidly overwhelming Iraqi forces with planes, tanks, technology, manpower, and will.[134] Washington gave senior commanders on the ground wide latitude in determining their battle plans and targeting priorities. They viewed this as "total war;" a stark departure from the "limited, constrained, one-hand-tied-behind-the-back experience of Vietnam."[135]

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[132] Fisher, *Morality and War: Can War Be Just in the Twenty-First Century?*, 68.

[133] United States, ed., *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Department of Defense, 1992), 33.

[134] Tanaka and Young, *Bombing Civilians: A Twentieth-Century History*, 168.

[135] Tanaka and Young, 169.

In the Gulf War plan, airpower would "soften up" Iraq before the start of the ground war.[136] In 1998, Colonel John Warden, the Pentagon's lead Air Force planner, developed a "five rings" concept of air warfare in which war could be won by "aerial bombing raids with non-nuclear weapons against key centers of gravity in the enemy homeland or in the field if attacks deep in enemy territory were not feasible."[137] Operation Desert Storm allowed Warden the opportunity to test his theory, so he developed a strategic bombing campaign called Instant Thunder that would target Iraq's infrastructure: electrical power, communications, transportation, and sources of energy.[138]

The air war was planned in three phases. Phase one focused on gaining air superiority and preventing Iraqi interference with Coalition air operations. Phase two aimed at destroying Saddam's strategic assets, including nuclear, biological, and chemical weapons and modified Scud-B *Al-Hussein* missiles. Phase three targeted Iraqi command and control networks.[139] All air targets were extensively screened by the Pentagon's general counsel's office for approval. It expressly prohibited targeting landmarks that represented Saddam's power but were not militarily necessary, including a triumphal arch celebrating Iraq's proclaimed victory over Iran in the eight-year's-war, and a massive statue of Saddam in downtown Baghdad.[140]

The three phases of the air war began nearly simultaneously and not sequentially as initially planned. The first five weeks of the war were fought almost exclusively with planes and

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[136] Tanaka and Young, 168.

[137] Michael R. Gordon and General Bernard E. Trainor, *The Generals' War: The Inside Story of the Conflict in the Gulf* (Boston, MA: Little, Brown and Company, n.d.), 78.

[138] Tanaka and Young, *Bombing Civilians: A Twentieth-Century History*, 169.

[139] Thomas B. Allen, F. Clifton Berry, and Norman Polmar, *War in the Gulf*, 1st ed (Kansas City, MO: Turner Pub. ; Andrews & McMeel, 1991), 126.

[140] Colin L. Powell and Joseph E. Persico, *My American Journey* (New York, NY: Ballantine Books, 2003), 496.

missiles.[141] The United States employed extensive space and intelligence assets during the war. The newly developed Joint Surveillance Target Attack Radar System (JSTARS) was fielded to meet joint requirements outlined in AirLand Battle doctrine.[142] Rivet Joint reconnaissance aircraft collected real-time intelligence for theater and tactical commanders.[143] Space assets enabled a fully secure communications network, gave early warning of Scud missile launches, and provided a highly accurate navigation system.[144] These assets commanded and controlled the air war and provided real-time target identification, making the Gulf War the first space-supported war.[145]

However, these highly advanced technical assets did not provide the United States with perfect military intelligence, an area that was an issue throughout the war. From a technical perspective, a majority a Coalition communication systems largely lacked the capacity to "handle data-intensive photographs; they were technically incompatible with each other and could not exchange data; or they lacked connectivity to lower level combat units (divisions and below, airfields and ships afloat)."[146] From a personnel perspective, CENTAF Intelligence (CENTAF/IN) was utterly overwhelmed by the quantity of data they had to process daily. Operating from Saudi Arabia, intelligence personnel did their best to fuse information from

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[141] Elshtain and DeCosse, *But Was It Just? Reflections on the Morality of the Persian Gulf War*, 12.

[142] Thomas Swalm, "Joint STARS in Desert Storm," in *The First Information War: The Story of Communications, Computers, and Intelligence Systems in the Persian Gulf War* (Fairfax, Va: AFCEA International Press, 1992), 167.

[143] Campen, *The First Information War: The Story of Communications, Computers, and Intelligence Systems in the Persian Gulf War*, 65.

[144] Sir Peter Anson and Dennis Cummings, "The First Space War: The Contribution of Satellites to the Gulf War," in *The First Information War: The Story of Communications, Computers, and Intelligence Systems in the Persian Gulf War* (Fairfax, VA: AFCEA International Press, 1992), 121.

[145] Department of the Air Force, "Air Force Performance in Desert Storm," 10.

[146] Campen, *The First Information War: The Story of Communications, Computers, and Intelligence Systems in the Persian Gulf War*, 14.

various systems into timely, actionable intelligence.[147] Demands for imagery collection and

dissemination were over four times higher than anticipated.[148] The technical collection methods

also increased the classification level of the intelligence, making it more difficult to

disseminate.[149] It was not uncommon for intelligence to be outdated by days so that by the time it

was acted upon, and the plane was over the target, the enemy was no longer there.[150] These issues

aside, Coalition commanders received intelligence support at far greater levels than what had

been provided to commanders in any previous conflict.[151]

The weather was the next major issue for the air war. Weather in Baghdad was twice as

severe as the reported averages.[152] Cloud cover significantly impacted the ability of pilots to

positively locate targets, including the F-117 Stealth bombers which were exclusively used

against targets in downtown Baghdad.[153] Poor weather also hindered the collection of post-strike

Battle Damage Assessments (BDA). Without accurate BDA, air planners did not know if effects

were being achieved or if a target needed to be re-attacked.[154]

The last major issue that hindered the air war was the threat posed by Iraq's modified *Al-*

Hussein Scud-B missiles. On January 18, Iraq responded to the start of the Coalition air war by

firing Scud missiles on Israel and Saudi Arabia. Saddam's willingness to endanger civilian lives

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[147] James R. Clapper Jr., "Desert War: Crucible for Intelligence Systems," in *The First Information War: The Story of Communications, Computers, and Intelligence Systems in the Persian Gulf War* (Fairfax, VA: AFCEA International Press, 1992), 82.

[148] Richard G. Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, The USAF in the Persian Gulf War (Washington, DC: Air Force History and Museums Program, 2002), 224.

[149] Davis, 224.

[150] Adrian R Lewis, *The American Culture of War: The History of U.S. Military Force From World War II to Operation Enduring Freedom* (New York, NY: Routledge, 2018), 341.

[151] Campen, *The First Information War: The Story of Communications, Computers, and Intelligence Systems in the Persian Gulf War*, 51.

[152] Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 223.

[153] Allen, Berry, and Polmar, *War in the Gulf*, 136.

[154] Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 223.

through the indiscriminate use of Scud missiles contrasted sharply with the Coalition's measures to minimize civilian casualties.[155] The Scud threat increased the Coalition targeting prioritization against the missiles. Allied search and attack sorties successfully destroyed most of the fixed Scud launchers on the first day, but finding Iraq's large number of mobile Scud launchers required more resources than initially anticipated.[156] Iraq hid a majority of the mobile launchers in civilian neighborhoods during the day to shield them from Coalition targeting.[157]

The strategic air campaign exclusively employed F-117 Stealth bombers armed with PGMs or cruise missiles to attack downtown Baghdad in order to avoid collateral damage. As planned, targets included Iraq's strategic weapons facilities, its command and control infrastructure, and air defense network. Early in Operation Desert Shield, an Iraqi defector provided information that Saddam had hired foreign contracting companies to build underground bunkers to protect his family and friends.[158] The Central Intelligence Agency (CIA) used satellite imagery to identify the bunkers.[159] The United States also consulted some of the contractors who built the shelters to locate the hardened structures.[160] Over forty-five key Baghdad targets, including underground command and control bunkers, were destroyed leaving the Saddam regime blind on the battlefield with little awareness of the developing situation.[161] Since their primary command bunkers were destroyed, Saddam and his generals were forced to command the fight from secondary command bunkers, private homes, and mobile command vehicles.[162]

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[155] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 196.

[156] Allen, Berry, and Polmar, *War in the Gulf*, 136.

[157] Allen, Berry, and Polmar, 136.

[158] Richard Smith, "America at War," *Newsweek Commemorative Edition*, 1991, 44.

[159] Smith, 44.

[160] Allen, Berry, and Polmar, *War in the Gulf*, 136.

[161] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 190.

[162] Allen, Berry, and Polmar, *War in the Gulf*, 136–37.

By all accounts, PGMs worked as advertised. There was a perception that the air war was a bloodless, precision battle which only destroyed military targets.[163] This was reinforced by the Pentagon releasing pictures and videos of smart bombs that were successful, though they never released imagery of those that did not work.[164] This was the first war in which enemy targets were consistently destroyed with a single, well-placed bomb, rather than area bombing entire neighborhoods, towns or cities with hundreds of bombs.[165]

There was so little collateral damage in Baghdad at the beginning of the war that Iraqi propagandists went to great lengths to create false narratives of civilian death and destruction. One of the most notable fabrications occurred on January 22 when Peter Arnett, Cable News Network's (CNN's) resident reporter in Baghdad, was taken to see the bombed-out ruins of what the Iraqi's claimed was a baby-milk factory. Allegedly, the factory had been the sole source of powdered infant formula in the country.[166] There was a large sign, in English, proclaiming "baby-milk factory" at the ruins. Arnett also observed numerous intact cans of British powdered milk at the site, though the British manufacturer later stated that the product was "not suitable for babies."[167] American officials quickly disputed the Iraqi claims stating that the factory was actually a biological weapons facility.[168] The USAF said the facility was camouflaged, surrounded with barbed wire, and garrisoned – all features which are unnecessary for a civilian factory.[169] Moreover, Iraqi officials had initially downplayed the bombing run on the factory until

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[163] Tanaka and Young, *Bombing Civilians: A Twentieth-Century History*, 169.

[164] Smith, "America at War," 74.

[165] Smith, 74.

[166] Smith, 44.

[167] Roy Braybrook and Dennis Baldry, *Air Power: The Coalition and Iraqi Air Forces* (London: Osprey, 1991), 58.

[168] Smith, "America at War," 84.

[169] Braybrook and Baldry, *Air Power: The Coalition and Iraqi Air Forces*, 58.

they decided it would have propaganda value if spun to look like the Coalition was intentionally targeting civilian infrastructure which had no military function.

America's skill in avoiding civilian casualties was called into question in the fifth week of the war after a strike in the Amiriya neighborhood of east Baghdad. Early in the morning on February 13, at 4:30 am local time, two F-117 Stealth planes bombed the Al-Firdos bunker, each aircraft dropping one case-hardened penetrating 2,000-lb LGB.[170] The munitions performed flawlessly, flattening the shelter in one pass with two direct hits while leaving the surrounding civilian neighborhood untouched.[171] The bombs penetrated the bunker and set it ablaze.

The Al-Firdos bunker was built in the early 1980s by a Swedish company during the Iran-Iraq War.[172] According to US officials, the bunker was upgraded to a command and control center in the late 1980s.[173] It was located in the heart of the Amiriya neighborhood, located near a school, a mosque, and a recreation center.[174] At the time of the strike, the Coalition was unaware that Iraqi civilians also sheltered in the top floor of the bunker at night.

When day broke, the Iraqi Ministry of Information transported Western correspondents to the scene.[175] Significantly, for this incident, Western media was allowed uncensored and unrestricted reporting from Iraq.[176] The carnage was terrible to behold as Iraqi emergency crews worked to remove charred remains from the bunker.[177] The Iraqi government claimed that the tragedy at Al Firdos was another example of the brutal and indiscriminate allied air campaign.[178]

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[170] United States, *Conduct of the Persian Gulf War: Final Report to Congress*, 141.

[171] Smith, "America at War," 74.

[172] Allen, Berry, and Polmar, *War in the Gulf*, 140.

[173] Allen, Berry, and Polmar, 140.

[174] Allen, Berry, and Polmar, 137.

[175] Taylor, *War and the Media: Propaganda and Persuasion in the Gulf War*, 169.

[176] Taylor, 169.

[177] Taylor, 169.

[178] Taylor, 169.

Since the war began, the Iraqis had been searching for a propaganda opportunity to turn world opinion to their favor and this incident fit their desired narrative.[179]

CNN's correspondent Peter Arnett broke the story first.[180] Early news reports estimated that upwards of 500 people were killed in the bombing, possibly even as many as 1,000 people.[181] Reaction to the strike was mixed in the Arab world. In non-Coalition countries, the bombing was touted an 'American massacre in Baghdad.'[182] In Arab Coalition countries, Saddam Hussein was blamed for using civilians as shields and placing military infrastructure in the heart of residential areas.[183] In the Western world, the real horror of the morning's events was never fully broadcasted, for fear the pictures were too grotesque and graphic.[184] As a result, Western public support for the war was not significantly impacted by this unfortunate event.[185] This was the first time in the war that Western audiences received a report on the civilian impact of the war, which had not been censored by Iraqi minders.[186]

Western official reaction to the bombing was not immediate.[187] Just over five hours after CNN first broke the story, Brigadier General Richard Neal, the Deputy Commanding General for Operations at US Central Command, addressed the incident in the daily press briefing at Riyadh, Saudi Arabia.[188] General Neal emphasized that despite the bunker's unknown dual-use nature, it was a legitimate military target.[189] It had a camouflaged roof, a chain link and barbed wire

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[179] Taylor, 169.

[180] Taylor, 189.

[181] Taylor, 188.

[182] Taylor, 188.

[183] Taylor, 188.

[184] Taylor, 188.

[185] Taylor, 189.

[186] Taylor, 189.

[187] Taylor, 193.

[188] Taylor, 194.

[189] Taylor, 194.

perimeter, and armed guards who controlled access to the facility.[190] In addition to the bunker's physical reinforcements, it had upgraded communication equipment and shielding to protect that equipment from an electromagnetic pulse which results from nuclear explosions.[191] These features were not found in comparable civilian air raid shelters in the area. According to US intelligence, in the two weeks preceding the strike, the bunker had become more active as a command and control facility as indicated by electronic monitoring.[192] Reconnaissance photos allegedly depicted military vehicles and personnel active at the bunker, though the Pentagon would not publicly release the pictures because then "the Iraqis (and presumably other enemies) would know just how good [US] intelligence was."[193]

Journalists on the scene did not wholly agree with the military's position that the bunker was a military target. For many, they did not see evidence of military equipment at the site, nor did they find evidence of military personnel.[194] A Swedish engineer from the company who originally built the bunker claimed that each of the bunkers had a civilian shelter on the top floor and a communications center underneath.[195] *Newsweek* reported that Allied intelligence had identified the bunker as a shelter for Saddam's family, friends, and the family members of senior Baathist party officials.[196] Some American officials unofficially commented that the strike was intended as a warning shot to Saddam.[197] Saddam had stayed there during the Iran-Iraq war and,

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[190] Allen, Berry, and Polmar, *War in the Gulf*, 140.

[191] Allen, Berry, and Polmar, 140.

[192] Taylor, *War and the Media: Propaganda and Persuasion in the Gulf War*, 194.

[193] Smith, "America at War," 86.

[194] Taylor, *War and the Media: Propaganda and Persuasion in the Gulf War*, 198.

[195] Braybrook and Baldry, *Air Power: The Coalition and Iraqi Air Forces*, 58.

[196] Smith, "America at War," 62.

[197] Smith, 86.

given the state of the Iraqi command and control infrastructure in mid-February 1991, there was a chance Saddam himself could have been in the bunker at the time of the strike.[198]

Though neither side could agree if the site was a bunker or a shelter, both sides confirmed that Al-Firdos was hit by allied aircraft. The strike killed approximately 400 civilians, including women and children. Only 15 people survived the strike. The military-bunker versus civilian-air-raid-shelter issue was never resolved.[199]

Findings and Analysis

Just War Theory and the Laws of Armed Conflict Analysis

Did the United States violate the LOAC and the ethical principles of distinction and proportionality when it struck the Al Firdos bunker? Despite the fact that neither belligerent were signatories of API, by 1991 the protocols in API were widely accepted as customary international law. In accordance with API, American responsibilities to innocent Iraqi civilians were limited to protecting them as much as reasonable from becoming victims of war. The United States largely acted in accordance with API Article 57 with taking increased civilian precautions during attacks, based on the intelligence they had available. Contemporary reporting found that the Coalition air campaign did not cause significant civilian hardship in Baghdad, because its precision spared civilian objects.[200] In contrast, the Iraqis had a practice of intentionally placing legitimate military targets in dubious locations that were in close proximity to civilians which violated API Article 58. The United States knew of this Iraqi technique and did not target legitimate military targets which fell into this category to avoid collateral damage. Additionally, the Government of Iraq did not take routine air-raid procedures for its population. Saddam made no efforts to

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[198] Smith, 86.

[199] Allen, Berry, and Polmar, *War in the Gulf*, 140.

[200] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 198.

evacuate Baghdad and air-raid shelters were only available for less than one percent of Baghdad's citizens.[201] When compared with Iraq's considerations of its own population, the United States went to much greater lengths to prevent collateral damage.

It is indisputable that the strike killed innocent civilians who are a protected class under the LOAC. In the case of Al Firdos, the United States had no prior knowledge that the facility had dual use as a civilian air raid shelter. When analyzing this case against the requirements of DDE and DDI, again the strike is a valid attack against a military target. The facility met the API definition of military object in that its nature and purpose made a contribution to Iraqi military action. The United States successfully met its intent of only destroying the C2 bunker, leaving the neighboring residential area untouched. An active C2 bunker controlling enemy forces meets the military necessity threshold and is a legitimate military target. The United States narrowly intended the destruction, as required by DDI, by using precision weaponry on the target. It does not appear that the United States accepted any additional costs or risks, as recommended by Walzer, to prevent collateral damage. The United States followed the same procedures it had been using in the countless other precision strikes conducted in Baghdad, relying on technology to minimize collateral damage. In doing so, the United States followed the principles of DDE but not DDI.

If the United States had known ahead of time that the bunker was sheltering civilians, and made DDE calculations, it does not seem likely that the benefit of destroying the command and control bunker would have been proportionate with the horror of intentionally killing 400 civilians. However, some of the post-strike media reporting does raise some troubling questions about the foreseen effects and intentions of the strike. If the United States knew civilians were sheltering at Al Firdos, whether those civilians were Baathist family members, friends of Saddam,

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[201] United States, *Conduct of the Persian Gulf War: Final Report to Congress*, 614.

or local civilians, and struck the site as a so-called "warning" to Saddam, the morality and legality of the strike would be called into question.

Two additional points that raise concerns about the moral validity of the strike are due care and intelligence. Since the United States knew that Al Firdos was located in a neighborhood, should they have taken the extra precaution, prior to the strike, to notify the residents of the area that a strike was coming? Though this may have given the Iraqis time to move the command and control equipment to a different location, it would have potentially prevented the catastrophic event that happened. Had the United States decided on a moderate approach of notifying all residents of Baghdad that Iraqi command and control locations would be targeted with aerial bombardment, that might have been enough to warn civilians to stay out of locations meeting that description and prevent this tragedy. Notifying residents before the strike would have met Walzer's DDI criteria of the US military accepting some risk to itself to increase civilian protection. The air war had strict rules of engagement meant to protect civilians and prevent collateral damage. Though the first studies following the war did indicate that on some occasions ordnance was dropped from too high of an altitude to ensure accurate bombing, this was not the case with the F-117 and the bombing runs in Baghdad itself.[202] The US's bombing precision, provided by the F-117 and PGMs, did not compel USAF planners to take additional risk under DDI as they felt that collateral damage was unlikely. Saddam did not make discrimination easy, with his frequent use of civilian locations as shields to protect military targets. That being said, the strategic air campaign overall displayed an unprecedented level of discrimination by destroying numerous military targets precisely, without inflicting massive civilian casualties.[203]

The next question that needs to be answered is: What is the reasonable amount of intelligence the United States should have had about this target before striking it? As the United

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[202] Elshtain and DeCosse, *But Was It Just? Reflections on the Morality of the Persian Gulf War*, 12.

[203] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 190.

States knew the bunker was located in a civilian residential neighborhood, should that knowledge alone have required a more deliberate intelligence collection process to verify the structure's use? During the air war, the United States relied on technical intelligence collection methods, including JSTARS and signals intelligence. The United States had no publicly acknowledged human intelligence in Baghdad. Though technical intelligence provides the distinct advantage of being able to collect intelligence from afar, the primary disadvantage is that it does not always provide a clear picture of the situation on the ground. From the air, the bunker had a singular, military use. The reality on the ground proved much different. The bunker's location in a residential area should have required increased scrutiny from the USAF targeteers. When striking a location in an area where civilians are known to be present in large amounts, a more detailed CDE should be completed as the probability of civilian death is much higher. It does not appear that the Al Firdos bunker target was analyzed with any additional considerations despite its residential location.

The F-117 and PGMs

Did advanced technology have the intended effect of reducing collateral damage? The F-117 performed brilliantly throughout the conflict. It was used to strike the most heavily defended targets in the most populated areas.[204] Though the F-117s flew only two percent of attack sorties throughout the war, they destroyed 40 percent of all strategic targets.[205] The bomber's effectiveness and accuracy was an order of magnitude better than American bombing during

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[204] US Department of Defense, "Appendix T: Performance of Selected Weapon Systems," in *Conduct of the Persian Gulf War: Final Report to Congress* (Washington, DC: Department of Defense, 1992), 74.

[205] US Department of Defense, 74.

World War II.[206] It demonstrated accuracy "unmatched in the history of air warfare" throughout 1,300 combat sorties, 2,000 tons of bombs, and 6,900 flight hours.[207] The F-117's high rate of accuracy had the intended effect of limiting collateral damage, particularly in densely populated areas of Baghdad.[208] However, the high rates of accuracy may have given planners unwarranted faith in the ability of the bomber. This dependence can lead to overreliance in the ability of the airframe and a correlated lack of detailed planning on the target. In the case of Al Firdos, the F-117 had shown extraordinary effectiveness in the five weeks preceding the strike. This effectiveness may have caused planners to accept the target at face value and fail to consider the dense population that surrounded the bunker. If either bomb had missed the target by even a small margin, the level of foreseen destruction would have increased immensely.

Rules of Engagement Analysis

Did the ROE, as planned and employed, adequately protect Iraqi civilians and minimize collateral damage? The CENTAF strike cell's decision to create ROE that only permitted the F-117 to bomb targets in Baghdad limited collateral damage as indicated above. Precision targeting makes BDA challenging to gather. The reason is precision targeting on buildings or hardened facilities can leave a relatively small entry hole on the surface with little indication of damage caused on the interior.[209] For this reason, assessments of Iraqi losses were commonly overestimated or underestimated.[210]

The Iraqi Government's policy of intentional commingling civilian objects with military objects put their citizens at unnecessarily increased risk.[211] The Coalition's awareness of these

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[206] Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 195.

[207] Department of the Air Force, "Air Force Performance in Desert Storm," 3.

[208] US Department of Defense, "Appendix T: Performance of Selected Weapon Systems," 74.

[209] United States, *Conduct of the Persian Gulf War: Final Report to Congress*, 343.

[210] United States, 343.

[211] United States, 613.

devious practices saved many innocent Iraqis from being targeted. This fact is borne out by the data. The strategic air campaign "accumulated a total of 109,876 sorties over the 43-day war, an average of 2,555 sorties per day. Of these, over 27,000 targeted Scuds, airfields, air defenses, electrical power, biological and chemical weapons, headquarters, intelligence assets, communications, the Iraqi army, and oil refining."[212] Of all the sorties, the Al Firdos strike was the only one that called into question the allies targeting abilities. Analysts estimate that less than 3000 Iraqi civilians total were killed during the entire air war, with the Al Firdos incident accounting for approximately thirteen percent of the total civilian death.[213]

Conclusion

Today, the site of the Al Firdos bunker strike is a memorial for all of the civilians killed in the attack. It is perceived as a symbol of Western aggression in the Middle East. Controversy still surrounds the circumstances of the attack. Until the intelligence documents that led to the strike are declassified, it is unlikely that all of the questions surrounding the incident will be answered.[214] A question that will never be answered is why civilians were sheltering in the facility in the first place. The bombing campaign had been going on for over four weeks and by that point Iraqi civilians understood that the Coalition was conducting a precision campaign and they were relatively safe at home.[215] A CENTAF/IN officer suggested after the war that civilians might have been sheltering at Al Firdos because it was one of the few facilities that still had power in Baghdad at that point in the war.[216] If so, that was an unforeseen consequence of the earlier Coalition bombing runs that destroyed the Baghdad power grid.

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[212] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 188.

[213] Edward C. Holland III, "Fighting With a Conscience: The Effects of an American Sense of Morality on the Evolution of Strategic Bombing Campaigns" (Maxwell Air Force Base, AL, School of Advanced Airpower Studies, 1992), 1.

[214] Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 273.

[215] Davis, 275.

[216] Davis, 275.

The bunker's location in a densely populated area is not technically was a violation of API Article 58. Though the Coalition was using precision weaponry, there should have been additional considerations before authorizing the strike since the probability of collateral damage was very high. With the increase in cyber threats, the United States is looking at options to locate tactical operations centers closer to populated areas to mask the electronic signals. Would decisions to do that increase the harm and danger for civilians living nearby? Likely, the answer is yes. If the United States began employing such a tactic, it might call into question the validity of such a tactic from a morality perspective.

The United States over-relied on space and signal intelligence when deciding to strike the bunker. Just war theory requires armies to field capable and trained soldiers who can make intelligent targeting decisions. This highlights the inherent weakness in long-range precision targeting. Without HUMINT on the ground, providing another dimension of the environment, the United States was unaware of the hundreds of civilian lives they were about to take. The United States should have verified who was in the bunker, before striking it, to minimize the potential for collateral damage. Without HUMINT, to complement other intelligence collection methods, the United States is likely to make these types of mistakes again in future conflicts.

Finally, the US intentions in conducting the strike have been called into question. According to the official statements, the United States bombed Al Firdos because it was a command and control facility, and therefore a legitimate military target. Media reports and off-the-record comments differ from that account. Journalists who were on the scene shortly after the strike reported seeing nothing that resembled a military bunker at all. Some alleged off the record comments give the impression that it was well known that the bunker sheltered civilians (though they were Baathist family members and Saddam's friends) and the strike was a warning to Saddam.[217] If that is the case, the strike was illegal and immoral. Though killing Saddam Hussein

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[217] Smith, "America at War," 86.

was never formally an objective of the air war, the Air Force flew 260 missions against Saddam's suspected locations. [218] It is possible that Al Firdos was just another attempt to kill the Iraqi President.

This tragedy affected the strategic direction of the air campaign for the rest of the war. Senior military officials in Washington severely curtailed bombing in Baghdad following the negative publicity that resulted from the strike. [219] Additional targeting restrictions were imposed on CENTAF and targets in downtown Baghdad were prohibited. [220]

There are many lessons to be learned from this incident. Bombing Al Firdos was a strategic blunder that could have been avoided with better intelligence. The United States was fighting an enemy keen on disinformation campaigns, which should have increased the caution CENTAF exercised before bombing targets in locations with a high probability of collateral damage. Moral and legal questions about proper conduct in war are especially crucial for democratic nations that require national public support to prosecute wars. Democratic armed forces, especially all-volunteer forces, require assurances that their actions are supported by international law and are done in accordance with guiding moral and ethical principles. [221] Political leaders sending soldiers into battle, to risk their lives and take others' lives, must convince them that their cause is just, and the cause of their enemies unjust. [222] Without these assurances, the cohesion of the military and the support of the population diminish. In this instance, the United States was fortunate that public support for war only temporarily wavered, but overall held firm. [223] It is possible that if the US population had seen the uncensored images

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[218] Lewis, *The American Culture of War: The History of U.S. Military Force From World War II to Operation Enduring Freedom*, 340.

[219] Hallion, *Storm Over Iraq: Air Power and the Gulf War*, 199.

[220] Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 276.

[221] Fisher, *Morality and War: Can War Be Just in the Twenty-First Century?*, 21.

[222] Elshtain and DeCosse, *But Was It Just? Reflections on the Morality of the Persian Gulf War*, 2.

[223] Davis, *On Target: Organizing and Executing the Strategic Air Campaign Against Iraq*, 276.

depicting the full extent of the death and destruction caused at Al Firdos, then public support for the Gulf War would have been lost. Public support is critical for the United States to fight and win wars, so it must be carefully guarded. Al Firdos also teaches that long-range precision weapons do not replace morality on the battlefield. Mistakes happen. People that should be protected get killed by accident. Technology alone cannot eliminate collateral damage in warfare.

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